



1st ACPES' CONFERENCE 2015 (5th AUCPESS' CONFERENCE)

Enhancing the Quality of Services
in Physical Education, Health and Sport
for a Better Future

September 15th – 18th, 2015

Semarang – Central Java, Indonesia

<http://acpes2015.unnes.ac.id>

ISBN 978-979-19764-4-2



PROCEEDING INTERNATIONAL CONFERENCE OF ASEAN COUNCIL OF PHYSICAL EDUCATION AND SPORT (ACPES) 2015: ENHANCING THE QUALITY OF SERVICES IN PHYSICAL EDUCATION, HEALTH AND SPORT FOR A BETTER FUTURE

Sports Science Faculty, Semarang State University, Indonesia

Sports Science Faculty, Semarang State University, Indonesia
F1 Building, Sekaran Campus Gunungpati Semarang City, Indonesia 50229
Email: acpes2015@mail.unnes.ac.id
Website: www.acpes2015.unnes.ac.id
Telp./Fax.: +6224 8508007

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of the Sports Science Faculty, Semarang State University, Indonesia.

First published in September 2015

Editor : Taufiq Hidayah, Moch Fahmi Abdulaziz, Mohammad Arif Ali, Nadia Sitaresmi, Lukman Fauzi

Layout : Lukman Fauzi

Cover design : Tandiyo Rahayu

Library cataloguing in Publication Data:

Proceeding International Conference of Asean Council of Physical Education and Sport (ACPES) 2015: Enhancing The Quality of Services in Physical Education, Health And Sport for A Better Future published by the Sports Science Faculty, Semarang State University, Indonesia – includes bibliographical references I. Series ISBN: 978-979-19764-4-2

Distributed by:

Sports Science Faculty, Semarang State University, Indonesia
F1 Building, Sekaran Campus Gunungpati Semarang City, Indonesia 50229
Email: acpes2015@mail.unnes.ac.id
Website: acpes2015.unnes.ac.id
Telp./Fax.: +6224 8508007

WELCOME MESSAGE

On behalf of Semarang State University (Unnes), I take great pleasure in welcoming you to our first conference of Asean Council of Physical Education and Sport (ACPES) in 2015. We are privileged to organize this conference in the right place to enhance our academic awareness on issues related to Physical Education, Health and Sport.

The theme of this conference "Enhancing the Quality of Services in Physical Education, Health and Sport for a Better Future" is in line with Semarang State University's vision as a conservation university. Conservation values can be proliferated by the quality of services in Physical Education, Health and Sport also in turn, Physical Education, Health and Sport wise can be developed by embarking from conservation and local values. Therefore, this conference will give a great contribution to our effort to proliferate the importance of cultural preservation as an integral and significant part of our national identity.

I extend my sincere gratitude to ACPES 2015 committee for their untiring efforts to organize this prestigious event. I wish all the speakers and participants of ACPES 2015 get the most of this special event.

Sincerely yours,

Prof. Dr. Fathur Rokhman, M.Hum.
Rector of Semarang State University (Unnes)



PREFACE

In the modern society, sports has been recognized as a strategic tool for peace and education, thus, since 1978 the United Nations Educational Scientific and Cultural Organization (UNESCO) has facilitated the publication and proclaimed the International Charter of Physical Education and Sport. Instead of charter aims driving the development of physical education and sports for services of human advancement, promoting development, and urged the government agencies, non-governmental organizations in which competent, educators, families, and individuals themselves are eager to be guided, and given a referral to disseminate and insert the programs and activities of sport into practical level. Keep abreast of changing times and needs, this charter has been renewed from time to time.

Today, one of the toughest challenges to realize sport as a functional tool for peace and education is automation technologies which develop very progressively affecting the livelihood and lifestyles. Indeed, there is an anomaly and ironic situation here. Advances in technologies are intended to facilitate live and make humans have greater opportunities to conquer the nature, but in turn it gives complicates effect to life itself. Degenerative diseases increase the number of sufferers continuously and we must admit that one of the causes is the advancement of technologies which have made life easier and do not require lots of physical works to accomplish daily activities.

On the other side, sport and health experts and all who care about the quality of life today, encourages all parties to move physically and restore the function of the body in its natural essence. Again, this is something that all the time trying to alleviated by technology.

Therefore, undoubtedly we must dare to take breakthrough steps, thus physical education, and sport, are able to be a good medium for improving the quality of life, through improving the quality of service implementation. These efforts include the quality of agents (teachers, instructors, facilitators, trainers), quality of facilities, the quality of laws and regulations, as well as the quality of government policy. Through the annual scientific meeting among sports academia in South East Asia region, we can come together and support each other, to find the best formula to enhance the quality of services.

In this occasion, where Semarang State University hosted the meeting, a number of themes of scientific papers will be presented and discussed, with the hope we are able to provide inspiration for a better future.

Thank you for your help and participation of all parties, May God bless us all.

Your faithfully,

Prof. Dr. Tandiyo Rahayu, M.Pd

Chair Person of International Conference of ACPES 2015

ACPES 2015 STEERING COMMITTEE

Prof. Vijit Kanungsukkasem, Ph.D.
Chulalongkorn University, Thailand

Assoc. Prof. Supranee Kwanboonchan, Ph.D.
Srinakharinwirot University, Thailand

Prof. Aminuddin Yusof, Ph.D.
Universiti Putera Malaysia, Malaysia

Prof. John Wang, Ph.D.
PESS-NIE Nanyang Technological University, Singapore

Prof. Dr. Tandiyo Rahayu, M.Pd.
Semarang State University, Central Java, Indonesia

Dr. Rebecca Alcuizar
IIT-Mindanao State University, Philippines

Dr. Chairat Choosakul
Mahasarakham State University, Thailand

UNNES
UNIVERSITAS NEGERI SEMARANG

ACPES 2015 SCIENTIFIC BOARD

Assoc. Prof. Koh Koon Teck, Ph.D.

PESS-NIE, Nanyang Technological University, Singapore

Assoc. Prof. Supranee Kwanboonchan, Ph.D.

Srinakharinwirot University, Thailand

Prof. Dr. Soegiyanto, M.S.

Semarang State University, Central Java, Indonesia

Dr. Setya Rahayu, M.S.

Semarang State University, Central Java, Indonesia

Dr. Taufiq Hidayah, M.Kes.

Semarang State University, Central Java, Indonesia



CONTENTS

WELCOME MESSAGE	iii
PREFACE	iv
ACPES 2015 STEERING COMMITTEE	v
ACPES 2015 SCIENTIFIC BOARD	vi
CONTENTS	vii

ORAL PRESENTATIONS

PHYSICAL EDUCATION - TEACHING

1. <i>ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY: ITS IMPACT ON STUDENTS' LEARNING AND THE EXTENT OF EFFECTS TO SOCIAL, RECREATIONAL AND SPORTS ACTIVITIES</i> Corazon T. Biong, Thailand	1
2. <i>LEARNING MODEL DEVELOPMENT APPROACH SHOT PUT WITH GAME FOR STUDENTS GRADE V ELEMENTARY SCHOOL</i> Ni Putu Nita Wijayanti, Indonesia	13
3. <i>HIGAONON DANCES: ITS IMPLICATION FOR CULTURAL IDENTITY, PEACE & DEVELOPMENT</i> Rebecca M. Alcuizar, Corazon T. Biong, Arlene Reyes, Philippines	19
4. <i>PHYSICAL FITNESS IMPROVEMENT EFFORTS ON LOWER CLASS STUDENTS OF ELEMENTARY SCHOOL THROUGH PLAY-BASED APPROACH ON PHYSICAL EDUCATION SUBJECT</i> Yustinus Sukarmin, Indonesia	26
5. <i>TONNIS GAME FOR PHYSICAL EDUCATION LEARNING</i> Tri Nurharsono, Moch Fahmi Abdulaziz, Indonesia	35
6. <i>THE TABLE TENNIS STROKES SERVICE DEVELOPMENT THROUGH PHYSICAL EDUCATION LEARNING PROCESS</i> Jonni Siahaan, Indonesia	40
7. <i>PLAY LEARNING MODEL DEVELOPMENT ON PHYSIC EDUCATION CHARACTER BUILDING IN ELEMENTARY SCHOOL GRADE V</i> Waluyo, Indonesia	49
8. <i>REINVENTING THE GAME (RTG) FOR PHYSICAL EDUCATION</i> Balbinder Singh, Singapore	70
9. <i>DISSEMINATION MODEL OF ADAPTIVE PHYSICAL EDUCATION LEARNING FOR THE BRAIN OPTIMALIZATION OF RETARDED KIDS: PHYSICAL THERAPY AND NEUROSCIENCE OVERVIEW</i> Sumaryanti, Indonesia	81
10. <i>HOW SPORT STUDENT EXCHANGE (SSE) AFFECTS STUDENTS' ACADEMIC PERFORMANCE IN SPORT SCIENCE FACULTY</i> Lulu April Farida, Indonesia	88

11. THE DIFFERENCE OF PLAY LEARNING APPROACH AND AGE GROUP EFFECTS ON THE IMPROVEMENT OF BASIC MOTOR ABILITY Agus Supriyoko, Indonesia	95
12. THE "SPELT" LEARNING MODEL TO IMPROVE RESULTS OF STUDENT LEARNING ON SPORTS PSYCHOLOGY SUBJECT Dimiyati, Edi Purnomo, Komarudin, Indonesia	100
13. IMPLEMENTATION OF TEACHING GAMES FOR UNDERSTANDING MODEL TO ENHANCE STUDENTS' CRITICAL THINKING SKILLS Wahyu Indra Bayu, Risfandi Setyawan, Indonesia	111
14. GYM BALL BOOK DEVELOPMENT ON THE SUBJECT OF AEROBICS AND FITNESS IN FIK UNESA Kunjung Ashadi, Oce Wiriawan, Ika Jayadi, Indonesia	119
15. DEVELOPING KIVOL BALL Ruslan, Maisal Nento, Mirdayani Pauweni, Indonesia	120
16. TENNIS AS A RECREATIONAL SPORT TO REDUCE TEENAGERS' MISBEHAVIOUR Limpad Nurrachmad, Prapto Nugroho, Indonesia	121
17. THE DEVELOPMENT OF MODIFICATION OF MINI BASKETBALL GAME TO IMPROVE LEARNING OUTCOME OF BASKETBALL OF ELEMENTARY SCHOOL STUDENTS CLASS VI IN PALEMBANG Rudy Noor Mukhtar, Indonesia	122
18. MODEL BASED MOTION ACTIVITY LEARNING GAMES FOR PHYSICAL EDUCATION TEACHING MATERIALS ELEMENTARY SCHOOL CLASS I (RESEARCH DEVELOPMENT IN ELEMENTARY SCHOOL STUDENTS CLASS I ON THE JEPARA REGENCY CENTRAL JAVA FOR LEASON YEAR 2013/2014) Rif'iy Qomarullah, Indonesia	124
19. TRAVELLING THROUGH TIMES: HIGA-ONON DANCES UNRAVELED Arlene V. Reyes, Philippines	125
PHYSICAL EDUCATION - ASSESSMENT	
20. THE IMPACT OF SCHOOL FACILITIES CONDITIONS ON PHYSICAL EDUCATION TEACHER'S PERFORMANCE (A CASE STUDY OF PHYSICAL EDUCATIONS TEACHERS OF ELEMENTARY SCHOOLS IN SEMARANG) Harry Pramono, Indonesia	126
21. ROLE OF GENDER AND CULTURE IN PHYSICAL EDUCATION AT UPPER SECONDARY SCHOOL IN SURAKARTA Dwi Gunadi, Indonesia	133
22. CONFIRMATORY FACTOR ANALYSIS OF THE TEST OF GROSS MOTOR DEVELOPMENT-2 Ismaryati, Indonesia	140
23. PRESCHOOL STUDENTS LEVEL OF MOTOR SKILL DEVELOPMENT Wan Azira Abd Aziz, Borhannudin Abdullah, Shamsulariffin Samsudin, Malaysia	146

24. THE MEANING OF PHYSICAL ACTIVITY FROM THE STAND POINT OF INDONESIAN IMMIGRANT YOUTH IN THE USA: A PHENOMENOLOGICAL STUDY Caly Setiawan, Indonesia	147
25. THE EVALUATION OF PHYSICAL FITNESS OF PHYSICAL EDUCATION (PE) TEACHERS AT PREEMINENT SCHOOLS IN ACEH BESAR IN THE 2015 ACADEMIC YEAR Syamsul Rizal, Yeni Marlina, Indonesia	148
26. RELATIONSHIP OF EMOTIONAL QUOTIENT (EQ) ON SPORTS PERFORMANCE Endang Sri Retno, Indonesia	149
27. THE RELATIONSHIP BETWEEN SPEED, STRENGTH, AGILITY AND LONG LEGS WITH FOOTWORK BADMINTON PLAYERS Suratman, Indonesia	150
28. RELATION OF SPEED, AGILITY AND BALANCE WITH DRIBBLING SKILL IN FOOTBALL GAME OF PESPEX SOCCER SCHOOL'S STUDENTS IN CILEUNGSI BOGOR 2011 Yuwono, Indonesia	151
29. IDENTIFYING YOUNG TALENTED ATHLETES USING A MODEL OF SOCCER SKILLS TEST Nining Widyah Kusnanik, Indonesia	152
30. TEACHING SKILL'S PROFILE OF ELEMENTARY SCHOOL PHYSICAL EDUCATION TEACHER IN TAMAN SIDOARJO EAST JAVA Suroto, Fufukha Dwi, Khory, Indonesia	153
31. A REVIEW OF COPING STRATEGIES IN SPORTS ACROSS CULTURE Shermaine Lou, Singapore	154
32. HOW DO MOVEMENTS BECOME COORDINATED OVER TIME? : A PROPOSED ANCHORING QUESTION FOR TEACHING MOTOR CONTROL AND LEARNING KEE Ying Hwa, Singapore	155
 SPORT SCIENCE - SPORT COACHING & TRAINING	
33. DEVELOPMENT OF PROTOTYPE SINGLE POMMEL MUSHROOM FOR CIRCLE MOVEMENT TRAINING AIDS IN MEN'S ARTISTIC GYMNAST Agus Darmawan, Indonesia	156
34. THE INFLUENCE OF PLAYING ACTIVITY ON MOTOR SKILLS AMONG LOWER GRADE ELEMENTARY SCHOOL STUDENTS Gustiana Mega Anggita, Indonesia	163
35. THE DEVELOPMENT OF KICKING ACCURACY PRACTICE IN SOCCER FOR THE CHILDREN WITH THE AGE GROUP OF 13 TO 14 YEARS OLD Khoiril Anam, Indonesia	171
36. AFFECTING FACTOR OF SWIMMING EXERCISES BASED ON MULTI-LATERAL METHOD TO INCREASING COGNITIVE INTELLIGENCE OF CHILDREN Kusuma, Moh. Nanang Himawan, Julianti, Kelli, Indonesia	180

37. EVALUATION OF AMATEUR BOXING NATIONAL CHAMPIONSHIPS IN INDONESIA Soedjatmiko, Indonesia	186
38. CENTRAL JAVA SPORTS ACHIEVEMENTS MAPPING ON PON XV, PON XVI, PON XVII, AND PON XVIII Sri Haryono, Indonesia	192
39. THE EFFECT OF DIFFERENCES BETWEEN LEARNING APPROACH, DISTANCE OF HIT, AND KINESTHETIC PERCEPTION TOWARD ABILITY GROUND STROKES FOREHAND ON TENNIS Rivan Sagita Pratama, Indonesia	206
40. EFFECTS OF THE PERCEIVED SELF-EFFICACY WALKING EXERCISE PROGRAM ON HBA1C AND BODY COMPOSITION IN DIABETES MELLITUS Benjaporn Keawkumtai, Chairat Choosakul, Thailand	214
41. EFFECTS OF WEIGHT TRAINING AND AQUAROBCS ON BONE REMODELING IN OBESE WOMEN (STUDY IN IL-6, CTx AND N-MID OSTEOCALCIN) Siti Baitul Mukarromah, Indonesia	219
42. THE EFFECT OF DRIBBLING SHIELDING FUNDAMENTAL ON DRIBBLE COORDINATION OF THE U-12 CHEVRON RUMBAI FOOTBALL SCHOOL CLUB Kristi Agust, Muhammad Iqbal Suherman, Indonesia	228
43. THE INFLUENCE OF WEIGHT TRAINING IN THE METHOD OF SET SYSTEMS ON THE WEIGHT GAIN AND FAT PERCENTAGE Ahmad Nasrulloh, Yudik Prasetyo, Indonesia	235
44. FACTORS SUPPORTING ROWING ACHIEVEMENT IN THE DISTRICT TANJUNG JABUNG BARAT PROVINCE OF JAMBI Atri Widowati, Indonesia	246
45. CONTROLLED PLAYGROUND ACTIVITY TO IMPROVE MOTOR COMPETENCE, PHYSICAL FITNESS AND EXECUTIVE FUNCTIONS Tortella P., Fumagalli G., Italy	255
46. COMPARING DAILY AND SESSION UNDULATING PERIODISED PROTOCOLS FOR THE MAINTENANCE OF STRENGTH AND POWER IN RESISTANCE-TRAINED WOMEN Lian-Yee Kok, Malaysia	256
47. EFFECTS OF MUAY THAI EXERCISE PROGRAM UPON PHYSICAL PERFORMANCE AND SLEEP QUALITY IN THE ELDERLY Anurakpapop Meeton, Thailand	257
48. THE EFFECTS OF DYNAMIC STRETCHING ON PERFORMANCE MEASUREMENT (STRENGTH, SPEED, AGILITY, POWER, ENDURANCE, FLEXIBILITY) AMONG HOCKEY'S PLAYERS Zaharul Azwan Bin Abdul Razak, Malaysia	258
49. BANGUS CULTURE IN CAGES: PROPOSED EXTENSION TRAINING Angelo B. Dalaguit, Mary Ann L. Dalaguit, Philippines	259

50. COMPARISON OF STABLE AND UNSTABLE CORE TRAINING ON BALANCE, ENDURANCE AND STRENGTH AMONG SCHOOL ATHLETES	
Thanapackiam Raja Gopal, Lian-Yee Kok, Malaysia	260
51. PHYSICAL ACTIVITY FOR WORKING AGE	
Pluemsamran, T., Boonveerabut, S., Thailand	261
52. PECING DODGE	
Devi Tirtawirya, Indonesia	262
53. THE DEVELOPMENT OF MEASUREMENT DESIGN FOR MAXIMUM AEROB CAPACITY USING 1 MILE AND 2000 M RUNNING	
Edy Mintarto, Indonesia	263
54. DEVELOPING MODEL OF PHYSICAL EXERCISE FOR SEPAKTAKRAW ATHLETES	
Iyakrus, Indonesia	264
55. THE DIFFERENCE OF INFLUENCE FROM ADJOURNMENT 5 SECONDS AND 20 SECONDS AFTER THE FEEDBACK GIVEN TO THE RESULTS OF THE STUDY ON PUSH IN FOREHAND GAME OF TABLE TENNIS ON JUNIOR HIGH SCHOOL STUDENTS IN THE COUNTRY 1 TOMOHON 2014	
A.R.J. Sengkey, Tisri Laura Wajong, Indonesia	265
56. EFFECT OF 12 WEEKS HOME BASED INTERVENTION PROGRAMME ON PHYSICAL ACTIVITY OF UNDERGRADUATE FEMALE STUDENTS IN IRAQ	
Jian Abdullah Noori, Soh Kim Guek, Norhaizan Mohd Esa, Rohani Ahmad Tarmizi, Malaysia	266
SPORT SCIENCE - SPORT PSYCHOLOGY	
57. THE STUDY OF COMPETITIVE ANXIETY ON SEMARANG BADMINTON ATHLETES	
Donny Wira Yudha Kusuma, Indonesia	267
58. INTERNALIZING OF CHARACTER VALUES THROUGH MODIFICATION LEARNING OF PHYSICAL EDUCATION SPORT AND HEALTH IN ATHLETICS MATERIALS	
Slamet Riyadi, Indonesia	275
59. MATERIALISM, SPORTSMANSHIP, AND SPORT PERFORMANCE ON ATHLETES	
Anirotul Qoriah, Indonesia	283
60. OUTBOUND GAME MODELS TO IMPROVE INTERPERSONAL COMPETENCE IN ELEMENTARY SCHOOL	
Niken Fatimah Nurhayati, Tandiyo Rahayu, Soegiyanto K.S., Sugiharto, Indonesia	291
61. EFFECT OF GOAL SETTING ON SWIMMING ATHLETE ACHIEVEMENT	
Sungkowo, Indonesia	300
62. EFFECT OF MOTIVATION, PUSH UP, HANDSTAND ON FLOOR EXERCISE GYMNASTICS	
Ranu Baskora Aji Putra, Indonesia	305
63. THE SOCIO ECONOMIC ADVANTAGES ON THE 18TH NATIONAL SPORT GAME 2012 IN RIAU, INDONESIA	
Taufiq Hidayah, Indonesia	312

64. MOTIVES AND PHYSICAL ACTIVITY LEVEL AMONG UNIVERSITI TEKNOLOGI MARA (UiTM) STAFF Azlan Ahmad Kamal, Mohd. Radzani, Malaysia	318
65. ANALYSIS OF COACHING BEHAVIOUR AMONG FULL-TIME COACHES IN MALAYSIA Sock-Wei Tor, Lian-Yee Kok, Malaysia	325
66. MOTIVATIONAL FACTORS IN PHYSICAL ACTIVITY AND RECREATIONAL SPORTS PARTICIPATION OF STUDENTS IN MALAYSIA Chun Cheng Chuan, Aminuddin Yusof, Chee Chen Soon, Maria Chong Abdullah, Malaysia	326
67. SPORT AS A VEHICLE FOR CULTURAL MAINTENANCE AND ADAPTATION TO MULTICULTURAL ENVIRONMENTS FOR INTERNATIONAL STUDENTS IN UNIVERSITI PUTRA MALAYSIA Noraseela Binti Mohd Khalid, Aminudddin Yusof, Malaysia	327
68. CHALLENGES AND OPPORTUNITIES OF WOMEN IN SPORT LEADERSHIP IN MALAYSIA Miriam P. Aman, Malaysia	328
69. ATTITUDE TOWARDS PHYSICAL ACTIVITY AND DEGREE OF ACCEPTABILITY OF PHYSICAL EDUCATION AMONG MADRASAH TEACHERS Hendely Adlawan, Philippines	329
70. COACHING BEHAVIOR IN RELATION TO SPORTS PERFORMANCE AND ATHLETES' SATISFACTION AMONG COLLEGE VARSITY ATHLETES Nenita P. Samong, Indonesia	335

SPORT SCIENCE - SPORT BIOMECHANICS

71. DEVELOPMENT OF STATIC AND DYNAMIC BALANCE AT THE AGE OF 7 TO 12 YEARS OLD IN TERMS OF GENDER (CROSS-SECTIONAL STUDY OF THE DEVELOPMENT OF STATIC AND DYNAMIC BALANCE IN THE ELEMENTARY SCHOOL STUDENTS IN THE DEMAK REGENCY) Dhias Fajar Widya Permana, Indonesia	340
72. THE EFFECT OF COORDINATION EXERCISE ON THE POWER ABILITY OF SPRINTER Rumini, Indonesia	348
73. INSTRUMENT DEVELOPMENT FOR TALENT SCOUTING FENCING ATHLETE ACHIEVEMENT TOWARDS 2024 Nuruddin Priya Budi Santoso, Indonesia	351
74. THE EFFICIENCY OF SIDE KICK TECHNIQUE IN "PENCAK SILAT TANDING" CATEGORY (A BIOMECHANICAL ANALYSIS) Awan Hariono, Indonesia	360

SPORT SCIENCE - SPORT MANAGEMENT

75. THE SOCIAL CAPITAL OF KONI COMMUNITY: STUDY TOWARDS THE INSTITUTIONAL POTENTIAL OF KONI IN THE SPORTS ORGANIZATION AND DEVELOPMENT TO SUPPORT THE IMPLEMENTATION OF LAW NUMBER 3/2005 ABOUT THE NATIONAL SPORT SYSTEM IN CENTRAL JAVA Tri Rustiadi, Indonesia	361

76. AN APPLICATION OF PUSH AND PULL THEORY IN SPORT TOURISM: A STUDY OF SPORT TOURIST VISITING LANGKAWI, MALAYSIA	
Nurul Shahida Hamdan, Malaysia	371

SPORT SCIENCE - SPORT PHYSIOLOGY

77. MESSAGE THERAPY FOR INFANT IN DEPRESSED MOTHER	
Wisnu Mahardika, Indonesia	372
78. THE EFFECT OF AEROBIC DANCE AND NUTRITION ON METABOLIC STATE, INFLAMMATORY STATE AND CLINICAL APPEARANCE IN OVERWEIGHT	
Bashir Ma Ab Lakhall, Libya	376
79. EFFECTS OF THE PERCEIVED SELF-EFFICACY WALKING EXERCISE PROGRAM ON BODY COMPOSITION IN ELDERLY	
Chairat Choosakul, Benjaporn Keawkumtai, Thailand	377
80. A SYSTEMATIC REVIEW TO EXAMINE THE PERCEIVED BARRIERS TO EXERCISE IN INDIVIDUALS WITH TYPE 2 DIABETES AND PRE-DIABETES	
Kang Heon Jin, Stephen Francis Burns, C. K. John Wang, Singapore	378

HEALTH - SPORT NUTRITION

81. THE EFFECT OF RED FRUIT OIL ON RAT'S MALONDIAL DEHYDE LEVEL AT MAXIMAL PHYSICAL ACTIVITY	
Fajar Apollo Sinaga, Indonesia	379
82. THE EFFECT OF ROSELLA TEA (HIBISCUS SABDARIFFA) PREVENTION OF BLOOD PRESSURE INCREASE (STUDY IN RATS THAT WERE GIVEN ALCOHOL)	
Sugiharto, Sugiarto, Indonesia	386
83. EFFECTS OF A NOVEL PROTEIN SUPPLEMENT ON DISUSE MUSCLE ATROPHY (STUDY IN BODY WEIGHT AND SOLEUS MUSCLE)	
Mohammad Arif Ali, Indonesia	398
84. PERCEIVED BODY IMAGE AND LIFESTYLE BEHAVIORS AMONG FEMALE STUDENTS WITH WEIGHT DILEMMAS	
Marwa Abd Malek, Sharifah Muzlia Syed Mustafa, Mawarni Mohamed, Malaysia	407
85. THE EFFECT OF ALKALI LIQUID BEFORE EXERCISE TO BLOOD	
Fuad Noor Heza, Indonesia	416
86. ASSESSMENT OF HERBAL PLANTS IN TUBOD, LANA DEL NORTE AND THEIR UTILIZATION	
Monera A. Salic-Hairulla, Ritcha A. Dicalan, Nesren S. Amer, Rolin M. Buzarang, Joy R. Magsayo, Philippines	424
87. TILAPIA (<i>Oreochromis niloticus</i> Peters) TOCINO PROCESSING: ECHNOLOGY TRANSFER	
Mary Ann L. Dalaguit, Angelo B. Dalaguit, Philippines	425
88. INFECTION OF SALMONELLA TYPHIMURIUM	
Mohamed Kilani, Libya	426

89. AFTER-EFFECTS OF MILK, SPORTS DRINK AND WATER CONSUMPTION IN RUGBY PLAYERS Patmavathy Alagappan, Lian-Yee Kok, Malaysia	427
HEALTH - PUBLIC HEALTH	
90. CORRELATES OF EARLY SEXUAL ENCOUNTER AMONG THE ADOLESCENTS OF BUUG ZAMBOANGA SIBUGAY Josephine S. Duyaguit, Corazon T. Biong, Philippines	428
91. ASSOCIATION BETWEEN SEDENTARY BEHAVIOR AND CARDIO-METABOLIC RISK IN THAI ACTIVE OLDER ADULTS Purakom A., Kasiyapat A., Nakornkhet K., Thailand	436
92. THE STUDY OF SPORT RECREATION ACTIVITIES TOWARD PHYSICAL FITNESS AND SOCIAL ATTITUDES OF URBAN SOCIETY Endang Sri Hanani, Indonesia	441
93. THE RELATIONSHIP BETWEEN NUTRITIONAL STATUS, PHYSICAL FITNESS AND EMOTIONAL INTELLIGENCE ON STUDENT ACHIEVEMENT HIGH SCHOOL Sulaiman, Indonesia	445
94. PATIENT SATISFACTION LEVEL ANALYSIS OF PARTICIPANT PROGRAM NATIONAL HEALTH INSURANCE (JKN) NON PREMI RECIPIENT (NON-PBI) AT HALMAHERA PUSKESMAS, SEMARANG CITY YEAR 2015 Bambang Wahyono, Ulfa Royanah, Indonesia	453
95. FALL INCIDENCE TO ELDERLY PHYSICAL DISABILITIES Widya Hary Cahyati, Indonesia	460
96. THE EFFECT OF PHYSICAL ACTIVITY PROMOTION USING SOCIAL COGNITIVE THEORY ON WORKERS' HEALTH-RELATED FITNESS, STRESS AND WORK EFFICIENCY Nanthawan Thienkaew, Chairat Choosakul, Thailand	466
97. PHYSICAL ACTIVITY, SEDENTARY BEHAVIOR, AND HEALTH-RELATED FITNESS OF UNDERGRADUATE STUDENTS Sonthaya Sriramatr, Khanita Khumsingsan, Raweewan Maphong, Thailand	467
98. THE COMMUNITY DEVELOPMENT MODEL OF HEALTHCARE AND WELFARE CENTER FOR ENHANCING ELDER'S LIFE QUALITY IN NAKHON PATHOM Pupanead S., Suwan S., Piromkam B., Thailand	468
99. NUTRITION, SCHOOL, HOME: DETERMINANTS OF ACADEMIC PERFORMANCE FOR PUPILS IN ROGONGON, ILIGAN CITY, PHILIPPINES Rebecca M. Alcuizar, Philippines	469
100. HEALTH PROMOTION AND EXERCISE BEHAVIORS OF TPD IN THAILAND: REAL BEFORE DEAL Siripatt, A., Suksom, D., Khongprasert, S., Srihirun, K., Siripanya, S., Taweepornpathomkul, S, Thailand	470

POSTER PRESENTATIONS

PHYSICAL EDUCATION - TEACHING

101.	IMPORTANCE OF PERCEPTUAL MOTOR BASED-PHYSICAL ACTIVITY IN THE FORM OF PLAYING FOR KINDERGARTEN STUDENTS	
	Yudanto, Indonesia.....	471
102.	E BOUNCING BALL GAMES, TO IMPROVE THE LEARNING TABLE TENNIS	
	Moch Fahmi Abdulaziz, Indonesia.....	482
103.	AEROBIC GYMNASSTIC LEARNING DEEP DEVELOPMENTAL ACTIVITY COLLEGE EYE COLLEGES STUDENT CARNAL FITNESS HEALTH PHYSICAL EDUCATION AND SEMESTER RECREATION VI YEAR 2014	
	Ipang Setiawan, Indonesia	487
104.	DEVELOPMENT OF INSTRUCTIONAL MEDIA FOR OUTSIDE SHOOTING BASIC TECHNIQUE PRACTICE IN MINI BASKETBALL CLUB	
	Baskoro Nugroho Putro, Indonesia	494
105.	THE DEVELOPMENT OF HEALTH EDUCATION LEARNING MEDIA THROUGH TRADITIONAL GAME "BOY" ELEMENTARY FOR SCHOOL IN KUPANG CITY	
	Maria Fatubun, Lukas M. Boleng, Robert Tetikay, Indonesia	504
106.	THE MAJOR PROBLEMS OF TEACHING SWIMMING TO YOUNG CHILDREN	
	Kaswarganti Rahayu, Indonesia	508
107.	THE INFLUENCE OF TEACHING MODELS THROUGH SIENTIFIC APPROACH TOWARDS THE SKILL OF PLAYING FOOTBALL	
	Dena Widyawan, Indonesia	509
108.	THE EFFECT OF LEARNING MODEL AND GANDER TO STUDENTS' SOCIAL AWARENESS ON PHYSICAL EDUCATION LEARNING	
	Dupri, Indonesia	510
109.	LOVE OF ENVIRONMENT THROUGH THE OUTDOOR EDUCATION CAMPING PROGRAM	
	Kardjono, Indonesia	511
110.	TOOLS DEVELOPMENT TO MEASURE EFFECTIVENESS PHYSICAL EDUCATION TEACHER LEARNING	
	Nyak Amir, Indonesia	512
111.	DEVELOP TARGET NET AS A TOOL FOR SHOT LEARNING IN BADMINTON SPORT AT JUNIOR HIGH SCHOOL	
	Afif Khoirul Hidayat, Indonesia	513
112.	INCREASING SPORT PARTICIPATION THROUGH INCREASED FOCUS ON SCHOOL SPORTING EXPERIENCES IN SINGAPORE	
	Cho Jin Jin Tessa, Singapore	514

PHYSICAL EDUCATION - ASSESSMENT

113.	PREDICTION OF THE RECORD LEVEL OF LONG JUMP WITH THE SIGNIFICANCE OF LEARNING ASPECTS TO TRACK AND FIELD EVENTS FOR PREPARATORY STAGE STUDENTS	
	Mostafa Mohammed Nasr AlDeen, Egypt	515
114.	COMPARED TO FAVORITE LEADERSHIP BEHAVIOR BETWEEN PLAYERS AND SOCCER COACHES	
	Refaei Moustafa Hussein, Mahmoud Hassan Elhofy, Egypt	522
115.	EVALUATION OF TRAINING PROGRAM IMPLEMENTATION AT SWIMMING CLUB IN YOGYAKARTA SPECIAL REGION	
	R. Agung Purwandono Saleh, Indonesia	533
116.	THE STATUS OF PHYSICAL EDUCATION LEARNING AND TEACHING MANAGEMENT IN ELEMENTARY SCHOOLS OF THE WESTERN REGION IN THAILAND	
	Teamtaokerd, W., Krabuanrat, C., Thailand	539
117.	PEAK PERFORMANCE PROFILES OF COMBAT SPORT ATHLETES: THE SPORTS HERO PROJECT	
	Wongpa, K., Siripatt, A., Boonveerabut, S., Thailand	540
118.	REFEREE INSTRUMENT ASSESSMENT OF VOLLEY BALL	
	Saifuddin, Indonesia	541

SPORT SCIENCE - SPORT COACHING & TRAINING

119.	EFFECTS OF DYNAMIC FLEXIBILITY TRAINING ON SPRINT PERFORMANCE	
	Jacklyn anak Joseph, Malaysia	542
120.	THE EFFECTS OF PLYOMETRICS TRAINING AND WEIGHT TRAINING UPON LEG POWER AND LEG STRENGTH OF BLOCK JUMPING SEPAK TAKRAW PLAYERS	
	Chotika Boonthong, Duangkrai Taweesuk, Thailand	543
121.	THE EFFECTS OF SHORT-TERM TRAINING ON STRENGTH AND BALLISTIC POWER IN FOOTBALL ATHLETES	
	Sakchai Srisuk, Thailand	544
122.	A STUDY OF TWO DIFFERENT TRAINING PROTOCOLS OF HIGH INTENSITY INTERVAL TRAINING (HIIT) ON AEROBIC CAPACITY OF FEMALE FIELD HOCKEY PLAYERS	
	Stella Anak James Martin, Malaysia	545
123.	THE DEVELOPMENT AND MODIFICATION OF STRENGTH TESTS FOR SPORT MEASUREMENT AND EVALUATION	
	Endang Rini Sukamti, Sb. Pranatahadi, Guntur, Indonesia	546
124.	REVITALIZING SEPAK TAKRAW SOLE OF FOOT SMASH USING HANGING BALL	
	I Ketut Semarayasa, Indonesia	547
125.	EFFECT OF MANIPULATION OF COMPLEX TRAINING ON AGILITY, POWER, SPEED AND ENDURANCE AEROBIC (VO2 MAX)	
	Mansur, Indonesia	548

126. EFFECTS OF PILATES TRAINING ON CORE STABILITY OF JUNIOR KARATE PLAYERS IN MALAYSIA	
Seyedeh Nahal Sadiri, Malaysia	549

SPORT SCIENCE - SPORT PSYCHOLOGY

127. FOOTBALL PLAYER AGGRESSION: PHENOMONOLOGY STUDY ABOUT VIOLENCE BETWEEN FOOTBALL PLAYERS	
Komarudin, Indonesia	550
128. IMPROVING SOSIAL SKILLS OF CHILDREN WITH MILD MENTAL RETARDATION THROUGH PLAY TITLE OF PAPER	
Hedi Ardyanto Hermawan, Indonesia	557
129. QUESTIONNAIRE – CHARACTERISTICS OF SPORT PSYCHOLOGIST	
Kreangkrai Narktawan, Thailand	558
130. THE ROLE OF ATTENTIONAL FOCUS; EXTERNAL AND INTERNAL FOCUS ON SKILL ACQUISITION	
Yadi Sunaryadi, Indonesia	559
131. DEVELOPING CHARACTER THROUGH SPORTS	
Goh Si Win, Sherwin, Singapore	560
132. PARTICIPANTS' PERSPECTIVE OF INJURY IN JOGGING	
Prachaya Chomsahai, Salee Supaporn, Thailand	561

SPORT SCIENCE - SPORT BIOMECHANICS

133. STANDARDIZATION ELEMENTS IN MOTION BASIC MARTIAL LANGGA GORONTALO	
Hartono Hadjarati, Indonesia	562

SPORT SCIENCE - SPORT MANAGEMENT

134. COMPARE OF GOALS SCORED IN EURO 2012 CHAMPIONSHIPS AND 2014 FIFA WORLD CUP	
Mohamed Refaei Mostafa, Egypt	570
135. DEVELOPMENT OF AN EFFECTIVE SPORT MANAGEMENT MODEL FOR NORTHEAST THAILAND UNIVERSITIES	
Watthanapong Khongsuebsor, Thailand	580

SPORT SCIENCE - SPORT PHYSIOLOGY

136. EFFECT OF CREATINE MONOHYDRATE SHORT TERM DECLINE AGAINST TROPONIN I LEVELS OF PLASMA AS ALERT MUSCLE DAMAGE AFTER DOING PHYSICAL EXERCISE PROGRAM WITH HIGH INTENSITY	
Hari Setijono, Mintarto, E., Wibowo, S., Indonesia	581

HEALTH - SPORT NUTRITION

137. ***GIVING VITAMIN C AT MAXIMUM PHYSICAL EXERCISE AND CHANGING OF HEMOGLOBIN LEVELS AND QUANTITY OF ERYTHROCYTES***
Said Junaidi, Dwi Aries Saputro, Indonesia 590
138. ***EATING DISORDER AMONG FEMALE ATHLETES AND NONATHLETES IN UiTM SARAWAK***
Ewiwe Henry, Malaysia 596

HEALTH - PUBLIC HEALTH

139. ***SPORT INJURIES***
Arif Setiawan, Indonesia 597
140. ***IMPROVING OBESITY LEVELS AT THE INSTITUTE OF TECHNICAL EDUCATION (COLLEGE EAST)***
Ong, Raymond Beng Chee, Singapore 601



ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY: ITS IMPACT ON STUDENTS' LEARNING AND THE EXTENT OF EFFECTS TO SOCIAL, RECREATIONAL AND SPORTS ACTIVITIES

Corazon T. Biong

Faculty of the College of Education, MSU-Iligan Institute of Technology, Iligan City

corazonbiong05@yahoo.com

Abstract

This study determined the role and impact of Information and Communication Technology (ICT) to the learning of the students. It further looks into the extent of effects of ICT usage to the social, recreational and sports activities of the students. The descriptive survey design is utilized in this paper. A researcher – made instrument is the main tool in gathering the data aided by indicators listed on the paper of a certain researcher as a result of his literature review. The gathered data was treated and interpreted statistically using the verbal interpretation set by the researcher. The result of the study revealed that outside the school only few hours are used by almost majority of the ICTs and none of them uses more than twelve hours. It was found that the use of Internet for academic works is the least used ICT by the respondents. They declared that ICTs has great roles to their academic or non-academic learning and as such their learning is at all times augmented. The impacts of ICTs are demonstrated from great extent to very great extent. In addition, among the recreational, social and sports activities, the latter is the type of activities which are less affected by respondent's time used for ICTs. Therefore, it can be concluded that although the respondents of this study expressed in their assessment that the ICTs help them at great extent but they did not use much of their time to a more fruitful activity which is the academic works. The positive perception of the respondents to the role and impact of the use of ICTs show that modern technologies are useful; however, careful management and utilization of these devices should be well taken so that other activities like recreation will not be much affected.

Keywords: ICT, role, impact, classroom, effect, social, recreational, sports activities

INTRODUCTION

There are many studies that discussed about the different role of Information and Communication Technology (ICT) and its impact to the life of the people; however, there are fewer documents that will prove that ICT helps the people. In the present time, it is observed that people's social connectedness becomes much easier than before (Wessel, n.d.). The extent and value of relationships with others including family, friends, colleagues, and the wider community, through a variety of modes of contact, and the resulting benefit signifies social connectedness. This suggests that the connection a person get does not only mean to how many important people is involve in his life, but this refers also to the factors of trust, disclosure, happiness and companionship as the outcome. The internet, social network sites like Skype, Facebook, YouTube and mobile phones are examples of ICT that connects people with the member of their family, and friends who are away from them. Through these ICTs people are able to make relationships with other people who are at far distance and even those whom they have not meet. This ICT made connections possible more specifically to the students.

There are factors that characterize the future career of the students. The births of ICT, social networking sites, mobile phones are some of the factors that shape their life inside and outside the school. However, uncertainty arises whether this convenience brought to the life of the students has really helped them.

The classrooms are complicated places and have to address a lot of demands. Socialization, classroom management, learning, evaluation and assessment, are just a few of these demands. Fortunately, many classrooms today have access to facilities and resources (Wessel, n.d.) which are never experienced in the olden days. Examples to these facilities and resources are the computers with internet connections. This will make the work of the teachers and students a lot easier in many ways.

The internet, social network sites like Skype, Facebook, YouTube, and mobile phones are ICTs that bring convenience and expediency to people's activities today. Some of the jobs of the scientists can be done even if they are just sitting in front of their computers with internet connections. Office workers either in the managerial or rank and file positions made their paper works trouble-free and effortless through the use of computers. Owners and employees in the business firms make their dealing and transactions with their customers and clients lightly without travelling and spending thousands of pesos. Farmers are guided on what are the latest trends in growing and increasing their farm productions. Government officials make their communications and transactions a lot easier through the use of ICTs.

The above mentioned are topics which are commonly observed in the present time. This indicates that the specific job of a person is related to new learning which are brought by modern technology. Academic institutions are also using this technology to produce qualified and competitive graduates. La Salle University, as one of the prestigious academic institutions in the Philippines, is one of the good examples to this end. In this paper the researcher desires to investigate on what is the role and impact of ICT to the learning of the students as perceived by them.

Review of related literature, The words of Harasim, Hiltz, Teles, & Turoff, (1995) said that, "digital technologies developed steadily from the 1950s, (as cited in Milton Campos, 1998). This is also confirmed by Jonassen, Howland, Marra, and Crismond, (2012) when they said that, in 1950's the first technology was developed specifically to meet educational needs. Harasim, et al., (1995) continued that, "human communication processes started to be supported by computers from the 1980s onward, with computers becoming more important in the 1990s" (as cited in Milton Campos, 1998).

To express people's feelings and to support others' ideas are now feasible (Jonassen, et al., 2012). These thoughts can be realistically performed with the assistance of ICT. The researcher would like to consider that nowadays, the ways or means of students in acquiring knowledge and learning can be broadly offered by the technologies; however, according to Jonassen, Howland, Marra, and Crismond, (2012), "computers and other technologies have shown that they are no more effective at teaching students than teachers, but if we begin to think about technologies as learning tools that students learn with, not from, then the nature of student learning will change". Trucano affirmed in saying that, "ICTs are very rarely seen as central to the overall learning process". (2005). Their theory suggested that teachers are better than ICT when it comes to teaching and ICT could be a tool towards learning. Tomie, (2005) explicitly agreed when he said that "learners use technology to acquire and organize information evidence to obtain a higher level of comprehension".

Furthermore, Trucano declared that, "there is a widespread belief that ICTs can and will empower not only the teachers but also the learners. ICTs transform the teaching and learning processes which will result in increased learning gains for students". He further declared that, "the use of ICTs creates and allows learners to have the opportunity to develop their creativity, problem-solving abilities, informational reasoning skills, communication skills, and other higher-order thinking skills," (2005). However, Wessel, (n.d.) proclaimed that, students' learning will always be a slow, challenging process and teacher instruction will always be a challenging and rewarding process. Furthermore, he expressed that ICT does not and will not change the way people learn since knowledge building is an individual process and cannot be handed over to computers.

Meaningful learning can be supported by ICT in many ways. They can be utilized as a tool to support knowledge construction, a vehicle for information, medium for socialization, and a partner to gather intelligent ideas. To access needed information, contrast personal viewpoint, learn the way of life of people who are miles away can be done by the use of ICT. To discuss, converse, argue issues which involve a group of people across the globe becomes possible (Jonassen, et al., 2012). This thought was supported by Campos, (1998) when he stipulated that, "in order to build knowledge, people must reason, engage in common discussion, and *argue*".

In the study of Wessel, he revealed that email communication is widely used in some American schools. Reports to parents are immediately delivered through this means of communication. Administrators, teachers, students and parents utilized the on-line communication systems within and outside classrooms; however face-to-face conversation cannot be dispensed with (n.d.). This briefly means that these people are still favorable on discussions without the use of on-line communication systems.

Brown (1994) said that "the evaluation of learning outcomes requires methods that measure understanding. These can be supported by the use of ICT (as cited in Newhouse, 2002). Baker, Gearhart, & Herman, (1994); Kulik, (1994) stipulated that students have more positive attitudes towards their classes and learning when ICT use is included. Sivin-Kachala (1998) also declared that, "the use of ICT has consistently improved students' attitudes towards learning and their own self-concept. Kulik, (1994) stated that, "students tend to complete more in less time when they use ICT (as cited in Newhouse, 2002). It can therefore be concluded that the teachers and students feel that the use of ICT greatly motivates them (Trucano, 2005).

However, there is another view laid down by Trucano, (2005) in his paper when he said that, in a report regarding students from Organization for Economic Cooperation and Development (OECD) countries who utilized huge amount of computer usage outside school obtain low average. Trucano, (2005) presumed that, "high computer use outside of school is disproportionately devoted to computer gaming". He added further, that "ICTs are seen to be less effective (or ineffective) when the goals for their use are not clear". On the other hand, Ahmedani, et al., (2009) study showed that their respondents rated the use of IT including cell phones, email, video games, instant messenger services, and MySpace, with "most helpful" for communication and entertainment.

The increasing utilization of IT can change the lives of children. This would transform children's behavior, manner they interact with others and the way they understand the world.

This is confirmed by Becker, (2000); Subrahmanyam, et al., (2001) when they stated that, "IT impacts the lives of youth around the world" (as cited in Ahmedani, et al 2009). IT has been shown to offer opportunities to develop new and varied skills (Ahmedani, et al 2009). Research suggests that children are expanding their worldviews (Moje, 2000) and learning styles (Lou, 2001) with access to immediate global information, while also extending social networks through their growing variety of communication skills, (Jackson, 2007, as cited in Ahmedani, et al 2009).

Nevertheless, it is widely held that ICT is not appropriate for all learners or all learning experiences and that not all students enjoy, or indeed benefit from working with a computer (Ewing et al., 2002). Learners and technologies should be intellectual partners (Jonassen, et al., 2012). This idea was impliedly concurred by Trucano when he said that, "evidence exists that use of ICTs can increase learner autonomy for certain learners", (2005).

Most of the schools in the region are now equipped with computer laboratories to ensure that their students are not left behind. Teachers are also trained in order that they will be able to monitor the learning of their students. Application of the knowledge acquired about ICT should be done in the proper ways so that students could successfully integrate ICT into their learning process and waste of time can be avoided.

According to the results in the study of Krogt et al., (2009) they stated that "using ICT in the classroom over a sustained period will boost the academic performance of children." In addition, the

result of their study revealed that not only teachers are empowered on the ICT-supported activities but they also observed that there is 7% overall positive impact to the learning performance of the pupils.

Conceptual framework, this study has three parameters. One of these speaks about the role of technology. The indicators of the first parameter are researcher made. On the other hand, the second parameter of which is anchored from the paper of Newhouse, (2002). His literature review founded nine positive impact of the technology to learning and teaching. In addition, the effects of the use of ICTs to social, recreational and sports activities are also given importance in this study.

The figure below illustrates the significant components that provokethe development of this study.

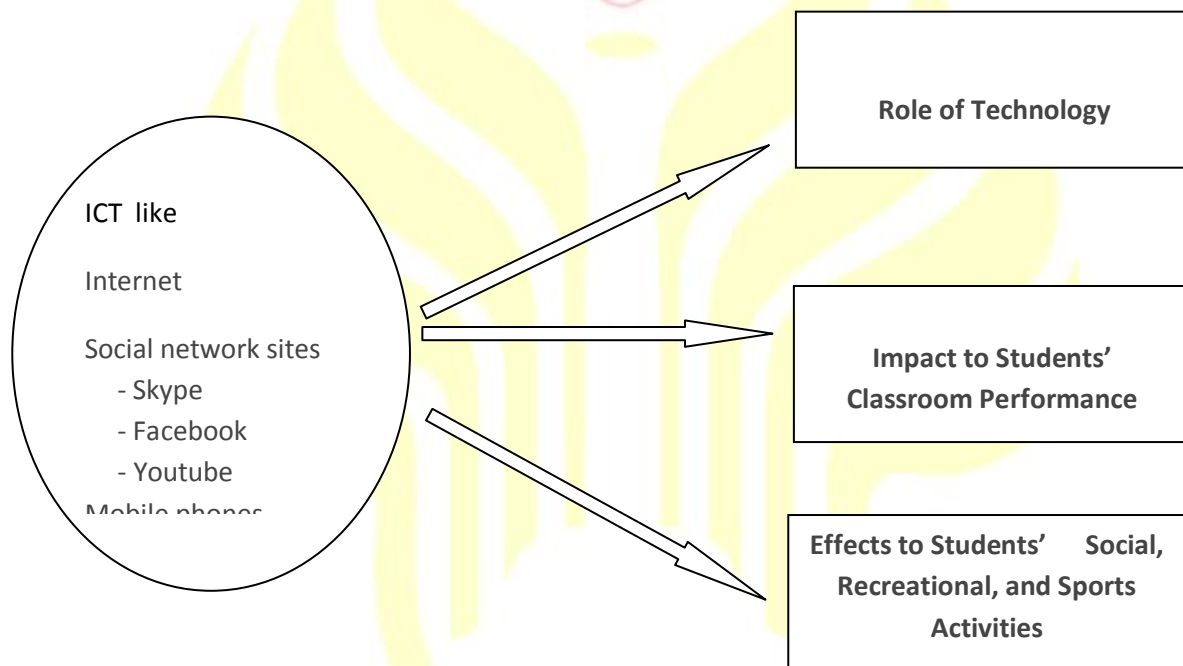


Fig. 1. Schematic Diagram of the ICTs, its role and impact to students' classroom performance and effects to social, recreational and sports activities.

Statement of the problem, the fast moving moment of the people in this present age, more specifically in the students' life, activity might not be a prizewinning without the ICT. In the absence of technology life this time seems to be unexciting. The purpose of this study is to look into the role of technology, its impact to students' classroom performance and its effect to social, recreational and sports activities of the respondents. Specifically, the study was undertaken to answer the following:

1. As revealed by the respondents,
 - 1.1. How many hours they spent for the use of ICTs outside the school?
 - 1.2. What ICT is used by them for long period of time in their day to day life?
2. What is the great role of ICTs to respondents' life?
3. Which impact of ICTs has great effect to respondents' learning?
4. As revealed by the respondents regarding their time spent with the use of ICTs at what level is its effects towards their
 - 4.1 social,
 - 4.2 recreational and

4.3 Sports activities?

5. Based on the result of this study, what program could be devised to enhance students' information and appreciation on the use of ICT?

Significance of the study, this study is beneficial to the respondents since they will be able to assess what is the role of ICTs to their student life; moreover, they could identify the impact of these ICTs to them. To the teachers and administrators, the result of this study could lead them to the path of creating more useful programs for the students. To the parents they will be able to identify whether the use of ICTs augment or not their children's school performance. This is also helpful to others researchers for the reason that this may guide them to find out answers of some other questions in relation to this study.

Scope and limitations, this study limits only to the role of ICTs, impact to class performance and the effect to the social, recreational and sports activities of the respondents who are officially enrolled the 1st semester of SY 2013-2014 at MSU-IIT in Iligan City.

METHODS

Research design, the descriptive survey method is utilized in this study. **Setting**, the research is conducted at MSU-IIT in Iligan City. **Respondents**, the survey questionnaire is administered to the students randomly selected from those who are officially enrolled in the 1st semester for the school year 2013 – 2014.

Research instrument, the tool utilized in this study is a mixed instrument. A researcher-made checklist is used in gathering the data to determine the role of ICT to students' class performance. This study articulated the nine role of technology as follows: (1) bountiful informative resources are through the ICT; (2) application on what is learned from the ICT resources is a lot easier; (3) crucial issues are learn and familiarity with web-based learning is through ICT; (4) the use of technology in the classroom signifies a significant meaning in assessing students' performance; (5) ICT help the students to grow academically better than the traditional learning style; (6) the extent of class performance increases because of the ICT; (7) these technological resources shape classrooms activities; (8) Academic or non-academic research can be done easily through ICT; (9) the use of ICT creates a friendly and economically viable environment that is conducive to learning in any corner in the world.

This checklist survey form is also aided by the nine types of practices regarding the use of ICT taken from the paper of Newhouse, (2002). The items enumerated by Newhouse, (2002) are adapted in the present study; however, modifications are made on the corresponding research questions to suit the respondents. They are converted into declarative sentences and considered as indicators in this present study to measure the impact of ICT to students' learning. There are nine types of practices in the use of ICT. Indicators in a declarative statement follows after each type of practices namely: (1) Investigate reality and build knowledge: I am able to investigate the real world and build broader and deeper knowledge base using up-to-date information; (2) Promote active learning and authentic assessment: I am encourage by ICT to be active as participant in my own learning and I learn by doing; (3) Engage students by motivation and challenge: ICT provide more motivating and challenging learning experiences that encourage me to be more engaged with my learning; Provide tools to increase student productivity: ICT has been used to increase my productivity, particularly with repetitive, low-level tasks involving writing, drawing and computation that are not the main focus of study; (5) Provide scaffolding to support higher level: ICT has been used to support the development of my higher level thinking skills such as application, analysis and synthesis; (6) Increase learner independence: ICT has been used to provide learning experiences when and where they are needed, and I am encourage to demonstrate my independent learning and progress; (7) Increase collaboration and cooperation: ICT has been used to support learning experiences that involve cooperation among learners within and beyond school and a more

interactive relationship between students and teachers; (8) Tailor/modify learning to the learner: ICT has been used to support more individualized learning programs and provided my learning experiences based upon my personal learning characteristics and needs; (9) Overcome physical disabilities: Students with physical handicaps used ICT input and/or output devices to be involved in similar learning activities as other students.

Data gathering procedure, the survey checklist instrument was administered to the students randomly selected and considered as respondents of this study. After they have finished answering the instrument it was then be collected, tallied, analyzed, interpreted and presented.

Treatment of data, for discussion purposes of this study, frequency and percentile distribution are used to interpret the respondents' answers with respect to period of time they consumed with the use of ICTs. Moreover, the researcher the weighted mean computation in analyzing the gathered data to arrive at the findings, conclusion and recommendations on the results of this study.

Additionally, the researcher constructed hypothetical mean range, provided its qualitative description and verbal definition for each corresponding numeric value to further explain the gathered data as follows:

Numeric Value	Hypothetical Mean Range	Qualitative Description (QD)	Verbal Interpretation (VI)
1	1.00 – 1.75	Disagree / Never	- means that ICT has insignificant role or impact to the students; thus, it did not helps the respondents' learning at all; - means that it has no effect at all to social, recreational and sports activities; thus no action for enhancement of students' information and appreciation on the use of ICTs is needed
2	1.76 – 2.50	Tend to Disagree / Less Great Extent	- means that ICT has slight role or impact to the respondents; thus, it helps to respondents' learning at some time; - means that it has an effect sometimes to social, recreational and sports activities; thus few actions for enhancement of students' information and appreciation on the use of ICTs is needed
3	2.51 – 3.25	Tend to Agree / Great Extent	- means that ICT has moderate role or impact to the students; thus, it extends reasonable help to respondents' learning most of the time; - means that it has an effect at most of the time to social, recreational and sports activities; thus moderate actions for enhancement of students' information and appreciation on the use of ICTs is needed

4	3. 26 – 4.00	Agree / Very Great Extent	- means that ICT has great role or impact to the students; thus, it helps them augment respondents learning at all times; - means that it has an effect at all times to social, recreational and sports activities; thus extensive actions for enhancement of students' information and appreciation on the use of ICTs is needed

RESULTS AND DISCUSSION

This section presents the output of the study. Discussion on the results and interpretation of the gathered data are illustrated in this part to fully understand the role, and impact of ICTs to the learning of the students. The effects on the use of ICTs to social, recreational and sports activities are also described below.

The Number of Hours Spent for the use of ICTs outside the School. In Table 1 it can be noticed that none of the respondents use ICTs for more than twelve hours. There are only very few (5.41%) of them use ICTs for seven to nine hours.

Table 1.
Number of Hours Using ICTs Outside the School.

Number of hours	Frequency	%
none	9	8.10
1-3	46	41.44
4-6	32	28.83
7-9	6	5.41
10-12	18	16.22
More than 12	0	0

More than forty percent (41.44 %) of the respondents spent for one to three hours in a day using the ICTs outside the school. The result signified that the greater number of the respondents use only few hours (1-3 hours) of their time for ICTs outside the school.

Type of ICTs Used for Long Period of Time, there are three types of ICTs utilized in this study namely: internet, mobile phones, and social network sites. The respondents are asked which among these three are used by them for long period of time in a day. The respondents of this study demonstrate that almost thirty percent (29.73%) of them use mobile phones for more than twelve hours in a day. The number of hours that they use for mobile phone is followed by social network sites (28.83 %). It is sad to note that among the three types of ICTs, the use of Internet for academic works is the least used among the three types of ICTs mentioned.

Table 2.
The Type of ICTs Used for Long Period of Time Everyday.

	None		1-3 hours		4-6 hours		7-9 hours		10-12 hours		More than 12 hours	
ICTs	F	%	F	%	F	%	F	%	F	%	F	%
1. Internet for												

academic works	2	1.80	55	49.55	19	17.11	15	13.51	-	-	20	18.02
2.Mobile phones	8	7.21	30	27.03	20	18.02	15	13.51	5	4.50	33	29.73
3.Social network sites (Facebook, Skype, YouTube and others)	2	1.80	50	45.05	18	16.22	9	8.11	32	28.83	-	-

The outcomes invited the researcher's impression that despite the Internet makes the academic works of the respondents a lot easier still it did not encourage them to use it for enhancement and preparation for classroom activities. This result confirms the idea expressed by Wessel, (n.d.) which says that ICT does not and will not change the way people learn since knowledge building is an individual process and cannot be handed over to computers.

Meanwhile, it is evident in the results that the respondents utilized much of their time (10 – 12 hours) in social network sites. This result have the chance to entertain Trucano's, (2005) presumption that, "high computer use outside of school is disproportionately devoted to computer gaming" in the sense that other social network sites may include computer games.

ICTs Role to Respondents' Life, in many ways in the present time, the internet, social network sites like Skype, Facebook, YouTube, and mobile phones are types of ICT that bring convenience and expedience to people's activities. The jobs of the people become trouble-free and effortless through the use of ICTs. The table below presents the role of ICTs in the life of the students.

Table 3.
The Role of ICTs to Respondents' Life as a Student.

Indicators	μ	QD
1. Bountiful informative resources are through the ICTs.	3.48	A
2. Application on what is learned from the ICTs resources is a lot easier.	3.50	A
3. Crucial issues are learn and familiarity with web-based learning is through ICTs	3.48	A
4. The use of technology in the classroom signifies a significant meaning in assessing students' performance.	3.53	A
5. ICTs help the students to grow academically better than the traditional learning style.	3.37	A
6. The extent of class performance increases because of the ICTs	3.54	A
7. These technological resources shape classrooms activities.	3.52	A
8. Academic or non-academic research can be done easily through ICTs	3.49	A
9. The use of ICTs creates a friendly and economically viable environment that is conducive to learning in any corner in the world.	3.59	A

Legend:

Hypothetical

Mean Range Qualitative Description (QD)

1.00 – 1.75 - DA - Disagree

1.76 – 2.50 - TTDA - Tend to Disagree

2.51 - 3.25 - TTA - Tend to Agree

3.26 – 4.00 - A - Agree

There are nine indicators utilized by the researcher to determine the role of ICTs in the life of the respondents. As assessed by them, they expressed their agreement that all the nine indicators

have great roles to their academic or non-academic learning. Furthermore, this result signifies that ICTs augment or supplement their learning at all times. More importantly, the ICTs create a pleasant environment for the students to interact in the world.

The results of the study in many ways agree the theory of Jonassen, et al., (2012). Their words implied that meaningful learning can be supported by ICT in many ways. These are tool to support the construction of knowledge, a means of information, medium for socialization, and a partner to gather intelligent ideas. They further stressed that discussions of issues which involve a group of people across the globe becomes possible through the use of ICTs.

ICTs Impact to Respondents' Learning, the role of ICTs is not the only concentration of this study. The impact of their usage is also investigated. It is clear in the results of the study that the respondents demonstrated their answer within the range of great extent and very great extent.

Table 4.
The Impact of the Use of ICTs to Respondents' Learning.

Indicators	μ	QD
1. I am able to investigate the real world and build broader and deeper knowledge base using up-to-date information.	3.25	GE
2. I am encourage by ICT to be active as participant in my own learning and I learn by doing.	3.45	VGE
3. ICT provides more motivating and challenging learning experiences that encourage me to be more engaged with my learning.	3.32	VGE
4. ICT has been used to increase my productivity, particularly with repetitive, low-level tasks involving writing, drawing and computation that are not the main focus of study.	3.41	VGE
5. ICT has been used to support the development of my higher level thinking skills such as application, analysis and synthesis.	3.50	VGE
6. ICT has been used to provide learning experiences when and where they are needed, and I am encourage demonstrating my independent learning and progress.	3.45	VGE
7. ICT has been used to support learning experiences that involve cooperation among learners within and beyond school and a more interactive relationship between students and teachers.	3.23	GE
8. ICT has been used to support more individualized learning programs and provided my learning experiences based upon my personal learning characteristics and needs.	3.36	VGE
9. Students with physical handicaps used ICT input and/or output devices to be involved in similar learning activities as other students.	3.40	VGE

Legend:

Hypothetical

Mean Range Qualitative Description (QD)

1.00 – 1.75 - N - Never

1.76 – 2.50 - LGE - Less Great Extent

2.51 - 3.25 - GE - Great Extent

3.26 – 4.00 - VGE - Very Great Extent

The table above presented that two of the indicators got the same degree of impact to the respondents' independent learning and progress and they learn by doing. The respondents rated them at very great extent. This means that ICT has great impact to the students; thus, it helps them augment their learning at all times. The assessment given by the respondents does not absolutely agree with the findings of Krogt et al., (2009). Since that in their study they observed that ICTs positive impact to students learning performance is only seven percent.

Effects of the Time Spent for ICT Usage to Social, Recreational and Sports Activities, moving on to the other part of this study, the effects of the time spent in the use of ICTs to social, recreational and sports activities are also given importance in this study.

Table 5.
The Effects of Time Spent for ICT Usage to Social, Recreational, and Sports Activities.

Indicators	μ	QD
1. The period of time I spent with ICT affect my social activities.	2.90	GE
2. The period of time I spent with ICT affect my recreational activities.	3.06	GE
3. The period of time I spent with ICT affect my sports activities.	2.55	GE

Legend:

Hypothetical

Mean Range Qualitative Description (QD)

1.00 – 1.75 - N - Never

1.76 – 2.50 - LGE - Less Great Extent

2.51 - 3.25 - GE - Great Extent

3.26 – 4.00 - VGE - Very Great Extent

As shown in the table above the respondents of this study illustrated that the time they spent for the use of ICTs affects their recreational, social and sports activities at great extent. This signifies that it has an effect to the students at most of the time. Jonassen, et al., (2012), still believe that teachers are effective when it comes to teaching and students' learning than computers and other technologies. Trucano (2005) affirmed. Furthermore, Trucano declared that, "the use of ICTs creates and allows learners to have the opportunity to develop their creativity, problem-solving abilities, informational reasoning skills, communication skills, and other higher-order thinking skills," (2005). However, there are other aspects in students' life which needs the cautious assistance of the teachers. When the recreational, social and sports activities are affected due to the use of ICTs then moderate actions for enhancement of students' information and appreciation on the use of ICTs is needed.

CONCLUSION AND SUGGESTION

Findings, after the gathering of data all facts in relation to this study are interpreted and the researcher draws the following findings:

1. Outside the school only few hours are used by almost majority of the for ICTs and none of them uses more than twelve hours
2. the use of Internet for academic works is the least used ICT by the respondents
3. respondents declared that ICTs has great roles to their academic or non-academic learning and as such their learning is at all times augmented
4. the impact of ICTs to the respondents are demonstrated from great extent to very great extent
5. Among the recreational, social and sports activities, the latter is the type of activities which are less affected by respondent's time used for ICTs

Conclusion, the student life does not end when one is already outside the school since learning comprises academic and non-academic. Although the respondents of this study expressed in their assessment that the ICTs help them at great extent but they did not use much of their time to a more fruitful activity which is the academic works. As students the activities which involve school works must be given priority since their learning will be at stake. The positive perception of the respondents to the role and impact of the use of ICTs show that modern technologies are useful; however, careful management and utilization of these devices should be well taken so that other activities like recreation will not be much affected.

Recommendations, in the light of the findings and conclusion the following recommendations are drawn:

1. Students should be more cautious in the utilization of ICTs either within or outside the school so that time and money spent will yield good fruits and goals for success will be attained.
2. School administrators should organize ICT enrichment programs in the school which give the students more time to deeply understand the importance and relevance of the use of ICTs in their academic works in this present time.
3. Teachers being the second parents of the students must take actions for enhancement of students' information on the use of ICTs since the effects in students' recreational activities may also affect their appreciation on some other school activities like sports. They need to educate their students on the use of ICTs through integration of this matter in some of their classroom discussions. In addition, teachers must encouragement the students to use the Internet for enhancement and preparation of their classroom activities to ensure learning intensification.
4. Parents should conduct regular monitoring on how their children use ICTs at hand in order that their children will be reminded often that ICTs are good and useful when they are utilize in proper and appropriate manner.
5. Other researchers may investigate further on the reasons that intertwine why that there are only few hours used by students for ICTs outside the school.

REFERENCES

- Ahmedani, B.K., Shifflet-Gibson, E., Fitton, V., & Harold, R.D. (2009). *The impact of information technology (IT) on psychosocial development among youth*. retrieved December 28, 2012 from <http://sswr.confex.com/sswr/2009/webprogram/Paper10435.html>
- Campos, M., (1998). *The Progressive Construction of Communication: Toward a model of cognitive networked communication and knowledge communities*. Faculty of Arts & Sciences, University of Montreal. *Canadian Journal of Communication* Vol 28, No 3 (2003) retrieved December 28, 2012 from <http://www.cjc-online.ca/index.php/journal/article/viewArticle/1373/1446>

- Ewing, J & Miller, D. (2002). *A framework for evaluating computer supported collaborative learning*. *Educational Technology & Society*. ISSN 1436-4522 Retrieved December 28, 2012 from http://www.ifets.info/journals/5_1/ewing.html
- Jonassen, D., Howland, J., Marra, R.M., & Crismond, D. (2012). *How does technology facilitate learning?* Pearson Allyn Bacon Prentice Hall. Education.com, Inc. retrieved December 28, 2012 from <http://www.education.com/reference/article/how-does-technology-facilitate-learning/>
- Krogt, S., Chavez, O. (2009). *Using ICT in the classroom will improve a child's academic performance*. Centro de Promoción Agropecuarios Campesino. (CEPAC) retrieved December 27, 2012 from <http://www.iicd.org/files/Survey%20about%20the%20impact%20of%20ICT%20on%20childrens%20progress%20in%20education.pdf>.
- Newhouse, P. (2002). *The Impact of ICT on learning & teaching*. Literature Review. Western Australian Department of Education. Retrieved December 27, 2012 from <http://www.det.wa.edu.au/education/cmis/eval/downloads/pd/impactframe.pdf>
- Tomie, L.A. (2005). *International Journal of Information and Communication Technology Education (IJICTE)* doi: 10.4018/IJICTE. An Official Publication of the Information Resources Management Association (Robert Morris University, USA) retrieved December 30, 2012, from <http://www.igi-global.com/journal/international-journal-information-communication-technology/1082>
- Trucano, M. (2005). *Knowledge Maps: ICTs in Education*. Washington, DC: infoDev / World Bank. Retrieved September 21, 2012 from <http://www.infodiv.org/en/Publication.154.html>
- Wessel, W. (n.d.). *Providing professional development to assist teachers with integrating information and computer technologies (ICT) into their professional practice*. Saskatchewan School Trustees Association (SSTA) Research Centre Report #00-03. Retrieved December 28, 2012 from <http://www.saskschoolboards.ca/old/ResearchAndDevelopment/ResearchReports/Instruction/00-03.htm#Potential>



LEARNING MODEL DEVELOPMENT APPROACH SHOT PUT WITH GAME FOR STUDENTS GRADE V ELEMENTARY SCHOOL

Ni Putu Nita Wijayanti

Sports Coaching Education Study Program, Sports Education Department, Faculty of Teachership and
Education, Riau University

nitawijayanti87@yahoo.com

Abstract

The observation research in Pendem Elementary School is to produce instructional learning model of basic shot put motion with games for V elementary school. This research was conducted to obtain further information about: the development and application instructional learning model with games for V elementary school, and knowing the effectiveness, and appeal the development of instructional learning model of basic shot put motion with games for V elementary school. The design of this research was using Borg and Gall's Research and Developmental model, with 30 students became the object of this research. The instrument used in this research were questionnaires to collect the data on: (1) need assessment, (2) evaluation from experts (initiation product evaluation), (3) limited trial (trial in small group); and (4) the main trial (field testing). To improve the effectiveness of the model was using a assessment of shot put psychomotor motion. The result have shown 20,75 in addition t-table 1,86, it is mention the instructional learning model of basic shot put with games is better than conventional learning models.

Keywords: shot put motion, sport learning elementary, learning by games

INTRODUCTION

Innovation in various spheres of life is an necessity either in technology or education. Changes in human life that is always happens according to the times transformation, is a logical consequence of these changes. Innovation in education must continue to be done, so that the activities in education are always increase quality. Some things that must be experienced innovation in physical education subject among others, teaching methods, approaches in the learning process, learning tools, etc.

The results of various researchers who conduct observation for several elementary schools in Jembrana Regency shown most of the student were not eager to follow the lessons in athletics when compared to the other subjects. The learning method of physical education are really monotonous and there is no element of children games, it is inversely proportional to the character of the kids who love expression and play especially if the learning subject is throwing, be it throwing, javelin, and shot put.

According with the statements above, the researchers conducted a preliminary study carried out on 9 August 2011, researchers conducted interviews in the form of filling questionnaire to teachers and student in elementary school at Jembrana Regency. The analysis results showed that the learning outcomes of V students in elementary school with a shot-learning object using lecture method and demonstration as much as 65% complete and 35% did not complete. The percentage of football and gymnastic are better when compared with athletic, data shown 85% complete and 15% did not complete for soccer and gymnastics Most of students did not like athletic. The analysis result shown teachers need to improve teaching method for basic moving of shot put with children habits, it can be used as a solution in learning basic motion shot put more effective and fun.

Learning model development approach shot put with games, play and games are two terms that are often used interchangeably, which is where a person who played it did a game and the game is something that is played. Children play means the child to a game. Motion in play is a vehicle to stimulate and motivate to encourage and stimulate learning problems, through the study of motion spur children to think and know on why and how, thus playing an important role in the development and movement of knowledge and development of children. A child can do the physical activity with powerful yet naturally and can enjoy the game with pleasure (Thomas, R. Jerry and Katherin T. Thomas, 2008: 5).

Basic motion athletic skills should be taught to children starting in the early years in primary school, which perform various forms of motion walking, running, jumping, and throwing. Experience gained motion children originated from forms of simple motion that consists of three categories of motion, namely: locomotor, non locomotor, and manipulation. The establishment of basic athletic motion is an attempt to divert a boost in the forms of movement that has held children before entering school into forms of basic movements that lead to the basic athletic movements.

Throwing materials in physical education intended to develop skills with good throwing motion. Learning programs in addition to the introduction of the throwing motion to develop the physical abilities of children in the act to a form of movements with his limbs to be more skilled in using tools, as well as the introduction of a basic throwing motion that led to the throwing events in athletics. Play and games are two terms that are often used interchangeably, which is where a person who played it did a game and the game is something that is played. Children play means the child to a game. Motion in play is a vehicle to stimulate and motivate to encourage and stimulate learning problems, through the study of motion spur children to think and know on why and how, thus playing an important role in the development and movement of knowledge and development of children. A child can do the physical activity with powerful yet naturally and can enjoy the game with pleasure (Thomas, R. Jerry and Katherin T. Thomas, 2008: 5).

Basic motion athletic skills should be taught to children starting in the early years in primary school, which perform various forms of motion walking, running, jumping, and throwing. Experience gained motion children originated from forms of simple motion that consists of three categories of motion, namely: locomotor, non locomotor, and manipulation. The establishment of basic athletic motion is an attempt to divert a boost in the forms of movement that has held children before entering school into forms of basic movements that lead to the basic athletic movements.

Throwing materials in physical education intended to develop skills with good throwing motion. Learning programs in addition to the introduction of the throwing motion to develop the physical abilities of children in the act to a form of movements with his limbs to be more skilled in using tools, as well as the introduction of a basic throwing motion that led to the throwing events in athletics.

METHODS

Research and development rejected the motion of the base model of learning a bullet with a game for V primary school students is specifically there is some purpose among others: 1) Develop and apply the model of learning the motion of the base of shot put with a game for children in V elementary school. 2) Obtain empirical data about the effectiveness of the results of the development of learning the motion of the base of turning a bullet with a game for children in V elementary school. The ultimate goal of the development of this research is to produce product in the form kind of classroom basic motion shot put with the game, in order to help the learning process of the technology more effectively.

This research was conducted at the State elementary school 1 Pendem, District Jembrana, Jembrana - Bali and held for one month, on March 1, 2012 until March 29, 2012, with the frequency

of research is one time per week. Subject retrieval technique applied in this research is purposive sampling, which is also known as sampling considerations or based on certain considerations.

Instruments used in this research is to use a questionnaire for requirements analysis, expert evaluation questionnaire about product development and psychomotor student assessment results (in trial phase I and phase II trials). The data obtained and analyzed data for each expert, which includes physical education learning experts, expert / athletic trainers, and physical education teachers. To determine the effectiveness of the product in the form of basic learning model motion shot put with a game in trial & error to students has been successful or not, then the data should be collected, namely: data about psychomotor abilities of students in mastering the learning shot put. Psychomotor abilities of students were measured students' skills in doing shot put orthodox style that includes the step prefix, repulsion, and advanced motion. This data collection is done in small groups while testing and field trials.

Here is the explanation for the shape of the test and field trial data capture small and large groups: **1) Conceptual definition**, Reject bullet is the body's ability to resist bullets made of brass or metal as far as possible, through the movement of the prefix, repulsion and advanced motion. **2) Operational definitions**, learning ability in doing shot put with a learning model with the game of the student is the result obtained to determine mastery learning taught. Psychomotor value obtained from the total score of the students in performing the test elements were assessed motion of truth in the conduct of every movement shot put. The indicators in value, among others: a) Prefix, b) the movement refused, c) the motion continued. **3) Type Instruments**, To measure student learning outcomes in the form of value psychomotor shot put then developed a test. Motion indicators that successfully implemented will be given a score of 3 if appropriate motion indicator, a score of 2 when almost accordance with the motion indicator, and a score of 1 if it does not comply with the motion indicator. **4) Grid Instrument Rating Psychomotor Shot Put Orthodox style**, grille was developed in accordance with the material in the primary school curriculum with reference to Bloom's Taxonomy of Learning Outcomes focused on psychomotor. **5) Test Validity and Reliability**, validity Testing, conducted in order to determine the extent to which the test can measure precisely the aspect which will be measured. Based on this, then test the validity of this test is to use expert justification test, where the instrument has been prepared consulted with experts (experts), the shot put coach, expert physical education, and physical education teachers. Testing reliability, psychomotor assessment instruments shot-tested with test re-test done in a way to test the same instruments as much as two (2) times the test series testee. In this case the same instruments, the same respondents, and at different times. Reliability of the instrument will be calculated by correlating between instrument data on the first test and the second test data instruments. Shot put psychomotor assessment instrument using the formula product moment correlation (Pearson).

RESULTS AND DISCUSSION

Learning Model Development, development of basic learning model motion shot put with this game is written in the form of a script or storyboard script that presents a learning model forms the basis of motion in the shot put with a modified form of learning basic motion approach shot put, which is applied in the game. The initial draft of the development model in this study are 8 basic learning model motion shot put with a game, including: (1) reject the game in pairs, (2), the game throws a rubber ball, (3) the game refused passed crossbar, (4) the game refused target used tires, (5) refusing games tin target, (6) the game refused handball, (7) game shot put hurdle, (8) motion games overall.

The results of tests conducted on a small group of 8 models of learning with games by experts, the overall subject of the trial obtained a score of 407 out of a maximum score of 456 or with the average percentage of the use of models by 89% so that the use of models in this development can be categorized valid and suitable for use in the development of basic learning

model motion shot put with a game for fifth grade students of elementary school. However, based on the results of the analysis of each model is obtained model 2 is the game throws a rubber ball to get a total score of 9 out of 24 total score, so the calculation is obtained 38%. This means that the model 2 is less valid for use. Model 2 which throws a rubber ball game model based on the results of the validation experts expressed less feasible to be used, so in this study throws a rubber ball game model is not used.

The effectivity of model. **1) Result From Small Group**, to see effectiveness basic learning model motion shot put with a game needs to be tested in the fifth grade elementary school students. Friendlies small group in this study conducted in 1 elementary school of Sangkaragung. Assessment data from 10 students to the effectiveness of conventional learning model. The obtained amount of data conventional learning is 227. Thus, the effectiveness of conventional learning models overall = $227: 330 = 0.69$ or 69% of the expected criteria. The obtained by the amount of data development learning model is 269. Thus, the effectiveness of a new learning model as a whole = $269: 330 = 0.82$ or 82% of the expected criteria. To prove the significance of differences in conventional learning models and the new, it needs to be tested statistically by t-tests were correlated (related). To make a decision, whether the comparison is significant or not, the price of the t is necessary compared to the price table with dk $t_{n-2} = 8$. Based on the annex table II in the values of the t distribution, when $df = 8$, to test one parties with an error level of 5%, then the price of t table = 1, 86. Based on calculations using the t-test correlates obtained t count fell on the area 20.75 Ha acceptable or rejection of H_0 . Thus it can be concluded that there are significant differences (generalizable) the effectiveness of new and existing learning model, where new learning model is better than the old learning model (conventional).

The effectivity of model. **2) Result of Large Group**, after the results of product development learning basic motion shot put with a game for Elementary School fifth grade students tested on a small scale and has been revised, the next step is to test a large group (group field try out). Based on the results of limited tests (testing small groups) that have been evaluated by experts, then researchers conducted a revision of the product and obtain 7 models to be used in a large group trials (field group try out). Based on the results of tests carried out on a large group of 7 models of learning with games by experts, obtained a score of 398 out of a maximum score of 432 or with the average percentage of the use of models by 92% so that the overall use of the model at this development can be categorized valid and suitable for use in developing basic learning model motion shot put with a game for fifth grade students of elementary school. According to expert opinion on the second revision is no need to be revised because of all the aspects already meet the standards to be implemented by testing efektifivitas product dissemination in the learning process. The next step after the model was revised phase II of experts then continued by trying out the product to a large group (group field try out) using the study subjects were 30 students at 1 elementary school of Pendem. The obtained the number of data = 827.67. Thus the effectiveness of a new learning model as a whole = $827.67: 990 = 0.84$ or 84% of the expected criteria.

From the test results of small groups (small group try out) and test large groups (field group try out) it can be concluded that the development of basic learning model motion shot put with the game effectively provided to the fifth grade elementary school students. The final draft of the development model in this study are 7 basic learning model motion shot put with a game, including: (1) reject the game in pairs, (2) reject the passing game bar, (3) games reject targets used tires, (4) the game refused tin target, (5) refusing handball game, (6) games hurdle shot put, (7) the overall motion games.

The calculations in Table 4 it can be concluded that the development model of the development of basic motion shot put with this game is very effective in teaching physical education, especially on material shot put orthodox style. The percentage obtained from analysis of

the data is 84%. This means that there are some weaknesses that should be corrected in future studies is approximately 16% of the target has not been achieved.

This is due to there are some things that need to be refined, which are: (a) This model is a new model in its implementation on the ground so that the students a little trouble and need a detailed explanation and binding rules, in addition to the provision of basic motion shot put right urgently needed in the implementation of this model. (b) Facilities and infrastructure of the schools is very limited, such as: the field is too narrow, resulting in the implementation of this model should be adjusted back to the field, as well as other infrastructure, (c) Rainy season which often falls during the study sufficient influence the research process and influence the motivation of students.

Products developed aims to help improve the achievement of learning goals for physical education material specifically shot put for fifth grade elementary school students through the learning process effective. This model is based on the activity level of children's needs in motion, which is psychologically children aged 11-12 years class V is more pleased with the activity of playing, then in this model implementation is done by the principle of the game with a binding code of conduct.

The second stage of the test results using this model it produces 84% of the expected target, this model is an effective means to meet the learning needs of shot put for fifth grade students of primary school. The subjects were taken in the study are schools that do not have adequate sports infrastructure. This gives the view that when the model is applied in schools with sports facilities and infrastructure are complete, then the implementation will be better and more perfect.

This product once studied on several weaknesses that need improvement, it can be delivered several advantages of this product include: (a) Generate adequacy of movement for students, (b) Non standard equipment must wear a standard bullet, but it can also use a rubber ball or grapefruit that have the same characteristics with bullets, in addition also has a high level of security, (c) Although it requires means more than the conventional learning but the concept of "play while you learn" is able to be applied. This is very appropriate to the characteristics of students aged 10-12 years, (d) Students were active, happy and enthusiastic, (e) The game is done from easy to difficult, (f) The level of competition is high so as to make the students more excited.

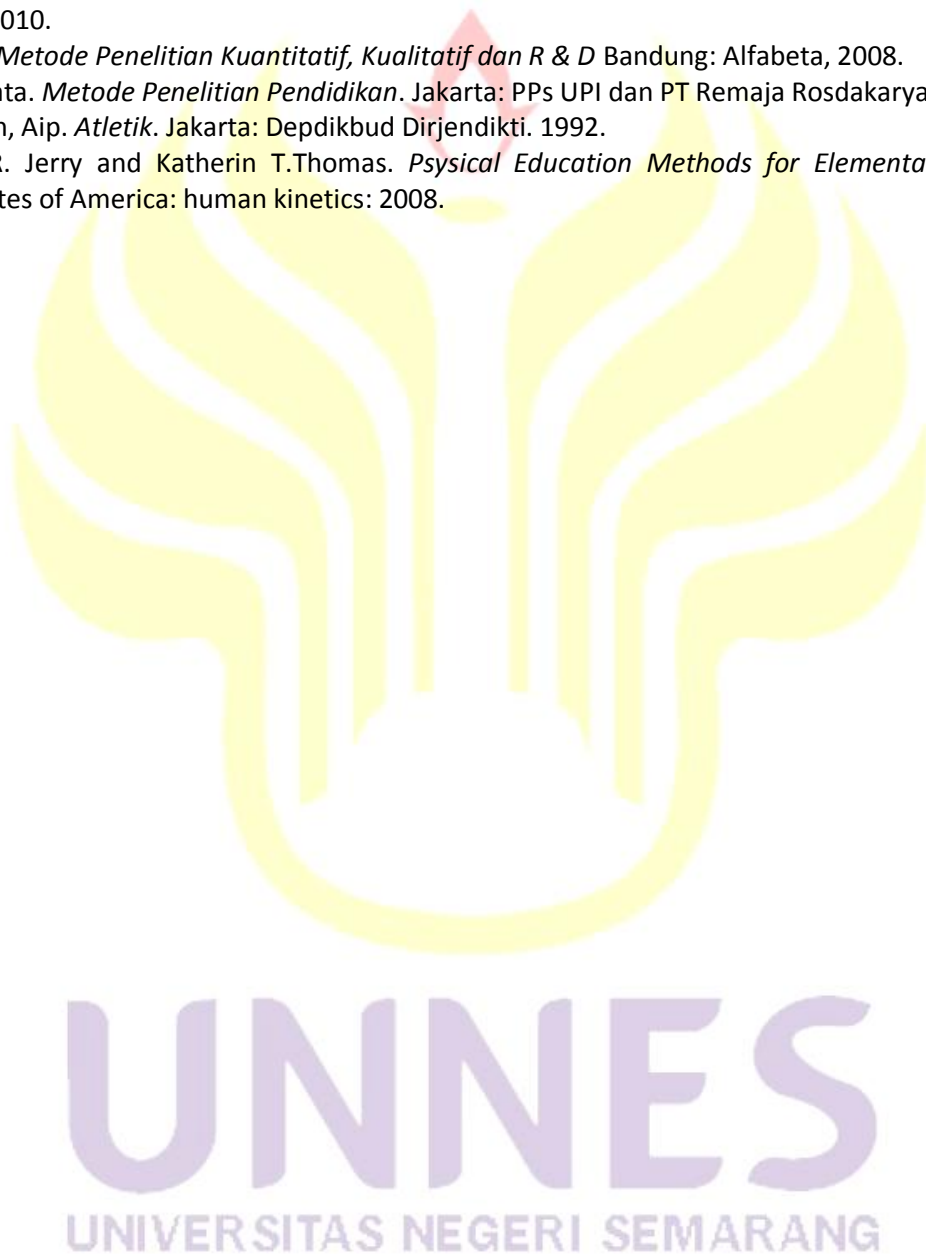
CONCLUSION AND SUGGESTION

Conclusion, Based on the data obtained, a small group of test results and field trials as well as the discussion of the results, it can be concluded that: 1) With the basic learning model motion shot put with a game ,, elementary school fifth grade students who follow learning with material shot put can learn effectively. 2) With the development of basic learning model motion shot put with a game that has researchers developed can be used as a reference for elementary school teachers, especially in class V in the learning process.

Suggestions, in this section we put forward some suggestions put forward by investigators in connection with the learning model developed. **Suggestions Utilization,** product development is a model of learning basic motion shot put with a game that can be used as a teaching model by elementary school teachers, which in utilization need to consider the situation, conditions and infrastructure. **Suggestions Dissemination,** before being distributed learning model should be a basic motion shot put with this game back better prepared, among others, on the packaging and the content of the materials developed learning model, then copied/printed. **Suggestions Further Development,** for the study subjects should be conducted on a broader subject, whether it comes from the sheer number of subjects and the number of primary school used as a test group. Results of development of basic learning model motion shot put with this game can be distributed to all elementary school teachers in Indonesia. Similarly, suggestions for use, Dissemination, as well as further product development to the development of basic learning model motion shot put with this game.

REFERENCES

- Bowerman, J. William dan. Freeman, William. *High Performance Training for Track and Field*. United State of America: Human Kinetics Publisher, Inc, 1991.
- Samsudin, *Pembelajaran Pendidikan Jasmani Olahraga dan Kesehatan SD/MI*. Jakarta: Litera Prenada Media Group, 2008.
- Setyosari, Punaji. *Metode Penelitian Pendidikan dan Pengembangan* Jakarta: Prenada Media Group, 2010.
- Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif dan R & D* Bandung: Alfabeta, 2008.
- Sukmadinata. *Metode Penelitian Pendidikan*. Jakarta: PPs UPI dan PT Remaja Rosdakarya, 2005.
- Syarifuddin, Aip. *Atletik*. Jakarta: Depdikbud Dirjendikti. 1992.
- Thomas, R. Jerry and Katherin T.Thomas. *Psysical Education Methods for Elementary Teachers*. United States of America: human kinetics: 2008.



HIGAONON DANCES: ITS IMPLICATION FOR CULTURAL IDENTITY, PEACE & DEVELOPMENT

Rebecca M. Alcuizar¹, Corazon T. Biong², Arlene Reyes³

^{1,2,3}Mindanao State University-Iligan Institute of Technology (MSU-IIT), Iligan City, Philippines

¹Alcuizar44@yahoo.com

Abstract

The Philippines consist of 7,107 islands, and is broken down in three groups of islands, Luzon, Mindano, and Visayas. Each of these regions contain different culture, traditions and beliefs with each region having different influence in their arts, crafts, and dances. A lot of these arts and dances represents thanksgiving, adoration of their gods and goddesses, hardships and daily breaking tasks, that have turned into an art form. This study presents an ethnographic overview of the Higaonon culture which emphasized the sacred and their world view, beliefs, values and customs that they define their own forms of governance, as well as their customary laws. The identity of the said tribe will be more appreciated and understood through the gathered dances, that will lead to understanding of their culture and practices for peace in their community. Observations and interviews were the two primary methods used to gather important data on this study. Descriptive method was also utilized to describe the meaning, movements of the arms, and the step patterns which reflect their cultural identity. The result of the study revealed that they have common costumes, accessories, adornment and accompaniment used in different dances. Their costume used only three (3) colors that will identify their tribe and culture. These are **Red** which means bravery of their tribal leaders to protect the members of the tribe, **White** for purity and sincerity to their beliefs and traditions, and **Black** which stands for loyalty to their customary laws. Moreover, the Higaonon used "gong" and "tambol" for their accompaniment in all their dance presentations. The Higaonon dances revealed their beliefs, traditions and practices.

Keywords: indigenous dances, culture

INTRODUCTION

The Higaonon's vanishing ancestral traditions and customary laws used to define dances as their social relationships and values and promoted efficiency for economic development. Hence it is important to preserve the almost forgotten culture of these minority group. Preservation of Higaonon culture is very important in order to incorporate such an essential part of our history into our general national development process. Our strategies of national development would therefore depend on the understanding of the culture, the adaptation of its elements for political, educational and economic development as well as its strengths for social integration and for peace development as well (Ddatu Soong).

Studying the Higaonon dances will arouse the interest of teachers, researchers and local government to do parallel researches that will help not only in the promotion and popularization of their culture, but also in bridging the cultural gap between the past and the present generations and other cultural groups. Thus, strengthening and enhancing peace and development of the locality through their original dances. The new generation will be made to realize how important it is to have a culture of their own as characterized in their almost forgotten dances which are worthy of promotion and preservation.

The respondents of the study were the Higaonon who lived in Barangay Rogongon, one of the 44th and farthest Barangay in Iligan City, Philippines, where majority of the residents are Higaonon. There are three minority groups who lived in this Barangay, the Muslims, Christians and

Higaonon. The economic and other desired activities in this Barangay are: subsistence farming, timber pouncing and gold/copper panning for some residents. Their culture and values followed in a particular community, display its own unique identity. Being shared amongst various members of a community, the language, art, religion, and dance serve as the major symbols of culture, thereby distinguishing it from other cultures in the society. Further, they wanted to pass it on from the older generations to the newer ones, thereby keeping their culture enhanced and preserved.

This study aimed to discover and record the Higaonon dances, the steps, the music, rhythm, and the cultural implications of their dances for their own identity which may face extinction with the coming of modern civilization. The researchers, through this study, hopes to help in the preservation and promotion of the Higaonon cultural heritage and ultimately for peace in the community and economic development.

Likewise, this study presents an ethnographic overview of the Higaonon culture which emphasized a radical duality between the sacred and their world view, beliefs, values and customs that they define their own forms of governance, as well as their customary laws and norms. This will present a compilation of the Higaonon dances presented by the performers and explore the role of these Higaonon as agents of preservation of cultural knowledge that is no longer practiced in its traditional contexts.

METHODS

The methods used in this study were Observation and Interview. A thorough observation of the dances presented were done as well as interview to gather important data regarding their culture. Descriptive method was also utilized to describe the costume, dance patterns, adornment, accessories and props, musical accompaniment, as well as the characteristics that are inherent in the dance and how it relate to their culture. Interview with the Higaonon elders and local officials were also conducted to achieve substantial information to add to the historical and sociological background of the study. While having an interview observations were done with the participants and older residents present and the surroundings to familiarize the Higaonons' way of life and their peace and order situation.

This study have two (2) phases: **Phase I** is the Research Phase which conducted an interview with the Higaonon barangay officials, their dancers and Bais. In this phase the study used the ethnographic research method to make a careful investigation of the facts concerning the culture of the respondents and their cultural beliefs, traditions and customary laws. Information regarding their rituals, ceremonial celebrations, occupation, courtship, cultural conflicts, religious and other celebrations were also gathered. During the presentation of their dances, documentation were conducted using video camera and a thorough observation on the dance patterns, arm, hand and body movements for interpretation to come up with write up for each dance presented. Proper analyzes on the dances presented were done according to the dance steps, hand/arm movements and patterns; costume, adornments; accessories and props; musical accompaniment, notations; and significant body movements in relation to the life and culture of Higaonons. The dancers were provided by the researchers with proper costume and accessories for final documentation. **Phase II** will be the dissemination and presentation of the documented dances. These dances will be presented in the national dance workshops to be conducted by the Philippine Folk Dance Society (PFDS), since there are yearly national dance workshops conducted by this group. This will also be submitted to the National Culture and the Arts (NCCA), and different schools in the elementary, secondary and tertiary levels for complete implementation and dissemination to promote cultural awareness about the Higaonon culture, thereby promoting cultural preservation, peace and development in their community.

Hereunder are some of the questions asked during the interview:

1. *Who are the members of the tribal group/tribal leaders?*

2. *What is the way of living of the Higaonon?*
3. *What is the peace and order condition in the community and among the members of the tribe?*
4. *What is the name of the dance presented?*
5. *What cultural implication does the dance reflect?*
6. *How many color/s is/are prescribed for your tribe?*
7. *What is the meaning of the color/s of their costume?*
8. *What is the meaning of their arm and body movements?*
9. *What is the meaning of the props, accessories and adornment used by the dancers?*
10. *What is the name of the musical accompaniment used?*
11. *How did each dance reflect the culture of the Higaonon?*

RESULT AND DISCUSSION

To achieve peace in their community, the Higaonon indigenous leader system and leadership are governed by existing customary laws called Batasan. Batasan is a set of sacred customs, traditions and policies sanctioned through the religious beliefs and practices of the tribe. Being sacred, the leadership of the Higaonon community under the functions of customary laws is highly respected. The Datu is their mediator whose major role is to intervene in conflicting relationships in order to secure peace and harmony in the community in moments of crises, (Datu Soong).

The culture of the Higaonon tribe can be best described as peace loving people. They desire peace, harmony and balance forming comfortable life for the whole family and the community in general. Peace and stability are of high importance in promoting economic development of their tribe and their community. They practiced a set of rituals and traditions and other customary laws inherent in their culture. They gained a unique character and personality, being shared amongst various members of their community, the language, arts, and dances served as the major symbols of culture, thereby distinguishing it from other cultures in the city.

The Higaonon dances depict the culture of their tribe. It tells stories about their people, religion and their land. The identity of the said tribe was more understood, respected and appreciated which led to the development of peace in the community. The culture of the Higaonon has an ancient ritual for making peace or for settling modern-day conflicts as the *tampudas hu Balagun*, or the treaty of the green vine branch. Literally it means the cutting of the vine, and is symbolic of the act of cutting short feuds among Higaonons. *Tampudas*, according to oral traditions of the Higaonon, are re-enacted whenever feuds rise between groups (Datu Soong).

Higaonon dancers have common costumes, accessories, adornment and accompaniment used in different dances. Their costume used only three (3) colors that will identify their tribe and culture. These are **Red** which means bravery of their tribal leaders to protect the members of the tribe, **White** for purity and sincerity to their beliefs and traditions, and **Black** which stands for loyalty to their customary laws. Moreover, the Higaonon used "gong" and "tambol" for their accompaniment in all their dance presentations. The dancers used almost the same step patterns, and variations of their arm and hand movements which connote different meanings as being emphasized in each dance (Datu Soong).

The costume of the male dancers are polo shirt with a combination of a striped black, white, and red colors. The color of the pants is red decorated with a white rick rack tailored at the edge of the bottom part. Male dancers will also be wearing a headdress called "Tubao" which is made of cloth originally designed for them with the same combination of the designated colors for Higaonon tribe.

For the female dancers, blouse at waist length or just below the breast with bell shape sleeves at elbow length with a combination of three prescribed Higaonon colors (red, white and

black). There is one button at the back as opening. The blouse is accented by the same design or cutting horizontally along the neckline, along the lower part of the sleeve and along the abdominal line. The lower part of the blouse is decorated with a rick-rack white or red color tailored on its edge sleeve and the blouse itself. The Skirt is ankle-length and shirred skirt of the same color of the blouse, or red or white floweret's design accented by the same cutting, horizontally along the knee and the lower leg to the ankles. The lower part of the skirt at the edge is decorated by a rick rack of white or red color. Likewise, the dancers will be wearing a headdress named "Balading" put around the head with the decorations like a ball just hanging around the head. This headdress is made of thread with different colors that will match the colors prescribed for their tribe.

The accessories worn by the dancers are: necklace, earrings, bracelets and anklets made of beads with the three prescribed Higaonon colors the same with that of their costume. The dancers used the same accessories with those of other Higaonon Tribe in the different places of Mindanao, but it vary with the color as prescribed by its origin. The color of the beads used for their accessories will harmonize with the color of their costume. The dancers will be wearing also a headdress Made of thread that will match the color of their costume.

The musical accompaniment used in all the dances performed were "Agong or Gong" and Tambol.

Cultural Implications and Beliefs Reflected in the Dance for Higaonon Identity

As observed during the presentation of the dances, each dance connotes particular meaning that reflect their culture and traditions. Their body and arm movements have particular connotations, like the bending of trunk looking at the ground is the tribe's gestures of thanksgiving and praises for good harvest, goodwill or the like, which the tribesmen believed to be coming from the "anitos" or powerful gods and goddesses. The bending of the knees signified the tribe's reverence or adoration to their gods and goddesses to grant them abundance of harvest, and good health.

According to Tortosa, (2013), the imitation of animal movements, showed their respect to the animals around them and their love of Nature. The Higaonon believed that imitating the movements of the animals drive away the evil spirit and be befriended these creatures whom they believe are protectors to their tribe and give them access to enjoy the gift of life that nature offers. The movements of animals is their way of respecting the environment and the animals which they believed very useful for their existence and daily living. The dance likewise reflects the tribe's love for nature and merriment. The gestures of the dancers show their love and respect for each other and the creatures around them. This implies that Higaonon tribe are respectful, and peace loving people that should be worthy for preservation and pass on to the next generation.

To preserve the Higaonon cultural identity, their tribal leaders continue to celebrate their traditional activities of thanksgiving for good harvest, participating in Kaamulan Festival every September, and joining celebrations in their barangay to be recognized in their community. These activities were held not only to celebrate the events of the past, but also to inculcate in the minds of the youth the culture of the tribe, which then leads to its preservation.

CONCLUSION AND SUGGESTION

Based on the findings of the study, the researchers were able to manifest the following conclusions:

The Higaonon are peace loving people following their traditional customary laws. The life of the Higaonon revolves around their own beliefs and traditions. They maintain that spirits live in water, land, trees, and rocks. Tragedies like illness, drought and death are caused by angry spirits and then be cured by their indigenous medicines from the plants around them. Events like planting crops and other activities are preceded by rituals to ask permission from the "anitos/anitas or their gods and goddesses. Eggs, rice, corn, coins and betel nuts are placed on an altar covered with

white cloth, and the Datu, while calling on the spirits, slits the throat of a chicken and offers the blood.

The Higaonon dancers have common costumes, accessories, adornment and accompaniment used in different dances. Their costume have only three (3) colors that will identify their tribe and culture. These are Red which means bravery of their tribal leaders to protect the members of the tribe, White for purity and sincerity to their beliefs and traditions, and Black which stands for loyalty to their customary laws. For their accompaniment, the Higaonon used “gong” and “tambol” in all their dance presentations. However, considering the costs and availability of these instruments, the natives prompted to use indigenous materials like bamboo sticks, wood, empty cans and the like.

Higaonon dances on the other hand, are artistic manifestations of preserving the culture of the tribe with its well coordinated rhythmic movements expressing the people’s beliefs and way of life. Strengthening and preserving these dances, beliefs, and traditions is very important for these people to be recognized in the community and local government for their continued respect and support. With all of these characteristics being observed during the conduct of the study, the researchers concluded that their culture are worthy for preservation and be known to other tribe to be respected to achieve peace in the community.

Recommendations, the following are the recommendations that were drawn from the findings of the study:

1. The youth should be taught and should practice their native dances to appreciate and preserve their rich cultural heritage.
2. Higaonon dances should be introduced in schools together with other Indigenous dances to give importance on the existence of the Higaonon tribe.
3. Those who are teaching ethnic dances should emphasize the originality of the dances on its movements, dance patterns, adornment, color prescribed by each Higaonon tribe and should have knowledge on the true meaning of the dances. They should emphasize the cultural beliefs and practices reflected in each dance to facilitate correctness in interpretation and execution.
4. The newly researched dances should be recognized in the National level specially in the National Commission on Culture and the Arts (NCCA) and in the Philippine Folk Dance Society. Encourage them to introduce these during their national dance workshops for teachers for the participants to appreciate and recognize the existence of the Higaonon traditional dances.
5. More researches on ethnic dances should be conducted to help these people especially the Higaonon of Iligan City preserve their own culture and for the new generation to know and appreciate their rich cultural heritage for preservation as well.
6. Local government should support the programs of the Higaonon in preservation of their culture by providing funding for their livelihood so that they will be united in taking care of their natural resources and not to migrate to other places for greener pasture.
7. It is important to strengthen peace and order in the community for economic development and to improve their living standards.

Phase II - Final Documentation and Dissemination Phase

The Second phase of this study will be the documentation of the dance notations and patterns as write up of the dances. Reproduction of CDs for the music and write up of the newly researched dances will be done wherein copies will be distributed to partner LGUs and stakeholders.. This will then be submitted to the National Commission on Culture and the Arts (NCCA) and to the Philippine Folk Dance Society (PFDS) for inclusion in their record of the ethnic dances in the Philippines. These dances will also be presented during the yearly Dance Seminar

Workshop for Teachers conducted by PFDS so that these will be introduced by the participants in their respective schools all over the country.

To claim ownership of these newly researched Higaonon dances, these will be submitted for publication in recognized journals and copyright for all these dances will be requested.

The researchers will then conduct a Dance Seminar Workshop for Teachers to be participated by interested physical education teachers, choreographers, and other dance enthusiasts in the region in coordination with the Commission on Higher Education (CHED) and the Department of Education (DepEd) for dissemination and complete implementation.

ACKNOWLEDGMENT

The researchers are indebted to the Principal of Rogongon Agricultural High School - Richard Talaid who initiated the idea of preserving the culture of the Higaonon in the Barangay by introducing to the youth their traditional dances which are worthy to be preserved to be recognized in their community. Likewise, to Datu Rolando Soong – the Higaonon Tribal Leader for allowing us to explore and study their culture and gathering the respondents of the study and providing us a comprehensive information and sharing their rich knowledge with him. Special thanks also to their Choreographer – Rodel Soong for providing us the information regarding the meaning of each dance, their movements, costume and accompaniments, whom he feels he shares the same interest in wanting to preserve traditional Higaonon culture.

Many other people helped in one or another way in providing information regarding their culture and dances like some other Datus and Bais in their tribe. However, the researchers still want to express our special thanks to the Director of Extension – Dr. Nimfa Bracamonte for guiding us and supporting our needs all throughout and helped us in editing our paper especially on ethnographic profile of the respondents.

Special thanks also to our colleagues – Prof. Cherlita Cudal who helped us in the documentation of some of the dances and who was with us during the observation of the dances presented as well as conduct an interview with the dancers and some residents present. Also, our heartfelt thanks to our Research Assistant – Prof. Harlyn Solis Ompoc who is responsible of the documentation and financial matters.

REFERENCES

- Aquino, Francisca R., (1950). Philippine Folk Dances, Volumes 1- 6. Manila: National Bookstore.
- Buenviaje, Paz A., Estarija, Consolacion A., Roxas-Wi, Corazon, Padiz, Servillano A, Jr. MAPEH IV (Music, arts, Physical Education and Health).
- Kerman, Joseph, and Vivian Kerman. Listen. 3rd ed., New York: Worth Publishers, 1080.
- Philippine Folk Dance Society. SAYAW Dances of the Philippine Islands. Copyright 2010. Alcor Printing Company, Inc. Pasay City, Philippines.
- Philippine Folk Dance Society. A Classic Collection of Philippine Folk Dances. Folk Arts Theater, CCP Complex, Roxas Boulevard, Pasay City Philippines.
- Tortosa, Gelli Jean (2013). The Higaonon Tribe.
- Tolentino, Francisca R. (1993). Philippine National Dances. Reprinted by Kayumsanggi Press, Inc. 1990,1993. Quezon City, Philippines.
- Wingell, Richard. Experiencing Music. California: Alfred Publishing Co., Inc., 1981.
- www.pnupres.tripod.com/prof.goce_vol5.htm Goce, Edilberta C. The Higaonon Cultural Identity Through Dances, Cebu Normal University.
- www.iliganparadise.weebly.com/people--culture.html. People & Culture - Iligan City.
- www.ethnicgroupsphilippines.com/.../higaonon Higaonon | Ethnic Groups of the Philippines (2015).
- www.dasocialclimber.com/tag/higaonon-tribe Higaonon Tribe | Da Social Climber (2014).

[http://www.bukidnon.gov.ph/home/index.php/about-bukidnon/history-arts-and Culture Indigenous Instruments](http://www.bukidnon.gov.ph/home/index.php/about-bukidnon/history-arts-and-Culture-Indigenous-Instruments) - Provincial Government of Bukidnon.

1987 Philippine Constitution, Article XII, Sec. 5 – Indigenous Peoples Cultural Communities. Soong, Rolando – Higaonon Tribal Leader – Enhancing and Presevation of Higaonon Culture (2014).

Reyes, Arlene V. (1984). A study of Iligan Higaonon dances. A Graduate Thesis at University of the Philippines, Diliman, Quezon City, Philippines.



UNNES
UNIVERSITAS NEGERI SEMARANG

PHYSICAL FITNESS IMPROVEMENT EFFORTS ON LOWER CLASS STUDENTS OF ELEMENTARY SCHOOL THROUGH PLAY-BASED APPROACH ON PHYSICAL EDUCATION SUBJECT

Yustinus Sukarmin

Faculty of Sport Science, Yogyakarta State University, Indonesia

yustinussukarmin@yahoo.com

Abstract

This research arises from the low physical fitness issue on lower class students (III) of Elementary School (SD) in SDN Nanggulan, which is caused by the lack of the physical activity. This lack of physical activity is due to the technology advances, which make students prefer to use technology rather than man power and the students' interest towards physical education subject is declining. The objective of this research is to improve the quality of physical education teaching-learning process using play-based approach to improve the third grade of the students' physical fitness of SDN Nanggulan. Methods: the method of the research is classroom action research (CAR) Hopkins model with collaborative and integrative pattern conducted in two cycles. The subjects of the research are the third grade students of SDN Nanggulan, odd semester 2012/2013, for six weeks. The data collection technique used is observation and test. Data collection instruments are observation sheets and Physical Fitness Test for 6-9 years old. Data analysis technique uses descriptive comparative. Results: The result of the research shows the improvement on students' physical fitness status on the third grader of SDN Nanggulan from 9 students (30 %) becomes 14 students (46.67 %) marked by the improving enthusiasm from 3.3 (66 %) becomes 4.3 (86 %), excitement from 3,4 % (68 %) becomes 4,3 (86 %), discipline 3,2 (64 %) becomes 4,1 (82 %), and totality from 3,3 (66 %) becomes 4,3 (86 %). Conclusion: This can be concluded that the application of the play-based approach to physical education teaching-learning process can improve physical fitness status of the third grade students of SDN Nanggulan

Keywords: physical fitness, lower class, play-based approach, physical education

INTRODUCTION

This research starts from the issue on the low physical fitness of elementary school (SD) lower class (III) students at Nanggulan elementary school, which is caused by the lack of physical activity. This condition confirms the National Education Ministry research result cited by Mutohir (2009) who states that elementary school students' physical fitness is low. The students' lack physical activities are due to technology advances, which make the students prefer to use machine rather than manpower. Furthermore, physical education subject seems to be no longer interesting for the students. Students' low physical activity status has a wide impact, including almost every aspect of human life: social, economy, politics, and culture are influenced. Students with low physical fitness status are susceptible to degenerative disease. If a person was sick—health cost grows—life becomes less productive. Lutan (2001: 3) states that health treatment cost in Netherlands has gone up to 2.5 %, in Canada 6 %, and 8 % in the USA.

The finding on the low physical fitness of Nanggulan elementary school of the third grade students becomes a heavy blow to all physical education teachers. Physical education teacher is considered as the one who knows the most and responsible to develop and preserves students' physical fitness through physical education and other physical activity. Therefore, they have duty to change from passive life style to active life style. In this matter, physical education teacher has a very strategic role and becomes one of the essential parts in forming the attitude and active life

habit (Lutan, 2001: 26).

One of the alternatives that can be done by physical education teacher to overcome the third grade students' low physical fitness problem in Nanggulan elementary school is by improving the physical education's teaching-learning process. The improvement can be started by applying the play-based approach to physical education teaching-learning process. Play-based approach is the implementation of physical education teaching-learning process in Nanggulan elementary school of the third grade using games as a means to deliver movement task in relation to physical fitness material for the students to improve their physical fitness.

Why should play? Playing gives more "freedom" to the students to express movement, therefore they prefer playing to practicing (Graham, 2008: 93). The researcher believes that play-based approach in physical education subject slowly but surely will become a magnet for the students to love physical education, which is no longer interesting for the students these days. If the students were happy during the subject, hopefully they will also like to do other physical activities, which in turn will improve their physical fitness.

NASPE (2005) cited by Metzler (2005: 6) states that physically educated person has these characteristics: (1) has the physical ability needed for everyday life, (2) actively participating in physical activity, (3) has a good physical fitness, (4) knows the implication and benefit of physical activity, and (5) knows the values of physical activity and its contribution to a healthy lifestyle.

Physical fitness becomes a very important part in physical education subject, which became one of the targets to be sought to achieve for the students during the teaching-learning process through physical activities and chosen sports (KTSP, 2006: 143). Healthy lifestyle and physical fitness need to be maintained for a lifetime. Physical fitness or physical freshness or physical awareness—the term physical fitness is used in this study—literary means physical ability. A person is fit for a task when he is able to do the task efficiently, without being excessively exhausted and able to quickly recover from the state that occurs as the result of doing the task. Corbin et al. (2007: 9) state that physical fitness is the ability of the body systems to work together efficiently. According to Wikgren (2010, 22), physical activity is a way to measure body's capability to do physical activity from moderate to heavy activity without being excessively exhausted.

According to 2006 School Based Curriculum, physical education at school has some objectives for the students to be able to: (1) develop self-management skill in the development and maintenance of physical fitness and healthy lifestyle through various physical activities and chosen sports, (2) improve physical growth and psychological development, (3) improve ability and basic movement skill, (4) laid the foundation of strong moral character through the internalization of the values contained in physical education, sports, and health, (5) develop sportsmanship, honesty, discipline, responsibility, team work, confidence, and democratic, (6) develop the ability to maintain the safety of oneself, others, and environment, and (7) understand the concept of physical activity and sport in a clean environment as an information to achieve perfect physical growth, healthy lifestyle and fitness, skilled, and positive attitude.

Playing becomes the main alternative to deliver physical education material to the lower grade elementary school students because they are in the group age of playing. The children's world is a world of play, there are no children who do not like to play, whether it is active or passive. In an active play, children do physical activity, such as: play tag with friend, football, swimming, and gymnastic. On the other hand, children will also enjoy watching the activity done by others. This is called passive play.

Playing is a physical activity, which is conducted earnestly (*ernstig*) in order to get the excitement but the earnestness (*ernst*) to get the joy from the outside of playing (Sukintaka, 1997:13). The enjoyment that surrounds the students is a good education atmosphere because this excitement provides convenience in educating and leading them to reach the desired

education goals. Moreover, Sukintaka states that the elements of freedom in playing can increase intuitive thinking, so that it can develop activity, creativity, the ability to make decision, and leadership. Therefore, playing must be given to the students, especially the lower class students. Wuest and Bucher (1995: 41) have a high expectation that physical education can change the students' attitude to positive, which is marked by the growth of active culture (physical activity) in daily life. Then, the students can both express their movement through physical education subject at school and they can be made to be fond of moving. The students are not only moving while following physical education lesson at school, but outside the lesson they also addicted to do physical activities. Givler (2002: 12) states that physical activity should be part of students' daily life and the fast the habit grows the better. To reach physical fitness stage of achievement, students should be familiarized to do physical exercise regularly and love aerobics (AAHPERD, 1999: 45)

METHOD

This research is a Classroom Action Research (CAR). In this study, the researcher uses collaborative and integrated pattern of CAR (Sanjaya, 2011: 59-60), the teacher was who decided the problem and conducted the program, while the researcher who developed the program. This research was held in Nanggulan elementary school, Depok, Sleman, with 30 students in the lower class (the third grade) as the target. It was conducted in the odd semester year 2012/2013, for six weeks, on 1 September 2012 to 6 October 2012.

This research design uses Hopkins model. The implementation of Hopkins model follows the flows in this way: (a) identifying problems, (b) planning, (c) acting, (d) observing, (e) reflecting, (f) replanning, (g) acting, and (h) etc. (Sanjaya, 2011: 53). If it is illustrated. The data collection technique used was observation and test (Akbar, 2010: 12; Muslich, 2011: 222; Suwandi, 2011: 61; Sanjaya, 2011: 85). The instrument used to collect the data was observation sheet using rating scale (Sanjaya, 2011: 93) and Indonesia Physical Fitness Test (IPFT) for six to nine-year-old child. IPFT is a series of test that consists of five tests, they are: (a) 30 meters run, (b) hanging elbow bend, (c) 30 seconds sit up, (d) jump straight, and (e) 600 meters run (Suharto: 1999: 4). The researcher used observation guidelines, which consists of five aspects that had been validated by experts.

The indicator of success in this study is the increase of students' enthusiasm, excitement, discipline, and totality while following physical education learning process and the third grade students' physical fitness of Nanggulan elementary school. In this CAR, the data analysis technique was descriptive comparative, which compared the data among cycles (Akbar, 2010: 13 and Suwandi, 2011: 66).



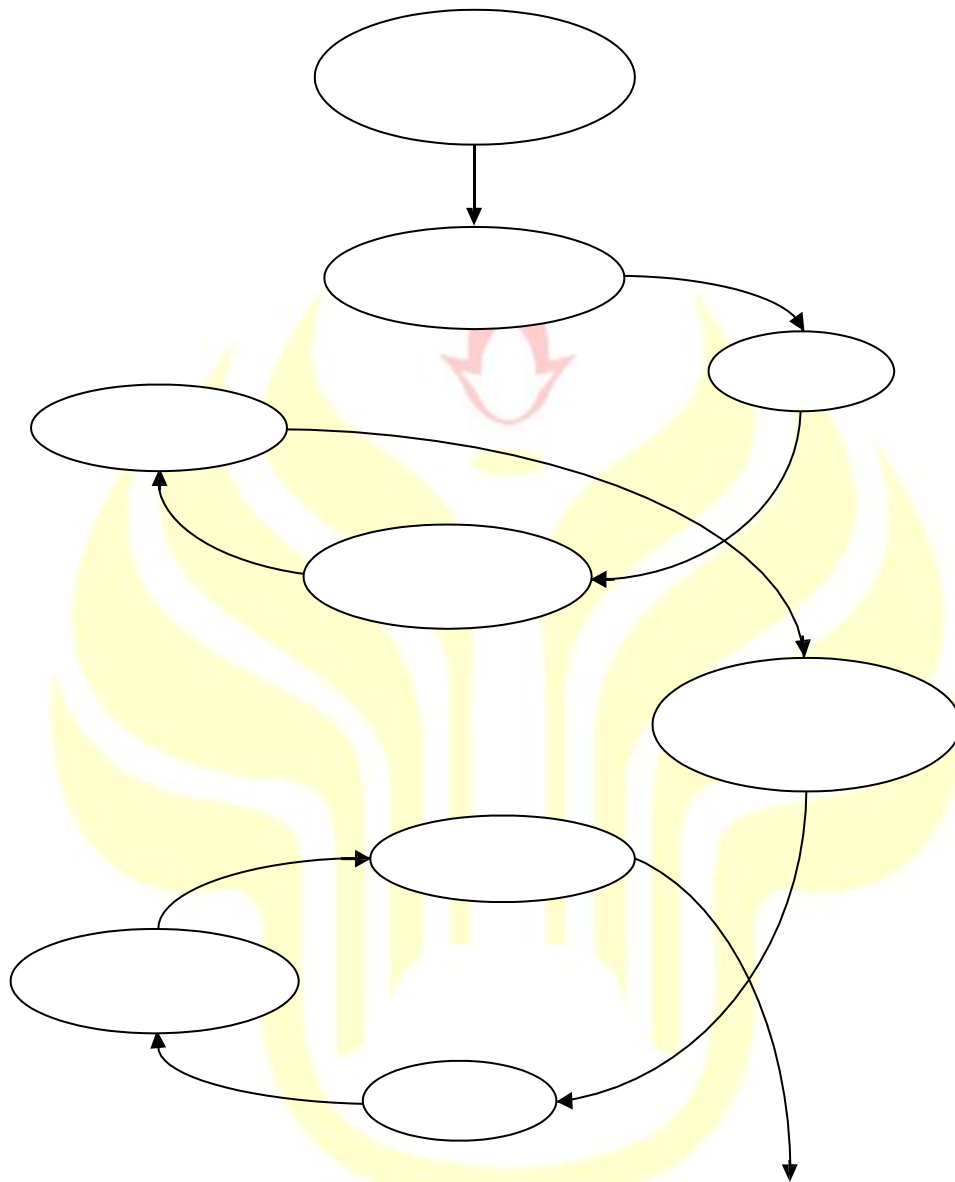


Figure 1. Hopkins Model Classroom Action Research

RESULTS AND DISCUSSION

The Result on the Cycle

The first meeting in this cycle was conducted on Saturday, 1 September 2012, at 07.00 a.m., in Kradenan field with physical fitness test as the main program. The result of IPFT I can be seen on Table 1.

Table 1. IPFT Result I on Cycle I

No.	IPFT Classification	IPFT I	
		Σ	%
1.	Very Good	0	0
2.	Good	9	30
3.	Fair	12	40
4.	Poor	6	20
5.	Very Poor	3	10

Table 1 shows that there are 9 students or 30 % who are fit, while the rest of them 21 students or 70 % are not fit. It is, of course, not satisfying and some efforts should be done in order to increase their physical fitness status.

The second meeting of the first cycle was held on Saturday, 8 September 2012, at 07.00-08.10, in Nanggulan elementary school field that located in the school area. As had been planned, the material given to the students was modified volleyball. The result of the observation on the second meeting of the first cycle can be seen on Table 2.

Table 2. Observation Result I on Cycle I

No.	Aspects	Observation I	
		Σ	%
1.	Enthusiasm	3,2	64
2.	Excitement	3,3	66
3.	Discipline	3,2	64
4.	Totality	3,2	64

From the result of observation I, the information on the students' score on enthusiasm, excitement, discipline, and totality aspects during physical education learning process has not reach the MSC (Minimum Scoring Criteria). The MSC is every aspect that should reach the score $\geq 4,0$ or Good criterion. In order to reach the MSC on the next meeting, the Researcher Team agreed to give a more competitive form of game to the students.

The third meeting of the first cycle was held on Saturday, 15 September 2012, at 07.00-08.10, in Nanggulan elementary school field, which location and condition were the same as the second meeting. The prepared material was throwing target game. The result of observation II can be seen on Table 3.

Table 3. Observation Result II on Cycle II

No.	Aspects	Observation II	
		Σ	%
1.	Enthusiasm	3,4	68
2.	Excitement	3,5	70
3.	Discipline	3,2	64
4.	Totality	3,4	68

Table 3 shows the result of observation II, which has not reached the minimum requirement and it can be seen on the score of each aspects. The score for enthusiasm aspect is 3,4 (68 %), excitement aspect gets 3,5 (70 %), discipline aspect gets 3,2 (64 %), and totality aspect gets 3,4 (68 %). It means that the students have not had high enthusiasm, excitement, discipline, and totality while following physical education learning process. Therefore, the implementation of play-based approach in physical education learning process needs to be followed up with the next cycle.

The Result on the Cycle II, The first meeting on the second cycle was conducted on

Saturday, 22 September 2012, at 07.00-08.10, in Kradenan field. The conducted activity was the implementation of physical fitness test. The result of IPFT II can be seen on Table 4.

Table 4. IPFT Result II on Cycle II

No.	IPFT Classification	IPFT II	
		Σ	%
1.	Very Good	2	6,67
2.	Good	12	40
3.	Fair	15	50
4.	Poor	1	3,33
5.	Very Poor	0	0

Over all, the result of IPFT II shows the amount of fit students is significantly increased. The amount of fit students becomes 46.67 % (previously 30 %) so there is an increase of 16.67 %, whereas that is not fit is 53.33 % (previously 70 %) so there is a decrease of 16.67 %.

The second meeting of the second cycle was conducted on Saturday, 29 September 2012, at 07.00-08.10, in Nanggulan elementary school, which located in school area. The material given to the students were relay game. The result of the first observation of the second cycle can be seen on Table 5.

Table 5. Observation Result I on Cycle II

No.	Aspects	Observation II	
		Σ	%
1.	Enthusiasm	4,1	82
2.	Excitement	4,1	82
3.	Discipline	4,0	80
4.	Totality	4,2	84

Table 5 shows the increasing trend of the observation from time to time even the last improvement has reached the limit of MSC. All aspects, such as enthusiasm, excitement, discipline, and totality have reached minimum score 4,0 of 5,0. Nevertheless, the next meeting is still continued because there is still one more meeting quota as well as to improve the learners' MSC.

The third meeting of the second cycle was held on Saturday, 6 October 2012, at 07.00-08.10, in Nanggulan elementary school field, which location is in school area. The material given to students is a game called moving the object. The result of the first observation of cycle II can be seen on Table 6.

Table 6. Observation Result II on Cycle II

No.	Aspects	Observation II	
		Σ	%
1.	Enthusiasm	4,4	88
2.	Excitement	4,5	90
3.	Discipline	4,2	84
4.	Totality	4,3	86

Table 6 shows an increase in all observed aspects over the prescribe limit of MSC. It strengthens the assumption that play-based approach can increase students' interest to follow physical education learning process.

The more comprehensive illustration on the result of physical fitness test and observation on cycle I and cycle II can be seen on Table 7 and Table 8.

Table 7. The Comparison of IPFT Result on Cycle I and Cycle II

No.	Classification of IPFT	IPFT I		IPFT II		Changes	
		Σ	%	Σ	%	Σ	%
1.	Very Good	0	0	2	6,67	+ 2	+ 6,67
2.	Good	9	30	12	40	+ 3	+ 10
3.	Fair	12	40	15	50	+3	+10
4.	Poor	6	20	1	3,33	- 5	-16,67
5.	Very Poor	3	10	0	0	- 3	- 10

Table 8. The Comparison of the Observation Result of Cycle I and Cycle II

No.	Aspects	Cycle I		Cycle II		Changes	
		Σ	%	Σ	%	Σ	%
1.	Enthusiasm	3,3	66	4,3	86	+ 1	+ 20
2.	Excitement	3,4	68	4,3	86	+ 0,9	+ 18
3.	Discipline	3,2	64	4,1	82	+ 0,9	+ 18
4.	Totality	3,3	66	4,3	86	+ 1	+ 20

Discussion

The comparison between IPFT I and IPFT II result, as shown in Table 8, there is a positive changes. It proves that the implication of play-based approach in physical education learning process can increase students' physical fitness. The increase of students' physical fitness cannot be separated from the increase of their interest to physical education subject, which is shown in Table 8.

Table 8 shows that the score of enthusiasm, excitement, discipline, and totality reach above the MSC. It means that students can follow physical education learning process with high enthusiasm, excitement, discipline, and totality. Students feel enjoy when they follow physical

education learning process because it is packed with playing. The result is in the same vein with the theory that states, students of elementary school in the lower class (third grade) are in a play age (Huizinga in Mechikoff, 2010: 5). Hence, when the material of physical fitness subject is packed in a form of playing, the students feel being in their world that makes them totally express their desire to move.

Nevertheless, if observed carefully among the observed aspects, it was the aspect of discipline, which shows the lowest result, 4,1 (the other aspects are 4,3). It is along with the development theory, which states that psychological condition of the elementary students' on the lower class (third grade) has some characteristics such as great curiosity, critical, and adventurous (Hurlock, 1990: 146). As a result, it is no wonder if they become unruly and like to do strange things. The researcher argues even though discipline aspect is the lowest aspect of all, does not mean that it is poor!

CONCLUSION AND SUGGESTION

Due to the result of this research and previous discussion, generally, it can be concluded that the implementation of play-based approach in physical education learning process can increase the third grade students' physical fitness status in Nanggulan elementary school. The increase of the third grade students' physical fitness status is also shown by the increase of enthusiasm, excitement, discipline, and totality of the students while following the physical education process.

Due to the conclusion, implication, and limitation, the researcher gives some suggestions: 1). The physical education teachers in elementary school, especially on lower class, should apply play-based approach in physical education learning process because, empirically, the benefits have been already proven. 2). Four games that are presented in this study are not fix examples, meaning that various games can still be explored and developed more while the physical education teacher implements play-based approach in physical fitness learning process. 3). It is also possible for a physical education teacher in elementary school to implement play-based approach in physical fitness learning process on upper class such as the fourth grade, the fifth grade, and the sixth grade. 4). The physical education teachers in elementary school should optimize KKG forum's role and

REFERENCES

- AAHPER. 1999. *Physical Education for Lifelong Fitness: The Physical Best Teacher's Guide*. Champaign, IL: Human Kinetics.
- Akbar, S. 2010. *Prosedur Penyusunan Laporan dan Artikel Hasil Penelitian Tindakan Kelas*. Cetakan Kedua. Yogyakarta: Cipta Media.
- Corbin, C. B., Masurier, G. C. L., & Lambdin, D. D. 2007. *Fitness for Life: Middle School*. Champaign, IL: Human Kinetics.
- Givler, J. I. 2002. A physically active lifestyle starts at birth. *Teaching Elementary Physical Education*. 13 (6), 12.
- Graham, G. 2008. *Teaching Children Physical Education: Becoming a Master Teacher*. (3rd Ed.). Champaign, IL: Human Kinetics.
- Hurlock, E. B. 1990. *Motor Development*. Champaign, IL: Human Kinetics.
- Lutan, R., dkk. 2001. *Pendidikan Kebugaran Jasmani: Orientasi Pembinaan di Sepanjang*

Hayat.

Jakarta: Ditjen Olahraga, Depdiknas.

Mechikoff, R. A. 2010. *A History and Philosophy of Sport and Physical Education: From Ancient*

Civilizations to the Modern World. 5th ed. Boston: McGraw-Hill Companies, Inc.

Metzler, M. W. 2005. *Instructional Models for Physical Education*. (2nd Ed.). North Cattletrack Rd.: Holcomb Hathaway, Publishers, Inc.

Muslich, M. 2011. *Melaksanakan PTK Itu Mudah*. Cetakan Kelima. Jakarta: PT Bumi Aksara.

Mutohir, T. C. 2009. Program Pembinaan dan Pengembangan Olahraga Pendidikan Terpadu Jangka

Panjang. *Makalah*. Jakarta: Kemenegpora.

NASPE. 2005. *Physical Best Activity Guide: Elementary Level*. (2nd Ed.). Champaign, IL: Human Kinetics. Sanjaya, H. W. 2011. *Penelitian Tindakan Kelas*. Edisi Pertama. Cetakan Ketiga. Jakarta: Kencana

Prenada Media Gorup.

Suharto. 1999. *TKJI: Tes Kesegaran Jasmani Indonesia untuk Anak Umur 6-9 Tahun*. Jakarta: Depdiknas Puskesjasrek.

Sukintaka. 1997. Bermain. *Olahraga*. 3 (1), 11-16.

Suwandi, S. 2011. *Penelitian Tindak Kelas (PTK) dan Penulisan Karya Ilmiah*. Cetakan Pertama.

Surakarta: Yuma Pustaka.

Wikgren, S., Scott, C., & Rinaldi, A (Eds.). 2010. *Health and Wellness for Life*. Champaign, IL: Human Kinetics.

Wuest, D. A., & Bucher, C. A. 1995. *Foundations of Physical Education and Sport*. (12th Ed.). St. Louis: Mosby-Year Book. Inc.



TONNIS GAME FOR PHYSICAL EDUCATION LEARNING

Tri Nurharsono¹, Moch Fahmi Abdulaziz¹

¹Faculty of Sport Science, Semarang State University, Republic of Indonesia

¹fahmi_alyasak@yahoo.co.id

Abstract

TONNIS is a game that combined elements of badminton and tennis. Because, TONNIS played in the field about the size of badminton and the technique such as playing tennis, very appropriate to be developed. TONNIS required in the value aspect of the personal development of individual components, namely cognitive, psychomotor and affective. On the other hand TONNIS has practical value, economical or inexpensive and provides pleasure and satisfaction for all age levels of play. With the development of a sports game TONNIS expected to increase the diversity of sports that can eventually serve as a means of education and teaching to enhance the dignity of the nation.

Keywords: tonnis game, development, education

INTRODUCTION

Play in human life has become a part of life that are sometimes difficult or cannot be forgotten or left behind by the perpetrators. In fact, play activities by many already considered to be one of the necessities of life, for not only for children, but adults and parents felt need of the situation and play activities in his life. They felt derive pleasure or satisfaction after playing activities, can eliminate fatigue because of the tasks and work, and not a few who feel the freshness regain body and soul.

Then, what play activities mostly done by men in his life? There are different types of games are usually done by the children, both school and community environment, either using a tool or without instruments. In further developments, because actors use physical activity as playing like walk, run, jump, throw and so forth, which can indirectly influence the health of the body, then eventually known as the sports game.

Types of games, in physical education classes in school consists of 1st) small game, the game uses a small ball, such as rounders, tennis, table tennis, including badminton, 2nd) a big game, the game uses a large ball, such as football, basketball, handball and volley, and 3) children's games, such as cats and rats, green, black, fish capture, gobag sodor, and so on. Of course, the kinds of games were done by the children adjusted to the level of age and developmental level.

As one type of sports games, badminton has become a very popular sport in Indonesia, even as some of the accomplishments achieved in the arena badminton player of international championship, then the branch are always a mainstay Indonesian contingent to medal in world championship level. Unlike the case with badminton, tennis, although this is now growing rapidly in the community but the achievement is still far from expectations. Many of the real constraints faced in the development of tennis sport. One of the fundamental fields is very limited there, so the introduction of programs that should be the first step in construction effort to be blocked, and eventually the seeds of a powerful tennis player are very limited in number.

Seeing the fact that, writers interested in developing one type of sports game which is a combination of badminton and tennis games, which in turn was name TONNIS game. With TONNIS exercise is expected to increase the diversity of types of sports games that can be selected sports all levels of society, and then can be one of the sports as a national toehold in the sporting achievement at the international level. Then through the writing of this book is expected to provide information

about the game TONNIS, which includes what and how the game TONNIS and how to practice. After knowing and understanding TONNIS, the public expected both within and outside the school environment becomes more interested in school and started practicing TONNIS correctly and regularly, so as to achieve an optimal level of play as expected.

FACILITIES AND EQUIPMENT

Field,TONNIS played in a rectangular shaped field with the same size badminton court, which is 13.40 m length and width of 6.10 m. in the middle of the field is limited to the net 80 cm in height at the middle and 85 cm at the net post. Surface field can be clay, grass or fields marked with a line width of 5 cm or rope. Thus to make the field need not require TONNIS land or space that is wide enough as to the tennis court, so that in every possible community can make TONNIS field. Because TONNIS can be played by all age groups, ie groups of children aged 6-12 years and above 12 years of the field is also used there is little difference. Field for the 6-12 year age group, the field is only divided into 2 parts namely the right and left (Figure 1)

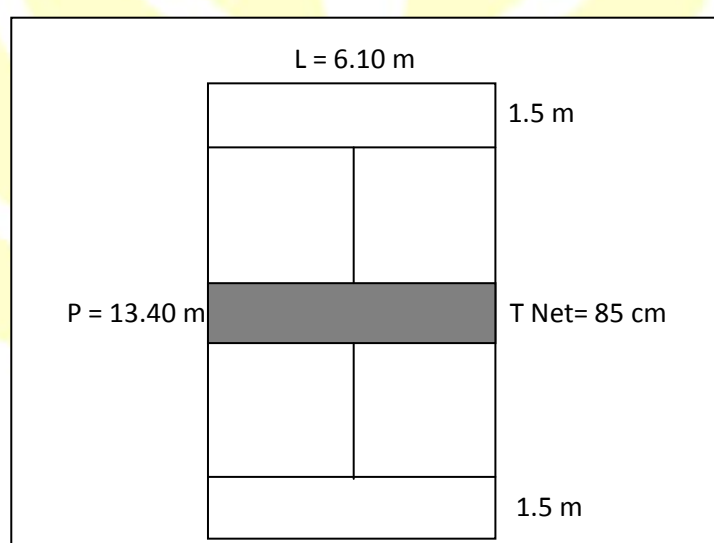


Figure 1. Field for the 6 – 12 year age group

In TONNIS field for over 12 years of age, but the field is divided into the right and left, there is also a parallel with the net is 1,7 meters from the center line which serves as the boundary line and the front serve area boundaries for volleyball, and 1,5 meters from the rear as the limit rear serve area.(Figure 2)

UNNES
UNIVERSITAS NEGERI SEMARANG

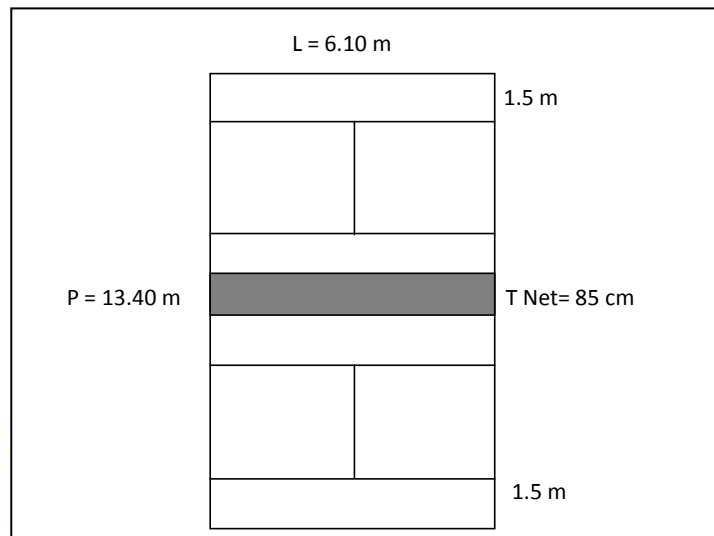


Figure 2. Field for over 12 year age group

Racket (paddle) Racket that is used to hitting the ball is in the form of paddle racket. Paddle is made of lightweight wood, but strong or not easily broken, such as multiplex board with a thickness of 8-12 mm. This bat model can be made in various forms with the overall length of 32 cm (8 inches long handle and the top 24 cm), and 20 cm wide. To reduce weight and wind resistance bat in the bat can be made small holes without disturbing the surface at the time of the ball. Paddle model can be made as follows. (Figure 3)

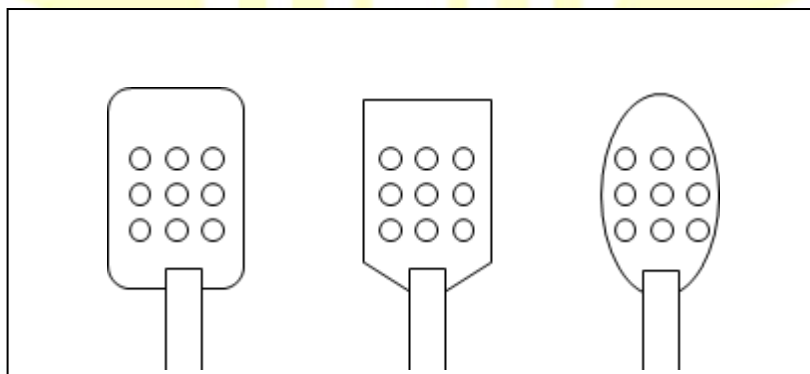


Figure 3. TONNIS Paddle

TONNIS Ball, ball to play with a tennis ball-sized ball in general but the air pressure is very less and lighter; with the intention that the ball does not bounce hard and the ball becomes slower pace is not fast or like the regular tennis ball. This type of ball has been sold in sports shops with interesting color combinations and low prices, or can use an old tennis ball has reduced the air, thus the game becomes more economical.

With the use of the field, rackets and balls as described before, the game has its own characteristics TONNIS very possible to be played by students in the school environment from primary school to high school or even student level, and also by all levels of society from different age groups and economic level.

REGULATION TO PLAY TONNIS

TONNIS, as mentioned earlier, played with the ways and rules similar to tennis or mini-tennis. Some rules must be known in order to play well TONNIS is as follows :

Serve The game starts with players doing the serve from behind the right field line with the direction of baseline stroke crosses into the opponent across the field and through the net. Legal serve if the ball when hit, the foot does not step on or touch the baseline and the ball can pass through the net before falling underlined or other field serve area is crossed. Serve ball touches the net and fell in areas of legitimate serve then repeated serve. If the first serve fails given a second chance, and if the serve fails, then the figures obtained opponent. The next serve, to get the numbers (points) both made from left field.

Transfer serve performed after the player made two services, namely from the right and left, or after acquired two numbers. In doubles play, the order of execution of the serve can be described as follows (Figure 4):

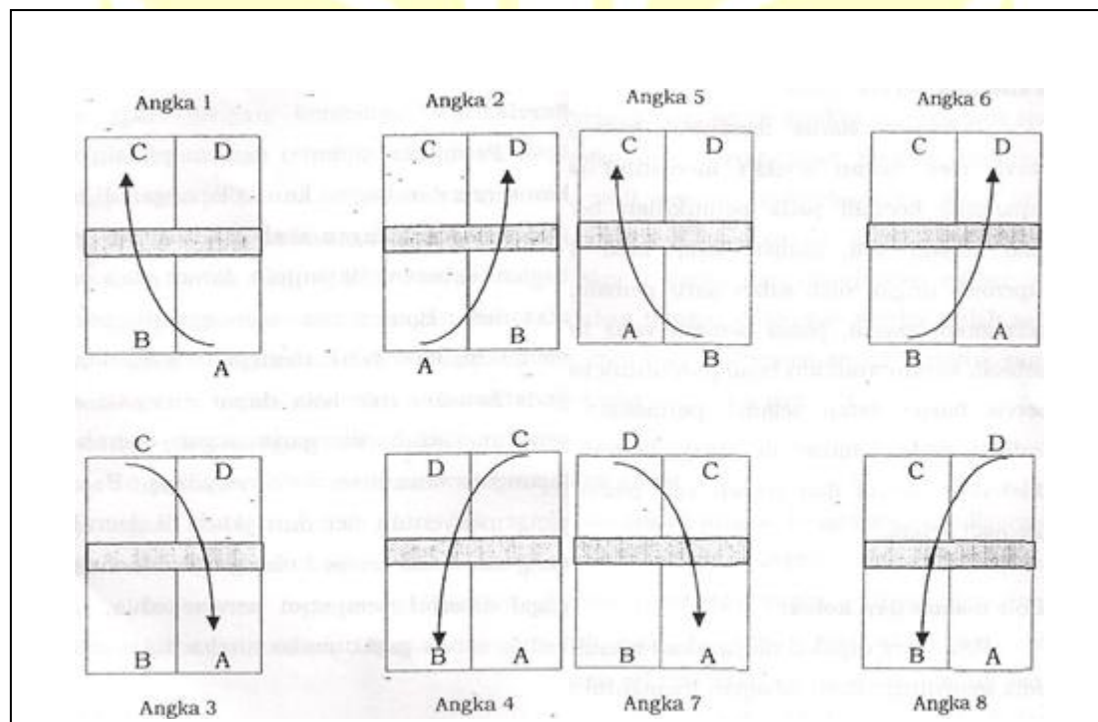


Figure 4. Regulation of TONNIS Serve

UNIVERSITAS NEGERI SEMARANG

At the time of transfer serve, the other player to do serve in the same way with the implementation of the previous player serves.

Serve recipients, Recipients must hit the ball that serviced by the opponent after bouncing once on the field, except in the following beatings during a rally until the ball went out, so the number obtained by one of the players. In doubles play, the position players who are on the right or left field to receive the serve should continue during the game (as shown in the picture above), except after the serve and rally happens to be free player position.

Ball in and out, The ball hit the ball when expressed in whole or in part reflected in the field or on the side line or back of the field. The ball found out when all the balls fall outside the field boundaries or on the objects that surround the field.

Displacement of Serve and Places, Displacement achieved service is conducted every two numbers and migration after completing a single player game or win the set. If the game happened the same score and 1 set of rubber continued, migration after one player or team reaches 8 to 15 and the numbers game 11 to game 21.

Point and Game, Calculation points using rally-point system. The player who won every rally, get the point. To play the age group under 12 years old, completed a set of game or games when one player reaches 15, but in the event of the number 14 as the game continues until the difference of 2 numbers with a maximum limit of 17, while for the game 12-year age groups up, a set of the game was over when one player reaches 21, if it occurs at the 20 game continues until the difference of 2 numbers with a maximum limit of 25.

REFERENCES

- German Tennis Federation. 1995. Tennis Course Volume 1 Techniques and Tactics. Munich : Barron's Educational Series, Inc.
- Belka, David E. 1994. Teaching Children Games, Becoming a Master Teacher. United States of America : Human Kinetics Publishers, Inc.
- Griffin, Linda L. 1997. Teaching Sport Concept and Skill, A Tactical Games Approach. United States of America : Human Kinetics Publishers, Inc.
- ITF. . ITF Scholl Teacher's Manual Tennis Initiative. Tennis Australia. 1992. Ace Tennis Volume One & Two. Territory Tennis Association.

UNNES
UNIVERSITAS NEGERI SEMARANG

THE TABLE TENNIS STROKES SERVICE DEVELOPMENT THROUGH PHYSICAL EDUCATION LEARNING PROCESS

Jonni Siahaan

Faculty of Sport Science Cenderawasih University Papua Province

jonni.siahaan@gmail.com

Abstract

This research was an attempt at finding out the table tennis strokes service development of students through physical education learning process. This research was pre experimental by one group pre-posttest design with 55 persons of sample held in study program physical education health and recreation, Faculty of Sport Science University of Cenderawasih Papua that followed the table tennis subject at singular semester 2014/2015. There were two variables used; independent variable was physical education learning process and dependent variables were stroke of forehand backspin service, stroke of forehand topspin service, stroke of backhand backspin service and stroke of backhand topspin service, had been measured by precised service stroke that be divided into two target area were called; target spin and target backspin. Target backspin area is in front line to measured stroke of backhand backspin service and stroke of forehand backspin service. Target topspin area is in base line to measure stroke of backhand topspin service and stroke of forehand topspin service, made in Hodges (2000). Each subject serviced thirty times and how many times the ball enter the target area to be the score. The result of research had four problems which been hyphotheses and be able conclutions, as follow; 1) the table tennis stroke of forehand backspin service development was signifikan through physical education learning process (mean pretest 8.6182 < posttest 18.0545) and probability (P) .000 < α 0.05. 2) the table tennis stroke of forehand topspin service development was signifikan through physical education learning process (mean pretest 7.1273 < posttest 16.6909) and probability (P) .000 < α 0.05. 3) the table tennis stroke of backhand backspin service development was signifikan through physical education learning process (mean pretest 6.1636 < posttest 12.4909) and probability (P) .000 < α 0.05. 4) the table tennis stroke of backhand topspin service development was signifikan through physical education learning process (mean pretest 5.1636 < posttest 11.3639) and probability (P) .000 < α 0.05.

Keywords: table tennis, service, learning

INTRODUCTION

Human in its life is really unconscious always learning process. Drowatzky, (1981:4) said life can be described as a process of continual adaptation physical structure and behavior. Life is a continual process of adaptation involving maturation and learning Drowatzky, (1981:16). Learning process is physical and behavior adaptation, involving maturation. Coker, (2004:3) said learning is defined as a relatively permanent change in a person's capability to execute a motor skill as a result of practice or experience. Drowatzky, (1981:4) said learning is reflected in behavior that is acquired in response to one's environment. The statement of learning above said learning is a relatively permanent change in behavior that result from experience or practice.

Learning process occurred in the physical education. Physical education according to Barrow and McGee, (1979:6) may be defined as an education through physical where many of educational objectives are achieved by means of big muscle play activities. According to Kirkendall, Gruber and Johnson, (1980:4) the goal of all physical education programs are organic and neuromuscular

development. There are some stages must be done in physical education as follow; goal of all or most physical education programs, general objective for unit or semester, identified behavior, class performance objective and what to test.

According to Verducci, (1980:4-7) the learning process may be the basic concern of all or most physical education programs, could be divided into three categories as follow; students related, teacher related and administration related uses. Student related uses of measurement instruments include determining student objectives, predicting future performance, directing student program classifying students, individualizing student learning situations, motivating students, developing student skills, determining student improvement, determining achievement and grading. Teacher related uses of measuring instruments include determining teaching effectiveness and adjusting course content. Administrator related uses include evaluating the curriculum, justifying the physical education program and developing community interest.

Krotee and Bucher, (2007:33) said there are three distinct learning domains in physical education as follow; cognitive (intellectual /thinking), affective (social-emotional) and psychomotor (motor behavior). Krotee and Bucher, (2007:32) said the goal of physical education is to develop physically educated individuals who have knowledge, skill, and confidence to enjoy a lifetime of healthful physical activity. Fits and posner, (1967) in Cook and Woollacott, (1995:36) described the stages involved in learning e new skill, as follow Figure 1.

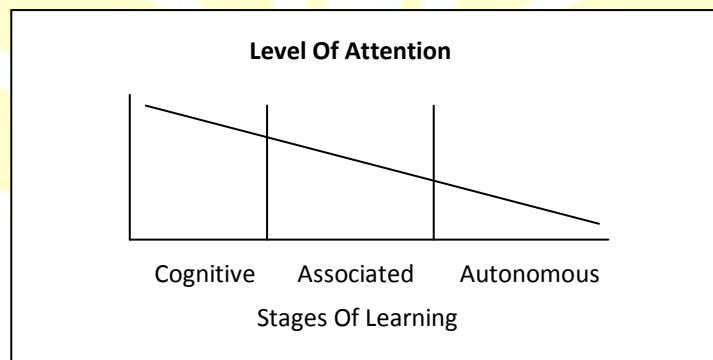


Figure 1. Three stages of motor skill acquisition

there are three main phases involved in skill learning. In the first stage the learner is concerned with understanding the nature of the task, developing strategies that can be used to carry out the task, and determining how the task should be evaluated. This efforts require a high degree of cognitive activity, such as attention. Accordingly, this stage is called the cognitive stage learning. The second stage of skill acquisition as the associated stage. By this stage, the learner has selected the best strategy for the task and now begins to refine the skill. Thus, during this stage there is less variability in performance, and improvement also occurs more slowly. The third stage of skill acquisition has been described as the autonomous stage. By this stage the automaticity of the skill and the low degree of attention required for its performance, as shown in figure 1. Thus, in this stage the learner can begin to devote his or her attention to other aspects of the skill general, like scanning the environment for obstacles that might impede performance, or focusing on a secondary task, like talking to a friend while performing the task, or saving energy so as to avoid fatigue.

Three stages above should be become basic theory while the students follow the physical education learning process of table tennis subject in study program of physical education, health and recreation, Faculty of Sport Science University of Cenderawasih Papua Province. The students hoped from table tennis subject had a relatively permanent change of cognitive, psycomotor and affective. Thus, three domains also become indicators the result of physical education learning process in the kindergarten, primary, elementary and senior high school. The physical education learning process in the faculty of sport science had beed related to the educational objectives and established needs and values into learning experiences and to relate them to the objectives and the objectives achieved through learning process.

Physical education learning process at table tennis subject is often be equal to sport education learning process. Both of them really are relative difficult to differentiate the learning result between physical education and sport education. In general, physical education had been used by approaching the physical aktivty, and sport education had been used by approaching the exercise. Caspersen, Powel and Chistenson (1985) in Biddle and Mutrie, (2001:7) said define physical aktivty in terms of the the three following elements; movement of the body produced by skeletal mucle, resulting energy expenditure with varies from low to high and a positive correlation with physical fitness. Caspersen et al, (1985) in Biddle and Mutrie, (2001:7) said define exercise with reference to the following factors; body movement produced by skeletal muscles, resulting energy expenditure varying from low to high (so far, these points are the same as for physical aktivty), very positively correlated with physical fitness, planned, structure and repetitively bodily movement and the objectives is to maintain or to improve physical fitness. Biddle and Mutrie, (2001:7) said however, the distinction between physical aktivty and exercise is not always easy and should recognise an overlap between the two constructs. Physical aktivty and exercise, should be basic to differentiate between physical education and sport education.

Melograno, (1996:18-20) said there are the distinction between physical education and sport education. Physical education, leaners needs cognitive, affective, and psychomotor are satisfied explicitly through all forms of physical aktivty. The assumptions of physical education; 1) learner centered (role of the learner are primary), 2) focuses on unique, individual potensial (individual differences and similarities is fundamental to matching goals, objectives, evaluation models and learning process with individual characteristics), 3) leaners need to grow and mature in all domains; cognitive, affective and psychomotor (the needs approach to learning is based on the theory that human behavior is motivated by a desire to satisfy needs), 4) outcomes assosiated with need are achieved explicitly (Cognitive, affective and psychomotor objectives must be attained explicitly if learning to be meaningful. Desirable outcomes, particularly those in the psycho-social area as like; self control, responsibility, fairplay, tolerance), and 5) physical aktivty encompasses all form of fundamental, competitive and expresive movement experiences (any form of physical aktivty may be used, provided that the learner can engage in cognitive processing, express interests,

attitudes and values; practice proper social behavior, and develop physical fitness and simple to complex psychomotor skills). Sport education, learners are taught to be players in ways similar to athletic participation. Emphasis is played on skills, rules, strategies, appreciation for play in our society, and ethical principles that define "good" sport.

Education through Physical education learning process in the school and in the faculty of sport science, to be basic thinking in this research. In this faculty, table tennis becomes main subject especially for study program of physical education health and recreation. Thus, through the table tennis learning process focus to improve the students into three domains; cognitive, affective and psychomotor. Its mean, through table tennis subject, the students learn the variety of strokes.

Simpson, (2007:5) said, the best player of table tennis, any time learn and exercise the variety of strokes. The variety of strokes development are quickest nowadays. Kertamanah, (2003:30) said the players of table tennis have to improve the variety of strokes. Kertamanah, (2003:27) said there are variety of table tennis strokes; drives, push, blok, smash, hit, service, service return, half volley, side slip shot, loop, flick, drop short, short cut, long cut, and lobbing. Hodges, (2000:118) said strokes of table tennis; pushing, blocking, looping, flipping, chopping, lobbing and service. Simpson, (2007:33-51) said strokes of table tennis; push, float, block, drive, loop, chop and lob. Seemiler and Holowchak, (1997:9-39) said strokes of table tennis; counter drive, smash, lob, block, loop, push, chop, wrist, flick and service. Preis, (1992:14-30) said strokes of table tennis are forehand and backhand; counter, push, block, loop, service, chopping, hitting and lob.

Seemiler and Holowchak, (1997:39-40) said service stroke is the most neglected aspects of serious table tennis play. If player has strong serves, will consistently be able to initiate the attack and control the flow of play. By having good serve, player can beat opponents with smoother, more mechanically sound strokes. Because of its importance, player should spent a minimum of 25 percent of practice time serving. Simpson, (2007:83) said, service is the first opportunity to manage or adjust the playing and hold the initiative. Hodges, (2000:43) said there are four service strokes of table tennis have to learned if want to become best player; stroke of forehand topspin service, stroke of backhand topspin service, stroke of forehand backspin service, and stroke of backhand backspin service. Stroke of service topspin can serve more quick than others service. Stroke of service backspin can be used to begin the attack of topspin player. The materials of service strokes can be obtained from the expert of table tennis, as Hodges, (2000), Simpson, (2007), Seemiler and Holowchak, (1997) and Kertamanah, (2003).

The goal of this research was an attempt to develop the table tennis strokes service through physical education learning process. The strokes of service should be developed; stroke of forehand backspin service, stroke of forehand topspin service, stroke of backhand backspin service and stroke of backhand topspin service. The benefit of this research are; 1) to obtain the information, about the development service strokes through physical education learning process, 2) to gain the knowledge of physical education teacher about the result of physical education learning process, 3) to appear the motivation of physical education teacher and sport education teacher to differentiate the result of learning.

METHOD

This research was attempt to developed the table tennis service stroke through physical education learning process by pre experimental and the one group pre-posttest design (Santoso, 2007:41) with 55 persons of sampel held in study program of physical education health and recreation Faculty of University Cenderawasih who followed the table tennis subject at singular semester 2014/2015. The students were given materials of table tennis for fourteen meetings with theories and exercises of strokes table tennis, and methods and style of the lecturer in physical education learning process. The detail materials of table tennis subject as follow; 1. history of table tennis, 2. theory of services stroke. 3. exercises service strokes; a. service stroke forehand backspin,

b. service stroke forehand backspin, c. service stroke backhand topspin and d. service stroke backhand backspin.

The methods of physical education learning process had been done to develop the services stroke of table tennis were; demonstrating and giving feedback directly. The materials which be learned as follow; hold the right bet/racket, to understand and demonstrate the spins of the ball with hold the right bet/racket, to rebound the ball in the wall and to the floor with target, learned the services stroke technique by standing and sitting in the floor with one person it self, two persons (couple), and group without table, to performance the services stroke technique in the table tennis.

The procedure which were used in this research as follow; 1) pre-test four services stroke, 2) physical education learning process for fourteen meetings where each meeting spent of time 100 minutes, had been devided into; fifteen minutes for warming up, seventy minutes for physical education learning process and fifteen minutes for cooling down, and 3) posttest four services stroke. The treatmen had beed done for fourteen meetings; (1) the teory of table tennis; (a) history of table tennis, and (b) skill of four services stroke and the stages to perfomed those skills, for one meeting. (2) learned the services stroke for thirteen meetings. The treatmen had been done after pretest, and finished treatment with posttest.

This research used independent variable; physical education learning process and dependent variables; service stroke forehand backspin, service stroke forehand topspin, service stroke backhand backspin and service stroke backhand topspin, that were measured by precised service stroke with target service stroke in front line to measured the service stroke backhand backspin and service stroke forehand backspin, and target service stroke in base line to measure the service stroke backhand topspin and service stroke forehand topsin, made in Hodges (2000). The procedure of the test; each testee did each service stroke a lot of thirty times and how many time the ball enter the target of service to be score of the testee. The target of service devide into two parts as follow Figure 2.

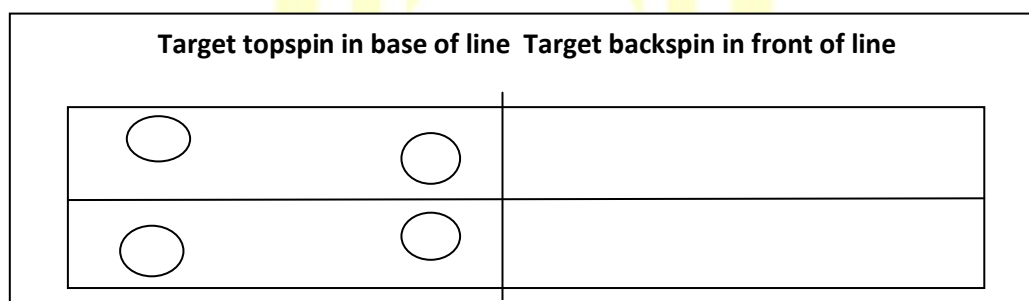


Figure 2. The area of target of services stroke

The data had been analyzed with one sample t test, level of significant α 0.05, using SPSS (Riduwan and Sunarto, 2012;241) and Sudijono, (2011:309) to answered four hyphotheses as follow; 1) there is table tennis service stroke forehand backspin development of the students through physical education learning process. 2) there is table tennis service stroke forehand topspin development of the students through physical education learning process. 3) there is table tennis service stroke backhand backspin development of the students through physical education learning process, and 4) there is table tennis service stroke backhand topspin development of the students through physical education learning process.

RESULTS AND DISCUSSION

The different stroke of forehand backspin service development through physical education learning process (mean pretest 7.1273 < posttest 16.6909). The analysed data found probability

(P).000 < α 0.05. This showed, the table tennis stroke of forehand backspin service development was significant through physical education learning process.

The different stroke of forehand backspin service development through physical education learning process (mean pretest 7.1273 < posttest 16.6909). The analysed data found probability (P).000 < α 0.05. This showed, the table tennis stroke of forehand backspin service development was significant through physical education learning process Figure 3.

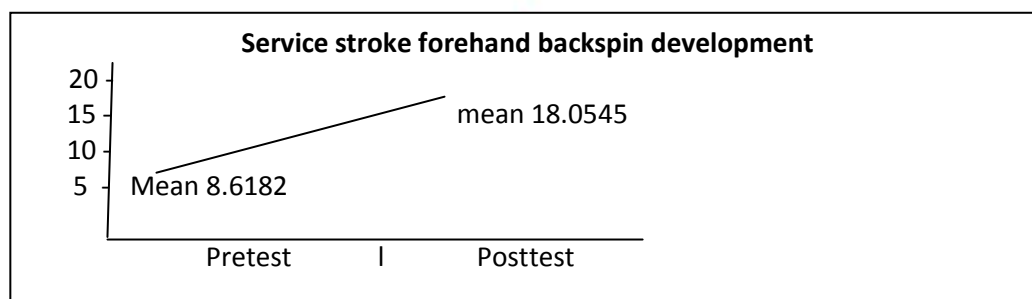


Figure 3. Result Of Physical Education Learning Process

The different stroke of forehand topspin service development through physical education learning process (mean pretest 7.1273 < posttest 16.6909). The analysed data found probability (P).000 < α 0.05. This result showed the table tennis stroke of forehand backspin service development was significant through physical education learning process Figure 4.

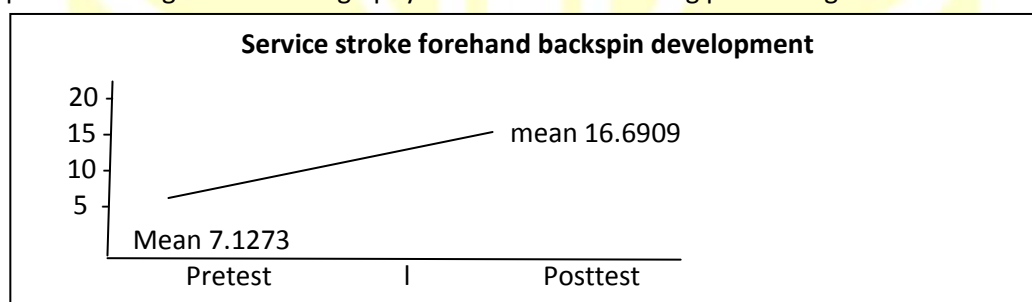


Figure 4. Result Of Physical Education Learning Process

The different stroke of backhand backspin service development through physical education learning process (mean pretest 6.1636 < posttest 12.4909). The analysed data found probability (P).000 < α 0.05. This result showed the table tennis stroke of backhand backspin service development was significant through physical education learning process Figure 5.

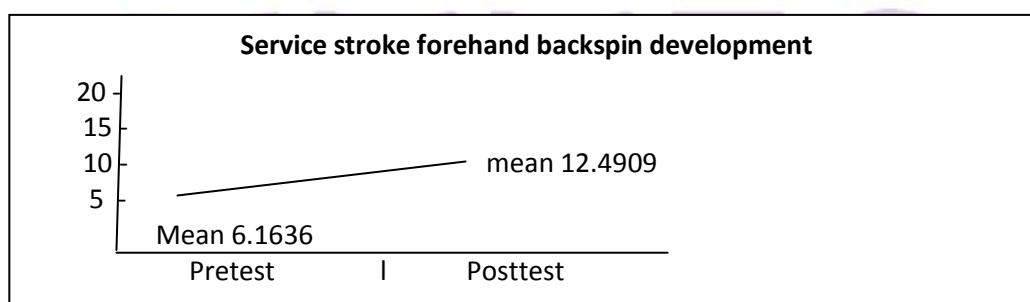


Figure 5. Result Of Physical Education Learning Process

The different stroke of backhand topspin service development through physical education learning process (mean pretest 5.1636 < posttest 11.3639). The analysed data found probability (P).000 < α 0.05. This result showed the table tennis stroke of backhand topsin service development was significant through physical education learning process Figure 6.

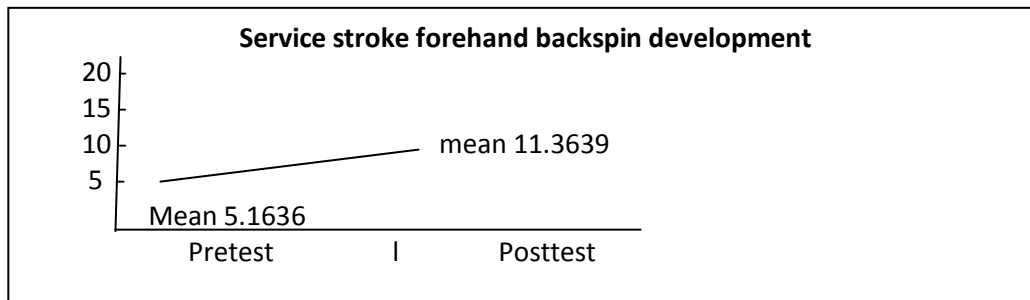


Figure 6. Result Of Physical Education Learning Process

Discussion

The Table Tennis Service Strokes Development

The results of research showed that there were services stroke development through physical education learning process. There are four services stroke of table tennis were developed through physical education learning process as follow; service stroke forehand topspin, service stroke forehand backspin, service stroke backhand backspin and service stroke backhand topspin. Bob, (1997:282-283) said through learning process had been relatively change of performance as learning experience. The change of performance can be showed as figure.

Through learning process the skills will increase gradually which be followed learning experineces. Magill, (2003:183) said, learning process of motoric will change performance a relatively permanen as learning experinece and exercise. Thus, through physical education learning process can develop gradually the performance of service strokes table tennis Figure 7.

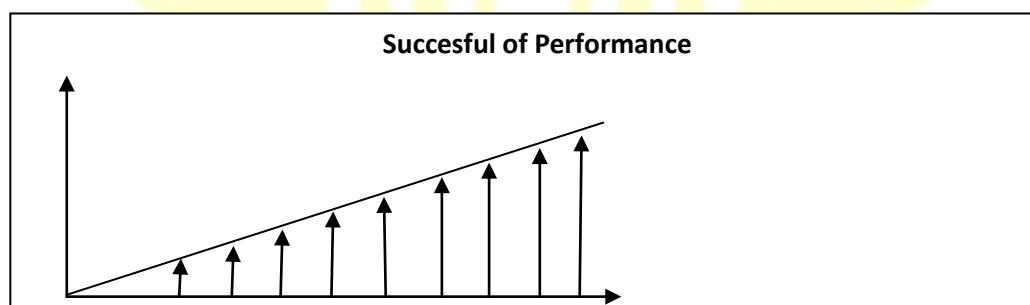


Figure 7. Increased the learning process

Hodges, (2000:43) said service stroke topspin make services quicker than others and many people like service topsin, especially player who like hard stroke agains the right topspin. Stroke of topsin Service can drill quickest in each part of the table. Stroke of backspin service is suitable to attact the topspin stroke. Hodges, (2000:44) said, stroke of backspin service is always effective agains the topspin stroke, because is difficult attacted, especially if the ball is in front of line. Thus, the stroke of backspin service is effectively if the ball is falled in front of line.

Drowatzky, (1981:17) said, learning principle is a change of behavior as result of learning process or condition of environment that many activities of human. Schmidt, (1991:155) said, there are many aspects have to known from learning process, as follow; learning is exercise and experience result, learning can not be observed directly, but can be seen the result. Learning give changing a relatively permanent, learning will involve neuromuscular, and learning will result a performance of skill. This statement, explained the development of service strokes of table tennis through physical education learning process had already suitable with principle of learning.

The learning process want to obtain the maximal of learning result especially skill. Morrow etc, (2000:9) said three domains should be reached through learning process; cognitive, affective and psychomotor. This statement showed there are three domains had to be reached through

learning process. This condition has already suitable with physical education learning process of table tennis service strokes development.

Magill, (1993:7) said, to obtain the best skill can be measured from two indicators; action task, and quality of performance. The first indicator can be measured from three characteristics ; action goal, specific goal to achieve and productivity of performance. The second indicator can be measured from the consistency of performance. This statement showed, through physical education learning process must develop the service strokes of table tennis of. There are four service strokes that had been developed through physical education learning process.

Magill, (2003:193-194) said, general performance characteristics of skill learning, as follow; 1) improvement (performance of the skill shows improvement over a period of time). 2) Consistency (as learning progreses, performance becomes increasingly more consistent). Persistence (the improved performance capability is marked by an increasing amount of persistence). This showed that the development of service strokes have to measured from improvement the skill in a period of time, have consistency, and have persistency. The instrument that be used to obtained the data of table tennis service stroke development, had been suitable with the general performance characteristics of skil learning.

CONCLUSION AND SUGGESTION

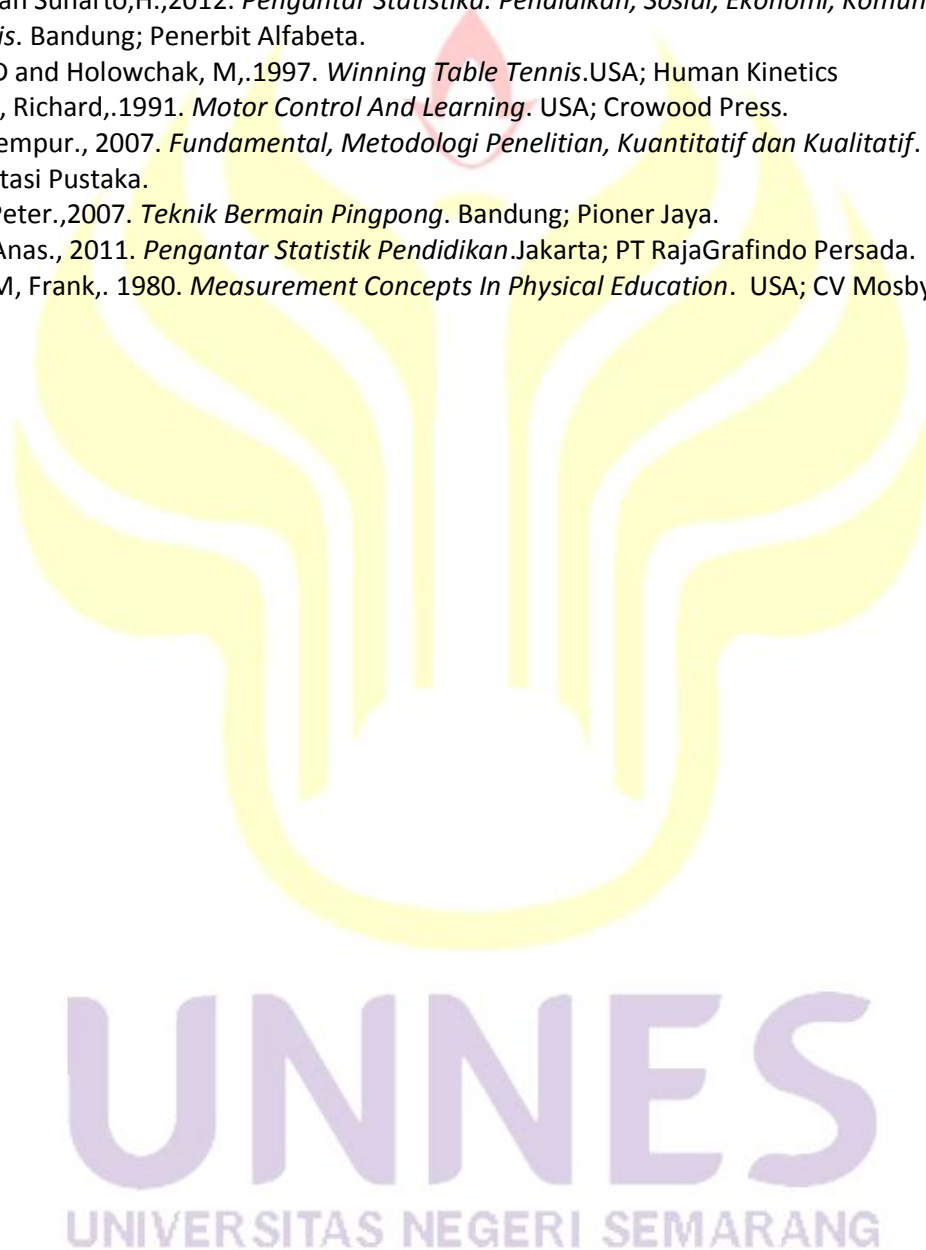
There are four conclutions from this researched as follow: 1) The table tennis stroke of forehand backspin service development was significant through the physical education learning process. 2) The table tennis stroke of forehand topspin service development through physical education learning process. 3) The table tennis stroke of backhand backspin service development was significant through physical education learning process. 4) The table tennis stroke of backhand topspin service development was significant through physical education learning process.

Suggestion of this research is 1) There are many strokes of table tennis which can be developed through physical education learning process, 2) The development of table tennis strokes need to observe by physical education and sport education approaching, 3) The table tennis strokes can be hesitated to measure the ability of skill performance of the students in the kindergarten, primary school, elementary school, senior high school, iven in the university, 4) The table tennis playing can be used as recreation activities in area where the human referesing.

REFERENCES

- Barrow, M. Harold And McGee Rosemary, 1979. *A Practical Approach To Measured In Physical Education*. USA.
- Bob, Davis, etc., 1997. *Physical Education and The Study Of Sport*. USA; Mosby International.
- Bidle, H, J, Stuart and Mutri, Nanette,.2001. *Determinants, well being and interventions*. USA; Routledge.
- Coker, A, Cherly,.2004. *Motor Learning And Control For Practitioners*.New York; McGraw Hill.
- Cook, S, Anne and Woollacott, H, Marjorie., 2001. *Motor Control. Theory And Practical Applications*. USA; Lippincott Williams & Wilkins.
- Drowatzky, N, Jhon.,1981. *Motor Learning. Principles and Practices*. USA;Burgess Publishing Company
- Hodges, Larry,.2000. *Step To Success. Tenis Meja Tingkat Pertama*. Jakarta; PT RajaGrafindo Persada.
- Kertamanah, Alex,.2003. *Teknik dan Taktik Dasar Permainan Tenis Meja*. Jakarta; PT Raja Grafindo Persada.
- Kertamanah, Alex,.2003. *Teknik dan Taktik Mahir Permainan Tenis Meja*. Jakarta; PT Raja Grafindo Persada.
- Krote, L, March and Bucher, A, Charles,.2007. *Management Of Physical Education And Sport*. New York; McGraw Hill.

- Kirkendall, Gruber, and Johnson.,1980. *Measurement And Evaluation For Physical Educators*. Dubuque Iowa; Wm.C. Brown Company Publishers.
- Melograno, J. Vincent.,1996. *Designing The Physical Education Curriculum*. USA;Human Kinetics.
- Magill, A, Richard.,1993. *Motor Learning, Concepts And Application*. USA; Brown Company.
- Magill, A, Richard.,2003. *Motor Learning, Concepts And Application*. USA; Brown Company.
- Preist, M, Scott.,1992. *Table Tennis, The Sport*. USA;Wm. C. Brown
- Riduwan dan Sunarto,H.,2012. *Pengantar Statistika. Pendidikan, Sosial, Ekonomi, Komunikasi, dan Bisnis*. Bandung; Penerbit Alfabeta.
- Seemiler, D and Holowchak, M.,1997. *Winning Table Tennis*.USA; Human Kinetics
- Schmidt, A, Richard.,1991. *Motor Control And Learning*. USA; Crowood Press.
- Santoso, gempur., 2007. *Fundamental, Metodologi Penelitian, Kuantitatif dan Kualitatif*. Jakarta; Prestasi Pustaka.
- Simpson, Peter.,2007. *Teknik Bermain Pingpong*. Bandung; Pioner Jaya.
- Sudijono, Anas., 2011. *Pengantar Statistik Pendidikan*.Jakarta; PT RajaGrafindo Persada.
- Verducci, M, Frank., 1980. *Measurement Concepts In Physical Education*. USA; CV Mosby Company.



PLAY LEARNING MODEL DEVELOPMENT ON PHYSIC EDUCATION CHARACTER BUILDING IN ELEMENTARY SCHOOL GRADE V

Waluyo

Program Study of Physic Education, Magister Program, State University of Surakarta

waluyo.uns@gmail.com

Abstract

This research purposes to produce play learning model on physic education on character building in Elementary School grade V. This learning model expects to be interest of students in physic and health education so to be intern values in education character of students in elementary school special grade V. This research uses research and development by Borg and Gall. This research develops 10 steps but this research modification to be 7 steps. Try out for small control group uses students of SDN 15 of Surakarta and SDN Sumber 1 Banjarsari of Surakarta. Try out large group uses students in SDN 15 of Surakarta grade V-1 and V-2, SDN 16 of Surakarta grade V-1 and V-2, SDN Sumber 1 and SDN Sumber 2 Banjarsari of Surakarta. Effectiveness test for students SDN 15 and SDN 16 of Surakarta and dissemination with international seminar. Instrument collecting data uses questionnaire and observation guide. Analysis data uses descriptive quantitative and product moment correlation. Result by research and development are: (1) changing by cycle I to cycle II to all measure aspects (2) significant correlation between observation result and values character education of students. Base of research result and development conclusion: (1) play learning model of physic and health base character education can growth values work hard character, tolerance, creative, responsibility, discipline, care, friendly and honest. Play learning model of physic and health education is "loyal play" growth value character of students. (3) Instrument observation consists work hard, tolerance, creative, responsibility, discipline, care, friendly and honest can to predict growth of values character of students.

Keyword: play learning model, physic and health education, character education

INTRODUCTION

A. Background Problem

The problem of moral deterioration lately attacked some young generation. Symptoms deterioration of moral among others indicated with cases penyalahgunaan outbreak of drugs free, promiscuity criminality, violence and multifarious behavior that is less commendable other (Lubis 2009: v; Parji, 2002: 78). On the other hand not a few of the younger generation who failed to display their attitude commendable appropriate hope parents. Civility, friendly, properties amicability, humble spirit like help, soliditas social and forth that is identity of nation centuries as if less so inherent in a powerful manner within themselves (Supriyoko, 2003: 3). Can be said to be even more special education in Indonesia leaning to dimensions knowledge (cognitive oriented) or tending intellectuality / academic education and ignore the manners of (Suyanto, 2003: 153). Efforts to improve student learning achievements not in spite of the various factors influence it. In this case required teachers creative. Because teachers to the learning process not only armed with enough knowledge with regard to field of study taught, but need to pay attention to the aspects of learning in holistic who support of the realization of development potentials school tuition. Of the dimensions of the the role of teachers difficult replaced by another. Hence, teachers in their experiences not only transfer of knowlegde but also transfer of values. Educate are defined more comprehensive namely fostering self business school tuition full good aspects of cognitive, the aspect of affective and psychomotor, to grow into a people which are berpribadi (Sardiman, 2002: 123).

The success of a learning process cannot be separated from the capability of teachers develop learning models that is oriented toward the increased intensity of the involvement of students effectively in the process of learning. Kind of classroom development expected is the development of a model that enables the student can learn in active and fun so that school tuition can gain learning outcomes and accomplishments optimal learning .To be kind of classroom develop effective then any teachers must have an adequate understanding with regard to the concept of and means of the implementation of the models in the process of learning .Kind of classroom that is effective has links with their level of understanding to the development of teachers and the condition of school tuition in the field .As well as the importance of understanding think of facilities and school facilities available , the condition of the court and several factors associated with learning. It is suggested that the quality of character education school tuition is very important to be improved. Rest of the survey researchers , following the state of learning and teaching on the subjects of Physic Education Character Building Primary School in the City Of Surakarta:

1. Learning the models have not been many innovative practice
2. Teacher taught for in a conventional manner , namely how to teach with the approach branc technique and centering for the teacher
3. The availability of tools and learning facilities both in quality and quantity inadequate
4. Enthusiastic school tuition men in matter play , especially football , besides that excited in following classes five .To character education most still limited to a syllabus and lesson plans and have not implementate in their experiences

(interview with Group Teachers Physic Education Character Building The City Of Surakarta , 8 March 2011

Based on the state of the above , it is well and evaluation of the process of learning Physic Education Character Building in primary schools is still limited on the psychomotor , while aspects of the cognitive and and affective has been touched , as well as the models play and learning based education character of students .In fact demands learning penjasorkes curriculum have to lead to knowledge , skill , the attitudes and behavior or bask (behavior , attitude , skill , and knowledge) (Cholisin , and Djihad Hisyam , 2006: 123) .For that teachers have to use the model of learning that is not only make learning interesting , but also make room for school tuition to berkreatif and involved actively in the process of learning; “ build knowledge and skill “ (brunner , 2000: 214) .Assuming development are offered kind of classroom physical education sport and health hereinafter referred to as a model play obedient , as an effort to internalization charac values `

B. The Formulation of a Problem

Stand from the description above background , then the problems in this research can be formulated as follows:

1. What kind of classroom play obedient can actually grow the value of hard work in their experiences Physic Education Character Building based character education in Primary Schools Grade V ?
2. What kind of classroom play obedient can actually grow the value of discipline in their experiences Physic Education Character Building based character education in Primary Schools Grade V ?
3. What kind of classroom play obedient can actually grow the value of tolerance in their experiences Physic Education Character Building based character education in Primary Schools GradeV ?
4. What kind of classroom play obedient can actually grow the value of care in their experiences Physic Education Character Building based character education in Primary Schools Grade V ?
5. What kind of classroom play obedient can actually grow the value of creative in learning Physic Education Character Building based character education in Primary Schools Grade V?
6. What kind of classroom play obedient can actually grow the value of honest in their experiences Physic Education Character Building based character education in Primary Schools Grade V?
7. What kind of classroom play obedient can actually grow the value of friendly in their experiences?

C. Research Purposes

In line with the formulation of a problem above , then the purpose of this research is:

1. Get a lesson Physic Education Character Building Grade V In Surakarta so far ?
2. Develop learning model play obedient as an effort to internalization values character in learning Physic Education Character Building Grade V
3. Know the effectiveness of a model play obedient as an effort to internalization values character in learning Physic Education Character Building Grade V `

THEORETICAL

A. Physical Education Sport And Health In Primary School

Physic Education Character Building be a pleasant to encouraging the development of motor skills , physical performance , knowledge , reasoning , appreciation the value of (The mental attitude spiritual emotional social) , and habituation healthy lifestyles that rises to stimulate growth and expansion which is balanced .With physical education school tuition will receive the various phrases that were closely related with personal impressions fun as well as the various phrases creative , innovative , skilled , having health condition , surviving customs healthy and having knowledge as well as the understanding of human motion (Depdiknas , 2003: 45) .In the process of learning Physic Education Character Building , teachers taught me all sorts expected motion basic skills , techniques and strategies the games and sports , internalization values (sportive , honest , cooperation) and the habit of healthy lifestyles .

Its implementation not through teaching of physical education is conventionally in the classroom that is spatially theoretical study , but involving physical element , mental , intellectual , emotion and social. The purpose of Physic Education Character Building in primary school is: 1.the lay the foundation of a strong character through intemalisasi value in physical education , 2.the build the foundation of a strong personality , the attitude of the love of peace , social attitudes and tolerance in the context of the diversity of culture , ethnic and religious , 3.the grow the ability of critical thinking learning through penjasorkes tasks , 4) develops attitudes sportive , honest , discipline , responsible , cooperation , confident , democratic and through physical activity , 5) develop the skills of motion and engineering skills and strategies various games and sports , the activity of development , gymnastics , the activity of ictus is , aquatic (the activity of water and education beyond the classroom (outdoor education) , 6) develop the skills the management of self in the development and maintenance of physical fitness and healthy lifestyles through a variety of physical activity. (7) develop the skills to keep the safety of self and other , (8) will know and understand the concept of physical activity as of information to reach health , fitness and healthy lifestyles , and (9) capable of filling leisure with having the character of rekreatif physical activity.

Material Physic Education Character Building primary school especially upper-class (class 4 - 6) namely covering: experience practice as a basic game skills and sports the activity of development self test / gymnastics, ictus is, activity the activity of aquatic (water) , and education beyond class (outdoor) served to help students to understand why humans move and creating a way of doing movement in safe efficient and effective.As for its implementation needs to be done in a planned fashion, gradually, and sustainable, which in turn learners expected to improve positive attitude for yourself and appreciate the benefits of physical activity for the improvement of quality of life someone. Thus will be formed soul of sportsmanship and lifestyle active.

B. Defines Character Education

Character education is a system of planting the values of the character to the school which includes a component of knowledge , consciousness or volition , and action to implement these values , good against the lord almighty (yme) , yourself , fellow , the environment , and the nation (Minister Of National Education, 2010: 4; Akhmad Sudrajat , 2010: 21 .Based on understanding of culture and character of the nation as has been mentioned on education and culture and character of the nation seen as education to develop cultural values and character of the nation on the self school tuition , so has the value and character , apply those values are in his life , either as a member of the community , and as a citizen of religious , nationalist , productive and creative. Based on a statement at about can be is stated that character

education is the efforts being designed and carried out systematically to help school tuition understand the values of human behavior that deals with the lord of almighty god , yourself , a fellow human being , the environment , and nationality who manifest in the mind , attitude , a feeling of , the words , and actions based on religious norms , law , manners , culture , and customs .Further based on grand design developed the national education ministry for 2010 , psychologically of cultural and social develop the character of within individual is a function of all the potential here an individual man (cognitive , affective , and psychomotor) in the context of cultural social interaction (in the family , school , and society) and going on all hayat .The configuration of character in the context of the totality of psychological processes and the sosial-kultural can be classified in sports: the heart (spiritual and emotional development) , of sports

C. Playing

Playing the main alternative as a form of delivery penjas matter of primary school for students because they are in age group play .The world children is the world play (Gallahue , 1996: 335-336) .No children who do not like to play , both play active and passive play .In playing active to children physical activity , as: romp with a friend , playing football , swimming and gymnastics .On the other child was glad enjoy (watch) activities performed by others .This is called to play the passive .In the process of play , namely when students play along with his friends , there are stages the play in its path .According to gallahue (1996: 34) stages the play includes three phases , namely: (1 of the stage of exploration () exploratory stage , 2.the the mastery of stage (mastery) , and 3. the the stage of the achievement of (achievement staging) . The stage of exploration emphasis on the development function development of whole organs body) . The mastery of emphasis on the development of the motion of the basis of which includes the motion of locomotion , the motion of manipulation, and motion stabilita or motion nonlokomosi (gallahue , 1996: 41).The stage of the achievement of emphasis on the development of the result or product. At this stage , the movement of students already reached stage of development motion relating to sport. According to Hidayatullah (2013: 68) stage of development play in the primary school students most of the two thirds part to develop the function of, namely develop the body organs .Partly divided two: the part of a rather large to develop the process and part with the portion of the smaller to develop products.The proportion of the development of the function of, the process, and products will automatically shift along with changes in the level of education students. Hidayatullah (2013, 70) said that the condition of the environment as it would be: (1) in order to encourage students engaged in order bereksplorasi, (2) to encourage students to move voluntarily, excited, and there is no force, (3) the grant challenge for students to move in order to solve the problem, and (4) giving experience for learners.Within the play, students need media called the game.Used as a receptacle for playing can use of tools, football, like: baseball, and jump rope, without any instrument; or as: romp and hide and seek.

All of which have been mentioned the selection has been done to determine the one who will be elected to it is in accordance with the needs of the student grade.In 2006, Martin Hastie 337-339 (and) there ' s five criteria that can be used to determine the appropriate to the upper classes in elementary schools students (1) is: will give contribution to the development of skills, (2) the need to provide safety, either physically or emotionally (3) the games should not be based on the eliminasi, (4) should be given a chance to play for a lot of kids (5) and should provide a major challenge for a student.It is interesting to play with the kids, and the challenge in order to provide mutual benefits for the kids the required creative and innovative. 2004b siendetop (59) says: one way that can be done by the teacher to subject to withdraw is to modify the game. A modification of covering changes in regulations of secondary , the game includes; size , weight or the type of equipment , the area of the game , the length of the game , the number of players in the team , the regulation , the size of the target , high net , rotation the position players , and how to get the score.On virtually to modify a game it takes knowledge of a teacher in understanding the ability of participants students. According to siendetop (2004b: 60) there are five strategy to modify the game , namely; (1) made easier a way of getting a score , (2) slow the movement of the ball or object , (3) increasing the opportunities practice techniques and tactics , (4) change the order of a game that allows learn tactics , and (5) changing regulations score. Gusril (2004: 45-46) said there were four elements that

need attention by teachers modify in sports in learning , namely the size of the field , equipment , the regulation , and the length of the game .According to the happy (2000: ; 31-32) modification of sports games can be done by reducing to structure the game .The structures are: 1.the the size of the field, 2.the the form of, size, and the amount of equipment used , 3.the kind of skill that is used , 4) rules , 5 of the player , game 6) organization , and the purpose of the game. 7)Because of that , play should be given to students , especially primary school tuition. Digunakan to play a game that can use an instrument, seprti football, baseball, basketball , volley , and jump rope or without an instrument , as: romp and hide and seek

D. The Concept of Play Obedient

Playing obedient is a game is expected to give internalization of values in the process of learning and it contains elements of the willingness to obey the statutes of students, regulation or a norm that applies in a social life .Participants play obedient teach discipline students to act, hard work, responsibility , care , honest , tolerance , friendly and creative to growing confidence on the self every school tuition .From every game is expected to dipraktikkan and felt its benefit .According to hidayatullah (1985: 9-11) in his book titled: make sport an integral part of national development described: Due to do sports regularly not only have a positive influence on the body of course , but have the influence of broader which includes all aspects of mental and social human . by because in doing sport there are provisions, the rules , size and forth .Besides that , many sport activity involving many people (team, group) etc , and if wanting the results of which are useful to the body, we must meet and comply with regulations and rules that has been determined .With frequent and repeatedly people involved in the situation , increasingly people will be used to adjust and try to create such attitudes to exercise restraint, sportive , comply with regulations and provisions in doing sport. Sportive this habit to be, usually have influence (carry over value) positive also to other activities in daily life for example, sportive, honest, tolerance against neighbor, smart control myself , appreciate the wisdom of the decision and forth . Also in social aspects such as cooperation .By many is that the activities of mass sport or many involving people , then that in doing sport can go well , of course need coordination , cooperation appreciate other people and so forth.

If someone breaking rules or provisions that have been agreed or determined then shall be experiencing something not palatable. inside his heartHence also required embodiment of good manners.So that it is usually will also affect trhadap activity in daily life.In the development of social aspects inrii, as humans will realize how the importance of cooperation with fellow human beings with surrounding community.

Play obedient was sourced from the opinion david shield and brenda bredemeir (1995) from his book that read: character development and physical activityyaitu there are four virtue where a man has good character should be showing , compassion (compassion) , fairness (equity) , sportsmanship (dexterity) and integrity of the .As for the provisions of the observance of which must be obeyed is as follows the academic (in droves play obedient)

1. Obey regulations ,
2. Trust your friend ,
3. Keep your fitness ,
4. Control your anger ,
5. Keep your game remain free from violence ,
6. Control pride if you win ,
7. Keep dashing to lose ,
8. Keep people healthy and a clear mind in the body healthy .

The next , in understanding and practice play obedient is defined as a quality characterized by kindness and sincerity to others by way of saying

- a. Play to follow the rules , accept defeat or failure without protest , or a victory without excitement excessive;
- b. Treat others as you want to treated;
- c. Regard for others and yourself;
- d. Encourage self control , polite , and received with respect the result of the action of another person;

e. show the attitude of ethical to stay good (character and applicable right of action); f) be a good citizen
 Playing obedient adopt also of the book Don Hellison (2003) titled teaching responsibility through physical activity (TPSR) .the outline some of its requirements in physical activity (model arranger play is as follows:

- a. Basic idea that there is value in any matter penjasorkes responsibility , that is not separated from the physical activity , affective and knowledge to be prosecuted and obtained as a result of learning
- b. Used not for (drug) but as a means of good behavior in learning , and develop the habit of decision-making in productive
- c. responsibility can be deliberately taught in learning
- d. Responsibility and decision-making not separated from physic education character building
- e. Empowerment matter of learning for learners should be , assistance in learning through seting
- f. Learning Centered On Learners
- g. The level of responsibility can be planned by the provision of hope and acceptable , to achieved gradually

Theme in TPSR

- a. Integration, not separated from the content of the overall Physic Education Character Building
- b. The transfer of the designed in learning to be determined at that school, school, and in our society empowerment
- c. Learn, act in its own volition, in the real world master carries a student to think that he is rather than the life, but the person who is responsible for what occurs in their
- d. The teacher-student relationship, it is the hardest thing.of a personal experience, who awakes honesty, some trust, and communication.we need to develop partner equivalent.
- e. Affective , skill , dynamically and knowledge and interact in unexpected , even mutually anytime priority.

Playing Obedient Model

Some activities to develop intelligence motion as the basis for “ Play Obedient “. Develop their motion (Graham, Wit George. Ann, Shirley, Parker, Melisa.1987) noted that we need to know more deeply of what it should be.A divided into 3 kinds of locomotion, such motion not mechanical motion of locomotion and manipulation.Besides, there are three stages in studies of cognitive on the stage fixation and the last was automation.In many different ways of teaching development intelligence, also in “ Play Obedient “. safety standards must be kept and held all right, it is not enough just by providing a tool for children and they do it themselves without any monitoring enough.

In this research , the development of intelligence motion to be implemented through learning of motion in “ play obedient “ will contribute to other aspects for children , suppose appreciate the difference , valuing themselves and others , honesty and openness , self control and emotional , the health and fitness of the body , work together in groups and learn sociable , and learning to compete in a healthy .There are 6 model play obedient developed in this research is: 1).the street soccer , 2).the kick the ball , 3).the get the ball , 4) sundul the ball , 5) police and criminals , 6) take care of eggs.

RESEARCH METHODS

A. Model of Development

This research is designed with the approach of research and development (research and development).Borg and gall (2007: 589) explaining that research and development derived from industry based development model used as a procedure to design and develop a new product quality.In other words that the development of research is that research oriented to developing and validating products that used in education.Borg and Gall (2007; 564) ten suggested step in the development of this research as follows:

1. *Research And Information Collecting*
2. *Planning*
3. *Develop Preliminary Form Of Product*

4. *Preliminary Field Testing*
5. *Main Product Revision*
6. *Main Field Testing*
7. *Operasional Product Revision*
8. *Operasional Field Testing*
9. *Final Product Revision*
10. *Dissemination and Implementation*

For the benefit of a dissertation , researchers simplify the tenth step of research and development of borg and gall this to be three stages , namely (1) study introduction , (2) the development of a model , and (3) testing the effectiveness of a model .The design pembelajannya model , reference to Dick , Carey , Carey (2009) .

a. Preliminary Study

Study introduction are the activities research and collecting information that has two main activities namely a literature review (a literature study results previous) and field studies.The result of this activity is learning Physic Education Character Building the implementation in the field that will be used for footing to the development of a model.

b. The Development of Model

On the stage the development of this model was a combination of planning the planning stage () and development the product (develop the draft of the preliminary form of product) .The main activity of executed is the determination of the purpose of , determine qualifications and the form of participation related stakeholders in research and development , decisive procedure of work and proper test .The results of the draft of the design of this activity is a model that is ready for tried out .Containing the step of experiment the field of the pilot: the field limited (preliminary field testing) , then revise the results of the trial of a product revision) (play , the trial of a widespread (play field testing) and the consummation of the products the field (operational revision) product .The trial was carried out through ptk in the cycle of limited , while the broad melalai experiment done a quasi , to be effective and efficient model kind of classroom developed.

c. Testing the Effectiveness of a Model

Testing the effectiveness of the model consisting of the implementation of the field test of operational activities (the field the final product testing and revision) (the final product .The goal is to test model experiments with the group through a quasi pretest-posttest eksperimen) one group and one of the control group .The results used as a consideration in making recommendations play obedient effectiveness of a model of learning in primary schools .

d. Data Resources

Data sources in research is:

- 1) informants: teachers , students , and the school principal ,
- 2) events: learning activities .
- 3) documents: the documents relating to: the syllabus , lesson plans , teaching materials , media learning and other documents relevant

e. Data Collection Techniques

Data collection techniques that researchers use of poll , interview , observation and observation , an analysis of documents related to on Physic Education Character Building learning

f. Data Validity

The validity of the data in the research use of triangulation and a source of data and methods. Triangulation of the data to test the validity of the data from different sources , while the triangulation of the method to test data with distinct method

g. Data Analysis Techniques

To see the effectiveness of the trial in the research done by the true experiments, and the result is analyzed by uji-t. Use uji-t based on considerations, researchers to compare the situation before given treatment by the situation after the bed. Meanwhile for the evaluation of the poll and likert poll analysis using technical analysis rerata closed. The poll results open observation, be analyzed with a descriptive qualitative analysis. The lessons in a disobedient Physic Education Character Building analysis using the guidelines of the absolute scale of five. The average data of the analysis of evaluation results using formulas,

$$\bar{x} = \frac{\sum x}{n}$$

description :

$\bar{x}$ = average value

n = The number of evaluator

$\sum x$ = The number of answers evaluator the score

The criteria for the level of the average value of the evaluation as follows:

Table 3.1: criteria the Average Value of the Draft of the Evaluation Model and Devices of Learning

Average	Criteria
3,20 – 4,00	Good
2,20 – 3,19	Good Enough
1,20 – 2,19	Less Well
0,00 – 1,19	Not Good

Adapted from (arikunto 2002 – 180)

The analysis of data that has been done used as a reference to determine whether the draft which developed products needs to be repaired or not based on the validity of the criteria of the level of the average score. Analysis technique lessons using play obedient guidelines for conversion as follows

Tables 3.2: The Study Results In A Disobedient Physic Education Character Building

No	Score	Lateral Extent The Score	Categori
1	A	90 – 100	Best
2	B	70 – 89	Good
3	C	55 – 69	Good Enough
4	D	40 – 54	Less Well
5	E	0 - 39	Not Good

Adapted from (Gronlund and Linn, 1990: 442 – 443)

RESULTS AND DISCUSSION

1. Preliminary Studies

The preliminary study was the research and collecting information which has two main activities, namely the study of literature (study literature and terdahulu the results of research and field studies). The result of this activity is the implementation of learning lessons in the field of physical education character building that will be the basis for the development model of learning Physical Education Character Building in the field of physical education. The following is the result of the field findings in the preliminary study

Table 1. Factual Findings On The Court And The Solution

No	Learning Physical Education Character Building indicators	Factual in the field	Weakness of learning Physical Education Character Building	The solution offered for development
1	Teachers	Kurang menerapkan PAIKEM dalam pembelajaran	Learners are interested in teachers, automatically against	Teachers are required to apply active learning model, innovative, creative, effective and fun
2	Learners	Enthusiastic participation in the matter play the students, particularly football, besides learning not excited in the following	Learners did not actively moving and not the spirit that material and not	Fix approach, model, strategy, and media methods of learning
3	Approach, model strategy and methods	Teacher taught for conventional manner namely how to technique and content with the approach teacher	A student is on the margin and easily bored with material	Develop approach, model, strategy, the learning methods that cooperative in accordance with the characteristics of school tuition

4	learning media	The media and th interesting or n accordance with the	Learners less motivat follow learning	Fix the media and a and interesting also adjusted the numb students the tools a the number of participants
5	Matter of learning	Learning dom matter at the ga football which tuition son and b game for learne daughter , was a material that is neglected	Because only matter t game of football whic learners son and a ga baseball for learners daughter , the materi neglected and other multilateral motion a motion of the basis of school tuition less tha maximum	Capability of motio that the base and multilateral motion developing learners hence besides matt football game of ba kasti taught approp curriculum and 's th syllabus
6	The involvement of 3 domain (cognitive , affective and psycho)	Teachers only cente the psychomotor tuition , in fact a le process should i cognitive , affectiv psychomotor , let imparting values ha looked character	To infuse character education most are st limited in the syllabus lesson plans and not terimplementasi in le	The need to impart values character education through application of one c models play namely Play Obedient “in tl experiences s

1. The Development of a Model

The phase of the trial is done on these steps: a group of small then merivisi the results of the experiment, and the test results of the large groups and the court. A test group through a cycle, ptk small meanwhile, the trial of a group of experiments conducted through a quasi finally generated a final product is an effective and efficient kind of classroom developed.

Table 2. The Results of the Effectiveness of on Test Cycle I and II

	Aspect	Cycle I		Cycle II		changes	
		Σ	%	Σ	%	Σ	%
1	Hard Work	3,7	74	4,2	84	+ 0,5	+ 1
2	Tolerance	3,7	74	4,2	84	+ 0,5	+ 1
3	Creatif	3,6	72	4,0	80	+0,4	+ 1
4	Responsibility	3,7	74	4,2	84	+ 0,5	+ 1
5	Discipline	3,6	72	4,0	80	+0,4	+ 1

6	Aware	3,7	74	4,2	84	+ 0,5	+ 1
7	Honest	3,7	74	4,2	84	+ 0,5	+ 1
8	Honest	3,6	72	4,0	80	+0,4	+1

Table 3 shows magnitude of change from the cycle of i to cycle ii for all aspects of that is from being measured criteria be good to all aspects of

2. Test The Final Product A Large Group

After the trial in the first phase the wealden group or limited , then for steadying a model developed undergone a second trial with clusters of large or extensive .For the implementation of try a large group carried out in two schools namely (1) 15 surakarta public school class a and class a public school as a group of 16 Surakarta experiment , while two schools namely public primary schools a source of public primary schools source I and II as the control group .To test a large group quantitative methods used by false experiment and uncultivated by using test t.

a. Test t

1) Hipotesis

$H_0: \mu_1 \leq \mu_2$ = Group experiment no better than the control group

$H_1: \mu_1 > \mu_2$ = The experiment is better than a control group

Level signifikan $\alpha = 0,05$

2) Statistics Test Used

Group Eksperiment

N1 = 64

$\Sigma X_1 = 4900.5$

$\bar{X} = 76.57$

$\Sigma X_1^2 = 352603.0$

$$s_1^2 = \frac{n \cdot \Sigma X^2 - (\Sigma X)^2}{n(n-1)}$$

$$= \frac{64 \times 352603.0 - (4730)^2}{64(64-1)}$$

= 48.039

$$S_{gab} = \sqrt{\frac{(n_1-1)\sigma_1^2 + (n_2-1)\sigma_2^2}{n_1 + n_2 - 2}}$$

Group Control

N2 = 66

$\Sigma X_2 = 4326.5$

$\bar{X} = 65.55$

$\Sigma X_2^2 = 282465.5$

$$s_2^2 = \frac{n \cdot \Sigma X^2 - (\Sigma X)^2}{n(n-1)}$$

$$= \frac{66 \times 282465.5 - (4299.0)^2}{66(66-1)}$$

= 37.604

$$= \sqrt{\frac{(64-1)48.039 + (66-1)37.604}{64 + 66 - 2}}$$

$$= 6.5376$$

3) Computation

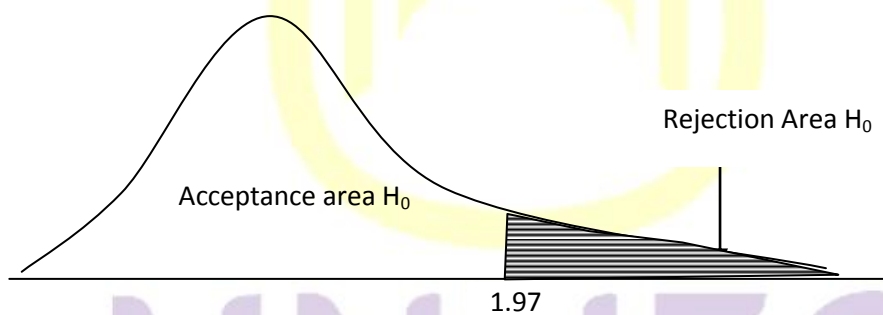
$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{s \left(\frac{1}{N_1} + \frac{1}{N_2} \right)}}$$

$$= \frac{7.65 \quad 76.57 - 65.55}{6.5376 \sqrt{\left(\frac{1}{64} + \frac{1}{66} \right)}}$$

4) The criticism Area

$$t_{0.0.5 \ 200} = 1.97 ; DK = \{t / t > \}; \text{ and}$$

$$t_{\text{obs.}} = 7.65 \notin DK$$



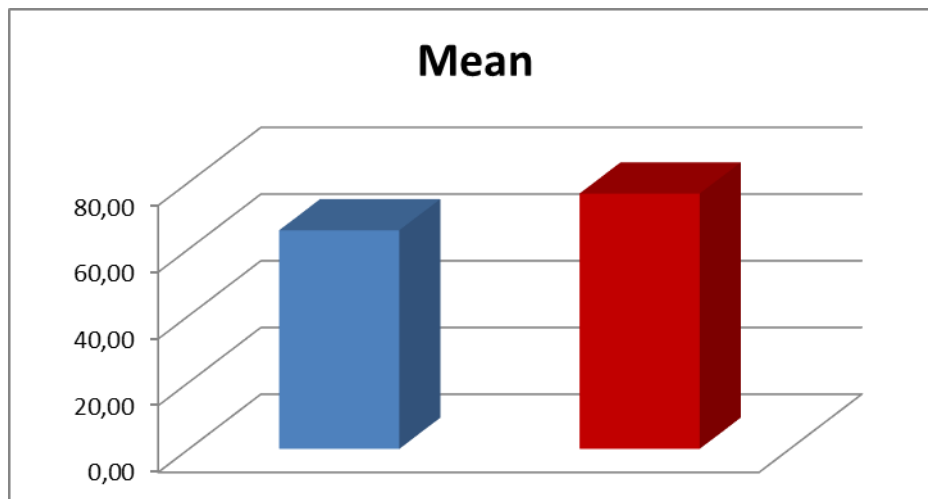
5) Test Decision

H_0 rejected

6) The Conclusion

The value of a group of experimentation and the control group is significantly different .This means that the experiment better than the control group

Because learning achievements groups that use the model *bermainsaat* = 76.57 & gt; study results a group that uses conventional model 65.55 = , it can be inferred from the results of the values that the groups that use the model play obedient has learning outcomes better than a group that uses conventional model.



Picture 1 To Scatter Test The Value Of A Large Group / Broad

3. Test The Effectiveness Of A Model

In an effort to know the effectiveness of a model of learning , then after extensive test next test effectiveness of done .Test the effectiveness of the implementation of model implemented in two schools namely 1.the of public school 15 class a and class b surakarta and of public school 16 surakarta class a and class b as a group of experimentation , while two schools namely source of public school i class a and b and source of public school ii class a and b as the control group .To test the effectiveness of the model used method of quantitative conducted experiments with specious (quasi exsperiment) and processed using t test.

1) Hipotesis

$H_0: \mu_1 \leq \mu_2$ = Group experiment no better than the control group

$H_1: \mu_1 > \mu_2$ = Experiments group better than the control group

2) Level Signifikan $\alpha = 0,05$

3) Test Statistics Used

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left(\frac{1}{N_1} + \frac{1}{N_2} \right)}}$$

Eksperiment Group

N1 = 102

$\Sigma X_1 = 7619.5$

$\bar{X} = 74.70$

$\Sigma X_1^2 = 572182.8$

Control Group

N2 = 100

$\Sigma X_2 = 6434.5$

$\bar{X} = 64.35$

$\Sigma X_2^2 = 417103.3$

$$s_1^2 = \frac{n \cdot \sum X^2 - (\sum X)^2}{n(n-1)}$$

$$= \frac{102 \times 572182.8 - (7619.5)^2}{102(102-1)}$$

$$= 29.689$$

$$s_2^2 = \frac{n \cdot \sum X^2 - (\sum X)^2}{n(n-1)}$$

$$= \frac{100 \times 417103.3 - (6434.5)^2}{100(100-1)}$$

$$= 31.064$$

$$S_{gab} = \sqrt{\frac{(n_1-1)\sigma_1^2 + (n_2-1)\sigma_2^2}{n_1 + n_2 - 2}}$$

$$= \sqrt{\frac{(102-1)29.689 + (100-1)31.064}{102 + 100 - 2}}$$

$$= 5.5109$$

4) Computation

$$t = \frac{\bar{X}_1 - \bar{X}_2}{s \sqrt{\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$

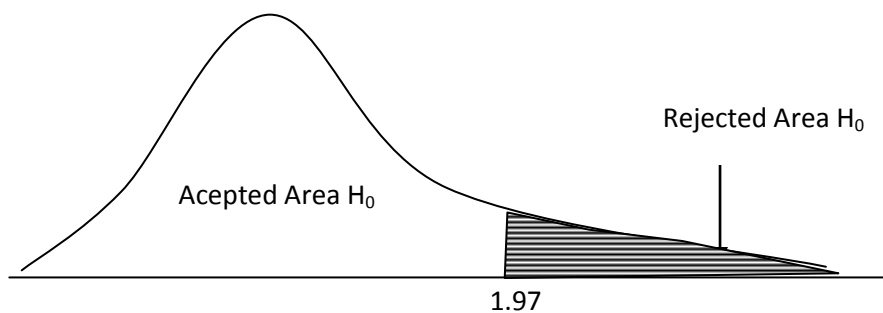
$$= \frac{7.65 - 6.57}{6.5376 \sqrt{\left(\frac{1}{64} + \frac{1}{66}\right)}}$$

$$= \frac{7.65 - 6.57}{6.5376 \sqrt{\left(\frac{1}{64} + \frac{1}{66}\right)}}$$

5) Criticismn Zona

$$t_{0.0.5 \ 200} = 1.97 ; DK = \{t / t > \}; \text{ and}$$

$$t_{obs.} = 7.65 \notin DK$$



6) Test Decision

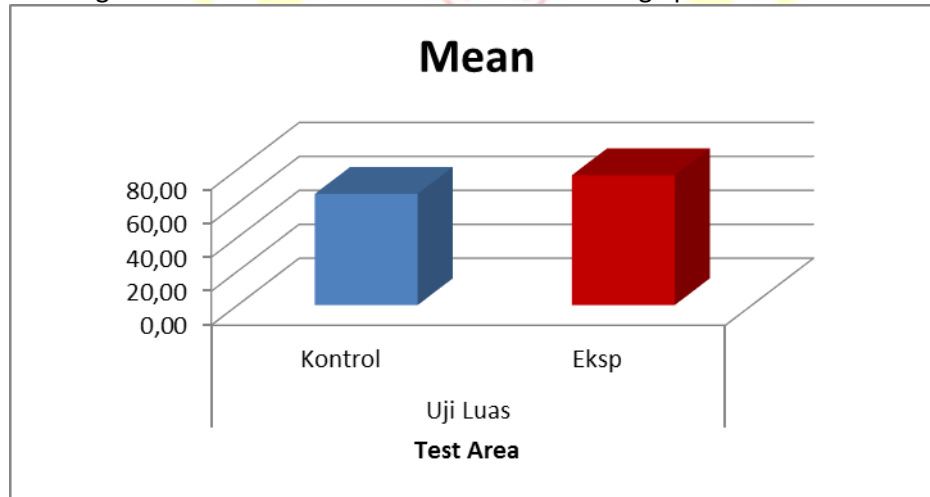
H_0 rejected

7) The Conclusion

The value of experimentation and average group the control group was different significant. This means that experiments group better than the control group

Because learning achievements average groups of people who use the model *bermintaat* = 76.57 & gt; average learning outcomes group that uses the conventional one = 65.55 , it can be inferred from the average value such that the group that use the model play obedient having results of learning which better than a group that uses the conventional one

In a diagram to scatter the value of a broader test large picture can be seen below



Picture 2. To Scatter Test The Value Of A Large Group / Broad

4. Test The Effectiveness Of A Model

In an effort to know the effectiveness of a kind of classroom , then following a broad undergone a next effectiveness of .For the implementation of the effectiveness of a model carried out in two schools namely (1) public primary schools 15 class a and class b surakarta and public primary schools 16 surakarta class a and class b as a group experiment , while two schools i.e. elementary i land a source of class a and b and public primary schools a source of ii class a and b as the control group .To test the effectiveness of model quantitative methods used by false experiment (quasi exsperiment) and uncultivated by the use of test t.

1) Hipotesis

$H_0: \mu_1 \leq \mu_2$ = Group experiment no better than the control group

$H_1: \mu_1 > \mu_2$ = Experiments group better than the control group

2) Level Signifikan $\alpha = 0,05$

3) Test Statistics Used

$$t = \frac{\bar{X}_1 - \bar{X}_2}{s \sqrt{\left(\frac{1}{N_1} + \frac{1}{N_2} \right)}}$$

Eksperimet Group

Control Group

$$N1 = 102$$

$$\Sigma X_1 = 7619.5$$

$$\bar{X} = 74.70$$

$$\Sigma X_1^2 = 572182.8$$

$$s_1^2 = \frac{n \cdot \Sigma X^2 - (\Sigma X)^2}{n(n-1)}$$

$$= \frac{102 \times 572182.8 - (7619.5)^2}{102(102-1)}$$

$$= 29.689$$

$$S_{gab} = \sqrt{\frac{(n_1-1)\sigma_1^2 + (n_2-1)\sigma_2^2}{n_1 + n_2 - 2}}$$
$$= \sqrt{\frac{(102-1)29.689 + (100-1)31.064}{102 + 100 - 2}}$$

$$= 5.5109$$

4) Computation

$$t = \frac{\bar{X}_1 - \bar{X}_2}{s \sqrt{\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}}$$
$$= \frac{74.70 - 64.35}{5.5109 \sqrt{\left(\frac{1}{102} + \frac{1}{100}\right)}}$$

$$= 13.3535$$

5) The Criticism Area

$$N2 = 100$$

$$\Sigma X_2 = 6434.5$$

$$\bar{X} = 64.35$$

$$\Sigma X_2^2 = 417103.3$$

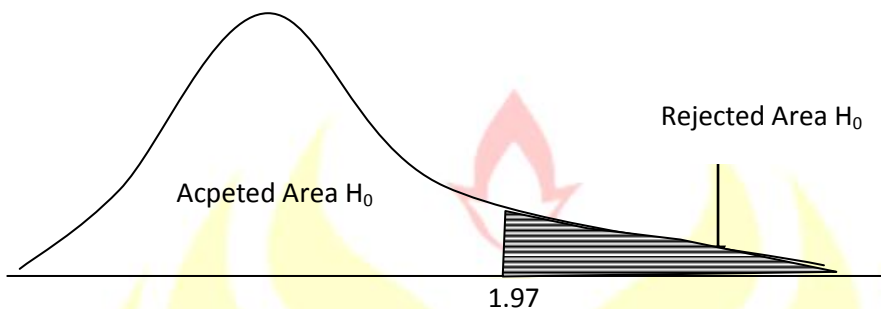
$$s_2^2 = \frac{n \cdot \Sigma X^2 - (\Sigma X)^2}{n(n-1)}$$

$$= \frac{100 \times 417103.3 - (6434.5)^2}{100(100-1)}$$

$$= 31.064$$

$t_{0.0.5 \ 200} = 1.97$; $DK = \{t / t > \}$; dan

$t_{obs.} = 13.3535 \notin DK$

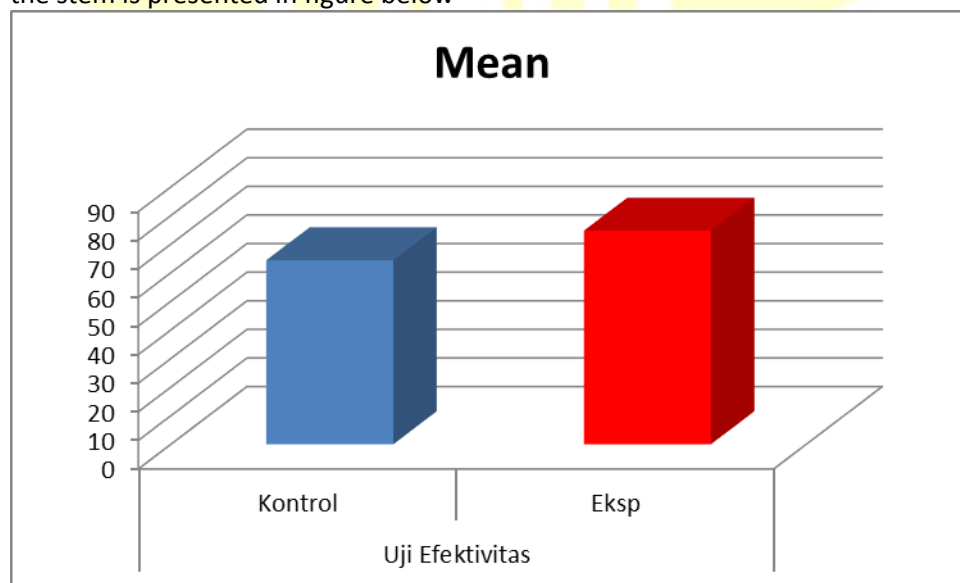


6) Test Decision

H_0 rejected

7) The Conclusion

Average group the value of experimentation and the control group was different significant .Which means that the experiment better than the control group .Because average learning outcomes groups of people who use the model play obedient = 74.70 & gt; average learning outcomes group that uses the conventional one = 64.35 , it can be inferred from the average value such that the group that use the model play obedient having learning outcomes of learning which better than a group that uses the conventional one .In a diagrammatic manner the stem is presented in figure below



Picture 4.5 To Scatter The Value Of Test The Effectiveness Of A Model

CONCLUSIONS AND SUGGESTIONS

A. Conclusions

Based on the results of research and development that has been done and can be drawn a conclusion as follows

1. Learning model play obedient can actually grow the value of hard work in learning based character education in primary school class v.
2. Learning model play obedient can actually grow the value of discipline in learning based character education in primary school class v.
3. Learning model play obedient could promote tolerance value in learning based character education in primary school class v.
4. Learning model play obedient may foster care in the value of learning based character education in primary school class v.
5. Learning model play obedient can grow in value creative learning based character education in primary school class v.
6. A model of learning play obedient can grow honest value in learning based character education in primary school class v .
7. A model of learning play obedient can grow in value friendly learning based on character education in primary school class v .
8. A model of learning play obedient can grow the value of responsibility in learning based character education in primary school class v .
9. A model of learning play obedient effective as an effort internalization nilai- value in learning character based character education in primary school class v

B. IMPLICATION

A product produced through the activities of research and development it had implication theoretical and practical .Theoretically the findings an instrument for measuring the value of hard work , discipline , tolerance , care , creative , honest , friendly , responsibility can be used as an indicator in order to raise the values of characters on school tuition through kind of classroom play in Physic Education Character Building

In a practical manner kind of classroom play this can provide solutions for teachers penjasorkes to add model the treasury of play so as to be in learning Physic Education Character Building can run active , innovative , creative , effective and fun

C. SUGGESTIONS

Based on conclusions and implications that were analyzed above , can disaran a few things as follows

1. Physic Education Character Building teachers should be able to apply the principle of paikem in learning approach penjasorkes through , model , strategy and methods of learning that cooperative.
2. Implementation of Physic Education Character Building internalization of character is always important to grow in all learning penjasorkes, to make students have the fitness and good has its good too.
3. The new model play obedient it can also apply to students and upper classes not even close will be tried for learners of the lower class
4. Play on an instrument of abiding it can be used in the other penjasorkes have competence indicators base or almost equal and in accordance with the syllabus.

REFERENCES

- Abdul Badi'Shaqr.2004. *Meneladani Aklak Nabi*. Terjemahan Tholib Anis.Bandung : Al-Bayan Mizan.
- Achmad Mubarak.2001. *Panduan Akhlak Mulia : Membangun Manusia dan Bangsa Berkarakter*. Jakarta :PT Bina Rena Pariwara.
- Bagus Mustakim. (2011). *Pendidikan Karakter: Membangun Delapan Karakter Emas Menuju Indonesia Bermartabat*. Yogyakarta: Samudra.
- Bandura, A. 1986, *Social Foundations of Thought and Action*, Engelwood Clift, NJ: Prentice Hall.
- Bloom, B.S, Madaus, G.F, Hesting, J.T. 1981. *Evaluation to Improve Learning*. USA: Mc. Grow Hill.Inc.
- Budimasyah, Dasim, Syam, Syaifullah (ed.). 2006, *Pendidikan Nilai Moral dalam Dimensi Pendidikan Kewarganegaraan*, Bandung: Laboratorium Pkn, FPIPS UPI.

- Character Education Patnership. (2003). *Character Education Quality Standards*. Washington: Character Education Patnership
- Creswell, John W. 1994. *Qualitative Inquiry and Research Design*. London-New Delhi: Sage Publications
- Carison, S.A. et al. 2008. Physical education and academic achievement in elementary school: Data from the early childhood longitudinal study. *Am J Public Health*. 98/4.
- CDC. 2006. What Does physical activity for kids? Available on line at www.cdc.org.
- Corbin, C.B. dan Lindsey, R. 1997. *Concept of Physical Fitness with Laboratories*. USA: Brown&Benchmark.
- Creswell, John W. 1994. *Qualitative Inquiry and Research Design*. London-New Delhi: Sage Publications
- Depdiknas. 2003. *Kurikulum Berbasis Kompetensi: Standar Kompetensi Mata Pelajaran Pendidikan Jasmani Sekolah Dasar dan Madrasah Ibtidaiyah*. Jakarta:Depdiknas.
- Depdiknas. 2006a. *Permen Nomor 22 tahun 2006. Tentang Standar Isi untuk Satuan Pendidikan Dasar dan Menengah*. Jakarta.
- Depdiknas. 2006b. *Permen Nomor 23 tahun 2006. Tentang Standar Isi untuk Satuan Pendidikan Dasar dan Menengah*. Jakarta.
- Depdiknas. 2006c. *Kurikulum Tingkat Satuan Pendidikan Mata Pelajaran Pendidikan Kewargaa Negara*. Jakarta.
- Djahiri, K., 2006, *Strategi Pembelajaran Berbasis Nilai, Moral, dan Norma, Agama dalam Pendidikan Persekolahan, dalam Pendidikan Nilai Moral dalam Dimensi Pendidikan Kewarganegaraan*, Bandung: Laboratorium Pkn, FIPSP UPI.
- D. Yahya Khan. 2010. Pendidikan Karakter Berbasis Potensi Diri. Yogyakarta: Pelangi Publishing.
- Doni Kusumo A. 2007. Pendidikan Karakter, Strategi Mendidik Anak di Zaman Global. Jakarta : PT Grasindo
- Elias, J.L. 1989. *Moral Education: Secular and Religious*. Florida: Robert E. Krieger Publishing Co. Inc.
- Espenschade, A.S. dan Eckert, H.M. 1980. *Motor Development*. 2nd ed. Ohio: Merril Publishing Company.
- Gabbard, C., LeBlanc, B. dan Lovy, S. 1994. *Physical Education for Children: Buliding the Foundation*. 2nd ed. NJ: Prentice Hall.
- Gall,D.Meredith. Joyce P Gall & Waletr R.Borg. 2003. *Educational Research an Introduction*. New York: Pearson Publishing
- Gibbon,S.L, Ebbeck, V., & Weiss, M.R (1995). *Fair Plya For Kids. Effek On The Moral Development of Children in Physical Education*. Research Quarterly on Exercise and Sport.66 (3).247-255
- Gilbert, R., (ed) 2004, *Studying Society and Environment, A Guide for Teacher*, third edition, Australia: Thomson, Social Science Press.
- Hers, R.H, Miller, J.P. 1980. *Model of Moral Education: an Appraisal*. New York: Longman, Inc.
- Iskandar Agung, dkk. (2011) Pendidikan Membangun Karakter Bangsa. Jakarta: Bestari Buana Murni
- Givler, J.I. 2002. A physically active lifestyle starts at birth. *Teaching Elementary Physical Education*. 13/6: 12.
- Griffin, LL., Michael, S.A. dan Oslin, Y.L. 1997. *Teaching Sports Concepts and Skill: A Tactical Games Approach*. Champaign IL.: Human Kinetiscs.
- Hartini, N. 2004. Pola Permainan Sosial : Upaya Meningkatkan Kecerdasan Emosi Anak. *Anima. Indonesian Psychological Journal*. 19 (3) 271-285
- Hardman, K. 2003a. "InformationSources for Comparative Physical Education and Sport on the International Level ". *Internatonal Journalof Physical Education* .40 (3), 88-92.
- Harman, K.2003b. *Worldwide Survey on the State and Status of Physical Education in School: Foundations for Decontruction and Reconstruction of Physical Education*.
- Harsuki (ed). 2003. *Perkembangan Olahraga Terkini: Kajian Para Pakar*. Jakarta: PT.RajaGrafindo Persada.
- Hartoto, Johan. (1999). Peningkatan kemampuan guru penjas melalui penerapan teknologi untuk meningkatkan mutu pengajaran penjas sekolah dasar. *Penelitian*. Jakarta: Diklusepora.
- Hers, R.H, Miller, J.P. 1980. *Model of Moral Education: an Appraisal*. New York: Longman, Inc.
- Hurlock, E.B. 1990. *Motor Development*. Illionis: Human Kinestics.
- Ibrahim, R. 2001. *Landasan Psikologis Pendidikan Jasmani di Sekolah Dasar*. Jakarta: Ditjen Olahraga, Depdiknas.

- Irianto, D.P. 2005. Bermain sebagai upaya dini meletakkan dasar kebugaran bagi anak. *Jurnal Pendidikan Indonesia*. ½: 81-89.
- Johnson, D.W . & Johnson, F.P. 1991. *Joining Together* (Edisi keempat). New Jersey: Prentice-Hall Inc.
- Jones, C. 2005. "Character, Virtue and Physical Education". *European Physical Education Rivew*, Vol. 11, No. 2, 139-151.
- Joyce, Bruce, Marsha Weil, & Emily Calhoun. 2000. *Models of Teaching*. New Jersey: Prentice-Hall Inc.
- Kementrian Negara Pemuda dan Olahraga. 2007 . Undang-Undang Reuplik Indonesia Nomor 3 Tahun 2005 Tentang Sistem Keolahragaan Nasional. Jakarta : Biro Humas dan Hukum.
- Maksum, A.2005. Olahraga Membentuk Karakter : Fakta atau Mitos. *Jurnal Ordik*, Edisi April Volume 3, No 1/2005
- Lickona, T. 1992. *Educating for Character: How our School can Teach Respect and Responsibility*. New Ypti: Bantam Books.
- Lickona, T. (2012). *Education for charater: how our school can teach respect and responsibility*. Terjemahan Juma Abdu Wamaungo. Jakarta : Buki Aksara.
- M. Furqon Hidayatullah. 20010. *Guru Sejati : Membangun Insan Berkarakter Kuat dan Cerdas*. Surakarta : Yuma Press
- . 2010. *Pendidikan Karakter: Membangun Peradapan Bangsa*. Surakarta :Yuma Press
- Metzler, M.W. 2005. *Instructional Models for Physical Education*. 2nd ed. North Cattletrack Rd: Holcomb Hathaway, Publisher, Inc.
- Mosston, M. dan Ashworth, S. 2008. *Teaching Physical Education*. First Online Edition.
- MoreHouse, L.E. dan Miller, A.T. 1976. *Phycology of Exercise*. Saint Louis: The CV Mosby Company.
- Mutohir, T.C. dan Maksum, A. 2007. *Sport Development Index: Konsep, Metodologi, dan Aplikasi*. Cetakan Pertama. Jakarta: PT Indeks.
- , T.C. 2009. Program Pembinaan dan Pengembangan Olahraga Pendidikan Terpadu Jangka Panjang. *Makalah*. Disampaikan dalam Semiloka Bidang Iptek. Jakarta: Kemenegpora.
- Nur, M. Wikandari, Retno. 2000. *Pengajaran Berpusat Kepada Siswa dan Pendekatan Konstruktivis dalam Pengajaran*. Surabaya: Unesa.
- Peraturan Menteri Pendidikan Nasional Republik Indonesia Nomor 22, Tahun 2006, tentang Standar Isi untuk Satuan Pendidikan Dasar dan Menengah.
- Podulka, D. et al. 2006. Effect of Physical education and activity levels on academic achievement in children. *Med. Sci. Sports Exerc*. 38: 1515-1519.
- Rachman, H.A. 2005. Bermain: Media pengembangan keterampilan gerak anak pra-sekolah. *Jurnal Pendidikan Jasmani Indonesia*. ½: 91-100.
- Raviv, S. dan Nabel, N. 1992. Physical education as a part of ab integrative approach to pre-school teacher's professional training. *International Journal of Physical Education*. 19/3: 16. Quarter. Germany: Verlag Karl Hofmann.
- Sanjaya, Wina. 2006. *Pembelajaran Dalam Implementasi Kurikulum Berbasis Kompetensi*. Jakarta: Kencana Predana Media Group.
- Savage, Tom V. David G. Armstrong, 1996, *Effective Teaching in Elementary Social Studies*,
- Sheilds, D.L.L and B.J.L Bredemeier. 1995. Character development and physical activity. Champaign IL.: Human Kinetiscs.
- Siedentop, D. 2002. Junior sport and the evolution of sport cultures. *Journal of Teaching in Physical Education*. 21/4: 394-410.
- Sugiyanto.2007 *Model-model Pembelajaran Inovatif*. Panitia Sertifikasi Guru Rayon 13 Surakarta
- Sugiyono. 2010. *Metode Penelitian Pendekatan Kualitatif, Kuantitatif, dan R & D*. Cetakan ke-9. Bandung: Alfabeta.
- Suharjana. 2001. Status Gizi dan Kesegaran Jasmani Siswa Sekolah Dasar se DIY. *Laporan Penelitian*. Yogyakarta: Universitas Negeri Yogyakarta.

- Suherman, W.S. 2004. Pembelajaran pendidikan jasmani yang menarik, menggembirakan, dan mencerdaskan bagi siswa sekolah dasar. *Jurnal Nasional Pendidikan Jasmani dan Ilmu Keolahragaan*. 1/3: 12-19.
- Sukintaka. 1992. *Teori Bermain*. Jakarta: Proyek Pembangunan Tenaga Kependidikan, Dirjen Dikti, Depdikbud.
- . 1997. Bermain. *Olahraga*. 1/3: 11-16.
- . 2004. *Teori Pendidikan Jasmani: Filosofi, Pembelajaran, dan Masa Depan*. Bandung: Penerbit Nuansa.
- Suryobroto, A.S. 2001. Bentuk pembelajaran bermain bagi siswa sekolah dasar kelas awal. *Olahraga*. 1/7: 15-24.
- Trost, S.G. 2007. Active Education: Physical education, Physical activity and academic performance. www.activelivingsearch.org.
- Vannier, M. dan Gallahue, D.L. 1978. *Teaching Physical Education in Elementary School*. 6nd ed. Philadelphia: WB Saunders College Publishing.
- Wuest, D.A. dan Bucher, C.A. 1995. *Foundation of Physical Education and Sport*. 12th ed. St. Louis: Mosby-Year Book. Inc
- Zimmerman, J. B. & Dale H. Shunk. 1989. *A social cognitive view of self regulated academic learning*. *Journal of Educational Psychology*. Vol. 81. No 3, 329-339
- Zimmerman, B. J & Bandura, A. 1994. *Impact of self-regulation Influence on writing course attainment*. *American Educational Research Journal*, 31, 845-862.



REINVENTING THE GAME (RTG) FOR PHYSICAL EDUCATION

S. Balbinder

CHIJ Secondary School, Singapore

balbindersingh@chijseg.edu.sg

Abstract

One way to gauge the success of schools' PE programme is by looking at end targets of specific sports performances. This leads to the overemphasis of focusing on specific sports in order to get the desired end results. In the RTG approach, lessons will be from a perspective of creating a game, completely reinventing a game. The novel element of this approach is the scaffolding of all learning and teaching to the identified four fundamentals of any game (this study focuses on Invasion or Territorial Games, with potential to extend to Net/Wall and Striking/Fielding games); The PASSING rule, MOVEMENT rule, SCORING rule and the INTERCEPTION rule. This fundamentals are combined with the FIELD OF PLAY constraint to get students to understand better the intricacies of games while learning the technicalities.

A ex post factor qualitative study was done on perception of games learning on a group of 14 over 2 years in a single sex school. The responses were recorded through a self-developed survey looking into perceptions of game appreciation and learning. In 2012, the Secondary Two students, the whole cohort of 14 year olds, were given a survey to look at their perception on games learning after about half a year of existing PE lessons. In 2013, 3 classes were exposed to explicit RTG approach. The other 8 classes were exposed to various levels of RTG processes mentioned above and also relied on existing, GCA, Games Concept Approach, approaches. The students were then given a similar self-evaluation at September 2013. The results show that the approaches the school's PE teachers are using are indeed creating an impact on the students understanding, appreciation and involvement in sports. The approach of providing a common scaffold (via RTG) for teacher teaching and student learning provides a powerful alternative to the more common teaching of sports in silos, creating 'deeper' learning for life long appreciation.

Keywords: Physical Education, Pedagogy, Invasion Games, TGfU.

INTRODUCTION

The teaching of Physical Education (PE) in schools in Singapore has taken a turn for the better in recent times with more emphasis on the provision of PE classes, creating a sense of rejuvenation of the benefits of physical-activity related lessons for the policy makers and the creation of an academy for the specific purpose of highlighting the importance of the PE fraternity and many more welcoming signs. Therefore, it becomes clear that in schools, the quality of physical education provision has to be improved. In fact, the new syllabus of Physical Education, with the inclusion of Health, is set to make its mark in Singapore schools within the next couple of years or so. In the spirit of renewal and review, below is a personal attempt to articulate personal thoughts and work that has been greatly influenced by the new energy.

Background, Teaching Games for Understanding (TGfU) [2] is an approach which is firmly grounded in many countries around the world and it attempts to improve the games experience for young people in schools and the community. In Singapore, the Games Concept Approach (GCA) [7] was introduced in Singapore to add structures to the TGfU for perhaps better

implementation for the local fraternity. The fundamental underpinning for the afore mentioned approaches is the development of greater understanding of games through the appreciation of principles of play leading to better decision making and skill acquisition. The learner is the centre of attention, not the teacher, it is learner-centric. For this author, the processes also hints at the creation of deeper thought analysis opportunities for students in the learning of games that creates an understanding that is almost self-guided and results of higher order thinking. This is in stark contrast to the traditional drill base approach of direct teacher-led instructions with straight forward replication. Some would consider the drill approach to be successful with higher ability sports groups working to create a winning edge in a competitive environment and this can be clearly scene in the schools' sports scene in Singapore. This approach has filtered down also to the lower level of sports ability teaching base level of sports abilities teaching that has attracted criticism on its effect on learning and appreciation for sports.

Mosston's, as reported by Sicilia-Camacho and Brown [1], original spectrum of teaching styles list a range, from teaching that includes by command all the way to problem-solving and creativity, in a spectrum of eight progressive teaching approaches in physical education. It seems that only the initial stage retains popularity with a lot of teachers. Back then, in the sixties, this spectrum was an attempt to create a coherent linear developmental learning and teaching framework. This framework suggests a hierarchy in the value of the processes at each level. However, since the early eighties, it is recognized that the stages of learning can be group to take into account learners', and teachers, unique philosophical background and idiosyncrasies. More importantly, there is no distinct 'value' hierarchy in the various categories of teaching style but rather an acceptance of the value of using different approaches in different context, both for learner and environment.

Coaching or Teaching? what do we want? There has been a trend to gauge the success of schools' PE programmes by looking at end targets of specific sports performances. This will obviously lead to the pre-determination of which specific sports to introduce to students in their school life, in order to get the desired end-product results. GCA, on the other hand, advocates the teaching of concepts via different types of games, rather than focusing on specific games. This includes looking at Invasion Games, Net/Wall Games and Striking and Fielding Games in teaching game concepts. The understanding is that this approach gives a deeper understanding of various types of games in each category, rather than just focusing on a few sports. The big assumption here, which is easy to understand, is that appreciation proceeds to more interest in sports that creates a lifelong physical activity involvement. Self Determination Theory (SDT) [6] postulates the existence for three psychological needs; Autonomy, Competence and Relatedness. This relates to a person's intrinsic motivation to want to do anything. This aligns well to the idea that it is not the replication of desired skill that is important but rather how that skill is related to the learner's psychological needs. This point to the part of the pedagogical spectrum that purely relies on teacher dominate processes that may result in lack of long term effect, as a result of direct teacher-led instructions of strategic and technical drills to base-line sports ability kids. The tendency is that the learning last as long as that activity is experienced. This is easily understood if you consider students who are not sports inclined being pushed to learn complex series of actions through direct teaching. What is motivating these students to internalise such learning may be superficial if a true understanding is not experienced.

Renshaw [4] explored the role of Nonlinear Pedagogy and TGfU. NLP looks at a nonlinear approach to motor skill learning that puts the role of learning into the manipulation of individual, task and environmental constraints that facilitates skill leaning. What this says about skill leaning is that it is a complex process that is not uni-directional but rather a continuously looping two

way interaction between teacher and learner. An interesting thought will be the relation of NLP's concepts of motor-skill learning to more complex movements that consist of higher-order thought processes, e.g. understanding of the whole game, in its implementation. Jia Yi et al [3] explored the relationship of learning progression in TGfU and NLP. They explored evidence of NLP theories in play in the progression of skill patterns in TGfU, citing a case study of shooting skills intervention for the 2008 Australian women's water-polo team. The success in constraint-led approach in this skill pattern learning may also suggest the effectiveness and more importantly give understanding to a more holistic constraint-led learning that is highlighted below for new learners in the area of game concepts and concurrently the physical and technical skills that goes along.

So, what is more desirable? Proponents of skill and strategy base drills approach points to the lack of rigor in sports teaching if indeed too much time is spent in providing opportunities for understanding of a game. These people will also say that it is easier to evaluate and measure such programmes if there is something tangible to access, i.e. specific sports or games skills. Can TGfU still deliver the same rigor in skills demonstration, with the added value of games understanding, with the same amount of time available for PE lessons?

The general feel in some quarters, in my experience, is that the TGfU approach requires a lot more time and because emphasis is on a deeper cognitive understanding scale, the more 'observable' measurement of pure physical demonstration of skills and strategies is lost. Is it really so and is it enough to evaluate PE programmes through such indicators?

I believe that putting in TGfU based processes does not causing loss of any rigor in pure sports demonstration, if indeed demonstration or replication of skill is an important objective. Think about it; imagine groups of students listening to direct instructions for traditional drill approach. What if instead of struggling with students trying to understand your instructions or maybe even blindly following it, the time is spent in carefully developed instructions that puts the thinking back into game learning? A lot of questions exists that requires more careful studies that can potential help in clearing a lot of ambiguity in the present provision of PE in schools in Singapore and anywhere else.

What I will like to do here is relook at an approach that I feel is tremendous in its potential effects and affects. TGfU is definitely a pedagogy that makes a lot of sense. In the classroom based teaching of various subjects, the support of a teaching for understanding approach has been vigorously supported through research and practise. The idea that successful physical activity demonstration, be it in open or close skill situation, can be enhanced by deeper cognitive processes makes a lot of sense. Think autonomy, relatedness and competence in SDT. To some extent it represents the need to get students more involved. Take away the deeper cognitive processes, you have mindless or superficial demonstration of skills to predetermine stimulus in what I will call a single layer or superficial thinking process. In some way, TGfU can also be understood as not only responding to stimulus but with the added layer of knowing what the stimulus represent in its initiation and repercussion, what I will call multiple layers of thinking.

I am proposing an approach that takes fundamental underpinnings of TGfU. In my personal experience as a PE teacher, I realized that wanting multiple layers of thinking involvement by students also require a readiness of these students to provide that kind of input, the students need to feel related to be intrinsically motivated. In schools, it is always a challenge to initiate teaching conversations with students as oppose to providing direct teaching. This is possibly even more emphasized in physical activity lessons where environmental circumstances have always seemingly supported the more direct teacher-led learning process. Many a times, I have noticed the initial hurdle in initiating openness in students to create that teaching conversation atmosphere that is important to learning by understanding approach. The social

and cultural impact of learning styles in Singapore and elsewhere also makes it hard at times to 'converse', e.g. our students are not use to questioning teachers, not ready to engage in multiple thought processes, etc. This process requires a built up of momentum to overcome inertia, meaning effort needs to be put in to make conversations a norm in lessons and more importantly, related to students' potential interest. I recall many a times asking my students what is more difficult; doing a maths sum in class or executing a successful pass during a soccer game? For groups before being introduced to TGfU, their response is "...obviously the maths sum!" but for groups after being exposed to my series of questioning instructions, the realisation is that the kick seems to require more varied thought processes in execution, i.e. stopping the ball, looking up, deciding who to pass to and executing the kick. This simple understanding by students paves the way to our desired approach. When students start giving responses like this, I know the understanding mechanism is at work!

I am suggesting a way that is perhaps more suited for students who are initially more reluctant to totally embrace a two-way interaction in learning styles but rather needs more guidance and perhaps even possibly be described as being productively 'cajoled' into being involve in a multiple level thinking process. For students who are more open to such methods, probably students who are more proficient in sports or who definitely have more interest, this approach gives extra scaffolding to better learning. My suggested approach is also categorical, like the concepts of GCA, putting learning opportunities into categories or compartments for easier teaching and more importantly, manageable learning targets for students.

Start from zero! In this approach, all communication at the start of lessons will be from a perspective of creating a game, completely reinventing a game. Imagine you are the first to sew and create an oval ball and you decided to create a game, of course knowing from your past life a very similar game called rugby! This is the kind of discovery environment you want to create. As you journey together in your guided, by you of course, discovery, you ensure that the introduction of every skill or strategy is done with understanding. For each step it is always, almost;

- Exposure to a scenario with or without guided instructions,
- Guided debrief and feedback,
- Retry scenario,
- Guided debrief and feedback,
- Enhanced scenario,
- And so on....

So, you will not start a lesson by saying, "Today we will be doing Rugby". The assumption is that beginning with a definite game name description automatically creates preconceived notions of expectations and understanding that stands in the way of deeper understanding and learning. With my classes, I very frequently get students who pass the ball behind them, regardless of their facing directions, whenever I use a rugby ball! This occurs even though we were attempting a simple invasion game of "Captain's Ball". The power of non-verbal cues does exist! The preconceived thoughts will not disappear entirely by filtering verbal cues but will be reduced sufficiently to create the desired learning environment of this approach. Lessons will always be from the angle of, "Today we will start with a game. These are the requirements of the game. We will be using this ball and I want you to.....(continue with the next step of this approach as discuss later)". This attempt at starting lessons is creating a sense of a clean a slate as possible for the next step of the learning process. There is no fear of total disconnection with actual game ideas, as required also at times as part of syllabus objectives, as non-verbal cues like kind of ball, scoring targets, etc. does create a background comprehension of subtle game specific direction of teaching process. This process is enhanced at later stages with more scaffolding within the fundamental guides to be discussed next.

Lots of students come to PE classes expecting play, in the sense that they want unconditional game sessions without pressure of learning, or learning as they understand it to be. How do you convert this enthusiasm for play into enthusiasm for play with learning? I feel that the compartmentalizing activities at the onset with a name, e.g. soccer, netball, captains ball, etc., limits the cognitive involvement necessary to include creative modifications in the game for skills or strategy understanding. In order to mitigate this proposed affect, the start of the game session should allude to something that is not so limiting. Every physical activity session will need to be preceded by a thinking moment, group or individual, which will be necessary for that activity to carry on. In my experience, the author realized students will appreciate this after some time as activities does not break down so often, cutting short game time, when better thinking and discussion takes place before activity.

The 4 Rules and 1 Constraint! These five guides will be the backbone of this approach. I will call this “Reinventing the Game” or RtG. The idea is to guide the thinking process in attempting to achieve the different learning objectives in the various types of games that a student is exposed to. The learning objectives here are the ones typically considered as necessary in the TGfU approach, which I will try summarise later.

The four ‘rules’ and one ‘constraint’ or ‘boundary’, in the presentation of any game related activity, are the; Scoring rule, Interception rule, Movement rule, Passing rule, And the one constraint or boundary, Field of play.

If you consider NLP concepts, the above fits closely to the idea of constraints of the task and the environment. The idea is to put foremost into the minds of students these four rules and one constraint. This will immediately signal to the students that this is an activity that requires their analytical input in order to proceed. The four rules are really more guides rather than strictly to follow statements. I like the word ‘rule’ because it signifies needing to adhere to and with the carefully crafted ambiguous situation crafted from the rules and constraint (remember, we do not mention the name of any game which immediately causes a shutdown in mental processes and relying on preconceive understanding of that game), students are forced to initiate some kind of cognitive process in order to get activity started. Usually I like to connect the four rules to the constraint, further requiring students into a very uncomfortable, initially, state of having to think about how to start (see below). *Example: We are going to do this activity now. Listen carefully. I will be giving you the rules and the field of play constraint. The movement rule is you are not allowed to move with the ball. By the way, we will be using this ball here (showing a netball – no need to mention the kind of ball verbally).*

- *The passing rule is you can pass the ball in any direction with your hands.*
- *The scoring rule is when you are ready to score, a member of your team must be on the opponent’s end-line and receive the ball from you.*
- *The interception rule is you are allowed to intercept the ball only in mid-flight or if the opponent drops the ball. No snatching of ball from opponents.*
- *How big will your area of play be? This is a 3 v 3 activity, the length of your court should be the distance of two long passes and the width, at least 1 and a half long pass distance apart. Remember, one long pass is approximately the distance of the longest pass you are capable of that your teammate can easily receive. (You can also build in a learning opportunity of discussing what is the best length and width of playing area should be, given the limitations – this leads to understanding of strategy, rules & regulations, politics of sports, etc)*

or

- *Knowing the four rules, and having already tried throwing the ball just now, I want you to decide how long and how wide your field of play should be to make the game playable with 3 students per team.*

I have not stated any particular learning point or points, which will come later, for the group but with these instructions, the students will need some time for discussion in order to start the activity. Chances are the above instructions will probably need to be repeated at a smaller group level and after some time is spent in the organisation by the students or repeated again to the whole group. Students will probably feel some discomfort when first exposed to such instructions because they are subconsciously ready for physical activity during PE and not wanting to think about how to start off that physical activity. It is precisely this cognitive process that you need to build up on in follow up activities and sessions. This takes a bit of time and patience at first. Once students are used to your instructions and questioning methods, they get more comfortable and expect a deeper involvement in PE.

So what's so special about this approach? The element that I find very powerful in this approach is that I am able to connect the various games via these four rules and one constraint. Meaning, I am actually able to introduce games or game situations by connecting them to the rules and constraint first, without compartmentalizing the different physical scenarios or verbal information into the game concepts first, if using GCA, or game specifics. The latter will come in at a later stage or concurrently. This allows for students to understand better the unique characteristics of each game concept or game and thus develop a better understanding. *Example: In Invasion games, the movement rule should always support moving towards the opponent's end zone. So, because this activity allows you to move with the ball, you always want to drive, or create depth, towards the opponents area.,-The scoring rule for this game is that you have to place this ball anywhere along the end line of your opponent's area. This is typical of invasion games., In this activity, your area of play is on this side of the barrier (net). The movement rule is that you can move anywhere in your area but not go across the barrier. Your scoring rule is that every time the ball comes to your side, you have to intercept it (in this game, interception is necessary in order to score, it is part of the scoring rule) and return the ball back to your opponents area in a way that your opponent fails to receive it. This is what we typically call a net game.*

Some might say that this might be just complicating things. Why base your instructions on the five anchors (the four rules and one constraint)? Bringing all instructions back to this foundations create a sense that every action or strategy drill have these elements. Indeed, with these five prongs, most, if not all, of your understanding objectives needs for the students are met in a more structured way. In a way, students are able to anchor any specific game understanding on these rules and constraints before connecting them to the game concepts or game specifics. Where a games concept underpinning is also an objective and desired, this approach also allows an opportunity of relating the five prongs to most games, hopefully creating a better understanding of how games are categorized and played.

RtG and Strategy Learning through Understanding

A perhaps unique use of this approach is the breakdown of teaching strategies into more manageable bits. In each of the four rules and constraint, a teacher is able to represent breakdown of different strategies needed to be understood by students and thus creating valuable learning opportunities, see Fig 1. *Example: The scoring rule for this activity is that you only need to pass your opponent's end-line while in possession of the ball. Therefore your scoring target is as wide as your playing area. This means that you can drive or move forward on any point of the field and the scoring target is still ahead of you. On the defense, your opponents are always in line with scoring target. Will you prefer a man-to-man defense or can you afford to have zone defending?, The interception rule for this game is connected to the scoring rule. If you fail to intercept the ball in your half, your opponents score a point. Knowing your own field of play, where will you stand so that you have best possible chance of receiving ball? (an attempt to fit in Net/Wall theories to RtG?)*

While I have spent most of the time using the RtG method on Invasion Games, I believe that this method also fits well with Net/Wall Games and Striking/Fielding Games, with adaptations of the definitions to the other games categories. With more research, study and practice, I feel that this method can indeed be a strong door opener for students embarking on the understanding approach to learning games. For teachers, this process allows a more structured and easy way to understand the breakdown of the fundamentals of games. Not only does the breakdown clarify but it also provides scaffolding for the teaching of these fundamentals and for the learning processes of the students.

Fig 1 – Possible development of learning from the RtG approach initial rules and constraint

RtG Approach	Leading to understanding, appreciation and development of the following strategies: <i>The following strategies can be broken down to show difference in game concepts (GCA) application also.</i>	
<i>Scoring Rule</i>	• Scoring • Offensive	• Leading to differences in - Net/Wall Games - Invasion/ Territorial - Striking/Fielding Games
<i>Interception Rule</i>	• Positioning: Defensive, Offensive • Gaining possession	• Leading to differences in - Net/Wall Games - Invasion/ Territorial - Striking/Fielding Games
<i>Movement Rule</i>	• Positioning – Defensive, Offensive • Possession and Gaining possession	• Leading to differences in - Net/Wall Games - Invasion/ Territorial - Striking/Fielding Games
<i>Passing Rule</i>	• Positioning – Defensive, Offensive • Possession and Gaining possession	• Leading to differences in - Net/Wall Games - Invasion/ Territorial - Striking/Fielding Games
<i>Field of Play</i>	• Positioning – Defensive, Offensive	• Leading to differences in - Net/Wall Games - Invasion/ Territorial - Striking/Fielding Games

After saying everything, it is not the intention to present here a whole new process that supposedly provides sudden clear insights for teachers and learners of sports! The key here is still leading to authentic learning scenarios that mimic as close as possible an actual game situation for the learning process. This is no attack against the benefits of close skill drill situation when it is needed but rather an alternative where possible for open skill drill situation to create a learning environment. The word 'drill' has almost taken a very negative meaning for some TGfU proponents, just like "...beginning with a game..." seems to be an important description for using TGfU approaches. Both ideas mentioned are important game learning strategies. Rather than

being obsess with what can be done and what cannot, teachers should understand that the whole is more important than the individual parts. Drills can be done in many ways and have its place. Where very precise fine motor skills or equivalent is expected, it is commonly used and rightfully so. Drills can also be very creatively developed to be very open to external game related stimulus that transfer important learning processes that are close to game situation. The common misconception of wanting to always start with a game is just that, a misconception, and it becomes a hindrance to some teachers who want to understand teaching for understanding approach! What is desired is including in the class experience, an authentic game set piece or context, presenting to the learners a 'real' situation for that set of learning activities that is to be work towards. Starting with a game doesn't mean literally throwing a ball onto a soccer field and getting them to start a game at the beginning of a lesson! An authentic context can be derived from well-crafted drills also! This situation, to me, needs to be carefully developed through proper instructions and followed by questioning techniques or in simpler words, just good two way communication!

As a "Diagnostic and Solving Tool" An interesting possibility of this approach is considering it as diagnostic and solving tool for problem areas that beginners have when grasping a new set of sporting skills. By emphasizing each rule in creative drills (remember definition of creative drills mentioned above), a teacher can figure out what is blocking students' learning and even maybe providing a solution to overcome the barrier. Take for example a game of touch rugby. It is pretty obvious from my experience with young girls in my school that the 'back' pass rule takes some getting used to. I will describe the 'back' pass as "always passing towards your own end zone/line or always away from opponent's end zone/line" and this will be my passing rule. By compartmenting different skill sets in a complex sporting activity, I can narrow the problematic area and work on it. For the mentioned example, I can then create an activity that have a clear 'back' passing rule, eg. "you can only pass towards the red flags (red flags planted in end zone)". Another example can be the problem with running to space in an invasion game, the ability to see scoring opportunity in an area that has the least opposing forces. For this example, I will create a unique scoring rule of "you need to tag a player from opposing team with the ball to score". This encourages opposing team to run to space in a constraint area to avoid being tagged. With proper debriefing, the concept of why space is important can be conveyed. Another popular set-up is creating two scoring lines or zones, opening play in a more authentic attacking environment. In essence, part of the four RULES and one CONSTRAINT can always be tweaked to either find out areas of concern or solve issues in specific areas of learning.

Study, this author wanted to just have a feel of the impact of such an approach to learning of an intact group under his charge, in an ex post factor manner. It was no intention to gather evidence of one method success over another as that will not be possible for a multi-faceted process like teaching!

Background, in the previous year, around January 2012, the author introduced to his colleagues elements of this approach. This included discussion and sharing of writings on the topic. The PE (Physical Education) department was encouraged to use these ideas in their classrooms but it wasn't monitored, nor was it structured. It was up to the comfort level of the teachers to use Games Concept Approach (GPA) and the RTG. The department consist of teachers familiar and using elements of the GCA. This extended to describing games according to their concept categories and bringing reference to different aspects of the lessons to GCA to allow better understanding in the way different games are played. The teachers' experience in GCA is mainly from their teacher training days and their experience in school using this approach and interpreting the PE syllabus. The author however, made an effort to be explicit in this approach at the beginning of 2013 for his Sec 3, 15 year old girls, classes.

Design, a qualitative study was done to look into the effects of the above approach to teaching games on students in a single sex class. It was an ex post factor design looking at impact on perception of games learning for a group of 15 year old (Sec 3) girls. The responses were recorded through a self-developed survey looking into perceptions of game appreciation and learning. An initial base level in the areas of study interest was also recorded through a similar survey the year before of the students when they were 14 year olds. As such the research was longitudinal and quasi-experimental with a causal-effect intention.

In 2012, the Sec 2s, the whole cohort of 14 year olds, were given a survey as a base line indication on their perception on games learning after about half a year of PE classes. In 2013, 3 classes, the author's classes, were exposed to explicit RTG approach. The other 8 classes were exposed to various levels of RTG processes mentioned above and also relied on existing, GCA based, approaches. The Sec 3s were then given a similar self-evaluation at September 2013.

Results Analysis, the self-evaluation was on an ordinal scale (Agree, Disagree, Not Sure) and contains questions with regards to student's understanding of games concepts and using it as part of a teaching tool. The survey also seeks to understand student's appreciation of sports. The questions were; a) Most games can be categorized into different categories according to the way they are played, b) I like learning games by categories (ie. Striking/Fielding, Net/Wall and Invasion/Territorial), c) I like learning very specific games (eg. Soccer, Badminton, Basketball, etc) during PE lessons, During lessons, d) like being introduced to an activity by the 4 rules (Interception Rule, Movement Rule, Scoring Rule and Passing Rule), e) like watching (or will like to watch) video clips of different types of games to get a better understanding of them, f) I can see the similarities in terms of strategies and the way they are played in games of the same type, I don't like creating, or playing, invented games, g) Games concept approach (Striking & Fielding, Net/Wall, Territorial/Invasion Games) allow me to understand and appreciate about many more games, h) I don't like being involve in a sport.

The results were translated to a number score (0 - Not Sure, 1 - Disagree and 2 - Agree). The means were then compared using two sample independent ttest. The results for 2012 overall (n = 371) mean vs 2013 mean (n = 309) shows a significant difference ($p = 0.05$), showing an improvement in the perception of the following; a) Most games can be categorized into different categories according to the way they are played, b) I like learning games by categories (ie. Striking/Fielding, Net/Wall and Invasion/Territorial), c) During lessons, I like being introduced to an activity by the 4 rules (Interception Rule, Movement Rule, Scoring Rule and Passing Rule), d) I like watching (or will like to watch) video clips of different types of games to get a better understanding of them, e) Games concept approach (Striking & Fielding, Net/Wall, Territorial/Invasion Games) allow me to understand and appreciate many more games. For comparison of means between 2012 overall (n = 371) and the classes of the author's in 2013 (n = 69), differences were significant for ($p = 0.05$) ;

- During lessons, I like being introduced to an activity by the 4 rules (Interception Rule, Movement Rule, Scoring Rule and Passing Rule).
- I don't like creating, or playing, invented games.

However, the means for all questions shows improvement from 2012 to 2013. When comparing the 2013 mean (n = 238) of students' responses not in the author's class to that of his classes (n = 69), significant difference ($p = 0.05$) was seen in only;

- Most games can be categorized into different categories according to the way they are played. However the means were still greater for the authors classes as compared to the others for;
- During lessons, I like being introduced to an activity by the 4 rules (Interception Rule, Movement Rule, Scoring Rule and Passing Rule).

- I like watching (or will like to watch) video clips of different types of games to get a better understanding of them.
- I can see the similarities in terms of strategies and the way they are played in games of the same type.
- I don't like being involve in a sport.

Study Conclusion, the results seem to indicate nothing more remarkable than that there is learning taking place. This study was never meant to prove that a teaching pedagogy is better than another but rather that teaching can also take place with innovative modifications. It is up to much more careful consideration and looking into, to decide what the most effective of ways are. Even then, this author cautions against pitting one methodology against another as the teaching process involves a spectrum rather than any one perfect way.

The results show that the approaches that the school's PE teachers are using, is indeed creating an impact on the students understanding, appreciation and involvement in sports. The effect of the novel RTG's approach still need more careful looking into. What is probably quite certain is that the RTG method does lent itself to effective teaching and learning also, without any negative impact. This auger well to future directions of improving the way we teach for an understanding approach.

Recommendations, while this study was an attempt to look into causal-effects of teaching processes and learning through students' perception, it is also a start of a long journey, if indeed that is the direction one is headed, to look into ways to improve understanding and appreciation of games leaning. This study has threats in validity that can be looked into for future such studies. Going forward, we need to;

- Design perception questionnaires that are sampled first with factor analysis to determine different components being evaluated.
 - The Lickert scale can be extended to 4 points
- Attempt a control group situation for more experiment conditions, even though that might be a challenge for ethical reasons.
- Takinginto consideration skewedness, variances and sample numbers when deciding best method for comparing means. *t* Test might not be the best for comparison between two ordinal scale with $n < 30$ or $n > 100$ [5]. Ordered logit or ranksum can be considered to give more accurate readings.
- Looking into interviews and observations for data collection.

CONCLUSSION AND SUGGESTION

As a practitioner, there is always this need to do things in a better way, a more efficient way, taking into consideration 'deep' learning. There is also this turmoil within when the directions of pedagogical theories don't seem to be translated to the ground. There is almost an expectation of teachers to do their own personal take of theories and relating it to needs of their classes. Alvaro [1] hit it on the nail when he observed "...there is an almost perceptible divide between the research literature of curriculum content and that of actual practice of delivery, and perhaps these research literatures need to be brought closer together...". He went on to comment "...the 'detail' in minutiae of everyday practice rituals, and procedures that constitutes the process of everyday transmission of knowledge in PE needs continually connecting to the broader social structures, discourses and actions...". This usually results in many interpretative versions that may not all be aligned to the underpinning theories. Teachers are ever ready to embrace good, sound theories but there is a big gap in the development of on the ground curriculum that reflects clearly, good concepts and approaches.

REFERENCES

- [1] Alvaro Sicilia-Camacho, David Brown. (2008). Revisiting the paradigm shift from the versus to the non-versus notion of Mosston's Spectrum of teaching styles in physical education pedagogy: a critical pedagogy perspective. *Physical Education and Sport Pedagogy*, pp. 85 - 108.
- [2] Bunker D, Thorpe R. (1982). A Model for Teaching Games in Secondary Schools. *Bulletin of Physical Education*, pp. 5 - 8.
- [3] Chow Jia Yi, Keith Davids, Chris Button, Ian Renshaw, Rick Shuttleworth, Luis Uehara. (2008). Nonlinear Pedagogy: Implications for Teaching Games for Understanding. In *TGFU: Simply Good Pedagogy: Understanding a Complex Challenge* (pp. 14 - 17). Vancouver: University of British Columbia.
- [4] Ian Renshaw, Anthony R. Oldham, Mark Bawden. (2012). Nonlinear Pedagogy Underpins Intrinsic Motivation in Sports Coaching. *The Open Sports Sciences Journal*, pp. 88 - 99.
- [5] Justin R. Chimka, H. W. (2010). Comparing with Relative Accuracy Two Independent Ordinal Samples. *Quality Technology of Quantitative Management*, Vol. 7, pp. 185-198.
- [6] Ryan, R. M., & Deci, E. L. (2000, Jan). Self-Determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), pp. 68 - 67.
- [7] S. Tan, S. Wright, M. C. McNeill, J. M. Fry, C. Tan. (2002). Implementation of the Games Approach in Singapore Schools: A preliminary Rep



DISSEMINATION MODEL OF ADAPTIVE PHYSICAL EDUCATION LEARNING FOR THE BRAIN OPTIMALIZATION OF RETARDED KIDS: PHYSICAL THERAPY AND NEUROSCIENCE OVERVIEW

Sumaryanti¹, Wara Kushartanti², Rachmah Laksmi A³

^{1,2,3}Faculty of Sport Science, Yogyakarta State University

¹yantiwb@yahoo.com

Abstract

The objective of this study is to arrange an adaptive Physical Education learning model for optimizing the brain especially for the retarded kids, which is supported by a DVD, guidebook, and dissemination model for a broader target. The goal is achieved in three phases, over three years with the research design is based on the research and development design.

At the first phase, it is obtained a draft model of temporal adaptive learning to optimize the brain of retarded kids. While the results of the second phase is success in arranging the adaptive Physical Education learning model for the retarded kids that has been validated and tested in the form of DVD and Guidebook.

The third phase of the research is about the dissemination model of adaptive Physical Education learning for the optimization of the retarded kids' brain for the broader targets. The subjects were the teachers of SLB in Special Region of Yogyakarta, Sragen, and Solo with the total of 52 teachers and the supervisors at the Bina Grahit Rehabilitation Center (BBRSBG) Central Java, with 20 persons. The method used was action research, covered two cycles. Cycle I, implemented in Special Region of Yogyakarta, included 5 stages of socialization: (1) Explaining the concept; (2) Demonstrating the model; (3) Training the teachers; (4) Peer-teaching and, (5) Transferring models from teacher to pupils. In terms of the level of understanding on the participants, the result of the pretest mean is at 61.87 and the standard deviation at 9.33, while the posttest mean at 83.50 and standard deviation at 8.67. Through the t test, it shows that the understanding of the participants on the demonstrated material is significantly increased ($p < 0.05$). Reflection on cycle I identifies that the time required exceeds planning (less efficient) and the quality of the question is low since there is no overview on the learning model. To be more effective, it is recommended to use the method of focus group discussion (FGD). Cycle II was conducted in Central Java and it was attended by 20 participants. The stage of socialization began with a demonstration model, and then it was followed by explaining the concepts, training the models, peer-teaching, and transferring the models from teacher to pupil. The result of pretest mean is at 61.89 and the standard deviation at 7.49, while the post-test mean is at 82.81 and the standard deviation at 6.97. Through the t test, it shows that the understanding of the participants on the demonstrated material is significantly increased ($p = 0.01$). It takes a shorter time, which is for 3.5 hours (previously it was planned for 4 hours). The quality of the questions is greatly improved, with a focus on the benefits of each movement. The conclusion of this study is that the temporal adaptive learning model that is developed deserves to be disseminated to a wider audience. The model is an effective socialization through the demonstrating, explaining the concepts, training the teachers, peer teaching, and transferring the model from teacher to pupil. However, the researcher suggests that there should be follow-ups in the form of similar teachies to involve other students with special needs and a dissemination to make the APE learning model better so that it can be applied in other areas.

Keywords: Dissemination of Adaptive Physical Education

INTRODUCTION

The facts show that the academic background of adaptive Physical Education teachers in Yogyakarta is that 94% not from Physical Education major, so they face many obstacles when implementing the learning. This condition should be overcome immediately with a simple guidance in the form of DVD and Guidebook. The advantage of a DVD is that it gives the audiovisual material as a direct example and it can be seen repeatedly to facilitate the learning. The Guidebook allows a more detailed description including the concepts on the learning model. The DVD and Guidebook need to be validated and tested before being distributed and applied.

Second years of the research has produced the model of adaptive Physical Education learning that focuses on the stimulation of the brain, along with DVD and Guidebook. The research results should be disseminated to the SLB teachers, since mostly the teachers' major background of Adaptive Physical Education course is not from Physical Education.

In the reality, Adaptive Physical Education learning in SLB does not pay special attention to the optimization of the brain. The brain development through learning Adaptive Physical Education is untapped conceptually, whereas the brain development of the retarded kids may improve the performance of the brain as well as physical fitness and health in general. By giving stimulation to the brain, the retarded kids may achieve some significant progress.

Therefore, the results of the second research, which basically can stimulate the brain, need to be disseminated to ensure the application of this model to the retarded kids. The benefit from this adaptive Physical Education learning model is that it can be used as a reference for the teachers in providing such good instructional Adaptive Physical Education learning, as the input for the authorities in arranging the curriculum for adaptive Physical Education, and for the retarded kids so that they can optimize the brain function that can be intervened so their ability on the absorption of information can be improved as well as their physical fitness.

Conceptual Framework

Retarded kid is one of the special children with the disabilities on major disruptions in the brain, particularly on cognitive and emotional function. Retarded kids can also have some sensory problems, motor, learning, and behavior. It is because most of the retarded kids find it hard in giving the response to the environmental stimuli to their motion, mimicking the motion, and even there are some kids who are physically impaired so they are unable to perform the movements correctly. Total students of SLB according to the data from the Ministry of National Education in 2001 was 38 827 students, while the prevalence of retarded kids aged 5-14 years according to the National Health Survey of 2001 was at 2.4% (Irwanto, 2006). This amount is quite large and it requires a comprehensive treatment.

The decade of 1990-2000 was an era when the study of the anatomy and function of the brain was growing very fast. This period was called Brain Age and the brain development was into the limelight. Many studies related to brain function, such as that the brain was an organ that when it was cared for, protected, and nurtured seriously it can last more than a hundred years. The brain can be formed and constantly changing, within a millisecond-by-millisecond by life experience of each person. The best part of the brain is from its elasticity, as the capacity of the brain is able change and evolve (Taufiq Pasiak, 2002). By giving the stimulation to the brain of the retarded kids, they can achieve some significant progress. Glenn Doman gives some specific stimulation to the brain of the kids with brain injury and he gets the positive results. When the normal channels in the brain are damaged, then it needs to make some new channels in the brain to restore the lost functions (Dennison, 2004).

There are such various characteristics on the retarded kids. According to Kennedy (1994), in general, kids with intellectual challenges experienced limitations in social behavior, self-concept, learning, motor coordination, communication skills, and the ability in obeying the instructions. Meanwhile, according to Robinson (1993), kids with intellectual challenges have some difficulties in

processing information, storing and reusing the information that had been stored previously, the attention span is narrow, and in resolving the problem. Spencer (2005) examines the anomaly of the retarded kids' brain. The abnormalities of the retarded kids' brain are known in many parts of the brain. The lateral ventricle and enlargement shape abnormalities. The third ventricular has some dilation, in the cerebral cortex and cortical sulcus has such enlargement subarachnoid space. While in the temporal lobe, particularly the hippocampus gets the abnormalities in shape and smaller size. In the substantia alba there is thinning of the corpus callosum, the largest one of channels in the brain, which is important in the process of transferring the information between the two hemispheres. Willis (2008), explains that hippocampus major role is in memory processing. Hippocampus sensory input captures and integrates it with related patterns of previously memory saved to form the new information. Therefore, it can be understood why the kids with intellectual challenges have some difficulties in the learning process, because some retarded kids have some problems in their hippocampus abnormalities shape as it is smaller than the normal kids'.

The brain is not a static organ, but the dynamic one that is constantly growing and developing to form the network among the nerve cells. The growth of the network among the nerve cells is influenced by stimulation from the environment. It is in accordance with the research conducted by William Greenough (2006) which states that when learning some new things, the kid's brain structure changes dramatically. There is more connection among the neurons, the glial cells that support the function of neurons increase, and the blood capillaries which supply the blood and oxygen to the brain are getting denser.

Exposure to the environment that is supportive to the brain has many positive effects on the brain structure and function, including increasing the number of dendritic branches, multiplying synapses (the connection among the nerve cells), increasing the number of nerve cells supports, and improve the performance in tests of spatial memory (Rosenzweig & Bennet, 1996). Jason Brown (2003) suggests that exposure to a supportive environment with physical activity may increase the neurogenesis cells in the dentate gyrus hippocampus and it improves its performance.

Sidiarto (2006) states that the areas in the brain should work together in a synchronized way to produce such particular functions. On the kids with impaired brain function, they need to be determined the extent of the brain damage that can be intervened by training stages impaired brain development in order to function optimally. One of the interventions that can be done is making the patterns of movement. Movement is done if the location is a crisscross pattern disturbances in the middle and subcortical brain areas, whereas the movement patterns of one side (homolateral) done when disturbances in the brain stem or early subcortical areas.

The brain needs to be maintained both structurally and functionally. Structural maintenance carried out by flowing blood, oxygen, and sufficient energy to the brain. By maintaining brain structure, brain function would be more optimal. Maintenance of brain function can be performed by various processes of learning, including learn to move, learn to remember, learn to feel, learn to see, and so forth.

All the learning process will always stimulate the brain centers. Therapy is structured and programmed motion helpful stimulate learning centers in the brain. The movement that led to the function of the left and right hemispheres cooperation will strengthen relations between the two hemispheres. The cross movement on the midline of the body can integrate both hemispheres of the brain so that the brain is able to organize itself. When students do the cross motion activity, blood flow increased in all parts of the brain, so as to reinforce the learning process. It is possible because with such activity will bring together the motor and cognitive areas of the brain, the cerebellum, basal ganglia, and the corpus callosum that can further stimulate the production of neurotrophin which can increase the number of synaptic connections (Jean Blaydes, 2001).

Eye movements in following the movement of the hands will train the connection between the center of vision and movement center. The balance exercises will stimulate some parts of the

brain that regulate balance, such as the cerebellum, the center of movement in the area of the forehead (frontal lobe) in a large brain, central sense attitude and sense of movement in the area of the head crown (parietal lobe). In addition, the functional balance exercise gives a good effect on the control of emotions, in which the retarded kids experience some dysfunctions.

Motion therapy is to optimize the alignment function of the brain for a movement, breathing, and thinking center (memory, imagination). The series of movements that are arranged involving muscle movement centers in the brain (cerebral homunculus), corpus callosum which connects the two hemispheres of the brain in the form of cross movement, and control centers in the brain that are in higher position.

Retarded kids find it hard in learning processes associated with memory (memorizing). Interference may occur in the process of receiving the information (input), information processing, storage, and sharing the information. On the children with learning difficulties such as that experienced by the retarded kids, information received by the rear part of the brain, but it cannot be disclosed by the forebrain. In other words, there is an inability to explain what has been learned. Learn to use the whole brain, through the renewal of the pattern of movement is a way out so that the child can master the parts of the brain that is previously inhibited (Dennison, 2004).

Motion therapy for brain optimization of retarded kids is expected to overcome the problems related to brain function. It is in accordance with the opinion of Soemarmo Markam (2005) that exercises of the muscles and other locomotor are devoted to the vitalization of the brain to stimulate the brain and interdepartmental cooperation of the brain so that the function of all areas of the brain will increase, which will be followed by an increase in blood flow into the brain. Increased blood flow to the brain is accompanied by the better breathing as it means increasing oxygen to the brain so that it will improve the brain function.

According to Dennison (2004), the optimization of activities is conceived to stimulate the brain (dimensions laterality), lighten (focusing dimension), and relaxes (dimensions of convergence). Laterality dimension is intended for the right and left hemispheres of the brain, focusing dimension to the back of the brain (brain stem) and the front part of the brain (frontal lobe), as well as the dimensions of convergence to the limbic system (midbrain) and big brain (cerebral cortex).

The principles of exercise for optimizing the brain are the slow motions, from the smaller muscles to larger muscle, crosses the midline of the body to align the two hemispheres of the brain, and it is performed repeatedly to train a sense of joints, involving the eyes to enhance the visual concentration and ability visuospatial, full joint motion, involving control of breathing, and impregnated in order to achieve harmonization between the motion, the brain, and emotion so as to be a balance between the functions of the brain, muscles, and emotional stabilization (Soemarmo Markam, 2005).

Dissemination of adaptive Physical Education learning model is for optimizing the brain of the retarded kids and it needs to be done to ensure the application of this model to the retarded kids. Dissemination of information is an information service that is designed to educate and inform the user group by taking into account the educational background and the focus of attention of the target group. The process requires planning, collecting, organizing systematic information to be delivered to the target groups dissemination, and using a variety of communication media (Dhawan, 2003). Furthermore Dhawan argues that the dissemination of information is an important and critical factor in supporting the successful implementation of a program. The model suggested is two-way communication and it is based on problems (problem-centered learning). In the problem-centered learning, the emphasis is mainly on how to apply the information or knowledge, and skills to find the solutions of the problems.

RESEARCH AND METHOD

The study design was Research and Development (Gay, 1981), with the action research approach. The subjects were the teachers of adaptive Physical Education who came from Yogyakarta, Solo, Sragen, with the total of 52 persons and the teachers in BBRSBG Temanggung, Central Java, for about 20 persons. The study was conducted from April to October 2011. The instrument used was a test, questionnaire, and observation guides. The data analysis was done by descriptive quantitative analysis.

RESULTS AND DISCUSSION

1. First Phase

This study consists of two phases. First phase, socialization, includes five stages, namely the stage in explaining the concept, demonstrating a model, training the models, peer-teaching, transferring the models from teacher to pupil.

At the stage in explaining the concept, the points assessed are enthusiasm, response, and the degree of absorption of the concept. From the enthusiasm of the study subjects, 84.6% of the 52 participants watch with enthusiasm. Some participants are still often talking with other participants. From the responses of participants' socialization, the participants that ask some questions are for about 13 people (25%), give some clarification are for about 6 people (11.5%), deny the information are for about 4 people (7.7%), and sharing are for about 3 people (5%). In terms of the level of understanding of the participants, based on the results of the pretest, the mean score is at 61.87 and the standard deviation at 9.33, while the post-test, the mean score is at 83.50 and the standard deviation at 8.67. Through the t test, it shows that the understanding of the participants on the disseminated material is significantly increased ($p < 0.05$). The time needed for the first phase is for 6 hours effectively (previously planned for 4 hours). The quality of the questions is rated low to moderate.

At this stage of demonstrating the models, the points assessed are attention and response related subject convenience, security, and accuracy of the music. From the aspects of attention of participants, it appears that 42 (80.7%) consider seriously. In terms of convenience, 4 people (7.7%) say it is difficult; 12 people (23.1%) say it is quite easy; and 36 people (67.3%) say it is easy, whereas in terms of security, 7 persons (13.5%) state that it is quite safe and 45 persons (86.5%) declare that it is safe. In terms of lyrics, 16 people (30.8%) state that it is quite right and 36 persons (69.2%) state that it is accurate. In terms of rhythm, 9 people (17.3%) say it is too fast; 38 people (73.1%) declare that it is fit, and 5 (9.6%) say it is too slow.

At the stage of training the models, the point assessed is the rate speed of adopting the model. The third phase results show that 3 persons (5.8%) are very fast in adopting the motion and music, 40 people (76.9%) are fast enough, and 9 persons (17.3%) are not fast enough in adopting the movement and music.

At this stage of peer-teaching, the skill of teachers assessed is in transferring the model to other teacher colleagues. The results of peer-teaching show that 6 persons (11.5%) show the high skill in transferring the learning model to other teacher colleagues, 35 people (67.3%) are skilled, and 11 persons (21.2%) are not skilled.

At this stage of transferring the models from the teachers to pupils, the points assessed are transfer skill, teacher comments, and enthusiasm of the students. Transfer skill on the movement to the students, show that 5 people (9.6%) are very skilled, 37 people (71.2%) are skilled, and 10 persons (19.2%) are less skilled. The enthusiasm of the students from one school to another school is in various conditions. It is mainly influenced by the level of disability, the age of the students, and gender.

Reflection cycle I identifies that the time required exceeds planning (less efficient) and there is a lower quality of the question since there is no overview on the learning model. To be more effective, it is recommended to use the method of focus group discussion (FGD).

2.Second Phase

Based on the reflection of first phase, the second phase of socialization begins with a demonstration model, and then it is followed by explaining the concepts, training the models, peer-teaching, transferring the models from teacher to student, as it is attended by 20 participants. At this stage of demonstration the models, 17 people (85%) consider it seriously. In terms of convenience, 3 people (15%) say that it is difficult; 3 people (15%) say it is quite easy; and 14 people (70%) say it is easy. From the security view, 3 people (15%) state that it is quite safe and 17 people (85%) declare that it is safe. In terms of lyrics, 6 people (30%) state that it is quite right and 14 people (70%) state that it is accurate. In terms of rhythm, 5 people (15%) say that it is too fast; 15 people (75%) state that it is appropriate.

On stage of explaining the concept, it is done the method of FGD. In general, the FGD seems effective and it indicates the increasing involvement of participants as 18 people (90%) are very involved, and 2 people (10%) are less involved. Results of the pretest, the mean score is at 61.89 and the standard deviation at 7.49, while in the post-test, the mean score is at 82.81 and the standard deviation at 6.97. Through the t test, it shows that the understanding of the participants on the disseminated material is significantly increased ($p = 0.01$). It takes a shorter time, which is for 3.5 hours effectively (previously planned for 4 hours). The quality of the questions is greatly improved, with a focus on the benefits of each movement.

At this stage of training the models, the point assessed is the speed on adopting the model. The results show that 4 people (20%) are very quick in adopting the motion and music, 12 people (60%) are faster, and 4 persons (20%) are not fast enough in adopting the movement and music.

In the phase of peer-teaching models, the point assessed is the transfer skill to other teacher colleagues. At this stage, it appears that 3 people (15%) are highly skilled in transferring the learning model to other teacher colleagues, 15 people (75%) are skilled, and 2 people (10%) are less skilled.

At this stage of transferring from the teachers to pupils, it is assessed the aspects of transferring skills, teacher comments, and enthusiasm of the students. Transfer skills on the movement to students show that 2 people (10%) are highly skilled, 16 people (80%) are skilled, and 2 people (10%) are less skilled. The enthusiasm of the students, both male and female students are very high. It is supported by homogeneity protégé and adequate facilities. In the second cycle, it appears that the stage of socialization is better than the first cycle, so the model which is applied to the second cycle is appropriate.

CONCLUSION AND SUGGESTION

1. Conclusion

From the results of research and discussion, it can be concluded that:

- a. Adaptive Physical Education learning model which is developed is deserved to be disseminated to a wider audience.
- b. The model of an effective socialization is through the stages of demonstration, explaining the concepts, training to other teachers, peer teaching, and the transfer from the teacher to pupil.

2. Suggestion

From the results of the study, it suggests the following things:

- a. Socialize the adaptive physical education learning model into the wider regions.
- b. Modify the songs with songs from other regions, or other types of music
- c. Add the type of media used by CDs and tapes so it only adjusts with simple facilities in schools.

REFERENCES

- Dennison,P. 2004. *Buku Panduan Lengkap Brain Gym*. Grasindo, Jakarta.
- Dhawan, SM. 2003. Basic of Information Dissemination.
- Gay, LK. 1981. *Educational Research: Competencies for Analysis & Application* Columbus. Charles E. Merrill Publishing.
- Irwanto. 2006. *Penyimpangan Tumbuh Kembang Anak. Continuing Education*. Kapita Selektika IKA VI, Surabaya.
- Jason Brown. 2003. *Enriched Environment and Physical Activity Stimulate Hippocampal but not Olfactory Bulb Neurogenesis*. European Journal of Neurosciences, Vol.7. pp 2042-2046.
- Jean Blaydes. 2001. *A Case for Daily Quality Physical Education*. [www. Actionbasedlearning.com](http://www.Actionbasedlearning.com). Diakses pada 30 Maret 2008.
- Kennedy. 1994. *General characteristics and needs of individual served*. Presentation.
- Robinson. 1993. *Mental Retardation. Southern Association of Institutional Dentists: Self-study Course*.
- Rosenzweig, MR & Bennet,EL. 1996. *Psychobiology of plasticity: effects of training and experiences on brain and behaviour*. *Behav. Brain Res*, 78, 57-65.
- Sidiarto. 2006. *Cakrawala untuk Mengoptimalkan Potensi Kecerdasan Balita, Harapan Bagi Anak Cedera Otak*. Yayasan Pendidikan Pelangi Harapan.
- Soemarmo Markam. 2005. *Latihan Vitalisasi Otak*. Grasindo, Jakarta.
- Spencer, M.D. 2005. *Qualitative Assessment of Brain Anomalies in Adolescents with Mental Retardation*. *AJNR Am.J Neuroradiol* 26: 2691-2697).
- Taufiq Pasiak. 2002. *Revolusi IQ/EQ/SQ: Antara Neurosains dan Al-Quran*. Mizan, Bandung.
- William Greenough. 2006. *Perspective: Rich Experiences, Physical Activity Healthy Brains*. National Scientific Council on The Developing Child. www.developingchild.net
- Willis, J. 2008. *How Your Child Learns Best*. Sourcebooks.Inc, Naperville, Illinois.



HOW SPORT STUDENT EXCHANGE (SSE) AFFECTS STUDENTS' ACADEMIC PERFORMANCE IN SPORT SCIENCE FACULTY

Lulu April Farida

Semarang State University

lulu.a.farida@gmail.com, lulu.farida@mail.unnes.ac.id

Abstract

The number of international student for joining Sport Student Exchange (SSE) program on sport is growing steadily in Sport Science Faculty of Semarang State University. Those, it is useful to find out the affectation of SSE to students' academic performance. For this study, I interviewed the first and second semester of Physical Education Department in the academic year 2014/2015 by using descriptive qualitative method. The result showed that SSE enhanced the students' performance in two themes emerged: developing self-esteem and also prioritizing academics and athletic eligibility though students face language barriers and overcoming cultural difference. It means SSE is well accepted by student of Sport Science Faculty and affects students' performance affirmatively. Findings of this study concluded academics environmental such SSE can be used to support students' performance. Faculty members should conduct other physical activity events under academic counseling which focus on international program for reducing the barriers regarding to students' challenges and success in academic and life experiences relative to diversity.

Keywords: students' performance, sport student exchange

INTRODUCTION

An increasing number of students prefer to study at a university abroad (Healey 2008; Russell et al. 2010). In 2007, 3 million students studied abroad to take short course such summer or others, which is almost three times higher compared to the figures of 1990 (OECD 2009). Until recently, Anglo-Saxon countries like the US, UK or Australia primarily attracted large numbers of foreign, international, students. More recently, also non-English speaking countries are increasingly attracting foreign students. In comparison to the UK (14%) or Australia (20%), the degree of internationalization in higher education in the Asia is relatively low. However, enrolments of international students in Asia are significantly higher in short course program. By focusing on the front-runners of internationalization in Asia, we are convinced that important lessons-learned from short course programs can be identified for higher educational universities that attract international students.

The total number of international students studying in Indonesia is about 3,000 students. This means an inbound mobility rate of 0.1%. These low figures for Indonesia invite all of us to work harder for an increased internationalization of higher education in Indonesia. One needs to pay more attention to the content and aims of internationalization. Internationalization within higher education has many dimensions. It includes the type of short courses/programs as has been offered, the teaching material, curriculum content, the diversity among students and staff in addition to the learning environment and context. But internationalization is also a state of mind.

To achieve an innovation-driven knowledge society in Indonesia, Semarang State University faces up to a hard truth by inviting international students to take short course in the area of sport and culture. SSU looks at internationalization program needs to change and support its vision to be

an international conservation university which is healthy, outstanding and prosperous. Thus, it needs to be creative now by conducting Sport Student Exchange (SSE) held in Sport Science Faculty.

In this case, students of Sport Science Faculty act as the host-university students. Thus, the prime goal of this paper is to characterize how SSE affects students' academic performance in Sport Science Faculty of Semarang State University. That is, we assess whether SSE has an impact on students' academic performance, as measured by grade point average scores (GPA) and after their first year of study.

INTERNATIONAL STUDENTS POTENTIAL

A common belief among educators is that international students are insufficiently adjusted to higher education in their host country, both academically and socially. Furthermore, several groups of international students experience considerable amounts of barriers while learning to the new environment of the host-university. International students in universities of higher education in non-English-speaking countries make valuable educational and economic contributions. For these benefits to continue, universities must become more knowledgeable and implement appropriate support services of international atmosphere to improve host-university students' academic performance.

Beyond the attraction of an enriched, international atmosphere nowadays there is some doubt about the academic performance and social integration of international sport students. A common assumption in higher education is that academic integration, that is the extent to which students adapt to the academic way-of-life (Tinto 1975), of international students is not well-aligned with the requirements of higher educational. Recent research has found a mixed picture on whether international students underperform in academic performance. Therefore, Morrison et al. (2005) claim that research should widen its focus from comparing international—versus domestic students' performances to finding out the underlying mechanisms of academic performance and define social integration as the extent to which students adapt to the social way-of-life at university.

STUDENTS' ACADEMIC PERFORMANCE

Students' academic performance is affected by numerous internal and external factor including gender, age, teaching faculty, students schooling, father/guardian social economic status, residential area of students, medium of instructions in schools, tuition trend, daily study hour, accommodation as hostels or day scholar, school atmosphere and so on. Lot of studies have been conducted in the area of students achievement and these studies identify and analyze the number of factors that affect the academic performance of the student at school, college and even at university level. Their finding identify students' effort, previous schooling, parent's educational background, family income, self motivation of students, age of student, learning preferences and atmosphere of students as important factors that have effect on student's academic performance in different setting.

It is generally assumed that the students who showed better or higher performance in the starting classes of their studies also performed better in future academic years at degree level. Everyone can be surprised with this assumption if it could be proved scientifically. From the last two decades it has been noticed significantly that there is great addition in research literature and review material relating to indicators of academic achievement with much emphasis on this dialogue, whether traditional achievement measures of academic performance are best determinants of future academic gain at university or higher level or innovative measures.

It is also confirmed in the study of Oregon State University (2003) on graduate admissions that normal measures of educational potential and academic performance such as high school GPA (Grade Point Average) scores explored that previous achievement affect the future performance of

the students in studies, they confirmed that the admission scores are related to academic performance at university level with maximal extent.

SPORT STUDENT EXCHANGE (SSE)

Currently, Semarang State University offers scholarship to conduct short course in the field of sport and culture then named as Sport Student Exchange (SSE). It was three batches held in the academic years 2014/2015. SSE was noted that the increased number of international students created positive social experiences within Sport Science Faculty students. In some subjects, SSE students joined regular class and the rest they have own. Thus, students of Sport Science Faculty take some actions gather in SSE's classes. Their contribution is not end in the classes also in their self-development activity or spare time during studying in Semarang State University.

SSE covered two main programs; they are main courses and self-development activity. The formers are studying some sport courses joined with host-university classes and independent class for cultural courses. The latest program is about conservation of Semarang State University and social study of Indonesia. For all programs, host-university students who were the sample of this study were being peer partner. Thus, they could take many positive experiences primarily for academic performance. From above, it is clear that students' academic performance is interesting to be a subject study.

METHOD

In this study a descriptive qualitative was designed. This study gained how SSE affects students' academic performance in Sport Science Faculty of Semarang State University. Statistics data used to find out its percentage of data analysis. Undergraduate students of Physical Education Department in the academic year 2014/2015 are population of this study. The sample consist of (n=29) a class who are 25% from its population.

Observations, interview, and questioners gave to the sample as its instruments. Questioners formulated by some questions during students' learning process both gather with SSE or in their own regular class. Data collection was analyzed by Beta Analyzer which showed its percentage and used for data analysis.

RESULTS AND DISCUSSION

Using English as foreign language caused barriers academically, athletically, and socially. The interviews often struggled when studying, **communicating**, and adjusting to students of Sport Science Faculty of Semarang State University who join some classes with Sport Student Exchange Program. Writing papers, reading assigned materials, and presenting orally were challenging both for host-university students and students' members. They need to shift between students' native languages and English. Minami and Ovando (2004) explained the lack of English proficiency was influenced and interpreted by international students' knowledge of their own native language and culture. However, these languages barriers were not a big problem for them. Despites all those matters, they were powerful struggle to face it in order to get rid of their miscommunication. When students got problems with teachers' pronunciation, materials, and teaching style they spent much more time for understanding which was help by student of SSE. SSE caused students to more active to learn about participating in class discussions. Students of Sport Science Faculty expressed that since joining some classes with SSE program they were fully being motivated. Fortunately, SSE students had positive social interaction in cultural differences. It is clear, SSE and students of Sport Science Faculty each one respected and accepted differences of culture and communication patterns when completing common team goals.

By conducting observations and interview, 29 undergraduate students of Physical Education Department developed their self-esteem after getting involved with SSE who coming from Thailand and Philippines. Self-esteem is a term often used to describe how we feel about who we are and the value that we place on ourselves. Students develop self-esteem because they are able to have both a self-identity and also the ability to judge interpretations of ourselves and of course their academic performance walks in the same track as well. SSE impacts on the ways in which students' think and view their selves. Moreover, they can assess their competent and confident compering to SSE who is coming from overseas. Having a realistic view of their abilities and strengths can strengthen their feelings of confidence. They also regularly measure their selves against SSE. Having a peer group that they feel comfortable with and which has realistic expectations of the individual goes a long way to enhancing their self-esteem and to the development of academic building. As a result, SSE developed the result of our students' self-esteem such being confidence and open minded and also differing life experience as the lessons they learned and interacted with SSE and the world in general.

Prioritizing academics and athletic eligibility of students can be showed by the questioners and the result of GPA (grade point average). One concern for host-university students was how to complete coursework with SSE class on time while studying their main course. According to the observations, SSE activities during their study may enhance students' academic performance. Getting involved in SSE activities has been shown to improve on-task classroom and athletic eligibility. It is important to note that the athletic eligibility of non-athletes students have not been significantly improves. In contrast, after interacting with SSE, the result of students' physical activity increased on-task classroom which bring their athletic eligibility develop significantly up to 30%.

Developing self-esteem and athletic eligibility have enhanced students' academic performance. The students strongly expressed the need of maintaining a certain GPA 3,5 above besides 80% supported SSE program and 20% gave some reflections for betterment. It can be concluded SSE is one of school atmosphere which can bring positive response not only for students' academic performance but also give a credit to Semarang State University supporting Internationalization program. From 29 students only 7% students got GPA under 3,5 while the rest (93%) have it as their expected.

CONCLUSION AND SUGGESTION

can assume the finding of this study that SSE program is well organized and supported by the students of Sport Science Faculty, Semarang State University. The result showed SSE enhanced students' academic performance of Sport Science Faculty, Semarang State University affirmatively. This can be seen form the development of self-esteem and prioritizing academics and athletic eligibility though they face some language barriers and overcoming cultural difference.

University should consider emphasizing: (1) diversity education sessions for faculty regarding the effective academic advisement of international students and host-university students; (2) academic counseling programs that focus on reading, writing, and presenting for those who use English as a second language; (c) cultural adjustment seminars and diversity education courses facilitated by faculty who understand linguistics and cultures and are well received by the university community to lack their barriers.

Undergraduate programs need to consider the psychological effects of academic programs on host-university students who get involved in international class to support their academic performance. It will be better if a university has at least one international class for international students. Organizing other physical activity events under academic counseling which focus on international program. Those can be done for reducing the barriers regarding to students' challenges and success in academic and life experiences relative to diversity. By having those experience they will have recommended academic performance in the future

Very few studies exist to investigate international student affects academic performance for host-university students. Although this study is limited because of the small number of international student attending Semarang State University, the seed data obtained will be used to design a larger research project. The data can be used by the other colleges and universities to develop and/or enhance programs that will increase international students' graduation rates, as well as improve student recruitment and retention practices both for regular admission or mobility short course.

REFERENCES

- Asmar, C. (2005). Internationalising students: Reassessing diasporic and local student difference. *Studies in Higher Education*, 30(3), 291–309.
- Attewell, P., Lavin, D., Domina, T., & Levey, T. (2006). New evidence on college remediation. *The Journal of Higher Education*, 77(5), 886–924.
- Baker, R. W., & Siryk, B. (1999). *SACQ student adaptation to college questionnaire* (2nd ed.). Los Angeles: Western Psychological Services.
- Barrie, S. C. (2007). A conceptual framework for the teaching and learning of generic graduate attributes. *Studies in Higher Education*, 32(4), 439–458.
- Berry, J. W. (1999). Intercultural relations in plural societies. *Canadian Psychology*, 40(1), 12–21.
- Beyers, W., & Goossens, L. (2002). Concurrent and predictive validity of the student adaptation to college questionnaire in a sample of European freshman students. *Educational and Psychological Measurement*, 62(3), 527–538.
- Bochner, S., McLeod, B. M., & Lin, A. (1977). Friendship patterns of overseas students: A functional model. *International Journal of Psychology*, 12(4), 277–294.
- Bok, D. C. (2003). *Universities in the marketplace: The commercialization of higher education*. Princeton: Princeton University Press.
- Christie, H., Munro, M., & Fisher, T. (2004). Leaving university early: Exploring the differences between continuing and non-continuing students. *Studies in Higher Education*, 29, 617–636.
- Cokley, K., Bernard, N., Cunningham, D., & Motoike, J. (2001). A psychometric investigation of the academic motivation scale using a United States sample. *Measurement and Evaluation in Counseling and Development*, 34(2), 109–119.
- Dutch Ministry of Education. (2010). *Kennis in Kaart 2009* (Mapping Knowledge of Education 2009). from <http://www.rijksoverheid.nl/bestanden/documenten-en-publicaties/publicaties-pb51/kennis-in-kaart-2009/kennis-in-kaart-2009-pdf-2-mb.pdf>.
- Eringa, K., & Huei-Ling, Y. (2009). Chinese students' perceptions of the intercultural competence of their tutors in PBL. In D. Gijbels & P. Daly (Eds.), *Real learning opportunities at business school and beyond* (Vol. 2, pp. 17–37). Netherlands: Springer.
- Furnham, A., & Alibhai, N. (1985). The friendship networks of foreign students: A replication and extension of the functional model. *International Journal of Psychology*, 20(6), 709.
- Gloria, A. M., Castellanos, J., Lopez, A. G., & Rosales, R. (2005). An examination of academic nonpersistence decisions of Latino undergraduates. *Hispanic Journal of Behavioral Sciences*, 27(2), 202–223.
- Healey, N. (2008). Is higher education 'internationalising'? *Higher Education*, 55(3), 333–355.
- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviours, institutions, and organizations across nations*. Thousand Oaks: Sage Publications.
- Jochems, W., Snippe, J., Smid, H. J., & Verweij, A. (1996). The academic progress of foreign students: Study achievement and study behaviour. *Higher Education*, 31(3), 325–340.
- Mannan, M. (2007). Student attrition and academic and social integration: Application of Tinto's model at the University of Papua New Guinea. *Higher Education*, 53(2), 147–165.

- Meeuwisse, M., Severiens, S. E., & Born, M. P. (2010). Reasons for withdrawal from higher vocational education. A comparison of ethnic minority and majority non-completers. *Studies in Higher Education*, 35(1), 93–111.
- Morrison, J., Merrick, B., Higgs, S., & Le Métails, J. (2005). Researching the performance of international students in the UK. *Studies in Higher Education*, 30(3), 327–337.
- OECD. (2009). Education at a glance 2009. from <http://www.oecd.org/dataoecd/41/25/43636332.pdf>.
- Ozga, J., & Sukhnandan, L. (1998). Undergraduate non-completion: Developing an explanatory model. *Higher Education Quarterly*, 52(3), 316–333.
- Phinney, J. S. (1990). Ethnic identity in adolescents and adults: Review of research. *Psychological Bulletin*, 108(3), 499–514.
- Rienties, B., Grohnert, T., Kommers, P., Niemantsverdriet, S., & Nijhuis, J. (2011). Academic and social integration of international and local students at five business schools, a cross-institutional comparison. In P. Van den Bossche, W. H. Gijssels & R. G. Milter (Eds.), *Building learning experiences in a changing world* (Vol. 3, pp. 121–137). Netherlands: Springer.
- Rienties, B., Tempelaar, D. T., Waterval, D., Rehm, M., & Gijssels, W. H. (2006). Remedial online teaching on a summer course. *Industry and Higher Education*, 20(5), 327–336.
- Russell, J., Rosenthal, D., & Thomson, G. (2010). The international student experience: Three styles of adaptation. *Higher Education*, 60(2), 235–249.
- Sam, D. L., & Berry, J. W. (2006). *The Cambridge handbook of acculturation psychology*. Cambridge: Cambridge University Press.
- Severiens, S., & Wolff, R. (2008). A comparison of ethnic minority and majority students: Social and academic integration, and quality of learning. *Studies in Higher Education*, 33, 253–266.
- Tempelaar, D. T., Rienties, B., Giesbers, B., & Schim van der Loeff, S. (2011). Effectiveness of a voluntary postsecondary remediation program in mathematics. In P. Van den Bossche, W. H. Gijssels, & R. G. Milter (Eds.), *Advances in business education and training* (Vol. 4). Dordrecht: Springer.
- Tempelaar, D. T., Rienties, B., & Gijssels, W. H. (2006). Internationalisering: en de Nederlandse student? *Onderzoek van Onderwijs*, 35(3), 40–45.
- Thomas, L. (2002). Student retention in higher education: The role of institutional habitus. *Journal of Education Policy*, 17(4), 423–442.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45(1), 89–125.
- Tinto, V. (1998). Colleges as communities: Taking research on student persistence seriously. *The Review of Higher Education*, 21(2), 167–177.
- Van der Wende, M. C. (2003). Globalisation and access to higher education. *Journal of Studies in International Education*, 7(2), 193–206.
- Ward, C., & Kennedy, A. (1993). Where's the "culture" in cross-cultural transition? *Journal of Cross-Cultural Psychology*, 24(2), 221–249.
- Ward, C., Leong, C. -H., & Low, M. (2004). Personality and sojourner adjustment. *Journal of Cross-Cultural Psychology*, 35(2), 137–151.
- Ward, C., Okura, Y., Kennedy, A., & Kojima, T. (1998). The U-Curve on trial: A longitudinal study of psychological and sociocultural adjustment during Cross-Cultural transition. *International Journal of Intercultural Relations*, 22(3), 277–291.
- Ward, C., & Rana-Deuba, A. (1999). Acculturation and adaptation revisited. *Journal of Cross-Cultural Psychology*, 30(4), 422–442.
- Wilcox, P., Winn, S., & Fyvie-Gauld, M. (2005). It was nothing to do with the university, it was just the people: The role of social support in the first-year experience of higher education. *Studies in Higher Education*, 30(6), 707–722.

- Yazedjian, A., & Toews, M. (2006). Predictors of college adjustment among Hispanic students. *Journal of the First-Year Experience & Students in Transition*, 18(2), 9–29.
- Zepke, N., & Leach, L. (2005). Integration and adaptation. *Active Learning in Higher Education*, 6(1), 46–59.
- Zhou, Y., Jindal-Snape, D., Topping, K., & Todman, J. (2008). Theoretical models of culture shock and adaptation in international students in higher education. *Studies in Higher Education*, 33(1), 63–75.



THE DIFFERENCE OF PLAY LEARNING APPROACH AND AGE GROUP EFFECTS ON THE IMPROVEMENT OF BASIC MOTOR ABILITY

Agus Supriyoko

Tunas Pembangunan University

agussupriyoko@rocketmail.com

Abstract

The Difference of play learning approach and Age Group Effects on the Improvement of Basic Motor Ability (An Experiment on the Effect of play learning approach between Individual and Group Games in the Male Students in 6,01-7,00 and 7,01-8,00 Years Age in the Special Program of Elementary school Muhammadiyah Surakarta).

This research aims to find out : (1) The difference of play learning approach between individual and groups games effect in 6,01-7,00 and 7,01-8,00 years groups on the improvement of Basic Motor Ability. (2) The difference of Basic Motor Ability effect between the 6,01-7,00 years students and 7,01-8,00 years student. (3) In addition, it also aims to find out the interaction between play learning approach type and age group on the improvement of basic movement.

The study was carried out using experimental method involving three variables: independent variable (play learning approach), attributive variable (age group) and dependent variable (Basic Motor Ability). The research design used was a 2x2 factorial design. Technique of analyzing data used in this research was a two-way Variance Analysis (ANOVA) followed by Newman Keuls' Range test at significance level $\alpha = 0.05$.

The research concludes that: (1) there is a difference of play learning approach between individual and group games effect on the Basic Motor Ability (2) there is a significant difference of Basic Motor Ability effect between the 6,01-7,00 years students and 7,01-8,00 years students. (3) there is a significant interaction effect between the game type and the age on the Basic Motor Ability. a) The 6,01-7,00 years students are more appropriate to be given play learning approach with individual game type. b) The 7,01-8,00 years students are more appropriate to be given play learning approach with group games type.

Keywords : Physical Education, Play Learning Approach, Basic Motor Ability

INTRODUCTION

1. Contains Background

Physical education is essentially a process of education that utilizes physical activity to produce a holistic change in the quality of the individual, both in terms of physical, mental, and emotional. Physical education to treat the child as a unified whole, being total, rather than just think of it as someone who separate physical and mental qualities.

To realize the goal of physical education, one of the efforts that should be done is to develop motor skills and sports games. The ACC / NCAS (1990: 87) argues that "children playing sports to (1) obtain kesenangan; (2) Friendship or acquire new friends; (3) feel good; (4) learn new skills ". Such objectives can be achieved, if the sports activities in accordance with the child and adapted to the needs and abilities. The game is one sport that is very popular with children. The game gives greater pleasure for students.

The appearance of a child affected by the age factor. Age factor has different levels of development capacity. Each different age groups of physical capacity, mental and social caused

individual and environmental factors. This difference has implications for the learning process. Children who had higher stages of age have a higher aspects of cognition as well. Aspects of cognition affects the reception of information; the higher levels of cognition more easily receive information. The facts show that learning, especially in the field of physical education less attention to the characteristics of students that is based on the development of age.

Departing from the above problems, this study will compare the effects of both the learning approach that is individual play games and games groups and differentiate the sample criteria on age group. In connection with the above problems, as people try in this study were boys aged from 6.01 to 7.00 years and 7.01 to 8.00 in Special Program of Elementary School Muhammadiyah Surakarta.

2. Formulation of The Problem

Based on the description of the background of the problem, it can be formulated research problem as follows: 1. Is there any difference in effect between individual learning approach play games and games groups to increase the basic motor skills? 2. Are there differences in the effect of the increase in basic motor skills between the age group from 6.01 to 7.00 years and 7.01 to 8.00 years? 3. Are there any interactions influence learning approach play and age groups to increase the basic motor skills?

3. Goal and Benefit of The Research

The general objective of this study was to determine the effect of differences in learning approaches and age groups to increase the basic motor skills, while the specific goal is to determine: 1. The difference in effect between individual learning approach play games and games groups to increase the basic motor skills. 2. The difference in the effect of the increase in basic motor skills between the age group from 6.01 to 7.00 years and 7.01 to 8.00 years. 3. Effect of interaction learning approach play and age groups to increase the basic motor skills.

Results of this study are expected to be useful later: 1. Theoretically for more in-depth search of the variables that influence support student success in improving basic motor skills. 2. In practice it can be used as a guide organized learning in order to improve basic motor skills of students. 3. As input for PE teachers in Special Program of Elementary School Muhammadiyah Surakarta to improve basic motor skills, so as to support the achievement of the maximum learning.

METHOD

1. Research Method

The method used in this study is the experimental method. Basic use of this method is the experimental activity that begins with giving treatment to the samples that ends with a test order form determine the effect of treatment that has been given.

2. Study Design

This study uses a 2 X 2 factorial design "factorial design is a design which can put two or more variables to manipulate simultaneously. With this design can be researched the effect of each independent variable on the dependent variable, and also influence the interaction between the independent variables (Sugiyanto, 1995: 30) ".

3. Population

Population is some or all of the individuals who will be the object of research, and the whole people at least have the same properties. The population in this study were all male students Primary School Special Program Surakarta Muhammadiyah aged 6-8 years, amounting to 82

students, who are divided into two groups, namely, age group from 6.01 to 7.00 the year amounted to 39 students and age group 7.01 - 8.00 years amounted to 43 students.

4. Sample Research

Samples are partially or representative of the population studied. The sample should be representative, it means all the characteristics of the population should be reflected also in the samples taken. In addition to the correct data should be collected, samplingpun to be done right and follow the ways that can be accounted for so that conclusions can be trusted.

The sample in this study was the son of primary school students Muhammadiyah Surakarta Special Programs aged 6-8 years, amounting to 40 students. The samples in this study conducted by purposive random sampling technique, using a sample based on the following provisions: (a) Students son aged between 6-8 years, (b) Willing to take the treatment that has been programmed. (c) Physically and mentally healthy

5. Data Collection Techniques

Data collection techniques in this research is to use test and measurement. For more details, will be described how the data collection techniques; First, the age group was based on the observation, the observation results of the data used to classify the samples that have the age group between 6.01 to 7.00 and from 7.01 to 8.00 years. Second, the ability of the basic motion obtained by General Motor Ability Test (Barry & Nelson 1969: 118).

6. Data Analysis Techniques

To test the hypothesis of the study, data analysis completed using analysis of variance (ANOVA) study design with a 2 x 2 factorial on $\alpha = 0.05$ and if F_o - significantly its analysis followed by a test range newman - Keuls (Sudjana, 1992: 36-40). To meet the assumptions of the ANOVA technique, the normality test is conducted (Test Lilliefors) and test homogeneity of variance (Bartlett test) (Sudjana, 1992: 261-264).

RESULTS AND DISCUSSION

Description of the data analysis basic motor skills test results conducted in accordance with the groups being compared are presented as follows:

Table 1. Description of the test result data for each group of basic motor skills based learning approach play and the age of students

Treatment	Age group	Statistic	Result Initial tests	Result final test	Enhancement
Play Learning Approach Individual games	6,01 – 7,00 years	Σ	1460,1	1484,87	24,75
		Mean	146,01	148,48	2,25
		SD	4,29	5,39	4,50
	7,01 – 8,00 years	Σ	1602	1583,62	18,37
		Mean	160,87	158,36	1,89
		SD	3,05	4,22	1,83
Play Learning Approach groups games	6,01 – 7,00 years	Σ	1608,12	1625	16,87
		Mean	160.8	162,50	2,10
		SD	12,80	14,15	2,28
	7,01 – 8,00 years	Σ	1567,87	1595,5	27,62
		mean	156,78	159,55	3,15
		SD	4,50	5,61	3,45

Things that are interesting from the values contained in the table above are as follows:

- a. If the group of students who received individualized learning approaches play games and games groups are compared, it can be seen that the group treated with learning approach play games groups have an increased ability to move higher base than in the group with individualized learning approaches play games.
- b. If between the age group of students from 6.01 to 7.00 years and students aged from 7.01 to 8.00 years compared, it can be seen that the group of students aged from 7.01 to 8.00 years have an increased ability to move the base is higher than group of students aged from 6.01 to 7.00 years.

CONCLUSION AND SUGGESTION

1. Conclusion

Based on the conclusions of data analysis and discussion, it can be concluded as follows:

- a. There are differences influence learning approaches games played between individual and groups games against basic motor skills. Groups influence learning approaches play games better than individual games.
- b. There is a basic difference in the ability of a significant movement among students aged 6.1 to 7.0 years and students aged from 7.01 to 8.00 years. Improving the ability of the student movement on the basis of age from 7.01 to 8.00 years better than students aged 6.1 to 7.0 years.
- c. There is a significant interaction effect between learning approach play and age to increase the basic motor skills; 1) Students aged 6.1 to 7.0 years more suitable if given individualized learning approaches play games. 2) Students aged from 7.01 to 8.00 years more suitable if given learning approach groups playing games.

2. Suggestion

Based on the research that has been done and see the results, it may be advisable matters as follows:

- a. Physical education teachers should prefer learning approach with groups playing games in an effort to improve basic motor skills of students, despite the fact that both types of learning approaches that play together can improve basic motor skills. In addition, teachers must also consider the age factor.
- b. Other researchers are advised to conduct research to add another variable that can support the success of learning and improving basic motor skills. In addition to a number of variables added, should also be conducted research using a larger sample.

REFERENCES

- A. M. Patty. 1990. *Permainan Untuk Segala Usia*. Bandung : Gunung Mulia.
- Broer, Marion R. And Ronald F. Zernicde. 1979. *Efficiency of Human Movement*. Philadelphia : W.B. Saunders Company
- Brophy, Jere E., Good, Thomas L. 1990. *Educational Psychology a Realistic Approach*. London: Longman Group Ltd.
- Drowatzky, John N. 1975. *Motor Learning : Principles and Practices*. Minncapolis. Minnesota : Burgess Publishing Company.
- Dwi Hatmisari. A. dkk. 2009. *Pelatihan Olahraga Anak Usia Dini*. Jakarta. ASDEP. Kementrian Negara Pemuda dan Olahraga
- Espenchade, Anna S. And Heler M. Eckert. 1980. *Motor Development*. Toronto : Charles E. Merill Publishing Company.

- Fleishman, Edwin A. 1965. *The Structure and Measurement of Physical Fitness*. Washington, DC : Prentice Hall Inc.
- Gagne, Robert M. 1977. *The Conditions of Learning*. 3rd Edition. New York : Holt, Rinehart and Winston.
- Hurlock, Elizabeth B. 1991. *Perkembangan Anak*. (Terjemahan oleh Meitasari Tjandrasa dan Mushichah Zarkasih). Edisi ke 6 Jakarta : PT. Gelora Aksara Pratama.
- Magill, Richard A. 1980. *Motor Learning : Concepts and Applications*. IOWA : Wm.C. Brown Company Publishers.
- M. Furqon H. 2008. *Mendidik Anak Dengan Bermain*. Buku Panduan Guru SD Bidang Jasmani. Surakarta : UNS Press.
- Romizowsky, A.J 1981. *Designing Instructional System*. New York : Kogan Page, Random/Nichols Publishing.
- Rusli Lutan 1998. *Belajar Keterampilan Motorik Pengantar Teori dan Metode*. Jakarta : Depdikbud. Dirjendikti.
- _____. 2001. *Olahraga dan Etika Fair Play*. Jakarta : Depdiknas. Direktorat Pemberdayaan Ilmu Pengetahuan dan Teknologi Olahraga. Direktorat Jenderal Olahraga.
- Russel R., Pate, McClenaghan, Bruce., Rottela, Robert. 1993. *Scientific Foundation of Coaching* (Terjemahan: Kasiyo Dwijoyonoto). Semarang: IKIP Semarang Press.
- Singer, Robert N. 1980. *Motor Learning and Human Performance*. New York : Mac. Millan Publishing Co. Inc.
- Soekamto, Toeti. 1997. *Teori Belajar dan Model-model Pembelajaran*. Jakarta: Depdikbud
- Sugiyanto, Sudjarwo. 1994. *Perkembangan dan Belajar Gerak*. Jakarta: Universitas Terbuka.
- Sukintaka. 1992. *Teori Bermain Untuk D-II PGSD Penjaskes*. Jakarta : Depdikbud. Dirjendikti. Proyek Pembinaan Tenaga Kependidikan.
- Winarno Surachmad. 1992. *Pengantar Interaksi Mengajar Belajar*. Bandung : Penerbit Tarsito.



THE "SPELT" LEARNING MODEL TO IMPROVE RESULTS OF STUDENT LEARNING ON SPORTS PSYCHOLOGY SUBJECT

Dimiyati¹, Edi Purnomo², Komarudin³

^{1,2,3}Yogyakarta State University

¹dimy_rismi@yahoo.com, ²eddy-poer@yahoo.com, ³komarudin@uny.ac.id

Abstract

Purpose: Result learn the student Faculty of Sport Science, Yogyakarta State University (FSSYSU) in subject Sport Psychology less gratifying. Approach model the Strategy Program For Effective Learning/thinking (SPELT) represent one effort innovate to increase the quality of result learn the student. This research aim to know the model applying improving achievement learn the student of FSSYSU in subject Sport Psychology. **Methods:** This research use the device of action research. Subject and research object is student FSSYSU. Used Research Instrument: (1) pre test and post test; (2) sheet of applying observation learn; and (3) sheet of observation of assessment of student activity in study; (4) sheet of applying observation model the SPELT. Data type obtained by there is two that is quantitative data and qualitative by using technique analyses t test. **Result:** Result of research indicate that the Sport Psychology study by applying model the SPELT earn: (1) improving result learn the student in subject Sport Psychology; and (2) the increasing of quality of study process in subject Sport Psychology.

Keywords: SPELT models, student, sport psychology

INTRODUCTION

Sports Psychology is a mandatory class subject for students of Sports Science Faculty (FIK). The consideration that backgrounds Sports Psychology as a mandatory class subject cannot be separated from a construct that Sports Psychology is one of seven theory fields that becomes body of knowledge of sport science (Haag, 1994). Lutan (1997) states that in a practical level, Sports Psychology is an applied science in efforts to Achievement sport guidance in American Olympics Committee settings. Sports Psychology is a science that learns psychological symptoms that occurs in sport, especially performance sports (Anshel, 1990). To know, to understand and to explain human behavior in sport context, the students need to learn and to know Sports Psychology both in concept level as well as application in field. However, in other side, empirical evidence shows that learning results of FIK UNY students in Sports Psychology class subject is less delightful. Recent data on learning result performance of PJKR Study Program students for Sports Psychology that was held in odd semester of 2009/2010 academic year (September 2009 to January 2010) shows that more than a half the mark was less satisfying.

Various efforts can be conducted to overcome that issue among others through lecturer competence improvement, curriculum content improvement, learning quality improvement, learning result evaluation, proper teaching materials and learning facility preparation. Out of that effort, learning quality improvement can be viewed to position very strategically. Quality learning is expected to be able to improve student learning results in Sports Psychology class subject. It is very realistic if the low of student performance in Sports Psychology class subject is reviewed from its learning process improvement point of view. The process improvement meant is through action research efforts oriented to the class subject learning improvement. In accordance to materialize this expectation it is needed efforts to improve learning quality in Sports Psychology of FIK UNY

through learning model development that can clarify class material presentation. One of many learning model developments is a cognitive learning strategy. *"Cognitive thinking strategies are useful tools in assisting students with learning problems. The term "cognitive strategies" in its simplest form is the use of the mind (cognition) to solve a problem or complete a task. Cognitive thinking strategies may also be referred to as procedural facilitators (Bereiter&Scardamalia, 1987), procedural prompts (Rosenshine, 1996) or scaffolds (Palincsar& Brown, 1984). A related term is metacognition, the self reflection or "thinking about thinking" necessary for students to learn effectively".*

The issues will be reviewed and solved through a model cognitive learning approach of *Strategy Program for Effective Learning/Thinking (SPELT)* yang contained in form of *action research*. The issues that will be answered through this research are how to improve student learning results in Sports Psychology class subject through the SPELT Model Learning Approach? The objective wishes to achieve is (1) product-oriented objective in Sports Psychology learning competence achievement, and (2) process-oriented objective i.e. the improvement of Sports Psychology class subject learning quality.

Theory class of Sports Psychology in Sports and Recreational Physics Education Study Program (PJKE) uses conventional methods such as speech methods and giving tasks. That method less be able to speed up student active roles in learning-teaching process. A two-way communication between lecturers and students in a learning-teaching process does not run as what expects. Adnan (1990) asserts that dialogue congestion in a learning teaching process should be viewed as a serious issue, due to behavior change to achieve an educational objective much depends on this process. Sardiman AM (1996) states that activity is important principle in a learning teaching interaction. The education is mentioned qualified viewed from process tenets, if the learning teaching process runs effectively so that learners will experience a meaningful learning (Djojonegoro, 1995).

Noticing the commentary above, it is normal if class performance results of PJKE student Sports Psychology is far from expectation, the low of learning performance is needed to be viewed as a serious issue due to behavior change in efforts to achieve class objective of Sports Psychology using speech method and giving tasks actually do not achieve optimum results.

In efforts to improve Sports Psychology learning quality in FIK UNY needs to find its learning model development alternatives that can be able to clarify class method delivery. One of many learning model developments is a cognitive learning. Jerome Bruner (1996) states in a cognitive learning educator roles is creating a conducive learning situation in order that learners can learn based on what they have instead of delivering information package. Furthermore, it is said that teaching is not to yield a live library but to give opportunity to learners to think what will be useful for future self development. To get knowledge, the learners should be able to play roles as history actors i.e. taking roles from process to get knowledge due to according to Bruner, knowledge is a process instead of a product.

Bruner proposes that learners should learn by get involved actively with concepts and principles in which they should be driven to have experiences and to conduct experiments that enable them to invent new self concept and principles. *Active learning* is a term that shows learning activity in which learners are mentally got involved in a task. In a cognitive theory point of view that becomes focus in learning is learner's mental activities.

A cognitive model approach more emphasizes the importance of internal process, learner's mental. A cognitive approach in a learning-teaching process can generate *curiosity*, facilitate in order that learners master basic concepts and basic principles, facilitate in order that learners are able to conduct concepts and principles generalization (outdoor activities), allow learners are able to obtain knowledge information similarity with real experience in their life. Asserted by Mulcahy, R., et al. (1993), the use of cognitive approach can improve learner trust and efficiency in completing a lesson task.

Among teaching strategies there is a cognitive strategy-based teaching that is still relatively actual. This strategy is called *Strategy Program for Effective Learning/Thinking* (SPELT). This strategy is designed and experimented by Robert F. Mulcahy et al.(1991), a guru besar who chairs *The Cognitive Education Project* of Educational Psychology Subject, University of Alberta. Furthermore, he says that according to its name, the SPELT strategies designed to fix and to improve learner's learning and thinking effectiveness. Explicitly, this strategy objective is to make learners become: (1) knowledge finders who are active as thinkers and problem solvers; (2) knowledge finders who are independent, have efficient self plan and strategy in approaching learning; and (3) knowledge finders who are more aware and more able to control their thinking process. Furthermore it is said that in implementing the SPELT strategy, the educators (teachers) need to follow three long and separated steps meant take different-but-in order time. The steps are as follow: (1) Teaching by direct strategy; (2) Teaching to transfer strategy; and (3) Generating elaborative strategies

Based on theoretical discussion and the SPELT model objective as mentioned above conceptually this model can overcome issues occur in Sports Psychology subject learning so far. In other words, the SPELT model in Sports Psychology viewed from process tenets will be running effectively. Because of the students are required to be able to learn independently and more meaningful. This condition will disembugue in the event of student performance increase.

METHOD

This research uses an action research design. In this case, researcher members involve 1 (one) other Sports Psychology lecturer as a collaborator and also as researcher team member. The activity conducted in this research involves students as learning participants by using a model cognitive learning method of *Strategy Program for Effective Learning/Thinking* (SPELT). Objects and subjects in this research are Health and Recreational Education (PJKR) Study Program students who take Sports Psychology in odd semester (semester VII) of 2010/2011 academic year number 35.

This research was conducted in an effective class of Health and Recreational Education (PJKR) Study Program who took Sports Psychology in odd semester (semester VII) that was held from 21 September 2010 to 16 November 2011 or as many as (six) meetings.

The activity procedures and class action research design conducted refers to Kemmis dan Mc. Taggart (1988) opinion that in each cycle covers 4 activity steps namely: (1) planning; (2) action activity implementation (3) observation and evaluation; and (4) reflection. The following is activity and design details for each cycle:

1. Action Planning Activity covers: (a) Initial reflection; (b) identify solving alternatives to overcome obstacles in Sports Psychology learning for FIK UNY students; (c) Discussion between researcher and other Sports Psychology lecturer to plan Sports Psychology learning process by the SPELT model; (d) determine and formulate action design.
2. Action Implementation Step. The research was conducted into 2 cycles. Cycle division base was adjusted to material quality and potential problems for learning with the SPELT model; namely Sports Psychology and Athlete Personality scope for cycle I, and basic material of Motivation and Self Efficacy in sports for cycle II. Action activities conducted can be proposed as follows. First step. *The researcher performs teaching by direct strategy instruction*). Second step. The researcher teaches to transfer strategy. Third step. The researcher generates *elaborative strategies*; and fourth step. The researcher inventory obstacles and guide students to learn actively, then inventory the emerging difficulties in using the SPELT model in learning activities. Sports Psychology in each step and cycle passed.
3. Observation and Evaluation. Observation activity was conducted comprehensively by utilizing observation manuals and field notes.
4. Reflection Activity. Researcher team discusses observation results what have been conducted. Activities conducted cover: analysis, synthesis, meaning, explanation and data conclusion and

information collected. The results obtained in forms of the SPELT model effectiveness level findings designed and the emerging problem list in field and further used as a base to redesigning.

Research instrument uses: (1) *pretest* and *posttest exercises*; (2) learning method observation sheets used by students in learning Sports Psychology; and (3) observation sheets of student activity evaluation in learning; (4) the SPELT model application observation sheets by students in learning Sports Psychology. Data types obtained are two namely quantitative and qualitative data that is quantified using a t-test analysis technique.

To know the improvement of Sports Psychology learning competence achievement after using the SPELT model namely by comparing *Pretest* and *Posttest* results using a repeated observed t-test. By this way, it is known the effect size magnitude. Student success and completion are viewed from posttest value gain greater than pretest result. While, to know the improvement of student quality in learning Sports Psychology that allows students having an independent learning strategy after the SPELT model is given will be viewed from two aspects namely, (1) student activity in class learning process; and (2) the comparison of total score number of each instrument point answered by students prior to the SPELT model given and after the SPELT model given. Data analysis for each point by using a Likert scale through providing score in each questionnaire point answered, it always scores 4, often = 3, seldom = 2; and never = 1.

RESULTS AND DISCUSSION

1. Cycle I (first)

The step to perform covers 1) Making the SPELT model learning material, 2) Scenario of the SPELT learning application; 3) questionnaire to uncover student learning strategy before and after the SPELT model is given and pretest and post test evaluation sheets; 4) Making student activity observational sheets in learning process of Sports Psychology; 5) Making recapitulation sheets of the SPELT model use results in Sports Psychology teaching-learning process; 6) Preparing observer to uniform perceptions on observational sheets that will be used to observe students activity in Sports Psychology learning process.

As the initial step of Sports Psychology learning is conducted the following actions:

First meeting:

This activity is filled by delivering *pretest* on learning materials/subject, to measure student initial ability. This data is necessary to know student comprehension and learning results on learning materials in the end of activity after *posttest*.

After *pretest* actions implemented, then proceeded with questionnaire/instrument delivery to uncover students learning ways/habits. This data is necessary to know student learning ways/habits before the SPELT model is given.

After the students fill questionnaire/instrument the students are given explanation on the SPELT model learning application scenario. The researcher explains the scenario of the SPELT model learning application. In this step, the researcher besides explaining the SPELT steps and strategies that is general in its nature he/she also: 1) generate student awareness that they should have strategies in learning Sports Psychology; 2) deliver and explain strategy or approach kinds in learning; 3) illustrate that strategy use systematically in learning Sports psychology can improve learning quality.

The students are asked to notice, select and they should apply various strategies in learning Sports Psychology as written in basic regulation of Sports Psychology class. Before the activity started, the students are already given manuals on the SPELT model learning application scenario. After the step completed, then the researcher implements learning activity according to learning scenario.

Second meeting:

The researcher evaluates students whether they apply specific learning strategy in Sports Psychology class. Before that, the students are generated their awareness that they have strategy in learning, also illustrate and re-explain that strategy use in learning systematically can improve learning quality. In other side, the observer observes learning process and note it in observational sheets of all student activity that takes place in Sports Psychology learning process in the classroom.

To know student activity in Sports Psychology learning process in classroom after they apply learning with the SPELT model is conducted observation by two observers. After data gathering conducted by an observational instrument, it is obtained data on student activity and student comprehension towards class materials or subjects on Sports Psychology and Personality Scope in sport with the following results:

- a. Activity of answering ability and also asking student questions in Cycle I (first). Based on direct observation results towards student activity in class room learning shows that answering quantity and ability and also student asking questions in Cycle I with subject of Importance, Sports Psychology and Personality Scope in Sports fairly out of 35 students, 18 of them conduct activities in form of questions as well as answers. More detailed, it can be evaluated that out of 9 who ask questions all relevant questions with materials or subject taught, and out of 8 answers provided there are 5 answers not appropriately.

- b. Students Learning Results in Cycle I After using the SPELT Model

Students learning results in topic of Importance, Psychology and Personality scope is obtained by comparing between score rating gain of *pretest* and *posttest*. Based on data analysis results by using repeated observation is obtained results below

Table 1. Data analysis result

Data compared	Score average	Std. Deviation	db	To	Tt 5%
<i>Pretest</i>	41,71	14.243			
<i>Posttest</i>	68,00	15.492	68	8,884	1.990
<i>Effect Size</i>	26.29				

Based on data as presented in 1 above shows calculation result or $t_{\text{observation}}(to) = 8.884$ greater than $t_{\text{table}} = 1.990$ in significance level of 5% ($tt5\%$). Therefore, based on an empirical evidence obtained in field there is a significant difference of *pretest* and *posttest result score*, *posttest* score greater than *pretest score*. It means that there is an improvement of student learning results after they use the SPELT model in learning Sports Psychology.

- c. The Students Learning Way Before and After using the SPELT model

To know the improvement of student quality in learning Sports Psychology that allows students having independent strategies after SPELT model is given viewed from comparison result of total score of instrument how to learn, learning time before SPELT model is given. Below statistical analysis shows the comparison of learning way.

Table 2. Comparison of students learning way before and after the spelt model is used

Learning Way/Learning Time Use	Score Average	Std. Deviation	db	to	Tt 5%
Before SPELT Model is used	16,06	2.376	68	6,479	1.990
After SPELT Model is used	18,97	2.007			

Data as presented in table 2 above shows calculation result $t_{\text{observation}}(to) = 6,479$ greater than $t_{\text{table}} = 1,990$ in significance level of 5% ($tt5\%$). Therefore, based on empirical evidence obtain in field there is a significant difference of learning result score before using SPELT way or model compared with learning result score after using SPELT way or model. It means that there is improvement of student learning result after they use SPELT model in learning Sports Psychology.

d. Specific Event Remarks During Learning Activity

Descriptive data on specific things took place and observed during Cycle I (first) learning activity in Cycle I (first) among : students are more serious, enthusiastic and more critical in attending class ; students look more ready in attending lesson. However, there are some students who are not appropriately in explaining or answering questions.

Reflection

a. Students Learning Results in Topic given in Cycle I after SPELT Model is used.

Based on data from result comparison of *pretest* and *posttest* it can be concluded that all student tend to experience score increase. In other words, *posttest* results is better than *pretest results*. The average of *posttest* value is 68.00. This shows that all students obtain mark above C. If this average mark is become learning completion standard it means that all students already complete in their learning. Therefore, in classical way it has also learning completed.

b. The Way Students Learning Before and After SPELT Model is Used

Based on observational result of answering and asking ability and also descriptive data on specific things took place and observed during Cycle I (first) learning activity shows that the students are dynamic in asking and answering questions and are more ready in attending class and full of seriousness. These all are indicators that learning process can run well, due to it took place a two way communication between lecturer and students. It means that there happened student learning pattern change to positive direction.

Based on that data reality it can be concluded that the students after applying SPELT model approach happened quality increase in their way to learn. This can be seen from student activity in classroom learning process and the comparison of learning way before and after applying SPELT model learning approach. Really, after applying SPELT model approach the way students learn is better compared with before applying SPELT model.

2. Cycle II (Second)

a. Making scenario of SPELT model learning.

Materials discussed in Cycle II, namely subject on Motivation and Self Efficacy in Sports. Scenario remains being planned in form of more directed SPELT model approach. The form of planned learning activity is more prepared by emphasizing students to apply SPELT model approach in subject learning of Motivation and Self Efficacy in Sports, so that the ability that has not emerged optimally in cycle I such as student ability to answer question that is not optimum yet. Also in Cycle II is planned to more sharpen comprehension and improve student learning process quality. The sharpened comprehension is among other: mastery on

topic learned. The improvement of learning process quality is emphasized in ability to answer questions. The activity is conducted in 3 (three) meetings.

- b. Making quiz in form of questions on subject to teach.
- c. Making student activity observation sheets in Sports Psychology learning process.
- d. Making questionnaire sheets/student learning strategy data instrument before SPELT model is given.
- e. Making recapitulation sheets of SPELT model recapitulation sheets in PBM of Sports Psychology
- f. Preparing observer to uniform perception on observation sheets to use in observing student activity in learning process of Sports Psychology.

Action Implementation Activity

Learning activity in Cycle II (second) is suitable with planned time allocation. Meeting I / hour I (1 X 50 minutes), is conducted by a *pretest* (written) activity and giving quiz in form of oral question on materials already taught and materials to teach. After *pretest* and quiz conducted, then proceeded with giving questionnaire/ instrument to uncover student learning way/habits. This data is necessary to recheck the consistence of student learning way/habits in implementing SPELT model.

After the students filling questionnaire/instrument they are given explanation of SPELT model application scenario. In this phase, the researcher beside explain SPELT steps and strategies in general, he/she also: a) regenerate student awareness that they should have strategy in learning subject of Motivation and Self Efficacy in Sports; b) deliver and re-explain strategy kind and approach in learning; c) illustrate that strategy use systematically in learning Sports Psychology materials can improve learning quality. Students are asked to notice, select and should stay consistent applying various strategy in learning subject of Motivation and Self Efficacy in Sports. After the above phase completed, then lecturer/researcher conduct learning activity with subject of Sports Motivation.

Cycles II (second) or second meeting. Subject delivered is still same with first meeting i.e. motivation in Sports. Before lessons started the students are given quiz in form of question on materials already taught or materials to teach. The researcher evaluates whether students apply specific learning strategy in Sports Psychology class. Prior to it, students are re-generated their awareness that they should have strategy in learning, also illustrate and re-explain that strategy use systematically in learning can improve learning quality.

Cycles II (second) or third meeting. Subject presented is Self Efficacy in Sports. Before lessons started, the students are given quiz in form of question on materials already taught and material to teach. The researcher evaluates whether students apply specific learning strategy in Sports Psychology class. Before it, students are regenerated their awareness that they should have strategy in learning, also illustrate and re-explain that strategy use systematically in learning can improve learning quality. Approaching meeting ends, the students are asked to fill research instrument/questionnaire in way to learn or student learning time use after using SPELT model learning approach.

Observation

To know student activity in learning process running in cycle II after they apply learning by SPELT model is conducted observation by two observers. After conducted data gathering with observational instrument, it obtained data on student activity and student comprehension towards class materials or subject of Motivation and Self Efficacy in Sports with the following results:

- a. Activity of answering ability and also student asking questions in Cycles II (second)

Based on direct observation result towards student activity in class room learning it shows that student quantity and ability to answer and ask questions in Cycle II with subject of Motivation and Self Efficacy in Sports increases viewed from quantity and quality of question and

answer given by students. Out of 35 students, 22 of them conduct activity both in question as well as answer forms. More detail, it can be evaluated that out of 11 students who ask questions only 1 (one) question is irrelevant with materials or subject taught, and out of 10 answers given, 1 answer is not precise.

Student activity observed in learning-teaching process of Sports Psychology in classroom relates to question towards subject taught. While, the answer meant is lecturer answer and question as well as student question to lecturer, but before lecturer answers is firstly offered to students to answer the question.

- b. Students Learning Result in Subject given in Cycles II after SPELT model is used.

Students learning results in subject of Motivation and Self Efficacy in Sports is obtained by comparing between pretest and posttest average gain in this subject. Based on data analysis result by using repeated observation t-test statistical analysis it is obtained results as written below.

- c. Student Learning Time Use Before and After SPELT model is Used

To know student quality increase in learning Sports Psychology that allows student having independent learning strategy after SPELT model is given viewed from comparison result of total instrument score of learning way/learning time use before and after SPELT model is given. The statistical analysis result below shows comparison of the learning way.

Table 3. The score comparison of *pretest* and *posttest* of subject of motivation and self efficacy in sports.

Data Compared	Average Score	Std. Deviation	db	to	tt 5%
<i>Pretest</i>	60.09	13.531			
<i>Posttest</i>	73.49	10.030	68	6.569	1.990
<i>Effect Size</i>	13.40				

Data in table 3 above shows calculation result or $t_{\text{observation}}(to) = 6.569$ greater than $t_{\text{table}} = 1,990$ in significance level of 5% (tt5%). Therefore based on empirical evidence obtained in field there is a significant difference of *pretest* and *posttest* scores. *Posttest score is higher than pretest score*. It means that there is an increase of student learning (comprehension) results after they attended learning process in topic of Motivation and Self Efficacy in Sports.

Table 4. Comparison of learning way/student learning time use before and after using spelt model

Learning Way/Learning Time Use	Average Score	Std. Deviation	db	to	tt 5%
Before Using SPELT Model	16,06	2.376			
After Using SPELT Model	18,97	2.007	68	6.479	1.990

Based on table 4 above shows calculation result or $t_{\text{observation}}(to) = 6.479$ greater than $t_{\text{table}} = 1,990$ in significance level of 5% (tt 5%). Therefore based on empirical evidence obtained in field there is a significant score difference of student learning way/learning time use before using SPELT model compared with after using SPELT model. After SPELT model is used student learning way/learning time use is higher. This means that there is an increase on student learning way/learning time use after using SPELT model in learning subject of Sports Psychology.

d. Specific Incidence Remarks during Learning Activity

Descriptive data on specific things took place and observed during learning activity of Cycle II are among others: students are more serious, and more appropriately in answering questions; students look more ready to attend class and are more enthusiastic.

Reflection

a. Student Learning Results in Subject Given in Cycle II after Using SPELT Model

Based on data from *pretest* and *posttest* result comparison it can be concluded that all students tend to experience score increase. In other words, *posttest* result is better than *pretest* results. The average value of *posttest* is 73.49. this shows that all students obtained good average mark (B). This condition is better than *posttest* result in first cycle. If this average mark becomes standard of learning completion it means that all students are completed in their learning. Classically, they are already learning completed.

If viewed from fairly high *effect* size, so that it can be said that student learning result increase in cycle II by applying SPELT model approach is trusted and very meaningful.

The success in comprehending subject of Motivation and Self Efficacy in Sports once again confirms that learning approach by SPELT model can be practiced better by students so that their comprehension and learning result increases.

b. Student Learning Way Before and After Using SPELT Model

Based on observational result of answering and questioning ability and also descriptive data on specific things took place and observed during cycle II (second) learning activity shows that students are dynamic in asking and answering questions and more ready to attend class and full of seriousness. These all is indicator that learning process can run well. From the reality it can be concluded that students after applying SPELT model approach there happens quality increase in their learning way. It means that students in learning subject with subject of Motivation and Self Efficacy in Sports has changed and has an independent learning strategy.

Based on illustration on observation results towards classroom student activity characterized by quantity and quality of questions and answers they provide, and students comprehension (learning result) indicated that there is an increase in *posttest* value of good learning way/learning time uses occurs in cycle I and cycle II, means that SPELT model approach applied by students is able to improve their learning results.

The above condition, even not appropriately suitable with ideal objective expected from SPELT model application, at least Robert F. Mulcahy et al (1991) opinion on SPELT model approach designed to fix and improve learner learning and thinking effectiveness can be said fairly successful applied in Sports Psychology learning. Furthermore, it is said by him that explicitly this strategic objective is to make learners become: (1) active science finders as thinkers and problem solver; (2) independent science finders, has self efficient plan and strategy in approaching learning; and (3) science finders are more aware and more able to control their own thinking process. Students learning independence obtained from learning way comparison before using SPELT model and after using SPELT model shows a difference that after using SPELT model besides it can improve learning result it also improves their independence. This also proves that SPELT learning model has formed student learning independence.

During learning activity of cycle I and cycle II runs, there happens learning situation changes in class room. This is seen from student attitude situation, namely they become more independent in learning, full of enthusiasm, dynamic, no one is sleepy. Noticing that learning situation, there is attitude change trend happen in students as learning subjects instead of learning objects with high activities. All of this success strengthens SPELT model theory applied. SPELT model that is full of cognitive learning has proven improve process quality and learning results. Confirmed by Bruner

(1996) that in cognitive learning, educator roles is to create a conducive learning situation in order that learners can learn based on what they have instead of delivering information package. Further it is said that teaching is not to yield live library, but giving opportunity to learners to think what is useful for self development in the future. To obtain knowledge, learners should be able to play roles as history actor i.e. participating in process to get knowledge due to according to Bruner knowledge is a process instead of a product.

CONCLUSION AND SUGGESTION

Sports Psychology Learning by using a SPELT model approach are with steps of: (a) generating student awareness that they should have strategy in learning; (b) delivering and re-explaining strategy or approach kinds in learning; (c) illustrating that strategy use systematically in learning improves learning quality. Through SPELT model application with the steps it is actually concluded that: (1) there happens increase in achieving student learning competence marked by the increase of student learning results; and (2) there happens improvement in learning process quality of Sports Psychology subject marked by students attitude who are appreciative, participative, and delightful and there happens student independence in learning Sports Psychology.

The educators should be smart to select lesson materials suitable with SPELT model approach due to not all lesson materials suitable to use this approach. However, it would be better this approach can be observed further for other lessons in its implementation using speech method and mixed speech.

ACKNOWLEDGEMENT

This research can run and implemented well because of some parties aids. This acknowledgement is properly expressed among others to Directorate General of Higher Education of Ministry of Education and Culture, especially Director of Workforce as a research fund donor. We also express our gratitude to Redactor and Journal Staff of *Cakrawala Pendidikan* of UNY who have given opportunity to disseminate this research result articles.

REFERENCES

- Adnan, M. (1990). "Pembinaan PBM sebagai prioritas". *Mimbar Pendidikan* No. 2 Tahun IX. Bandung: University Press IKIP Bandung.
- Anshel, M.H., (1990). *Psychology sport from theory to practice*. Scottsdale Arizona: Gorsuch Scarisbrick Publishers.
- Bereiter, C., & Scardamalia, M. (1987). *The psychology of written composition*. Hillsdale, NJ: Erlbaum.
- Brown, A. L. (1984). Reciprocal thinking of comprehension- fostering and monitoring activities. *Cognition and Instruction*, 1 (2), 117-175.
- Bruner, J. (1996). *Studies in cognitive growth: A collaboration at the Center for Cognitive Studies*. New York: Wiley & Sons.
- Elliot, J., (1991). *Action research and educational change*. Milton Keynes: Open University Press.
- Haag, Herbert., (1994). *Theoretical foundation of sport science as a scientific discipline contribution to a philosophy (meta-theory) of sport science*. Fedral Republic of Germany: Verlag Karl Hofmann Schondorf.
- Kemmis, S. & McTaggart, R. (1988). *The action research planner*, (3rd ed). Victoria: Deakin University.
- Mulcahy, Robert *et.al.* (1991). "Cognitive strategy-based instruction", dalam Biggs, John B. (editor), *Thinking for learning the view from cognitive psychology*. Hawthorn: The Australian Council for Educational Research Ltd.
- Mulcahy, R., Marfo, K., Peat, D., & Andrews, J. (1993). *Strategies program for effective learning and thinking: A teachers manual*. Edmonton: University of Alberta.

- Palincsar, Mulcahy, R., Marfo, K., Peat, D., & Andrews, J. (1993). *Strategies program for effective learning and thinking: A teachers manual*. Edmonton: University of Alberta.
- Rosenshine, B. (1996). "Thinking students to generate questions: A review of the intervention studies". *Review of Educational Research*, 66, 181-221.
- Rusli Lutan. (1997). *Manusia dan olahraga*. Bandung: ITB
- Sardiman, A.M., (1996). *Interaksi dan motivasi belajar mengajar*. Jakarta: PT RajaGrafindo Persada.
- Wardiman Djojonegoro. (1995). "Visi dan strategi pembangunan pendidikan untuk tahun 2020 tuntutan terhadap kualitas". *Mimbar Pendidikan* No.4 Tahun XIV. Bandung: University Press [KIP Bandung].



IMPLEMENTATION OF *TEACHING GAMES FOR UNDERSTANDING* MODEL TO ENHANCE STUDENTS' CRITICAL THINKING SKILLS

Wahyu Indra Bayu¹, Risfandi Setyawan²

^{1,2}Lecture Physical Education and Health STKIP PGRI Jombang

¹Doctoral Student in Sport Science Postgraduate Program of The State University of Surabaya

¹wib.indra@gmail.com, ²risfandi_1@yahoo.co.id

Abstract

The aim of this study was to know the whether learning with teaching games for understanding model can enhance students' critical thinking skills. subject from two elementary schools were collected using cluster sampling (N = 55; 30 subjected to treatment and 25 without treatment). Through a quasi-experimental treatment given to the experimental group. Indicator of the critical thinking skills is: a) able to differentiate relevant and irrelevant information, (b) productive in providing solutions, (c) able to conclude with a swiftly and accurately, (d) able to identify the truth new information, and (e) being able to ask complex questions. The results of t-test showed a difference between the critical thinking skills experimental group and the control group. It can be concluded that the teaching of physical education, sports, and health through teaching games for understanding model can enhance students' critical thinking skills.

Keywords: teaching games for understanding, critical thinking skills

INTRODUCTION

Physical Education and Sport, which are called in line with the term of Physical Education Sport and Health in the curriculum, is one of the compulsory subjects which is presented in schools, start from elementary school to the senior high school. This was stated in the Act No. 20 of 2003 on National Education System (National Education) CHAPTER X Article 37 which contains the primary and secondary education curriculum. The main purpose of health and sport education is to maintain and improve the physical fitness of students (psychomotor domain), cognitive and affective domain should also be a concern of physical education and sport's teacher at the school to achieve the best results.

Physical education and sport is an educational tool that provides an opportunity for learners to learn the important things, therefore physical education and sport is a subject that is important as the other subjects, even it is similar to the subjects that are used for the National Examination. Hence the saying "classic" in describing physical education and sport is "an integral part of the educational process as a whole". In literature, consistently reported that the amount of time spent in school for physical education and sport does not have bad effects on the subjects that are academically more and it can improve academic achievement (Hillman, Castelli, & Buck, 2005; Coe, Pivarnik, Womack, Reeves, & Malina, 2006; Donnelly, et al, 2009). Physical education and sport has a unique role compared to other areas of study, because through learning physical education and sport learners will gain cognitive and affective development in a harmonious and balanced, as well as obtain the development of physical and or psychomotor aspects.

Claims which are often used in physical education and sport community (teachers' discussions, seminars, research journals, scientific magazines, and/or book) explains that physical education and sport have a role to develop affective, cognitive, and psychomotor aspects. This is in accordance to

what is stated by Mosston and Ashworth (2008), the decision-making experiences designed purpose full in physical education have the ability to encourage students to think actively (cognitive) when moving (physical), and interacting with other people (social) while practicing fair play (ethics) and self-control (emotion). Minister of National Education Regulation No. 22 of 2006, states that:

Physical education and sport is an integral part of the overall education, aims to develop aspects of physical fitness, motor skills, critical thinking skills, social skills, reasoning, emotional stability, moral action, aspects of healthy life styles and the familiarization of a clean environment through physical activity, sport and health selected systematically planned in order to achieve national education goals.

Lack of critical thinking education can lead children into the habit of doing a variety of activities without knowing the purpose of what and why they did it. This habit has been frequently seen in children who do not get a critical thinking education. Accordingly, Filsaime (2008) explains that, to enhance and improve the power of thought on learners, teaching and passive learning style should be changed into an active teaching and learning styles. Fisher (2001), there are three critical thinking in learning activities, ie critical thinking, creative thinking, and thinking dialogical. Meanwhile Krulik & Rudnik (1996) states that there are two levels of thinking, namely the low-level thinking and high level thinking. Higher-level thinking divided into critical thinking (critical thinking) and creative thinking (creative thinking). Critical thinking is an organized process that involves mental activity such as problem solving, decision making, analysis assumptions, and inquiry. The process of thinking involves analyze, criticize, and seeks a conclusion based on inference or careful consideration (Ibrahim and Nur, 2000).

Characteristics that will be used to reveal critical thinking skills in this study, are: (1) able to differentiate relevant and irrelevant information; (2) productivity in providing solutions; (3) be able to conclude quickly and precisely; (4) be able to identify the truth of new information; and (5) be able to ask complex questions. These characteristics have the same position, then the fulfillment of the type of characteristics is not an issue in determining the ability of critical thinking, but the total score obtained by distinguishing levels of critical thinking skills of some one with other (very critical, critical, less critical, and not critical).

Learning physical education and sport provide a unique experience to students and also contribute to the "welfare" of learners. In order to increase the attention of the learner, the teacher can use the approach using Teaching Games for Understanding (TGfU) in teaching learners. TGfU suitable to be applied in the process of learning and teaching in physical education and sport (Webb & Pearson, 2008). The general objective of this study was to determine how much the influence of the learning model of Teaching Games for Understanding (TGfU) in increasing critical thinking skills. Based on the presentation, the formulation of the problem to be resolved is whether learning model Teaching Games for Understanding (TGfU) can improve the critical thinking skills of learners? Theoretically, this study is expected to be useful for the development of sport in general, and specifically physical education and sport, and for students, as motivation to participate in the learning process physical education and sport, because the application of learning models Teaching Games for Understanding (TGfU) to improve critical thinking skills have been planned well.

METHOD

To achieve the objectives of this study, the pretest-posttest experimental design with the experimental group and the control group used in this study. Students who are in the experimental group were treated by using TGfU models, while the control group by using the traditional model, which means that the learning is done as daily life. Results of the pretest and posttest of the two

groups will be compared to see if there is a significant difference of the measured variable. Data analysis using t-test with SPSS Statistics 20. The study design can be described as follows:

Tabel 1. Pretest-posttest experimental design

Groups	Pretest	Treatment	Posttest
Experimental group	O ₁	X	O ₂
Control Group	O ₃	Y	O ₄

note:

- O₁ : pretest of experimental group's critical thinking skills
- O₂ : posttest of experimental group's critical thinking skills
- O₃ : pretest of control group's critical thinking skills
- O₄ : posttest of control group's critical thinking skills
- X : Teaching and learning by using TGfU model
- Y : Teaching and learning by using traditional model

The population in this study were students of class IV-VI (ages 8-12) Sumobito State Elementary School I and Sumobito State Elementary School III which follow physical education and sports subjects. In this case the sample taken on cluster sampling or sampling group. The determination of how many classes were sampled done by draw. From the results obtained grade IV Sumobito State Elementary School I as a control group (N = 25) and grade IV Sumobito State Elementary School III as an experimental group (N = 30).

The instrument tests of critical thinking skills is using instruments which is developed by researchers. The instrument already has a value of validity and reliability. In line to what is proposed by Arikunto (2006: 168), argues that "a good instrument must meet two important requirements, namely a valid and reliable."

Table 2. Instrument of critical thinking validity value

Indicator	No. of test	Coefficient correlation	Validity criteria	Score of $r_{\text{tabel}} df = n - 1$	Note
Differentiate relevant and irrelevant information skills	5	1,000	Very high	0,232	Valid
Give a solution productively	4	0,511	Low	0,232	Valid
	10	0,503	Very high	0,232	Valid
	12	0,758	Very high	0,232	Valid
Be able to simplify fast and correctly	1	0,805	Very high	0,232	Valid
	2	0,667	High	0,232	Valid
	3	0,534	Less high	0,232	Valid
	6	0,616	High	0,232	Valid
Be able to identify the truth of new information	7	0,829	Very high	0,232	Valid
	9	0,672	High	0,232	Valid
Be able to raise complex question	8	0,695	High	0,232	Valid
	11	0,756	High	0,232	Valid

(Bayu, Suroto, & Maksum, 2013: 100)

The validity level is shown by coefficient correlation (0-1). The higher the validity score, the higher validity is obtained by an instrument, and vice versa (Maksum, 2012: 116). While the reliability value is 0.719 (Bayu, Suroto, and Maksum, 2013: 101).

RESULTS AND DISCUSSION

The statistics summary (descriptive) of the results of the critical thinking skills of students before and after implementation of teaching and learning by using TGfU model are presented in Table 3. Although both groups experienced an average increase in the total score, but the experimental group increased significantly toward critical thinking skills of learners between pretest and posttest.

Tabel 3. Result of critical thinking skills pretest dan posttest

Group		N	Mean	Deviation standard
Experiment	Pretest	30	28,93	4,31
	Posttest	30	33,6	4,34
Control	Pretest	25	29,72	4,3
	Posttest	25	30,92	4,69

To know the difference between the experimental group and the control group, data analysis using independent sample t-test (test variants in common use Levene's Test, $p > 0.05$ in all cases). Overall the results of the posttest was no significant difference between the experimental group and the control group [$t = 2.197$; $p = 0.032$ (< 0.05)]. While the pretest result showed no significant difference between the experimental group and the control group [$t = -0.675$; $p = 0.502$ (> 0.05)].

Tabel 4. Independent sample t-test

	Eksp - Control Group	T	p-value*
Critical Thinking Skills	Pretest	-0,675	0,502
	Posttest	0,032	2,197

* $p = 0,05$

In Table 5, statistical differences for data pretest and posttest for the experimental group were analyzed using paired samples t-test for a total score of critical thinking skills of students; calculation result showed no significant difference from the critical thinking skills before and after the application of the TGfU model [$t = 9.815$; $p = 0.000$ (< 0.05)], by an increasing of 16.13%. Although in the control group also showed no differences on critical thinking skills [$t = 7.856$; $p = 0.000$ (< 0.05)], but the increase is only 4.04%.

Tabel 5. Paired sample t-test

	Pre-Post	T	p-value*	Gain
Critical Thinking Skills	Experiment	9,815	0,000	16,13%
	Control	7,856	0,000	4,04%

* $p = 0,05$

Determining the educational process of learning outcomes, therefore the educational process should be designed to be able to develop the required learning outcomes of students. Desired learning outcome is the result of learning that has a long-term dimension to equip learners in the life and lifelong learning, the ability to think, life skills, and psychomotor. It is inevitable that the learning process is a very complex activity. However, it can be addressed in the form of a learning model.

Hidayat (2008) describes the practical use of a model is so that teachers know the important element in the learning process and then be able to control and predict the changes that occur, especially in behavior (learning outcomes) learners.

What we need is an alternative that can accommodate different learning abilities and focuses on the cognitive and social dimension of the game in addition to the physical dimension. Using the learning model based on a conceptual perspective of the game can provide an alternative. In addition to focusing on the process of educating about how to do it (the techniques practiced), we can teach you why (general concept) and what if (the skills and strategies to play better). This paradigm shift change our focus of the teaching of confirming what was wrong into the actions of learners to respond creatively which is resulted from their decisions.

TGfU, firstly developed by Bunker and Thorpe, 1982 in Loughborough University in the UK, the model seeks to provide learners to enjoy their participation and motivated to play (doing motion tasks) and assess the merits of the motion task (Griffin et al., 2005). TGfU covers all aspects of learning theory to create situations that are interconnected, the focus is not only on psychomotor aspects, but also the cognitive and social aspects of motion tasks given by the teacher. Through TGfU learners are also expected to make decisions and solve problems (cognitive learning theory) through the actual situation (Kirk & MacPhail, 2002). TGfU emergence as a response to concerns that children are in school by: (1) lack of attention to his performance, (2) know very little about the game, (3) most of which achieve durability, (4) depending on the coach and teacher, and (5) the lack of development on the understanding as a spectator and administrative knowledge (Holt et al., 2002).

Light (2002) highlighted the effectiveness of TGfU to learn cognitive. Higher order thinking occurs from questioning and discussion about tactics and strategies and also "through the intelligent movements of the body during games" (Light, 2002, p.23). Cognitive development through exploration of decision-making and tactics can be combined with the development of skills by modifying the game to provide a meaningful environment. Light (2002) argues that it is difficult for teachers of physical education and sport to demonstrate the ability of cognitive abilities in the motion task. TGfU is a learning model that is suitable to demonstrate it.

A key aspect of this model lies in the design of the motion task that is well structured (unconditioned) where the participant learners need to make a decision to get their understanding of motion tasks. TGfU is a model of procedural step by step (step-by-step) for teachers so that learners become skillful. The steps are as follows:

Step 1 - game. The game was introduced; the game should be modified to suit the more advanced form of the game and meet the level of development of learners.

Step 2 - appreciation of the game. Learners are expected to understand the neighbor regulations (conditions such as restrictions, scoring, etc.) games played.

Step 3 - tactical considerations. Learners should be aware of the tactics of the game (creating or maintaining) to help them play with the principles of the game, then increase the consideration of their tactics.

Step 4 - make the right decision. Learners should focus on the process of decision making in the game. Learners are required to do what must be done (tactical considerations), and how to do it (the selection of response and execution of appropriate skills) to help them make the right decisions game.

Step 5 - execution skills. In this step, the focus is on how to execute specific skills and movement. Knowing how to execute these actions differ from the appearance where the focus is limited to the skill and movement more specific.

Step 6 - appearance. Finally, the appearance is based on specific criteria depending on the purpose of the game, lesson, or unit. In the end, this specific performance criteria which raises learners competent and proficient.

TGfU is a learning model that develops a way of thinking to master new things or maintaining new skills. The new things can be tactics or new techniques. TGfU done on understanding the pattern of the game application on learning more inclined to the model of physical education and sport tactical approach. Tactical approach in teaching is to increase the awareness of students about the concept of playing through the application of appropriate techniques appropriate to the problem or situation in a real game. Mawer, (2003) asserts that TGfU suitable to be applied in physical education and sport teaching and learning to improve critical thinking skills of learners.

Thinking skills (critical thinking) is one of the skills that should be possessed by students as a result of the learning process. Monroe (2007) argues that the use of brain thinking is a conscious effort to look for the cause, consider, debate, estimates, and reflect on a subject. Furthermore Santrock (2010) defines think is to manipulate or manage and transform information in memory is often done to form concepts, to reason and think critically, make decisions, think creatively, and solve problems. This is similar to what was presented by Fisher (2009) which says that critical thinking is the interpretation and evaluation of skilled and active versus observation and communication, information, and arguments. Paul and Elder (2009), argues that critical thinking is a way for people to improve the quality of the ideas of using the technique of systematization way of thinking and generate intellectual thought in the ideas initiated.

Critical thinking is a mental habit that requires students to think about their thinking and about improving the process, it requires students to use higher-order thinking skills –not memorize data or accept what they read or are told without critically thinking about it (Scriven & Paul, 2008; Schafersman, 1991). Critical thinking experience using motion (in physical education and sport) is a quick way to stimulate high-level thinking skills (higher order of thinking) the learners are challenged to examine and create solutions to the problems of motion given by the teacher (Blitzer, 1995; Cleland & Pearse, 1995; Hautala, 1996; Johnson, 1997; McBride, 1992; Metzler, 2000; Mosston & Ashworth, 2000; Schwager & Labate, 1993). Learning is focused on high-level thinking skills (higher order of thinking) can be applied in physical education and sport teaching and learning through games and sports, education movement, and education outside the classroom

CONCLUSION AND SUGGESTION

Overall, the study showed that there is significant differences between the critical thinking skills experimental group who applied TGfU model compared with the control group. If students really change and improve the appearance of play, they should be given the opportunity to reinvest the thought and realization that they create through observation and critical thinking; namely, students must be given the opportunity to test the knowledge they have learned (from observation and critical thinking) in a game situation. In constructing the knowledge and know the ways of doing things, learners should have the opportunity to experiment summons in action to really integrate what they have learned.

Critical thinking does have a place in the psycho-motor domain. Physical education and sport environments can provide a supportive environment for individuals to learn how to think critically. When the cognitive domain is tapped into more systematically, many students will find a new interest and inquisitiveness for physical education and sport (Woods & Book, 1995). By looking at this process, teachers will create a learning environment that includes observation and critical thinking are systematic and will potentially help students to have better understanding and fully integrating their knowledge of the game and different sports. TGfU model of teaching and learning, with attention on values-centered teaching learners and results-based planning, a learning model that is able to help teachers, students, parents, and the implementers of education in implementing the holistic and transformational education of children "through physical activity."

REFERENCES

- Arikunto, S. 2006. *Prosedur Penelitian: Suatu Pendekatan Praktik (Edisi Revisi VI)*. Jakarta: PT. Rineka Cipta.
- Bayu, W.I., Suroto, & Maksum, A. 2013. "Play-Based Learning to Enhance Critical Thinking Capabilities." *ANIMA Indonesian Psychological Journal*. 28 (2): 96-103.
- Blitzer, L. 1995. "it's a Gym Class... What's There to Think About?." *Journal of Physical Education, Recreation & Dance*. 66 (6): 44 – 48.
- Cleland, F., & Pearce, C. 1995. "Critical thinking in Elementary Physical Education: Reflections On a Yearlong Study." *Journal of Physical Education, Recreation & Dance*. 66 (6): 31 – 38.
- Coe, D. P., Pivarnik, J. M., Womack, C. J., Reeves, M. J., & Malina, R.M. 2006. "Effect of Physical Education and Activity Level on Academic Achievement in Children." *Journal of the American College of Sports Medicine*, 38: 1515-1519.
- Donnelly, J. E., Greene, J. L., Gibson, C A., Smith, B. K., Washburn, R A., Sullivan, D. K., DuBose, K., Mayo, M. S., Schmelzle, K. H., Ryan, J. J., Jacobsen, D. J. & Williams, S. L. 2009. "Physical Activity Across The Curriculum (PAAC): A Randomized Controlled Trial to Promote Physical Activity and Diminish Overweight and Obesity in Elementary School Children." *Prev Med*, 49: 336-341.
- Filsaime, D.K. 2008. *Menguak Rahasia Berpikir Kritis dan Kreatif*. Alih Bahasa, Sunarni. Jakarta: Prestasi Pustaka.
- Fisher, A. 2001. *Critical Thinking an Introduction (7th Edition)*. Boston: Allyn & Bacon.
- Fisher, A. 2009. *Berpikir Kritis: Sebuah Pengantar*. Alih Bahasa, Benyamin Hadinata. Jakarta: Erlangga.
- Griffin, L., Brooker, R., & Patton K. 2005. "Working Towards Legitimacy: Two Decades of Teaching Games for Understanding." *Physical Education & Sport Pedagogy*: 10 (3): 213 - 223.
- Hautala, R. 1996. "Gym Class with "Coach Piaget": How Cognitive Development Theories can be Used in PE." *Teaching Elementary Physical Education*. 7 (1): 20 – 22.
- Hidayat, C. 2008. "Pengaruh Gaya Pembelajaran dan Motivasi Berprestasi." *Jurnal IPTEKOR*. 10 (3): 216-231.
- Hillman, C. H., Castelli, D. M., & Buck, S. M. 2005. "Aerobic Fitness and Neurocognitive Function in Healthy Preadolescent Children." *Medical Science Sports Exercise*, 37: 1967-1974.
- Holt, N. L., Streat, William B., Bengoecha, E. G. 2002. "Expanding The Teaching Games for Understanding Model: New Avenues for Future Research and Practice." *Journal of Teaching in Physical Education*: Canada: University Of Alberta.
- Ibrahim, M., & Nur, M. 2000. *Pengajaran Berdasarkan Masalah*. Surabaya: Unesa University Press.
- Johnson, R. 1997. " Questioning Techniques to Used in Teaching." *Journal of Physical Education, Recreation & Dance*. 68 (8): 45 – 49.
- Kemdikbud. 2013. *Peraturan Menteri Pendidikan Nasional Nomor 22 Tahun 2006 tentang Standar Isi untuk Satuan Pendidikan Dasar dan Menengah*. [Online]. Tersedia: <http://www.kemdikbud.go.id/> (diakses tanggal 26 April 2013).
- Kirk, D., & MacPhail, A. 2002. "Teaching Games for Understanding and Situated Learning: Rethinking the Bunker-Thorp Model." *Journal of Teaching in Physical Education*: 21 (2): 177-192.
- Krulik, S., & Rudnick, J.A. 1996. *The New Sourcebook for Teaching Reasoning and Problem Solving in Elementary School*. Massachusetts: Allyn & Bacon.
- Light, R. 2002. "Engaging the Body in Learning: Promoting Cognition in Games Through TGfU." *ACHPER Healthy Lifestyles Journal*: 49 (2): 23-26.
- Mawer, M. 2003. Teaching Styles and Teaching Approaches in Physical Education: Research Developments. In Hardy, C. A., & Mawer, M. (Eds.), *Learning and Teaching in Physical Education*, 83 – 104. Philadelphia: Falmer Press Taylor and Francis Group.

- McBride, R. E. 1992. "Critical Thinking: An Overview With Implications For Physical Education." *Journal of Teaching in Physical Education*. 11 (2): 112 – 125.
- Metzler, M.W. 2000. *Instructional Models for Physical Education*. Massachutes: Allyn & Bacon.
- Monroe, A. 2007. *The Magic of Creative Thinking: Strategi Berpikir Kreatif dalam Menuntaskan Setiap Masalah dengan Cepat dan Tepat*. Jakarta: Prestasi Pustakarya.
- Mosston, M. & Ashworth, S. 2000. *Teaching Physical Education (5th Edition)*. New York: Benjamin Cummings.
- Mosston, M. & Ashworth, S. 2008. *Teaching Physical Education*. First Online Edition. Retrieved from: <http://pdfcast.org/download/mosston-teaching-physical-education.pdf>
- Paul, R., & Elder, L. 2009. *The Miniature Guide to Critical Thinking: Concepts and Tools*. Limited download copy: The Foundation for Critical Thinking www.criticalthinking.org 707-878-9100 cct@criticalthinking.org (diakses tanggal 29 April 2013).
- Santrock, J.W. 2010. *Psikologi Pendidikan (Edisi Kedua)*. Alih Bahasa, Tri Wibowo B.S. Jakarta: Kencana.
- Schafersman, S. D. 1991. *An Introduction to Critical Thinking*. Retrieved Juny 2, 2015, from <http://www.freeinquiry.com/critical-thinking.html>
- Schwager, S., & Labate, C. 1993. "Teaching for Critical Thinking in Physical Education". *Journal of Teaching in Physical Education*. 64 (5): 24 – 26.
- Scriven, M., & Paul, R. 2007. *Defining Critical Thinking*. The Critical Thinking Community: Foundation for Critical Thinking. Retrieved Juni 2, 2015, from http://www.criticalthinking.org/aboutCT/define_critical_thinking.cfm
- Webb, P., & Pearson, P. 2008. "An integrated approach to Teaching Games For Understanding". A paper presented at 1st AsiaPacific Sport in Education Conference, Adelaide, Australia. Published in *Journal of Health, Physical Education, Recreation & Dance*, 67 (1): 28-33.
- Woods, A.M. & Book, C. 1995. "Critical Thinking in Middle School Physical Education". *Journal of Physical Education, Recreation, and Dance*. 66 (6): 39-43.



GYM BALL BOOK DEVELOPMENT ON THE SUBJECT OF AEROBICS AND FITNESS IN FIK UNESA

Kunjung Ashadi¹, Oce Wiriawan², Ika Jayadi³

^{1,2,3}Faculty of Sport Science - State University of Surabaya

¹kunjungashadi@gmail.com, ²ocenk@gmail.com, ³ikajayadi@gmail.com

Abstract

There are problem that Faculty of Sport Science (FIK) State University of Surabaya (Unesa) has gym ball facilities that it has not been used on the subject of aerobics and fitness, whereas the gym ball is widely used as a tool in fitness center and aerobics studio. In addition problems, there is no gym ball learning so that the students never study about gym ball on those courses in FIK Unesa, whereas they are often practice of their profession in fitness center or aerobics studio. The Purpose is to make gym ball book as additional handbook on aerobics and fitness courses. The development research follows the model of Plomp phase. The process consists of investigation, design, realization, testing and implementation. The outer form of development research is gym ball book that will be use on the subject of aerobics and fitness in FIK Unesa.

Keywords: gym ball, aerobics, fitness



DEVELOPING KIVOL BALL

Ruslan¹, Maisal Nento², Mirdayani Pauweni³

^{1,2,3}Gorontalo State University

¹Ruslansaja188@ymail.com, ²maisal.nento@yahoo.co.id

Abstract

This study is a research and development. The purpose of this research was to produce a developing product of kivol ball for sport recreation of college student of sport science department of Gorontalo State University.

The Conclusion of this research was a product of kivol ball for sport recreation of college student of sport science department, the product can be used as spare time activity, to establish social relationship, and for the excitement. Kivol ball can be used to develop and train psychomotor domain, cognitive, and affective.

Keyword: kivol ball, recreation sport, college student



TENNIS AS A RECREATIONAL SPORT TO REDUCE TEENAGERS' MISBEHAVIOUR

Limpad Nurrachmad¹, Prapto Nugroho²

¹Sport Science Department of Unnes, ² Sport Science Department of Unnes

¹ Limpad.unnes@gmail.com, ²praptonoeg@yahoo.co.id

Abstract

Tennis is one of the most popular sports in Indonesia and loved by the society from children, teenagers, and adults. At the moment, there are many people from children to adult who love tennis as a recreational sport. They sometimes also make tennis as a source of livelihood such as being umpire, elite athletes, holding business, coaches and other. Adolescence is often connected with misbehavior and abuse. This can be seen from many theories of the human development which discuss the inconsistency, emotional disturbance and behavioral disorder as a result of teenager's pressures experiences. It also happens due to environmentally changes, teenagers tend to do bad things to obtain their original self identity. By introducing teenagers to tennis as a recreational sport, we hope that tennis would be able to help them to develop their potential and reduce their misbehavior or any other kind of delinquency. It is truly recommended since tennis spreads several spirits that can be factors to change teenagers' personality like hard work, discipline, sportmanship, team-work, religious, fair play, and any other spirits that lead to good deeds.

Keywords: tennis, alternative sport, misbehaviour



THE DEVELOPMENT OF MODIFICATION OF MINI BASKETBALL GAME TO IMPROVE LEARNING OUTCOME OF BASKETBALL OF ELEMENTARY SCHOOL STUDENTS CLASS VI IN PALEMBANG

Rudy Noor Mukhtar

KADER BANGSA UNIVERSITY

rudynoormukhtar@gmail.com

Abstract

This development research has purpose to give solution and suggestions for the teachers of physical education and students as the implementer of learning activity of basketball at school as well as for the school as the provider of learning equipment, by developing and modifying mini basketball into small basketball (Bascil) to be used as learning material of basketball at schools. The implementation procedure of development research of modification of mini basketball into learning material of bascil has been adapted by the steps and the direction of development research implementation of learning model product. This research used subject students of SDN 50 and 50 of students Bina Warga Palembang to know the difference and influence of learning activity of development model product by calculating the pulse before and after learning, the acceptance of development model product of small basketball learning as well as learning outcome of Elementary School students on aspect of psychomotor, cognitive, affective of development model product. The evaluation of development model product was done by two expert lecturers and two teachers of physical education. The implementation of student learning with the model of development product showed an average increase on the pulse of students up to 148 per minute from the pulse average before learning as many as 65 per minute. From the result of research data analysis by using t-test was obtained the existence of increase on the counting of the pulse before and after learning of small basketball is t-count = -76.18 with a significance level of 0.05 at $p = 0.000 < 0.05$, the increasing of learning outcome of basketball students of SD class VI on psychomotor aspect is 60% of the medium category, 12% of the less, and 28% of the good. The analysis of learning outcome of students on cognitive aspect is 68% students of the medium category, 20% of the good, and 12% of the less. The analysis of affective aspect is 62% of the medium, 20% of the good, and 18% of the less. From the acceptance questionnaire of learning model product of bascil by elementary school students was gained an average total value of 66.44 with a percentage value of 83% that is included in the category of very good, so it can be concluded that the acceptance of learning model product of bascil by students of SD is very good received by the students of SD class VI at SDN 50 and SD Bina Warga Palembang. On the final product of development model of learning material modification of mini basketball is to increase of learning outcome of basketball students of SD class VI in Palembang, results a conclusion that is gained from the result of research data and analysis are as follow, a) result the development model product of learning material of basketball by name of small basketball (bascil) that is form of book or mentioned the guide of bascil game and the video of learning activity implementation of bascil, (b) show the result of significance improvement on the learning outcome of psychomotor, cognitive, and affective aspect towards learning of basketball students of SD class VI in Palembang, (c) SD with limitations of condition and facilities and infrastructure as well as expense keep to be able to implement learning activity of small basketball. The suggestions of this research are a) teachers of physical education at SD can perform experiment as well as practice directly the development model product of small basketball on the learning activity of learning material of big ball game, namely, basketball, (b) if the implementation of learning activity of basketball at SD faces failure, so can try to implement learning alternative of small basketball, (c) the researcher expects that there will be more suggestions for the users of development model product of bascil to become this product more completely, (d) the existence of the development model product of bascil can give

suggestions and illustration performed other developments of small basketball that are more interesting and useful, (e) implemented the similar research as comparison to increase the development of basketball and help the fluency of implementation of learning material of basketball at school.

Keywords: development of mini basketball modification, learning outcome of physical education, elementary school students



MODEL BASED MOTION ACTIVITY LEARNING GAMES FOR PHYSICAL EDUCATION TEACHING MATERIALS ELEMENTARY SCHOOL CLASS I (RESEARCH DEVELOPMENT IN ELEMENTARY SCHOOL STUDENTS CLASS I ON THE JEPARA REGENCY CENTRAL JAVA FOR LEASON YEAR 2013/2014)

Rif'iy Qomarullah

Semarang State University

priyonob90@ymail.com

Abstract

This study aims to describe and develop models of innovative teaching physical education, get a picture of student learning outcomes in the form of products and processes, as well as measuring the effectiveness of the model developed products as physical education teaching materials in primary school first grade.

Student learning outcomes and learning processes in the form of products obtained by: 1) Summary of the percentage of the validation results of the expert evaluation questionnaires obtained an average score of 47, with a percentage of 79% which is quite valid category, therefore the model of motion based game learning activities can be used as the physical education teaching materials in class I elementary school. 2) The data value of the students' learning ability, that the model is tested on a small scale trial gained mastery of student learning outcomes at 68.97%, which means good and on a wider scale trials mastery learning students gained an average of 76%, which means good, so it can be understood if the model developed is able to contribute significantly positive in the ability of student learning outcomes.

Keywords: physical education, fundamental motor skills, game



TRAVELLING THROUGH TIMES: HIGA-ONON DANCES UNRAVELED

Arlene V. Reyes

Department of Physical Education
College of Education, Mindanao State University
Iligan Institute of Technology (MSU-IIT) Iligan City, Philippines

alcuizar44@yahoo.com

Abstract

The purpose of this study is to understand and appreciate the dances of the Higa-onon Tribe, the mountain settlers in Sitio Kalamalamahan of Iligan City, Northern Mindanao, as they face the challenges of time. This group of people are the “lumads” (natives) in the city. They are highly religious in nature making relationship with their gods their principal priority in life. Their dances are their means of appeasing the wrath of the gods, showing their gratitude for good health and abundant harvest. A descriptive type of research was used in the study. The emphasis was describing the religious dances - Dugso-Lagudas and Anahaw, as performed in 1982, 2013, 2014 and 2015. Direct observations and interviews supplemented the videotaping technique used in the study. It was observed that the Higa-onon tribe was able to preserve the dances and its sanctity all throughout the years with very minimal changes – only in the number of dance participants. The researcher concluded that both dances had each own peculiarity in terms of its meaning and purposes of the dance. However, both dances of the Higaonon were intentionally performed to worship their god, “Magbabaya.” Further, the study unraveled that the Higa-onons were resilient to the challenges of the present times, thus transferring the dance steps and skills to the younger members of the tribe effectively as it was first learned in the olden days.

Keywords: ritual, Anahaw, Dugsu-Lagudas, Higaonon

UNNES
UNIVERSITAS NEGERI SEMARANG

THE IMPACT OF SCHOOL FACILITIES CONDITIONS ON PHYSICAL EDUCATION TEACHER'S PERFORMANCE (A CASE STUDY OF PHYSICAL EDUCATIONS TEACHERS OF ELEMENTARY SCHOOLS IN SEMARANG)

Harry Pramono

Faculty of Sports Sciences, Semarang State University, Central Java 50229, Indonesia

hpr4mono@yahoo.co.id

Abstract

Physical Education, as an integral part of the education system aims to develop cognitive, affective and psychomotor. Physical Education teacher performance is an important factor in the effort to achieve the goal. The facts show that Physical Education teacher looked still not optimal. To improve the physical education teacher performance, the government attempt to improve the infrastructure conditions for improvement of education quality. But until now not yet known how much influence the condition of facilities and infrastructure to the performance of teachers. The purpose of this research was to assess the facilities condition on physical education teacher's with path analysis approach. Population in this research is all of physical education teacher's in Semarang who has educated Diploma II (D2) totaling 285 people. Sample in this research is 74 people with multistate proportionate random sampling. The result showed that the effect of exogenous variables on endogenous variables (Teacher Performance) is a facilities condition (3.6%).The suggest to improve the teachers performance, these variables need to be implemented in an integrated and consistent.

Keywords: conditions of facilities and performance

INTRODUCTION

Quality education is a requirement to achieve developed, modern, and prosperous nation. The history of nations' development and growth teaches us that a developed, modern, and prosperous nation is the nations that possess quality education system and practice. At the same time, quality education highly depends on quality teachers' availability, meaning professional, prosperous, and dignified teachers. Teachers' problems is a topic that has no ending in seminars, discussion, and workshops that try to find the alternative solutions to enable teachers can do their optimized role as an educator and a teacher in schools. Based on a number of education researches, teachers are believed as a dominant factor in students' success—especially in developing their knowledge, technological skills, as well as ethics and morals internalization. For that reason, it is not hyperbolic if society is paying attention to problems that surface in the field of education. Such problem has become a critical issue in educational context of elementary schools, which is considered as the reflection of future's quality of education.

Teachers have a very important role in the process of learning because a teacher is a key person that directly deals with students in that process. Teachers have to be able to create a conducive atmosphere so students are willing to fully participate in the process of learning, thus the goal of learning that has been set before can be effectively and efficiently achieved.

Teachers' performance in teaching and learning process becomes one of the most important things in creating effective learning process in molding discipline attitude. On the other hand, when teachers failed to minimize deviant behaviors done by students, they broke their spirit and become hesitant to teach. Such attitude should be avoided by teachers at all cost. Teachers who have high working hour have to be able to create students' learning phases/programs that provide conducive and positive atmosphere for the students.

Keeping the importance of teachers' role in the success of the learning process, teachers are expected to have high working hour, that is a set of teachers' performance in carrying out activities related to teaching and learning process professionally, appropriate to teachers' professional ethics.

Such thing also applies to Physical Education teachers, they are required to have expected working hour. Philosophically, Corbin, et al (1979: 1) state in the topic of Physical Education, "being physically educated is an important part of one's total education." Physical Education teachers, as a source of information in the learning process, undeniably have a big responsibility in creating effective physical education classes. The effectiveness of physical education classes is seen from students' participation during the class and after the class is over. Essentially, good physical education is to make students enjoy their experience during the class thus they chose to continue their participation in such activities outside their class.

The currently low quality of Physical Education teachers' performance becomes a worrying matter in the field of education that needs some handling as it may lead to students' low discipline and learning result. The low performance of Physical Education teachers has become a main discussion topic in Berlin World Congress of Physical Education in 1999. As stated by Lutan (2011: 14), "Physical Education faces a serious threat and pressure with some signs like becoming a subject put that is put aside and not significant for career." Based on a global survey, such low performance is caused by some indication—starting from limited time allotment, infrastructure rarity, inappropriate educators' qualification, until a very low budget (Lutan, 2001: 15). Result from research done by Sudjana (2002: 42) shows that 76.6% of students learning result is affected by teachers' performance, with the following details: 32.43% for teachers' capability, 32.38% for material masteries, and 8.60% for teachers' attitude towards the subject.

Up until now, schools are still a part of bureaucrat organization, meaning that everything is set from the central system, either administratively or academically. This condition often limits teachers' creativity. However with the use of school-based quality improvement management and quality management in the field of education, school heads and teachers have to give more effort to be more innovative and creative in developing and managing their schools; so they can change bureaucrat organization to be more democratic and more familial. For that matter, teachers have to be able to diagnose the source of problem and define the accurate solution, be able to adapt with the environment, be able to communicate either internally or externally at schools, as well as to be understanding and willing to carry out the applied management. Along with that matter, government's policy is required to realize the desired quality performance from the teachers. In elementary school human resources management, city's or regency's Education Office is highly responsible for its development. School heads can have the authority and the full responsibility in carrying out the education process in schools. In the implementation, all of those factors will be affected by development service system or teachers supervision that is done by school heads or City/Regency Education Office. Regarding service of supervision development system done by the Office, the service is not yet optimum. This is caused by the fact that not all supervisors have Physical Education background. As a consequence, teachers have not been able to develop themselves because supervisors are not from physical education background.

Condition of education facilities is a supporting factor in the teaching and learning process. Based on Education and Culture Department's guide of formal education media, education facility is all facility that is needed in teaching learning process, either moving or stationary, as for education goals to be smoothly, neatly, effectively, and efficiently achieved. When we relate it to long term goal of Physical Education which is for students to be active in all fields, the implementation of Physical Education is expected to be effective in Elementary Schools and to grow students' willingness to keep on learning and develop the skills needed outside the school hours and later, in the rest of their lives.

Study by Heyneman & Loxley in 1983 in 29 countries found out that among the various input that define education quality (shown by students' learning achievements), one-third depends on the teacher. Teacher's role has becoming more significant with the lack of facilities as experienced by developing countries. In complete the study states: in 16 developing countries, teachers contribution' towards learning achievements is 34%, whereas 22% is management, 18% is learning time, and 26% for physical means/facilities. While in 13 industrial countries, teachers contribution is 36%, 23% is management, 22% is learning time, and physical facilities for 19% (Supriadi, 1999: 178).

Same thing happens based on observation and short interview that the researcher did towards Kindergarten or Elementary School supervisors who supervise Physical Education teachers in Semarang, showing that the facilities provided by schools are not all appropriate with the minimum standard applied.

Basically, problem of physical education in Indonesia is very complex as in low Physical Education teachers' quality and quantity and ineffective learning process. Survey held by Suroto et al. Towards 2,382 education institution starting from Elementary School up to University Level in 13 cities and regencies shows unappealing condition. Physical Education teacher performance scored 247 out of 400, which means that their performance has only reached 62% from expectation. Facilities scored 72.7 out of 300, which means the facilities availability has only reached 24% of ideal condition (2000: 43).

Physical Education teacher holds important and strategic role, especially in shaping nations' character through personality development and desired values that their position is hard to replace. Maksum added that their relation with education is that Physical Education teachers' role is irreplaceable by other media (2009). It is undeniable that Physical Education teacher profession can be Indonesian youth's hope in shaping character, attitude, and skills. Physical Education teachers have central role in developing students' character and habit. As pointed out by Suroto et al, that in teaching physical education students are taught of discipline, responsibility, obedience to rules, fair play, respect to opponent, and so on. The International Charter of Physical Education declared by UNESCO in 1978 stated that physical education is a form of activity to actualize human rights in developing and maintaining physical, mental, and moral capabilities; for that reason every citizen has to be able to access physical education. Physical education can contribute to basic human values comprehension that becomes the foundation of every human's growth (2009: 42).

In elementary level, students will be looking and shaping their character, thus teacher figure is absolutely needed to help that shaping. Physical Education teacher in elementary level is expected to fully love their profession and their students. However, in real life (based on researcher's observation) there is a Physical Education teacher that is not performing as expected. Out of 16 (sixteen) regencies in Semarang, the needed facilities are not fulfilling the national education standard of sport and playground facility minimum requirement. From the problem identification we can take one conclusion that facilities' condition is not as desired, that it impacts teachers' performance.

This research is intended to evaluate the condition of facilities toward elementary physical education teachers' performance.

METHODS

The type of research chosen is path analysis. Explained by Sewall Wright (in Al-Rasjid 1995:2) that path analysis is aimed to explain the direct and indirect impacts of certain set of variable namely causal variable towards other variable playing as the effective variable.

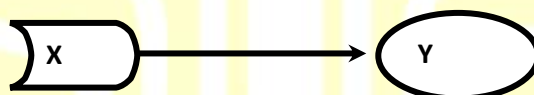
Sugiyono (2008:297) stated that path analysis is used to picture and test the relationship between cause and effect variables (not interactive/reciprocal relationship). As stated by Mutohir (1986) that path analysis examine causal effect from background variable. Thus in the relationship model between those variables exist independent variable namely exogenous variable, and

dependent variable or endogenous variable. By using this path analysis, researcher will find the shortest and most accurate path that connects independent variable towards the dependent variable at its end.

In path analysis model, causal variable is often called exogenous variable while effective variable/dependent variable is called endogenous variable. Hasa (1990:74) also stated that in path analysis we can estimate the causal relationship between some variables and the hierarchy of each variable in a set of causal relationship paths, both direct or indirect connection. Kerlinger (1986:564) also emphasize that *"Path analysis is a for of applied multiple regresion analysis that use path diagrams to guide problem conceptualization or to test complex hypoteses."* Path analysis is a form of double regression application that use path diagram to evaluate complex hypotheses. That said, path analysis is considered an advanced development from correlation analysis, partial analysis, and double regression analysis in a set of causal relationship paths, either direct or indirect.

Based on the causal relationship explained above, this research is using quantitative approach with non experimental design. This research does not take any treatment towards the subject of research, but evaluate facts that is happened to and experienced by the subject. Meaning that there is no manipulation undergone, researcher only dig for facts from occurrences that is happening by using questionnaire containing several questions or statements that reflects respondents' perception towards the examined variable.

Based on the conceptual explanation above, this research's model can be seen below:



Legend:

X : Condition of facilities

Y : Physical Education Teachers' performance

RESULTS AND DISCUSSION

Based on overall data analysis, the analysis shows that research variables are in good condition. Studying human resources' behavior in an organization, on Robibins' (2003) opinion as quoted in Hasbullah (2007:113) can be divided into three levels, that is: individual level, group, and organizational level. In individual level, evaluation will be focused on things related to: (1) characteristics that is brought by human resources to the organization, such as perception, personality, and motivation, (2) matters in an organization that can affect behavior, perception, motivation and individual working satisfaction, and (3) personality and implication towards behavior and performance in the working place. The group level will talk about things related with group dynamics, including: explanation about the group formation, processes happening in the group, group integration, group's competence, and conflict. Whereas in organizational level the focus is on to activities about how the size of organization, organization's atmosphere, organization policy, and hierarchy levels in the organization.

Facilities' condition belongs to sufficient category, meaning that the facilities' condition received by Physical Education teachers in elementary school is only sufficient as learning media so it will highly affect teachers' performance. Sufficient facilities' condition actually is still lacking to further optimize learning process, one benefit for Physical Education teachers who have good facilities' condition is that they can let various parties to support the learning process' flow. However, many of the schools do not have proper and sufficient physical education facilities, even teachers often need to find an empty land or that they have to ... to use the available land. Not to forget that their equipments are very limited. That brings no question that physical education classes

are monotonous from day to day, boring the students. Such happening can lead to an opinion that physical education is not necessary. One obstacle of the inefficient physical education is the lack of facilities and equipment that schools have.

Besides that, Physical Education teachers depends only on standard facilities and learning approach on basic techniques presentation are also standard as mentioned in the applied curriculum. Those two points leads to learning process that lacks of variation and tend to bore the students. Physical Education teachers are supposedly to do more and more freely using, taking advantage of, develop or even modify the existing facilities. The recent schools condition and situation, where students' space to creatively do physical activities is decreasing even to do sports with conventional approach, it is suggested that students are taught given basic or general dominant movements. With that effort, students are expected to have various movement experience, thus they will be children with various movement and can develop another variety movement concepts. Development of physical education facilities means to complement what is available by providing, adding, and creating simple or modified equipments. The goal is to cultivate students, to be able to move more in engaging, exciting activities without losing the essence of physical education itself.

Physical Education Teacher's Performance, based on descriptive static analysis it is found that 58.1% of Physical Education teachers' in elementary schools in Semarang have very high performance in carrying out their role as educators; they have good personality, professionalism, and good social skills. However there is a small number of Physical Education teachers that has sufficient performance which is caused by insufficient competence and facilities.

Teachers' performance is very crucial to be evaluated paid attention at because teachers hold professional tasks, meaning tasks that can only be done with certain competence that teachers gained through their education. Danim S argued that teachers have categorized responsibilities, they are: (1) teachers as educator, (2) teachers as mentor and (3) teachers as class administrator. Someone's performance in an organization is highly affected by several factors. Satisfaction factor is one among other factors that affect performance. Work satisfaction is one's emotional condition that is experience by teachers related to their tasks and responsibilities as educator manpower at school or educational institution (Hoy & Miskel 1991). One's performance is also affected by organization's culture and organization's leadership (Lako, A. 2004:70). Further, Lako (2004:72-73) stated that organization's culture and leadership as a predicting variable that defines the efficiency of Balance Score Card (BSC) implementation.

Regarding to Marno and Yamin (2010:22), effective teacher is a teacher that can carry out their tasks and functions professionally. For a teacher to do their tasks professionally, such requirements as these are needed: academic competence, methodological competence, personal maturity, dedication, satisfactory prosperity, career development, working culture, and conducive working atmosphere.

Based on Constitution Number 14 Year 2005 about Teachers and Lecturers, competence is a set of knowledge, skills, and behavior that have to be possessed, internalized, and mastered by teachers or lecturers in doing their professional tasks. Thus teacher's competence can be defined as holistic knowledge, skills, and behavior that is reflected with responsible smart actions in doing their task as an agent of learning. Teacher's competence can be affected by several factors, such as: (1) Mentoring system, (2) Facilities' condition, and (3) Education training.

Working standard requirements are: (1) relevant to individuals or organizations, (2) stable and reliable, (3) can define the line between good, enough, and bad work; stated in easy-to-count number and understandable by employees or XXXX and (4) give unambiguous explanation (Simamora, 1999:16). Regarding to Prawirosentono (1999), performance is a result of work that is able to be achieved by someone or a group of people in an organization, appropriate to each person's rights and responsibilities in order to achieve legally related organization's goal, that does not violate laws, moral, or ethics.

Performance can also be defined as working result by means of quality and quantity that is achieved by an employee in carrying out their task suiting to their given responsibilities. Aside from being affected by Mentoring System, Facilities' Condition, and Education Training, Physical Education teachers' performance is also affected by teachers' competence. Generally there are several factor that affect teachers' performance, some to mention are: Mentoring System, Facilities' Condition, Education Training, and Teachers' Competence.

Based on data in 2005 from National Department of Education, there had been lacking number of elementary level Physical Education teacher counted as 60.648 teachers. This condition is responded by giving education and training with Physical Education subject for six months to teachers teaching Religion subject in elementary school. This training is addressed for school that has NO physical education teacher, with the argument to cultivate Religion teachers than having no physical education class. Though logically it is not acceptable, that step can play as a temporary solution before the employment of Physical Education teacher that fulfill the professional requirements on the subject. It is expected that in the future, Physical Education teachers can be more professional in doing their job at school.

Teachers' performance is indirectly affected by facilities' condition. This is very significant where facilities' condition that is only 'sufficient' will not guarantee good learning process as there are equipments that are not provided. If we objectively see facilities in schools in the villages, they are indeed concerning. Not only that the walls are moldy and hollowed, the existing facilities' condition like the students' and teachers' desks and chairs, the blackboard, class cupboard, or the sport equipments are very concerning. Those condition generally happen to elementary school, not exclusive to junior or senior high school too (Isjoni, 2006:47). The bad condition of facilities will affect teachers' performance as they will not be able to facilitate their pupils during the teaching and learning process, thus their performance is degrading.

CONCLUSION AND SUGGESTION

The ability of teachers to organize the teaching process is one of the key requirements of a teacher in seeking better results than teaching carried out. Teachers will be able to carry out professional tasks well and can act as an effective teaching force if it meets the competencies that should be owned by a teacher. Such as stated in article 8, paragraph 3, that the teacher as an agent of learning in primary and secondary school as well as early childhood education include: (1) the competence paedagogie, (2) personal competence, (3) professional competence and (4) social competence.

The fourth teacher's competence is absolutely necessary in carrying out their duties and responsibilities as educators, teachers, and counselors. As when teachers have good competence, they will be able to produce intelligent, independent, good quality students, for the development of the nation, as well as the development of the individual student.

REFERENCES

- Arikunto, Suharimi 1995. *Prosedur Penelitian suatu Pendekatan Praktis*. Jakarta: Rineka Cipta.
- Bambang Sudibyo. 2009. *Education Management*. Jakarta: Rajawali Press.
- Buckley, Jack, et al. 2004. *The Effects of School Facility Quality on Teacher Retention in Urban School Districts*. Washington D. C.
- Damiri, Achmad dan Nurlan Kusmaedi. 1992. *Olahraga Pilihan Tennis Meja*.
- Dedi Supriadi. 1999. *Mengangkat Citra Dan Martabat Guru*. Yogyakarta: Adicita Karya Nusa.
- Departemen Pendidikan Nasional. 2008. *Penilaian Kinerja Guru*. Jakarta.
- Deputy/Assistant Principals and Primary School Teachers. 1998. *Achievement Gains Teacher Skill, Knowledge, and Responsibilities Performance Indicators*.

- <http://www.Minedu.Govt.nz/web/downloadable/dl3853-v1/teacherperfmgt.pdf>. Diakses 1 Maret 2011.
- Harsuki. (2003). *Perkembangan Olahraga Terkini: Kajian Para Pakar*. Jakarta: PT. Raja Grafindo Persada.
- Hasbullah. 2008. *Dasar-Dasar Ilmu Pendidikan*. Jakarta: PT Raja Grafindo Persada.
- Hasbullah. 2005. *Dasar-Dasar Ilmu Pendidikan*. Jakarta: PT Raja Grafindo Persada
- Hasibuan, Malayu s.p. 2005. *Manajemen Sumber Daya Manusia*. Jakarta: CV. Haji.
- Hisyam, Abror. 1991. *Sarana dan Prasarana Olahraga*. Semarang : FPOK IKIP Semarang.
- Hisyam, Abror. 2002. *Penuntun Pembuatan dan Pengukuran Lapangan Perlombaan* Semarang : FPOK IKIP SEMARANG.
- Isjoni. 2006. *Pendidikan Sebagai Investasi Masa Depan*. Jakarta:Yayasan Obor Indonesia.
- Istijanto. 2005. *Riset Sumber Daya Manusia*. Jakarta: PT. Gramedia Pustaka Utama. Jakarta : PT. Gunung Agung.
- James, Chris, dkk. 2006. *How Very Effective Primary Schools Work*. London: Sage Publications Company.
- Karya Ilmiah. Um.ac.id/index.php/IK.artic, Wahit Dkk. 2009. Kinerja Guru Pendidikan Jasmani SD Dalam Menciptakan Pembelajaran Aktif, Kreatif dan Menyenangkan (PAKEM) di Gugus II Kecamatan Wagir Kabupaten Malang. (21 Juli 2012).
- Khomsin. 2002. *Perkembangan dan Belajar Gerak*. Semarang: Departemen Pendidikan dan Kebudayaan.
- Lako, Andreas. 2004. *Kepemimpinan dan Kinerja Organisasi, Isu, Teori dan Solusi*. Yogyakarta: Penerbit Amara Book.
- Maksum, Ali. 2002 *Kualitas Guru Pendidikan Jasmani di Sekolah: Antara Harapan dan Kenyataan*Fakultas Ilmu Keolahragaan Universitas Negeri Surabaya.
- Muhammad Arifin Ahmad. 2004. *Kinerja Guru Pembimbing Sekolah Menengah Umum*. Disertasi doktor, tidak diterbitkan. Universitas Negeri Jakarta.
- Metzler, Michael W. (2000). *Instructional Models for Physical Education*. Massachusetts: Allyn And Bacon, A Person Education Company.
- Nana Sudjana. 2002. *Dasar-Dasar Proses Belajar Mengajar*. Bandung: Sinar Baru.
- New York Science Journal, <Http://Www.Sciencepub.Org>, Issn 1554-0200.
- Notoatmodjo, Soekidjo. 2003. *Pengembangan Sumber Daya Manusia*. Jakarta: PT. Rineka.
- Peraturan Pemerintah No 16 Tahun 2007 *Tentang Standar Kualifikasi Akademik dan Kompetensi Guru*. Kumpulan Permendiknas Tentang Standar Nasional Pendidikan (SNP) dan panduan KTSP. Departemen Pendidikan Nasional. Direktorat Jendral Manajemen Pendidikan Dasar Dan Menengah Direktorat Pembinaan Sekolah Menengah Atas.
- Permendiknas. 2006. Nomor 22 Th. 2006 tentang *Standar Isi untuk Satuan Pendidikan Dasar dan Menengah*. Jakarta: Redaksi Sinar Grafika.
- Sudarmanto, 2009. *Kinerja dan Pengembangan : Teori Dimensi, Pengukuran, dan Implementasi dalam Organisasi*. Pustaka Pelajar. Yogyakarta.
- Sugiyono. 2008. *Disertasi: Model Kinerja Guru Pembimbing Sekolah Menengah Atas di Eks Karesidenan Semarang Tahun 2007*. Universitas Negeri Semarang.
- Sulistiyani, Ambar T. Dan Rosidah. 2003. *Manajemen Sumber Daya Manusia*. Yogyakarta : Graha Ilmu.
- Undang-Undang Republik Indonesia No. 14 Tahun 2005 *Tentang Guru dan Dosen*. 2006. Jakarta: PGRI.
- Undang-Undang Republik Indonesia No. 20 Tahun 2003 *Tentang Sistem Pendidikan Nasional*. 2004. Jakarta: Sinar Grafika.
- Zainal Abidin. 2009. *Menjadi Guru Profesional Berstandar Nasional*. Bandung:

ROLE OF GENDER AND CULTURE IN PHYSICAL EDUCATION AT UPPER SECONDARY SCHOOL IN SURAKARTA

Dwi Gunadi

¹Faculty of Sport Science, Semarang State University, Republic of Indonesia

¹dwigunadig@yahoo.com

Abstract

Definition of physical education and sport are different, but the way people view physical education often can not be separated from how people view sports in general. Patriarchal culture is quite thick in Surakarta and the extent of its influence on physical education process needs to be studied comprehensively. This was the extent of his influence with gender roles also need to understood. This research is explorative qualitative and reflective. Respondents of the study include teachers, students, and stakeholders in upper secondary schools in Surakarta. about data collection procedures performed by observation, deep interviews, document studies and triangulation. For the data analysis done by the steps of data reduction, data classification, data display, data interpretation and presentation of results.

Patriarchal culture in Surakarta is still quite strong, especially in the informal sector. In the education sector in general and physical education in particular there is no discrimination between boys and student girls. So clearly the problem of gender roles is no inequality in the learning process of physical education, because all of it is set in the curriculum. With a curriculum that treat the same discourse on all the students lead the awareness that men and women have equal rights. The influence of science and technology has a positive impact on gender roles in the formal and informal sectors.

Keywords: culture patriarchy, gender, physical education

INTRODUCTION

The definition between physical education and sport it's so different one and the other, but the way people view physical education often can not be separated from how people view sports in general. It should be realized together that Indonesian culture space significantly colored by shades of patriarchy in all its lines. It can not be avoided also in the gymnasium. Sports always attached with masculine roles. Strenuous physical activity and require maximum muscle strength has always been the image of sport in general perspective. Such a perspective on reality nor inevitable from physical education space (Setiawan, 2015: 2).

Physical education when trying referenced at the beginning with a clear definition contained in the mandate as outlined in the curriculum, namely: "an integral part of the overall education utilizing physical activity as a means to achieve the goal of education in general". Through these definitions can easily be understood that it is not a physical education for physical education, but more physically placed as a medium / road in obtaining educational purposes.

Surakarta is one city that is historically attached to the history of Kraton Surakarta is thick with Javanese culture and Islam. Thus, is not a new thing when Solo is a decent enough town (the town with friendly people and care) and with some evidence of the Islamic Mosque, located within the scope of the Surakarta palace, as well as many emerging education isntitusi Islamic ideology that developed there.

Javanese culture, which is still complete with unggah ungguhnya / manners, Subo sito / toto kromo / behavioral still felt strong in Surakarta community culture, and is still maintained even

though there is a shift because of the influence of culture and globalisation. To learn about culture and implementation in Surakarta at first not independent of centralized Kraton Surakarta or Surokarto hadiningrat, that fact when associated with gender roles quite marginalized. In this regard Purwadi and Munarsih (2005) says: The term woman means wani tapa lan wani ditoto. Also the existence of women just as kanca wingking, and only as an object positioned just in everyday life, it is clear the position of women only sub-ordinate (the second person) ,

Along with the evolution of civilization and culture shift, began in the nineteenth century Kraton Surakarta cultural change is a reflection of society caused by the inclusion of science and technology brought by the colonialists. It is a consequence of positive change on the emancipation of women in Surakarta, where women also cancut taliwanda (active partisipation) in the development of culture. And in the development of Surakarta or Solo as the culture city. In global level such as this present moment, it's not too classic talked about the role of women. Women in general and in Surakarta in particular has been the coloring pattern of life on every line, whether in government, politics, economics, education, sports and even in the Armed Forces. Women are now not be a figure of sub-ordinate beings again, but already a competitor in almost every sector, including in business and entrepreneurship.

Even paradigm spun again either set-back or what, now many moments whose purpose is nguri-uri (preserve) the culture of Java in Surakarta. Surakarta also earned the nickname City of Sport, as well as a real incentive to develop the sports sector also improved its infrastructure. Surakarta is not too big now have two stadiums that national and international grade, even the first National Games held in Surakarta Sriwedari Stadium (now renamed Maladi Stadium). In nguri-uri Javanese culture is also supported by formal institutions in the form of secondary educational institutions as well as the Institute, such as vocational Karawitan Surakarta and Indonesia Arts Institute / ISI Surakarta first embryo ASKI / Academy of Arts Karawitan Indonesia Surakarta, which was once its presence is also within the court of Surakarta .Sepintas, related to gender discourse seem very strong patriarchal culture developed in the community Surakarta. This is similar to that expressed by Asriyani (2010), that:

"..... Gentry culture is a culture derived from Kotaraja government system where people's relationship with the Palace or the Palace by devotion. Priyayi culture adopted by many Javanese family in Surakarta in many ways become one of the causes of violence against women, particularly violence against women. Normative standard gentry culture comes to two things: religion and beliefs (culture). Things cultural shows priyayi is valor, dignity, and violence. While women are the softness and beauty. Female softness displayed in art forms such as songs and dances that are identical to the domestic sector, so the women are only considered to belong in the domestic sector only, while men are in the public sector. In this context, women are only a complement that plays a major role for pick-up male authority. The cultural heritage is what eventually grew and remained entrenched until now in the family who still adopt patriarchal values or cultural values gentry who put women as complementary and sometimes afraid to voice what they want to do ".

The above reality show phenomenon bahwasannya unequal gender in a patriarchal culture is still very strong Solo implicated. On the other hand the impact of globalization which refers to the development of science and technology that allows each community so both men and women can access the necessary things without experiencing significant difficulties. So that there is a difference in the community Surakarta unique paradigm namely; which is still dominated by the patriarchal culture, who want to escape altogether from patriarchy, and the moderates. The state of the coloring in almost every aspects of life in society, including in the education sector and in particular for physical education. This is the main attraction for researchers to try to do more searches in the practice of understanding and implementation of gender within the high school physical education or equals in Surakarta. Space for physical education was chosen because in this context that the

contest is believed to be a real fight gender discourse on display, which will conduct the cultural space of the body held in a learning space that exalts the concept of emancipation.

From the data retrieval while that is a step preliminary study, the data found that the composition of physical education teachers in the area of Surakarta in sex dominated by male physical education teacher. Total of female physical education teacher no more than 20 percent of all the teacher physical education at Surakarta. In fact, from student data that there is in fact dominated by women by a ratio of nearly 1: 2 (one over two).

Table 1. Results of Preliminary Studies Upper Secondary School Teacher search

No.	Area	Teachers PE		Percentage P / L x 100%
		Male	Female	
1	Surakarta	96	19	19.79

Source of the data collected from school teachers list each region

Table 2. Data Number of Students by sex and total number of teachers

No.	Area	Year								
		2011			2012			2013		
		Tot students		Σ teachers	Tot students		Σ teachers	Tot students		Σ teachers
		Pa	Pi		Pa	Pi		Pa	Pi	
1	Surakarta	17 128		428	17 139		429	7743	9409	429

Source: Surakarta books in number 2014 / BPS

At first glance, this is just a figure that does not matter. However, when trying to contemplate any further, this is an interesting phenomenon that deserves to be searched. A tendency certainly departs from the flow of thought. Similarly, why the tendency toward physical education room attached to the realm of men. Surely it is also to connect by way though of community towards physical education that influence with sex and gender structure. The perception of the reality of physical education as a masculine world that tends to locate the position of women will not be so profitable in this sphere. If this is not realized, and left alone, of course, physical education will only to make be unfair space for women in Figure 1.

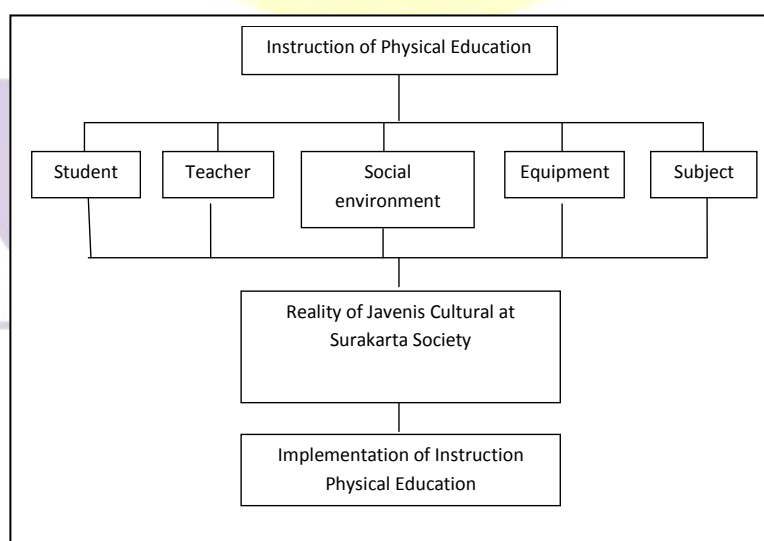


Figure 1 Frame Instruction of Physical Education

Problem Formulation, Formulation of the problem in this research is how the practice of understanding and implementation of gender within the upper secondary school physical education / equals in Surakarta, which include: 1) How understanding of teacher physical education in Surakarta on concept and gender ideologues thrive? 2) How way view and confidence student school intermediate on / equals in Surakarta on gender ideologues and implementation in physical education? 3) How way view society and stakeholders in Surakarta on role male and female in sport and physical education? above / equivalent in region Surakarta in perspective gender equity?

Goal, The aim of this study is to conduct a comprehensive study on the practice of understanding and implementation of gender in physical education space at the upper secondary school level in the city of Surakarta. The searching domain includes: 1) Understanding of teacher physical education in Surakarta on concept and gender ideologues thrive. 2) Perspective and confidence student school intermediate on / equals in Surakarta on gender ideologues and implementation in physical education. 3) Perspective society and stakeholders in Surakarta on role male and female in sport and physical education. 4) Shape implementation physical education school intermediate above / equivalent in region Surakarta in perspective gender equity.

Benefit of Research, This study diharapkan will provide benefits as: 1) One cornerstone of the development of science in the realm of sports and Physical Education. 2) Rides critically reflective donations for sports practitioners, especially teachers physical education. 3) Critical discourse for students of sport as well as all human beings are concerned with the development of sport science and physical education. 4) To impetus for more studies sports and physical education others, especially in a sociological perspective.

METHOD

Design of Research, This research is explorative qualitative reflective. That is, in this study will try to do an exhaustive review of a phenomenon in order to then be reflected descriptively to give meaning to the object of research. In qualitative research on the understanding of an object under study is crucial, not merely for absolute truth.

Respondents, Respondents in this research is purposive include: 1) Teacher, Teacher encompasses standard identity professional competence, track record of teaching, sex, and anything else that is attached to the profession of physical education teacher. 2) Student, Although the research focused on the role of student daughter, but observations on boys is also the source of information is closely related to the focus of research, and in teaching physical education is the simultaneous occurrence of the activity, so that the two are inseparable and mutually interact. 3) Community, Society, in this case is related to the public school community and education observers in general and particularly of physical education. 4) Stakeholders, Principals and education authorities.

Datas Procedure Taken, How to capture the data in this study through a lot of things, namely: 1) Observation, 2) Deep interview, 3) Focus group discussion, 4) Document study, 5) Triangulation.

Instrument Datas Taken, The main instrument in this study should in the context of qualitative research that the researchers themselves. While the instruments that are older boasts; interview guidelines, guidelines / observation sheet, FGD guide, as well as triangulation guide.

Data Analysis Technique, Data analysis was carried out successively as follows: 1) Data Reduction, 2) Data Classification, 3) Data Disply, 4) Data Interpretation, 5) Presentation of results.

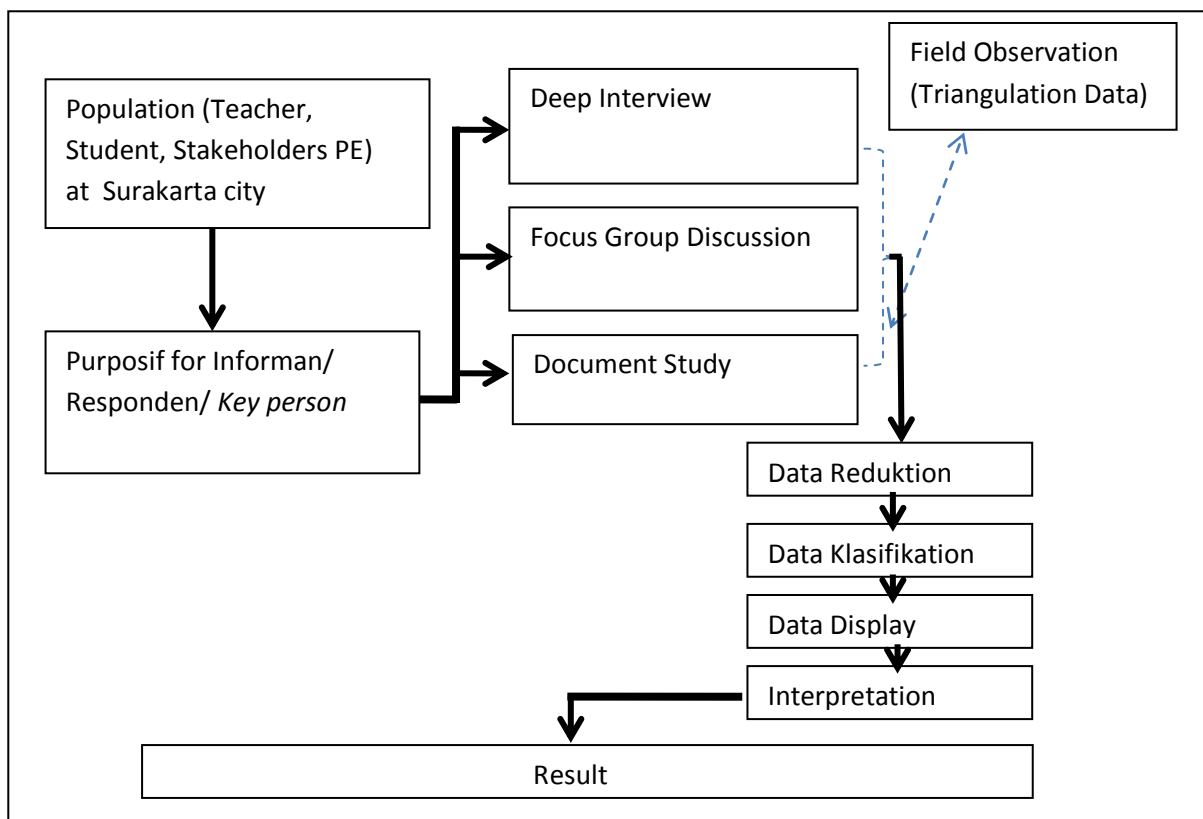


Figure 2 Flow Chart Research

RESULTS AND DISCUSSION

Cultural city of Surakarta is still considered polite, friendly and dignified. It is derived from the cultural heritage centralized kingdom era, women only as a supplement and must follow the orders of the husband in family life. This is slowly changing due to the influence of globalization that caused the advancement of science and technology, gender roles seem more visible both in function in the family and in social function in masyarakat. Women have been coloring appears in the function of structural position in the government, in the private sector and organizations in the city of Surakarta. In its development has even become a competitor figure for men in strategic positions. Although the quantity is still relatively small but has been coloring gender roles in society, especially the city of Solo and Indonesia in general.

In the realm of physical education the role of women and men are equal, it is caused by the curriculum which requires boys and girls follow the same sports learning materials. It does not mean the achievement of boys and girls have the same result, as explicitly adult males are stronger than in adult women. So on average in physical education learning results are better men than in women. In the role of gender in physical education is given equal opportunities and the provision of learning materials are the same in boys and girls.

CONCLUSION AND SUGGESTION

Patriarchal culture in Surakarta is still quite strong until today, it can be seen from the still limited participation of women in various sectors and it is still preserved to this day. Kraton Surakarta influence of cultural relics relating to the role of women still looks strong as well, including traditional ceremonies cornering position on the role of women in society.

In the formal sector, the role of women look almost the same as the men, including the role of gender in physical education between women and men get forsi that sama. Pengaruh science and technology unmasked gender roles bigger and more widespread. Patriarchal culture in Surakarta is still running as part of the culture outside the educational sector. Education sector in general and in particular in the field of physical education the role of women equal to men in accordance with the implementation of the curriculum

REFERENCES

- Alwasilah, A.C. 2010. *FILSAFAT BAHASA dan PENDIDIKAN*. Bandung: PT. REMAJA RUSDAKARYA.
- Anwar, M.H.& Saryono.2009. *Kontroversi Citra Perempuan dalam Olahraga*.Yogyakarta: Jurnal Deseminasi Lembaga Penelitian Universitas Negeri Yogyakarta.
- Bourdieu, P. 2010. *DOMINASI MASKULIN*. Penerjemah Stephanus Aswar Herwinarko. Yogyakarta: Penerbit Jalasutra.
- Buck, M.M., Lund, J.L., Harrison, J.M., & Cook, C.B. 2007. *INSTRUCTIONAL STRATEGIES FOR SECONDARY SCHOOL PHYSICAL EDUCATION*. McGraw-Hill companies, Inc.
- Earle, F.Z. 2009. *International and Comparative Physical Education and Sport*. Trafford Publishing.
- Ellis, O.J. 2009. *Psikologi Pendidikan Membantu Siswa Tumbuh dan Berkembang*. Jakarta: Penerbit Erlangga.
- Flintoff, A.&Scruton. S. 2006. *Girls and Physical Education.The Handbook of Physical Education*. London: Sage.
- Fuller, L.K. 2006. *SPORT, RHETORIC, AND GENDER*. United State of America.
- George, R. 2005. *Sosiologi: A Multiple Paradigm Science*. SAGE Publication.
- Giriwijoyo, Y.S.S. &Sidiq, D.Z. 2012. *Ilmu Kesehatan Olahraga*. Bandung: PT REMAJA RUSDAKARYA.

- Given, L.M. 2008. *The SAGE Encyclopedia of QUALITATIVE RESEARCH METHODS*. SAGE Publications.
- Harriet, B. 2013. *GENDER*. Polity Press 350 Main Street Malden , MA 02148, USA.
- Jamilah, S. 2010. *TEORI FEMINIS DAN CULTURAL STUDIES: Tentang Relasi yang Belum terselesaikan*. Terjemahan Asma Bey Mahyuddin. Yogyakarta: Jalasutra.
- Karsidi, R. 2008. *SOSIOLOGI PENDIDIKAN*. Surakarta: UNS (UNS Press).
- McGraw-Hill Education. 2014. *Teaching Physical Education For Learning*. Singapore.
- Milestone, K. & Meyer, A. 2012. *GENDER POPULAR CULTURE*. United Kingdom: Polity press 65 Bridge Street Cobridge CB2 IUR.
- Pane, A. 2008. *Habis Gelap Terbitlah Terang*. Jakarta: Balai Pustaka.
- Purwadi. & Munarsih. 2005. *Ilmu Kecantikan Putri Jawa*. Jogjakarta: Tunas Harapan.
- Ramdhani, Husein, A., & Uli, D.Y. 2014. *OLAHRAGA DAN GENDER* . <http://ramdhanifarhan.blogspot.com/2014/04/makalah-sosiologi-olahraga-dan-gender.html>.
- Ring, J.E. 2010. *Teaching Physical Education For learning*. New York: The McGraw-Hill Companies.
- Asriyani.S.2010. *Studi Gender (Perempuan Diantara Warisan Budaya Patriarki)*. <https://asriyanisagiyanto.wordpress.com/2010/06/30/studi-gender-perempuan-diantara-warisan-budaya-patriarki>.
- Sanggar Kehidupan, (2009). *Teori Sosial Budaya (Strukturalisme Fungsional & Sosial Konflik)*. <http://sanggarkehidupan.blogspot.com/2009/01/teori-sosial-budaya-fungsionalisme.html>.
- Setiawan, C. 2015. *Dimana Perempuan Berolahraga*. <https://sites.google.com/site/calysetiawan/silabus2> (diunduh 5 April 2015).
- Sugiyono. 2011. *METODOLOGI PENELITIAN KUANTITATIF KUALITATIF DAN R&D*. Bandung: CV. ALFABETA.
- Wahab, J. 2009. *GENDER DALAM PENDIDIKAN JASMANI DAN SUKAN*. <http://jamiliwahab.blogspot.com/2009/11/gender-dalam-pendidikan-jasmani-dan.html>.
- Wing, C. 2012. *Empowering Girls and Women Through Physical Education and Sport*. Thailand: UNESCO Asia and Pacific Regional Bureau For Education.
- Wiguna, I.B. 2013. *Penyetaraan Gender dalam Pendidikan Jasmani*. <http://idabaguswiguna.blogspot.com/2013/09/penyetaraan-gender-dalam-pendidikan.html>.



CONFIRMATORY FACTOR ANALYSIS OF THE TEST OF GROSS MOTOR DEVELOPMENT-2

Ismaryati

Department of Sport and Health Education, Faculty of Teacher Training and Education,
Sebelas Maret University

iis_050563@yahoo.co.id

Abstract

The purpose of this study was to examine the underlying structure of the second edition of the Test of Gross Motor Development-2 (Ulrich, 2000). Data were analyzed 3391, represents 30% of all students elementary school in Surakarta. The two-factor structure of the Test of Gross Motor Development-2 was tested using confirmatory factor analysis with maximum likelihood estimation to compute parameter estimates and to select the appropriate item for each factor. The goodness-of-fit indices supported that the model was tenable (goodness-of-fit index=1.00, root mean square error of approximation =.01, standardized root mean square residual=.04, comparative-fit index =1.00). The findings of this study suggested that the two-factor structure proposed by Ulrich (2000) fit the data of Surakarta students elementary school.

Key words: Test of Gross Motor Development, confirmatory factor analysis

INTRODUCTION

Physical education is an integral part of the overall education and the educational process and learning about and through physical activity, play and games, as well as selected sports to achieve education in general. Physical education is one of the key learning areas for pre-primary and primary education. It is a unique subject that provides students with opportunities to develop gross motor skills. Gross motor skill, similarly to motor development, is age-related, although it has been considered independent from it Gallahue DL (in Fabrizio Zandonadi Catenassi, 2007, p.203e). Such fact implies in assuming that quantitative and qualitative changes in movement occur as a consequence to several factors, especially the close interaction between restrictions imposed by the body, the environment and the task. Thus, the development of gross motor skill is concerned with age, presenting optimum values at around seven years of age. The acquisition of gross motor skills is regarded as both a basis for and an end product of sound instruction in physical education (Barton, Fordyce, & Kirby, 1999). The proficiency of gross motor skills is a prerequisite for children to experience success and enjoyment in organized and unorganized movement activities (Woodard & Surburg, 2001). Therefore, information from accurate gross motor skills assessment can be profitably used by physical educators and sports administrators. They can use this information to examine children's gross motor skills performance, provide information for educational programs and instructions, assess the gross motor development status of individuals, and assess the effectiveness of motor development programs (Burton & Miller, 1998).

The current TGMD-2 is a process-oriented assessment accompanied by criterion-referenced and norm-referenced interpretations. It was designed to evaluate the gross motor skill process or pattern exhibited by children with chronological age equivalents of 3 to 10 years of age. The TGMD-2

evaluates performance regarding six locomotor skills (Hop, Slide, Gallop, Jump, Leap and Run) and six object control skills (Dribble, Kick, Catch, Throw, Roll and Strike) for children aged 3 to 10 years. In the TGMD-2, each skill included three to four performance criteria to qualitatively describe performance. Individual performance is scored with a 1 or 0 to show the presence or absence of that skill. The score for each skill test item was obtained by adding the scores of the two trials. The maximum score for each skill ranged from 6 to 10 points. Refer to Table 1 for the structure of the test and items in each subset category

Table 1 Structure and Items in the TGMD-2

Subtest	Skill	Number of Performance Criteria	Maximum Score
Locomotor	Hop	5	10
	Slide	4	8
	Gallop	4	8
	Jump	4	8
	Leap	3	6
	Run	4	8
Object Control	Dribble	4	8
	Kick	4	8
	Catch	3	6
	Throw	4	8
	Roll	4	8
	Strike	5	10

The Test of Gross Motor Development-2 (TGMD-2) is the widely used measure of assessing children's fundamental movement skill competence (Ulrich DA, 2000). It assesses six locomotor skills and six object control skills. The TGMD-2 is norm-referenced (by gender and population subgroups in the USA) and validated for children aged 3–10 years (Ulrich DA, 2000). Each skill comprises 3–5 skill components and the TGMD-2 assesses whether each skill component was performed or not performed to determine mastery of the skill. Scores from two trials are summed to obtain a raw score for each skill. The scores for all the skills can then be summed into a total skill score and separate composite object control and locomotor scores.

The Test of Gross Motor Development (TGMD-2) was originally developed in the United States, but has been translated and validated in different countries (e.g., China, the Netherlands). For example, three studies tested the TGMD-2 validity for typically developing Chinese children (Jing & Hong-Xia, 2007; Wong & Cheung, 2010). Wong and Cheung tested 614 (Typical Develop) TD Chinese children, the results provided reasonable support for the TGMD-2 two factor model (goodness-of-fit index [GFI] = .95; comparative fit index [CFI] = .97). Jing & Hong-Xia (2007) also reported acceptable indices of internal consistency (values from .61 to .92) and test-retest reliability (values from .60 to .87) for the same population.

Evidence of the validity of the TGMD-2 was reported in its test manual (Ulrich, 2000). The TGMD-2 was validated on 1,208 American children. The validity of this test instrument was examined via exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). In terms of EFA, Ulrich (2000) utilized principal component analysis with promax rotation to examine the underlying structure of the TGMD-2. The EFA results identified two factors, with Strike, Dribble, Catch, Kick, Throw, and Roll loaded on the first factor and Hop, Slide, Gallop, Jump, Leap, and Run loaded on the second factor. Hop had the highest factor loading in the Locomotor subtest (.70), while Leap had the lowest (.49). For the Object Control subtest, Strike and Roll demonstrated the

highest factor loading (.75), while the lowest was Catch (.57). CFA was utilized by Ulrich (2000) to further explain the underlying structure of the TGMD-2. The fit indexes (goodness-of-fit index [GFI] and adjusted GFI [AGFI]) indicated that the two factor model of the TGMD-2 produced a good approximation to data (GFI=.96, AGFI=.95).

However, the pattern of item loadings was conceptually and statistically unclear. There were two double loadings items (Strike and Jump), where Strike correlated .61 with the first factor and .48 with the second, and Jump correlated .41 with the first factor and .59 with the second. In addition, the use of principal component analysis was questionable, since this analytical form had a strict assumption that the variable was perfectly reliable. Moreover, principal component analysis might tend to overstate the relationships among the variables and thus produce high factor loadings (Gorsuch, 1983). Therefore, the replicability of the TGMD-2 has been brought into question. The objective of the present study was to provide further evidence regarding the validity of the TGMD-2

METHODS

3391 simulated data were analyzed, represents 30% of all students elementary school in Surakarta (1600 boys and 1791 girls). Statistical Package for the Social Sciences (version 21.0) (SPSS, SPSS INC., Chicago, IL, USA) was used to conduct data screening and descriptive statistics analysis. This study aimed to confirm the factor structure of the TGMD-2 that included 12 skill test items under two factors: (a) locomotor skills and (b) object control skills. The two-factor structure of the TGMD-2 was tested using CFA with the maximum likelihood (ML) mode of estimation in the Linear Structural Relations (LISTREL 8.50 for windows, Scientific Software International, New York, USA) program. A five-step procedure (model specification, identification, estimation, testing fit, and respecification) was used in CFA. The process could be stopped in Step 4 (testing fit) if the model fit the data well. The model was tested through different fit indices that measured the degree to which the factor model reproduced the empirical covariance matrix (Crocker & Algina, 1986).

RESULTS

The means, standard deviations, and skewness and kurtosis values for the 12 skill test items composing the TGMD-2 presented in table 2.

Table 2 Descriptive Statistics of TGMD-2 Skill Test Items (N=3391)

Skill Test Item	M	SD	Skewness	p	Kurtosis	p
Hop	3,0224	1,61509	-,456	0.00	1,894	0.00
Slide	2,9400	1,13501	-,229	0.00	-,532	0.00
Gallop	2,8048	1,12439	,208	0.00	-,483	0.24
Jump	2,8324	1,13336	-,071	0.00	-,446	1.00
Leap	2,0181	1,34580	-,171	0.00	-,138	0.00
Run	2,8553	1,11540	-,288	0.00	-,411	0.05
Dribble	2,6892	1,23691	-,453	0.20	-,523	0.00
Kick	2,5222	1,25412	-,115	0.00	-,459	0.00
Catch	2,7234	1,15504	,380	0.00	-,499	0.00
Throw	2,2960	1,17930	-,306	0.00	-,265	0.71
Roll	3,0564	1,11892	-,573	0.00	-,619	0.40
Strike	6,4238	3,62102	,331	0.02	-,126	0.00

Since one of the basic assumptions of CFA was multivariate normality, the multivariate normality of the sample was tested by examining Mardia's multivariate kurtosis statistics using the

PRELIS- preprocessor for LISREL (PRELIS 8.50 for MS Windows, Scientific Software International, Lincoln wood, IL, USA) program. Results indicated that the assumption of multivariate normality was not met ($\chi^2 = 426.29$, $p < .05$), with Mardia's coefficient values (normalized estimates) for multivariate skewness of 12.33 and kurtosis of 170.15, respectively.

Various measures were used to examine the goodness of Fit (e.g., GFI, root mean square error of approximation [RMSEA], standardized root mean square residual [SRMR], and comparative fit index [CFI]). The GFI was considered to be a measure of the proportion of variances and covariances that the proposed model was able to explain (Raykov & Marcoulides, 2000). It was an absolute fit index that directly examined "how well the covariance predicted from the parameter estimates reproduces the sample covariance" (Gerbing & Anderson, 1993, p. 43). The GFI value of the proposed model was $1.00 \geq 0.90$, reflecting a reasonably good approximation of the data (Raykov & Marcoulides, 2000).

In terms of assessing the degree of lack of fit of the model, the RMSEA was computed. The RMSEA, rather than the estimated non-centrality parameter (NCP), was interpreted because the RMSEA took into account model complexity, as reflected in the degree of freedom. For the current model, the value of the RMSEA was 0.011 (90% confidence interval=.05 to .07), indicating a reasonable approximation to the data (Hu & Bentler, 1999).

The lower boundary of the 90% confidence interval of the RMSEA was used to indicate the preciseness of estimation of the parameter. The current results showed that the model provided a close fit to the data.

The SRMR was computed for the proposed model to provide a summary measure of standardized residuals. The small values of the SRMR for the model ($< .05$) demonstrated an acceptable fit (Hu & Bentler, 1999). The CFI reflected "how much better the model fits compared to a baseline model, usually the independence model" (Jöreskog & Sörbom, 1993, p. 125). The current result ($CFI = 1.00 \geq 0.90$) indicated that the proposed model demonstrated good relative fits (over their independence model). Another measure of fit, critical N (CN), was also examined for the proposed model. This fit measure indicated "the size that a sample must reach in order to accept the fit of a given model on a statistical basis" (Hoelter, 1983, p. 330). The CN value should be greater than 200 to indicate an adequate representation of the data (Diamantopoulos & Siguaw, 2000). The CN value of the proposed model was 2042.32, reflecting that it satisfied the minimum requirement. Factor loading and error variance of each item of the TGMD-2 ($N=3391$) are resented in Table 3. The composite reliability (CR) of the two factors (Locomotor and Object Control) were .82 and .81, respectively, and they were all above the .70 standard (Fornell & Larcker, 1981)

Table 3. Factor Loading and Error Variance of Each Item of the TGMD-2 (N=3391)

Variable	Factor Loading		Error Variance
	Locomotor	Object Control	
Hop	.57		1.11
Slide	.76		.31
Gallop	.77		.29
Jump	.69		.39
Leap	.73		.49
Run	.73		.34
Dribble	-	.77	.36
Kick	-	.78	.35
Catch	-	.76	.32
Throw	-	.69	.42
Roll	-	.76	.30
Strike	-	.59	.39

DISCUSSION

Although the TGMD-2 (Ulrich, 2000) has been widely used in examining gross motor development of children, only limited research (Evaggelinou, Tsigilis, & Papa, 2002; Langendorfer, 1986; Ulrich, 1985; Ulrich, Ulrich, & Branta, 1988; Ulrich & Wise, 1984) has studied the structural validity of its old version (Ulrich, 1985). In addition, there was insufficient research assessing the underlying structure of the TGMD-2, which the present study primarily aims to substantiate. The two-factor solution reported by Ulrich (2000) that consisted of 12 test items for representing gross motor skills was tested with CFA. The CFA results in this study were compared to the CFA results presented in the manual of the TGMD-2 (Ulrich, 2000), since there was no other research that investigated its internal structure via this analytical method.

In the present study, the proposed model provided good approximations to data, as reflected by the small RMSEA value, but with high GFI, CFI, and CN values relative to the values suggested by several studies (Bentler, 1990; Browne & Cudeck, 1993; Hu & Bentler, 1999; Ullman, 1996). This suggested that the proposed model examined in this study was a good fit. This further confirmed the two-factor structure of the TGMD-2. Such results were also in line with literature suggesting the two categories (Locomotor and Object Control) of gross motor skills (Gallahue, 1996; Haywood & Getchell, 2005). Physical educators might be more confident that the TGMD-2 was able to measure two distinct constructs, namely, (a) locomotor skills and (b) object control skills.

CONCLUSION

The findings of this study provide support for the two-factor structure of the TGMD-2 originally developed by Ulrich (2000). Additionally, comprehensive information concerning the validity and reliability of the TGMD-2 is provided. The findings provide further evidence of the usability of the TGMD-2 when attempting to assess the gross motor skill performance of children. Results indicate that the TGMD-2 provides respectable interrater, internal, and composite reliabilities. Furthermore, all the information derived from the present study should become valuable to physical educators and coaches for future reference in designing programs and training to Surakarta students elementary school in order to enhance the latter's gross motor skills.

REFERENCES

- Barton, G. V., Fordyce, K., & Kirby, K. (1999). Why have physical education? The importance of the development of motor skills to children. *Teaching Elementary Physical Education*, 10, 9–11.
- Baumgartner, T. A., Jackson, A. S., Mahar, M. T., & Rowe, D. A. (2006). *Measurement for Evaluation in Physical Education and Exercise Science* (8th ed.). Boston: McGraw Hill.
- Bentler, P. M. (1990). Comparative Fit Indexes in Structural Models. *Psychological Bulletin*, 107, 238–246.
- Browne, M. W., & Cudeck, R. (1993). *Alternative Ways of Assessing Model Fit*. In K. A. Bollen & J. S. Long (Eds.), *Testing Structural Equation Models* (pp. 136–162). Newbury Park, CA: Sage.
- Bunker, L. K. (1989). *Review of the Test of Gross Motor Development*. In J. Conoley & J. Jack (Eds.), *the Tenth Mental Measurements Yearbook*. (pp. 843–845). Lincoln, NE: University of Nebraska.
- Burton, A. W., & Miller, D. E. (1998). *Movement Skill Assessment*. Champaign, IL: Human Kinetics.
- Crocker, L., & Algina, J. (1986). *Introduction to Classical and Modern Test Theory*. New York: Harcourt Brace Jovanovich College.
- DeVellis, R. F. (2003). *Scale Development: Theory and Applications* (2nd ed.). Thousand Oaks, CA: Sage.
- Diamantopoulos, A., & Siguaw, J. A. (2000). *Introducing Lisrel: A guide for the uninitiated*. London: Sage.

- Edwards, R. (1989). *Review of the Test of Gross Motor Development*. In J. Conoley & J. Jack (Eds.), *The tenth mental measurements yearbook*. (pp. 846–847). Lincoln, NE: University of Nebraska.
- Evaggelinou, C., Tsigilis, N., & Papa, A. (2002). Construct Validity of the Test of Gross Motor Development: a Crossvalidation Approach. *Adapted Physical Activity Quarterly*, 19, 483–495
- Fabrizio Zandonadi Catenassi, et.al (2007) Relationship Between Body Mass Index and Gross Motor Skill in Four to Six Year-old Children. *Rev Bras Med Esporte* _Vol. 13, NO 4 – Jul/Ago, 2007.
- Fornell, C., & Larcker, D. (1981). Evaluating Structural Equation Models With Unobservable Variables and Measurement Errors. *Journal of Marketing Research*, 18, 39–50
- Gallahue, D. L. (1996). *Developmental Physical Education for Today's Children* (3rd ed.). Madison, WI: Brown Benchmark.
- Gerbing, D. W., & Anderson, J. C. (1993). Monte Carlo Evaluations of Goodness of Fit Indices for Structural Equation Models. In K. A. Bollen & J. S. Long (Eds.), *Testing Structural Equation Models* (pp. 40–65). Newbury Park, CA: Sage
- Gorsuch, R. L. (1983). *Factor analysis* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Haywood, K. M., & Getchell, N. (2005). *Life Span Motor Development* (4th ed.). Champaign, IL: Human Kinetics
- Hoelter, J. W. (1983). The Analysis of Covariance Structures: Goodness-of-fit Indices. *Sociological Methods and Research*, 11, 325–344
- Hu, L. T., & Bentler, P. M. (1999). Cut Off Criteria for Fit Indices in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives. *Structural Equation Modeling*, 6, 1–55
- Jing, L. I., & Hong-Xia, M. A. (2007). Study of the Credibility and Validity of the Test of Gross Motor Development of Children. *Journal of Physical Education*, 14(3), 11–31
- Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: Structure Equation Modeling With the SIMPLIS Command Language*. Chicago: Scientific Software International
- Langendorfer, S. (1986). Test of Gross Motor Development: Review. *Adapted Physical Activity Quarterly*, 3, 186–190.
- Newell KM. Constraints on the Development of Coordination. In: Wade MG, Whiting HTA, editors. *Motor Development in Children: Aspects of Coordination and Control*. Dordrecht: Martinus Nijhoff Publishers, 1986; 341-60
- Raykov, T., & Marcoulides, G. A. (2000). *A First Course in Structural Equation Modeling*. Mahwah, NJ: Lawrence Erlbaum Associates
- Ullman, J. B. (1996). Structural Equation Modeling. In B. G. Tabachnick & L. S. Fidell (Eds.), *Using Multivariate Statistics* (3rd ed., pp. 709–811). New York: HarperCollins.
- Ulrich DA. *Test of Gross Motor Development*, 2nd ed., Austin, TX, 2000.
- Wong, A. K. Y., & Cheung, S. Y. (2010). Confirmatory Factor Analysis of the Test of Gross Motor Development-2. *Measurement in Physical Education and Exercise Science*, 14, 202–209
- Woodard, R.L., Surburg, P.R., 2001, The Performance of Fundamental Movement Skills by Elementary School Children With Learning Disabilities. *Physical Educator*, 58(4), 198-205.
- Woodfield, L. (2004). *Physical Development in the Early Years*. London: Continuum.

PRESCHOOL STUDENTS LEVEL OF MOTOR SKILL DEVELOPMENT

Wan Azira Abd Aziz¹, Borhannudin Abdullah², Shamsulariffin Samsudin³

¹Ministry of Sports and Youth Malaysia, Department of Sports Studies, ^{2,3}Faculty of Educational Studies, UPM

¹wanazira@gmail.com, ²bohannudin@upm.edu.my, ³shamariffin@upm.edu.my

Abstract

The research aims to identify the level of motor skill development among preschool students in Putrajaya. It is ex post facto research involving 120 subjects compromise of 60 males and 60 females aged 6 years old. The research has applied Ulrich motor skill assessment (Ulrich, 2000) at the coefficient levels ranging from 0.88 to 0.96 (Hardy, 2009) to measure the abilities of preschool students in locomotors and controlling object. The subjects' scores were transcribed to calculate the standard and Gross Motor Development Quotient (GMDQ) scores. The scores were furthered analyzed using ANOVA to compare the minimum performances of preschool students among various preschool centers. The findings showed significant differences for preschool students GMDQ scores [F (2,117) = 7.8, $p < .05$]. The Post Hoc Test data showed significant differences between GMDQ min scores of both government and private students ($p = 0.001$) compared to KEMAS preschools students ($p = 0.018$). Meanwhile there is no significant difference between private and KEMAS preschoolers ($p > 0.05$). When comparing the age equivalence locomotors score (AEL) with age equivalence measure (AEM) there is significant difference at the level of $p < 0.05$ within AEL [F (2,117) = 3.41, $p < 0.05$] and AEM [F (2,117) = 7.39, $p < 0.05$]. The Post Hoc Test showed significant difference between the score of age locomotors equivalent of government preschoolers with private preschoolers ($p = 0.03$). However, there were no significant differences between government preschoolers with KEMAS preschoolers ($p > 0.05$) in term of AEL scores. Looking at the AEM scores, there was significant difference between government preschoolers and KEMAS preschoolers ($p = 0.00$). When comparing AEM scores between government with private and KEMAS preschoolers, there were no significant differences with $p > 0.05$. The research findings further described the margin of motor skills development among the children in the government, private and KEMAS preschools. Data analysis for GMDQ and AEL scores showed that the children in private preschools have achieved the best scores. Meanwhile, when it came to AEM scores, the children from KEMAS preschools showed highest performances. The findings also described the delay in mastering both locomotors (5 to 8 months delay) and controlling objects (10 to 19 months delay) skill among the preschool children. The research suggests that the procedures to identify the gross motor skills of preschool children to be included in the preschool teacher's training curriculum. At the same time, more comprehensive and systematic physical activities should be designed according to the age equivalent to ensure better locomotors development among preschool children regardless where they are either in the government or private preschool centers.

Key words: Gross motor skills, locomotors, object control

THE MEANING OF PHYSICAL ACTIVITY FROM THE STAND POINT OF INDONESIAN IMMIGRANT YOUTH IN THE USA: A PHENOMENOLOGICAL STUDY

Caly Setiawan

Yogyakarta State University

Abstract

Immigrant young people were portrayed to be less likely to participate in physical activity. Scholarly observations provided much information about the prevalence, patterns, and factors associated with immigrant youth physical activity. However, little is known about physical activity as it is constructed by the youth. The study focused on Indonesian immigrant youth's experiences with physical activity. More specifically, it looked at the meaning of physical activity from the young people's perspective. Using a phenomenological method, the current research was to examine what constituted the *meaning* of physical activity for Indonesian immigrant youth. Fifteen Indonesian young people aged between 13 to 18 participated in this study. Data were collected through open-ended interviews gathering information about the meanings ascribed to their physical activity participation. Data were analyzed using 3 steps of phenomenological data analysis including horizontalization, textural description, structural description, the description of the essence of physical activity experience. Results indicated that the meanings of physical activity profoundly anchored in corporeal, naturalistic view of the body. Derived from this view was their acquired knowledge about the institutionalized forms of physical culture along with their features, purpose, and significance in their lives. Their view of the body as well as their knowledge about physical activity became important discursive resources for the youth to engage meaningfully in physical activity. Furthermore, their primary physical activity experience took place in school settings which demonstrated their engagement with major social institutions in the United States. This finding accentuates what is deemed conclusive within immigration literature; that schools play important role in the acculturation of immigrant youth.

Keywords: meaning of physical activity, immigrant youth, phenomenology

UNNES
UNIVERSITAS NEGERI SEMARANG

THE EVALUATION OF PHYSICAL FITNESS OF PHYSICAL EDUCATION (PE) TEACHERS AT PREEMINENT SCHOOLS IN ACEH BESAR IN THE 2015 ACADEMIC YEAR

Syamsul Rizal¹, Yeni Marlina²

^{1,2}Semarang State University

¹syamsulrizal.jantho@gmail.com, ²yenimarlinay@yahoo.com

Abstract

This study is entitled “The Evaluation of Physical Fitness of Physical Education (PE) Teachers at Preeminent Schools in Aceh Besar in the 2015 Academic Year”. Physical fitness is actually a condition where someone can carry out tasks productively without growing any considerable fatigue and still has the rest of the energy. This study focused on how the level of Physical Fitness of PE Teachers is at the Preeminent Schools in Aceh Besar in the 2015 Academic Year. Therefore, this study was intended to know the level of Physical Fitness of PE Teachers at the mentioned schools. This study was conducted by using descriptive research method and administering Harvard Step Test to collect the data. The population of this study was all of the PE teachers at the intended schools and the number was technically taken to be the sample using total sampling technique since it is less than 100 persons. To analyze the data, data tabulation model was used started from gathering data, analyzing data, and exploring the result. The result of the analysis demonstrates that the physical fitness of PE Teachers at the Preeminent Schools in Aceh Besar in 2015 Academic Year was good. It was proven by the percentage result of the test revealed in the following details: 0% for the best level, 15 persons (35%) were at good, 12 persons (29%) were at in average, 10 persons (26%) were counted as less, and four persons (10%) were at the less. In accordance with the result, it is suggested that PE Teachers at the Preeminent Schools in Aceh Besar can develop their physical fitness in order to improve their services.

Keywords: the evaluation, of physical fitness



RELATIONSHIP OF EMOTIONAL QUOTIENT (EQ) ON SPORTS PERFORMANCE

Endang Sri Retno

Semarang State University

endangsriretno@gmail.com

Abstract

This study is purpose to prove that there is a relationship between the levels of Emotional Quotient (EQ) athletes with sports performance. Based on 10 the results of research both team sports and individual types, all of them have a significant relationship. Sport performance examined included: karate, volleyball, swimming, badminton, football.

The method used is literature study and Expost facto. EQ test instrument with a questionnaire, and validity of 0.893 and also reliability of 0.949 and a skills test in accordance with any branch of sport.

The result of the study showed there is a relationship between Emotional Quotient (EQ) and sport performance with average values of significance $0.000 < 0.005$.

The conclusion of this study is "There is a relationship between Emotional Quotient (EQ) with sport". The Suggestion of this study is EQ achievement as one of the causes a consideration that the probability of failure during this time.

Key words: emotional quotient, sport performance



THE RELATIONSHIP BETWEEN SPEED, STRENGTH, AGILITY AND LONG LEGS WITH FOOTWORK BADMINTON PLAYERS

Suratman

Semarang State University

suratmanpklofikunnes@ymail.com

Abstract

The background of this research is badminton players require effective footwork to reach every part of the field goal shuttlecock flight. Footwork which effectively requires speed to shorten the time of motion, the strength to sustain weight loss, agility to accelerate the reaction, and long legs to minimize the number of steps.

This research issue is whether there is and how much the relationship between speed, leg strength, agility and long legs with good footwork partial results and jointly.

The study population badminton athletes PB. Smash of Ungaran as many as 17 people, while the sample 10 people were taken by purposive sampling technique. The research method is a method of observation, and retrieval of data using survey techniques and tests.

Results of this study concluded that there is a connection speed, strength, agility and long legs with footwork either partially or together. In addition the research also advised that badminton player PB. Smash practicing footwork so that more effective steps.

Key words: speed, strength, agility, long legs, footwork



RELATION OF SPEED, AGILITY AND BALANCE WITH DRIBBLING SKILL IN FOOTBALL GAME OF PESPEX SOCCER SCHOOL'S STUDENTS IN CILEUNGSI BOGOR 2011

Yuwono

Sport Science Department, Semarang State University

yuwok66@yahoo.co.id

Abstract

Soccer is one of the sports that are popular with the community. In soccer game will be achieved through cooperation team and the ability of the individuals who have good physical condition. Technique of attacking, defending and controlling the ball can be done with the dribble techniques. Dribble is one of the basic techniques that are sufficient to have an important role in the game of soccer.

The purpose of this research is to know of the relationship between the speed, agility, and balance with the skill of dribbling the ball. The study is done at a soccer GUDPUSZI stadium, Gandoang, Kab. Bogor 2011. This research survey method using korelasional technique, sampling using the technique of sampling a total Pespex U-12 Soccer School Student with the number of students in 2011 is 20 students. Analysis of data and the use of regression analysis of the correlation, covering: Test of Normality Galat taksiran, Test of Significance and Linearity Regression, and Test of Homogeneity.

The result analysis of data obtained a coefficient of determination speed skill to dribble in the game of ball of 0, 2116 and mean there was a positive relationship between the speed of skill dribble in the game of ball of 21,16 % . A coefficient of determination agility skill to dribble in the game of ball of 0,497 and mean there was a positive relationship between agility against dribble skill in the game of ball of 49,7 % . Determination of the coefficient of balance ability in the game of soccer dribble 0.25 and means there is a positive relationship between balances of skills in the game of soccer dribble of 2.5%. Determination of the coefficient of speed, agility, and balance simultaneously against the dribble skills in the game of football 0, 5112 and means there is a positive relationship between the speed, agility and balance simultaneously against the dribble skills in the game of football amounted to 51, 12%. Based on the results of research then it can be inferred that there is a positive relation between the speed, agility and balance together with the dribble skill. Referring to the results of the authors may submit suggestions, efforts to improve skill is dribbling the ball through an increase in speed, agility and balance

Key words: Dribbling skill, football game

IDENTIFYING YOUNG TALENTED ATHLETES USING A MODEL OF SOCCER SKILLS TEST

Nining Widyah Kusnanik

State University of Surabaya

nining_kusnanik@yahoo.com

Abstract

The purpose of this study was to identify young talented soccer athletes using a model of soccer skills test. Type of this research was quantitative with developmental research approached. This research was conducted into 3 stages: stage 1 composed the Selected Intrument Test Design (SITD), stage 2 tried out of SITD, stage 3 implemented of the Selected Instrument Test (SIT). Population of this research were students of soccer in the area of Surabaya, Gresik adn Sidoarjo aged 11-13 years old. Samples were taken using purposive sampling technique at 150 students for stage 2, and 297 students for stage 3 with total samples 447 students. Data was taken from the result of testing skill abilities in soccer. Data was analyzed using factor analysis and discriminant.

Result of this research showed that for stage 1, it was selected 12 items SITD, 12 items pre-SIT, and 10 items post-SIT. The result of equation model was $D = -1,441 + (0,242MBL) + (0,17MA) + (-0,072MBDDP) + (0,011MBTA) + (-0,261MGBL) + (-0,021MBDK) + (0.304 MB) + (-0.079 MBKK) + (0.143 MKDTA) + (0.055 MKDDA)$. Software was called Talent Identification for Soccer (TID Soccer).

Conclusion for this study was a model of soccer skills test which were completed with equation model and software can be applied for identifying young talented soccer athletes.

Key Words: talent identification, soccer skills, young talented, soccer

UNNES
UNIVERSITAS NEGERI SEMARANG

TEACHING SKILL'S PROFILE OF ELEMENTARY SCHOOL PHYSICAL EDUCATION TEACHER IN TAMAN SIDOARJO EAST JAVA

Suroto¹, Fifukha Dwi², Khory

^{1,2}Surabaya State University

¹suroto.lppm@gmail.com, ²fifukhakhory@gmail.com

Abstract

Since July 2013, Indonesia New Curriculum called "Kurikulum 2013" have been implemented in selected schools in 34 provinces of Indonesia. The new curriculum tend to reduce preparing time before teaching, but asking more intention in handling teaching-learning process. The teaching-learning process have to facilitate individual student to learning by observing, questioning, trying, concluding, and presenting learning results. In this research, 34 elementary school physical education teachers in Taman Sidoarjo East Java have been observed. Each teacher was videotaped in one PE lesson by using total duration recording system. After analyzing the 34 recorded lessons, the findings were: (1) age rate of teachers was 43,2 years; (2) teaching experience rate was 15,4 years; (3) number of activities per lesson (creativity rate) was in poor level; (4) the use of time allocation rate was in poor level; (5) the rate of teaching skill was in moderate level; (6) the scope of competence areas was in poor level; (7) saintific learning process was in poor level; and (8) for general teaching performance was in moderate level. Between them, 1 teacher was in best category, 4 teachers was in good category, 19 teachers was in moderate category, and 10 teachers was in poor category.

Keywords: teaching skill, physical education teacher, elementary school, and Indonesia Curriculum 2013

UNNES
UNIVERSITAS NEGERI SEMARANG

A REVIEW OF COPING STRATEGIES IN SPORTS ACROSS CULTURE

Shermaine Lou

National Institute of Education, Singapore

Shermainelou@gmail.com

Abstract

Coping is an important factor in determining success, especially in sports competitions, as situational coping is able to affect performance outcomes. However, there is not much research conducted in the different dimensions of coping, especially across different cultures. This research aims to review the coping literature in sport; examining both trait and process perspectives, as well as approach and avoidance tendencies. Due to the limited amount of cross-cultural research in the area of coping, this research also aims to compare coping literature across the different cultures. A literature search was conducted and there were about 30 papers that were eventually used, spanning 13 years (2001-2013), and representing more than 15 different nationalities. The results indicate that although problem-focused coping strategies are generally used more frequently as compared to emotion-focused ones, the use of coping strategies still differed for the different cultures. Due to the impact of culture on coping, a revision of the model for coping with acute stress in sport was also proposed, to include this domain. In future, stress appraisal across the different cultures can be looked into further; to see if there are any differences across cultures, and to investigate how this in turn, translates to coping effectiveness.

Key words: coping, trait, process



HOW DO MOVEMENTS BECOME COORDINATED OVER TIME? : A PROPOSED ANCHORING QUESTION FOR TECHING MOTOR CONTROL AND LEARNING

KEE Ying Hwa

Nanyang Technological University, Singapore

yinghwa.kee@nie.edu.sg

Abstract

Motor control and learning as a discipline involves the study of issues related to performance and acquisition of motor skills. Traditionally, lecturers may cover the contents predominantly based on the various topics listed on the motor control and learning textbooks, such as Magill (2013), Edwards (2011) and Schmidt and Lee (2015). The module delivery typically adheres to the following sequence: introduction of the field, discussion of theoretical paradigms, motor control issues, motor learning issues and finally, issues related to practice conditions. While this sequence provides a progressive and comprehensive coverage of the field, students may perceive the contents covered to be rather heavy and lacking in focus. We propose that the essential competency should be related to the student's future ability to help other learners tackle the degrees of freedom problem during motor skills learning. Without emphasis on such a focus, even if students understand individual topics in motor control and learning textbooks, they might not see the relevance of these topics for solving the fundamental degrees of freedom problem. The aim of this presentation is to propose that the delivery of essential contents of motor control and learning should be focused on the question "How do movements become coordinated over time?" based on a theoretical paradigms that has gained wider acceptance over the decades – the dynamical systems perspective, and to provide some background on this approach for fellow educators in the field to consider.

Key words: Coaching, skills acquisitions, complex systems

UNNES
UNIVERSITAS NEGERI SEMARANG

DEVELOPMENT OF PROTOTYPE SINGLE POMMEL MUSHROOM FOR CIRCLE MOVEMENT TRAINING AIDS IN MEN'S ARTISTIC GYMNAST

Agus Darmawan

Department of Sports Sciences, Faculty of Sports Sciences, Semarang State University, Central Java
50229, Indonesia

agus.putri12@gmail.com

Abstract

The purpose to: (1) To generate a single pommel mushroom design tool that can be used in artistic gymnast training for junior and senior men's level. (2) To test the single pommel mushroom design tools can be effectively used to improve the skills of the athletes circle movement. Here are steps of procedure developmet: (1) Potention and problems, (2) Data/information collection, (3) product design, (4) Design validation 2 gymnast expert and 2 tools expert, (5) Upgrading design, (6) Product experiment 6 athletes, and (7) Aplication experiment 10 athletes. The result of this research is a product, this final product is a Single pommel mushroom prototype (star mushroom) which can be used for circle. The tool's validation result is obtained from an assessment rubric from gymnast expert and tools expert with the score 94 (exact), meanwhile the effectiveness result of Single pommel mushroom prototype is obtained from an assessment result by gymnast expert in small nad large scale experiment. From those experiments, the average score of athletes is 4 times doing circle movement and there are 16 athletes clarify that single pommel mushroom is an effective tool to be used in circle movement practice.

Keywords: development, single pommel mushroom, circle, men's artistic gymnastics

INTRODUCTION

Gymnastics is an effective physical activity to optimize the growth and development of children. Gymnastic movements showing physical activities that require a range of motion that needs to be done with nude or semi-nude. His movements stimulate the development of the components of physical fitness, such as strength, and endurance of the muscles throughout the body. In addition, exercise also has the potential to develop the basic motor skills, as an important basis for mastery of technical skills of a sport (Mahendra, 2001: 9).

Facilities and infrastructure are owned by the Branch Board Persani (Indonesian Gymnastics Association) in Central Java starting in 2005 to 2014 was minimal once (alarming), one of which is kekurangtersediaannya tool saddled fungus throughout Pengcab Persani in Central Java for athletes to practice artistic gymnastics men's leading tool saddle horse. One possible contributing factor price Mushrooms tool with one standard saddle is very expensive, causing Pengcab Persani not afford to buy and have those tools, and Pengcab Persani using only simple equipment training activities.

Symptoms that are in the field, based on observations of researchers are as follows: A total of 25 Pengcab Persani in Central Java fungus has not had saddled the standard equipment. Appliance standards saddled fungus is very expensive, so most Pengcab Persani in Central Java using simple equipment that is less secure and comfortable for the gymnast, or even from using a small desk covered with carpet / mat slim / thin tarps to exercise sirkel. The absence Pengcab PERSANI saddled pommel that develop tools, so that athletes gymnastics in Central Java sirkel difficult to control movement in the saddle on a horse saddle tool. Is the development of a standard tool saddled mushrooms (Janssen Fritzen), so that the fungus saddled tool is the development of fungus standard

tool with functions similar to a more economical price. KONI City / Regency in Central Java province, was not able to buy tools Mushrooms with one standard saddle because the price is very expensive.

METHODS

This research is aimed at developing tools to produce products such as mushrooms with a saddle that is used as a training athletes in motion sirkel the tool saddle horse. Materials used in the construction of the fungus are saddled iron pipe, steel plate, tool jack, rebondeed foam, foam ATI, saddle of fiber. Step-by-step development research conducted by the Research and Development (R & D). The procedure used is the potential and problems, data collection, product design, design validation, the revised design, product testing, product revision, and trial usage. The design of trials carried out through two phases, namely a small group test conducted in Pengcab PERSANI and Pengcab Persani Pati regency of Semarang. Research subjects who are involved in the research is the artistic gymnastics athletes as much as 16 athletes (junior and senior), gymnastics coach as many as five (5) members, experts / specialists gymnastics 2 (two) people, gymnastics expert support as many as two (2) people, as well as experts / expert equipment 2 (two) people. The data used in this study is qualitative data and quantitative data. Instruments used in product development is interview, observation, documentation, and assessment rubrics. This study used a qualitative approach and method of model development. Inspection validity of the data need to be done by the researchers so that the data that has been acquired can be accounted for its validity, in ways that can be done to determine the validity of the data results of the study are as follows: (1) Perseverance Observations, (2) Triangulation, (3) Examination colleague and (4) Checking Members Through discussion.

RESULTS AND DISCUSSION

Product Description Tool Mushroom saddled "Star musroom", specification of product development tool saddled mushroom "Star musroom" can be seen from the following table:

Table 1. Product Model Development Tools saddled Mushrooms "Star musroom".

No	Product Development
1	Head of pommel are made of steel plate thickness of 2 mm, iron pipes, rebondeed foam, foam ATI, and Oskar skin.
2	Saddle mushrooms made of fiber with a size adapted to the actual size of the saddle.
3	Empowering communities (artisan jog as well as the blacksmith and welding).
4	local ingredients.
5	Created manually.
6	Can up-down with the jack.
7	Minimum Height: 50 cm Maximum height: 60 cm
8	Have a description of the manual use of the product (book and cd manual).
9	If there is damage, easy to repair.
10	Tools more durable, because they can choose their own quality raw materials.
11	Colors can customize, such as a brown one to junior while others are black tool specifically for senior.
12	Operation is the same, which is used to perform sirkel movement, and can be used as another tool.
13	mushroom head diameter of 60 cm.

14	Maintenance of the same, that should not be flooded, burned, cut sharp and pointy objects.
15	Reasonably priced, namely: Rp. 3,000,000.

(Source: Research, 2014).

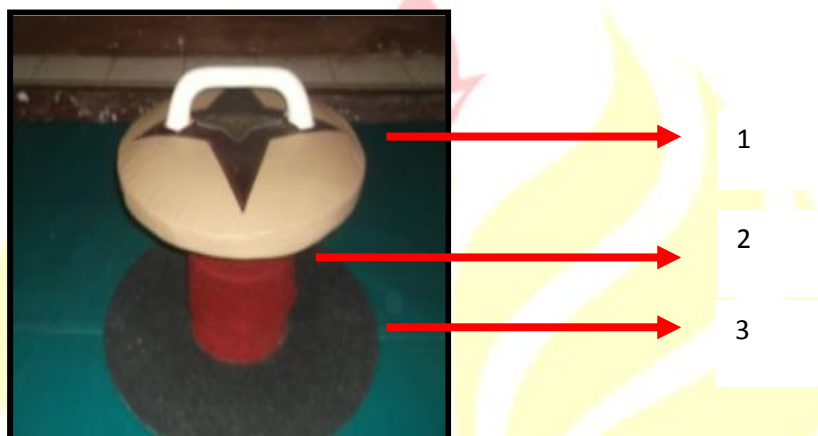


Fig. 1. Section Tool Mushrooms.

Product development model saddled fungus tool has three (3) main sections, among others:

- 1) Section 1 (one) is the top tool mushrooms, or mushroom head, consisting of a combination of iron plate with a thickness of 2 mm and has a diameter of 60 cm, ATI foam with a thickness of 6 mm, rebonded foam with a thickness of 2 cm, and the skin Oskar light brown. Circular with a diameter of 60 cm with the size of the thickness of the top is 5 cm. In the saddle mounted mushroom head made of fiber.
- 2) Section 2 (two) is the center of the mold, is an iron pipe diameter of 2 cm. There are two pieces of iron pipe is used as a buffer mushroom head. At the center of the fungus mounted jack making it easier to raise and lower the tool fungus. At the center of the pipe fitted mushrooms pralon with size 30 cm with the aim of forming pommel mimilikiargonomis properties.
- 3) Section 3 (three) is the bottom or the base material mushroom tools, circular made of iron plate with a thickness of 2 mm. At the bottom of the pedestal mushrooms added foam pads ATI with the aim that the fungus is not slippery when the fungus tool used for exercises in the tool sirkel.

Results Validation Tool Product Expert Mushroom saddled "Star musroom", to validate the products produced, researchers recruited two experts / specialists who come from the referee gymnastics and artistic gymnastics coach's son, namely Drs. BambangPriyono, M. Pd, and Drs. Soetardji, M.S. as well as two experts / specialists gymnastic equipment, namely Mr. BasukiWibowo, S. Pd. and Mr. Antonius Supar, S. Pd, MM. The following is the result of an evaluation sheet or questionnaire filling of experts / specialists gymnastics and expert / expert gymnastic equipment:

Table 2. Results of Questionnaire Completion Specialist / Expert Gymnastics and Specialists / Experts Gymnastic Equipment.

No	Criterion	AspectsConsidered	Aspects of Assessment			
			A1	A2	A3	A4
1	Originality aspect	Is the result of the work of researchers	10	9	9	10
		Has the distinguishing feature compared with similar sports technology (originality)	4	5	4	4
		Has the distinguishing features of the	5	4	5	5

		product development previously (TS_UNJ2013)				
2	Excellence Development Results Aspect	Development Results Having the advantages in terms of development results	10	9	9	8
		Has an advantage in terms of product- making materials	5	4	4	4
		Has an advantage in terms of the operation of the mushroom	4	5	5	5
		Has an advantage in terms of maintenance tools mushrooms	4	4	4	5
3	Benefits aspect	Having high efficiency to a wide audience in support of the artistic gymnastics men's sports coaching in Central Java.	15	15	15	15
4	Economic Aspects	Having a positive power of technology implementation.	5	4	4	5
		Prototype development tool with saddle fungus can cause the other industries (Multiplayer Effect)	5	5	4	4
		Have commercialization potential and market reach.	10	10	10	10
5	Aspects of Security	Have a good level of security for the artistic gymnastics men's athlete junior level.	5	5	5	5
		Have a good level of security for the artistic gymnastics men's athlete senior level.	5	5	5	5
6	Aspects of Leisure	Have a good level of comfort for the artistic gymnastics men's athlete junior level.	5	5	5	5
		Have a good level of comfort for the athlete artistic gymnastics men's senior level.	5	5	5	5
Total Score			97	94	93	95

(Source: Research 2014).

Description:

A1: Expert Gymnastics 1, A2: Expert Gymnastics 2, A3: Expert Tools 1, A4: Expert Hardware 2

Effectiveness Test Results Tool saddled Mushrooms "Star mushroom", the results obtained by researchers in large-scale trials and small scale test is as follows:

- a. A total of 7 junior athletes states:
Products can be used for training for junior athletes, Product has been safely used by a junior athlete, products are already comfortable use by junior athletes, and products already have a standard size.
- b. A total of nine senior athletes stated:
Products can be used for training for senior athletes, the product is safe for use by the senior athletes, products already comfortably used by senior athletes, products already have a standard size, and the product can be used to improve motor skills (movement sirkel) in the tool

saddle horse. Once the test is complete, gymnastics experts also conduct an assessment of the athlete. The following table athlete assessment.

Table 4. Assessment Expert Gymnastic Movement Sirkel by the Small Scale Test.

No	Name	circle	errors				
			Body	legs	limbs	arms	Amplitude
1	Guntur	4	M	S	S	S	S
2	ArifBustaman S	3	S	M	S	S	S
3	Dwita Rizal M	2	M	M	S	S	S
4	FebriKurniawan	2	M	S	S	M	S
5	Satria Tri W	2	M	M	S	S	M
6	PatrioWibowo A	1	L	M	S	M	M

Description:

S = Small, M = Medium, L = Large

Source: Results Penelitian

Table 5. Assessment by Expert Gymnastic Movement Sirkel on Broad Scale Test.

No	Name	circle	error				
			Body	legs	limbs	arms	Amplitude
1	Nur Huda	3	S	M	S	S	S
2	AndiSuwiknya	3	M	S	S	S	S
3	YuniorDwija S	2	M	M	S	S	M
4	EgaRamadhan	3	M	S	S	M	M
5	M. Febrian	2	M	M	S	S	M
6	Saddam Dwi W	2	L	M	S	M	M
7	Sandi Kartika	3	M	M	S	S	M
8	Muh. Iqbal	1	L	M	S	M	M
9	Ahmad Fitroni	2	M	M	S	S	S
10	ArbedOktaberdo	2	M	S	S	S	M

Description:

S = Small, M = Medium, L = Large

Source: Results Penelitian

This study is a product development tool which is saddled mushroom research and development of tools pommel existing standards. The tool can be used to exercise Mushrooms for Athletes Artistic Gymnastics Men's Junior and Senior Levels. Data analysis and interpretation of data obtained through the activities carried out by the researchers carefully analyze all the data that has been collected, the results of interviews, observation, and documentation. Based on the analysis of research data obtained data about "mushroom tool can be used for training for the artistic

gymnastics men's athlete junior and senior level". In summary, data from interviews can be classified as follows: On the small scale test 100% of athletes stated that the fungus development tools can be used to practicesirkel movement on the saddle on a horse saddle tool. A total of 100% of athletes stated that the tool saddled mushrooms is safe, convenient and standards. A total of 5 people trainers and 4 experts stated that the tool can be used for fungal saddled sirkel exercises in the saddle on a horse saddle tool. In the wide-scale testing of 100% of athletes stated that the fungus development tools can be used to practicesirkel movement on the saddle on a horse saddle tool. A total of 100% of athletes stated that the tool saddled mushrooms is safe, convenient and standards. A total of 5 people trainers and 4 experts stated that the tool can be used for fungal saddled sirkel exercises in the saddle on a horse saddle tool.

Effective Tool to Improve Skills Mushrooms Motion on Tools / Number Pommel Horse (Especially for Sirkel Movement at The Saddlery) for Athletes Artistic Gymnastics Men's Junior and Senior Levels.

Data analysis and interpretation of data obtained through the activities carried out by the researchers carefully analyze all the data that has been collected, the results of interviews, observation, and documentation. Based on the analysis of research data obtained data about "mushroom tools can improve motor skills in horse saddle (especially for sirkel movement on the saddle) for the artistic gymnastics men's athlete junior and senior level". In summary, data from interviews can be classified as follows: On the small scale test as much as 100% of athletes stated that the effective development tool fungus sirkel exercises in the saddle on a horse saddle tool. A total of 100% of athletes stated that the tool saddled mushrooms is safe, convenient and standards. A total of 5 people trainers and 4 experts claim that the fungus saddled effective tool for training sirkel movement on the saddle horse saddle in the tool. In the wide-scale testing of 100% of athletes stated that the development of effective tools to exercise mushrooms sirkel movement on the saddle on a horse saddle tool. A total of 100% of athletes stated that tool effectively saddled mushrooms to exercise sirkel movement on the saddle on a horse saddle tool. A total of 5 people trainers and 4 experts claim that the fungus saddled effective tool for training sirkel movement on the saddle in the saddle horses tool.

CONCLUSION AND SUGGESTION

After passing through the stage of the model development process, this study produced a tool mushroom saddled product, named "Star Mushroom".

Based on the results of the discussion in this thesis, it can be concluded that: (1) Product development model fungus tool "Star Mushroom" can be used as a training tool for athletes artistic gymnastics men's junior and senior level. (2) Product development model saddled mushrooms tool "Star Mushroom" can be effectively used to improve motor skills on a horse saddle tool for athletes artistic gymnastics men's junior and senior level.

Model development tool saddled mushroom "Single Pommel Mushroom" as products which have been produced from this research can be used as an alternative and a variety of forms in order to support the achievement of gymnastics in Indonesia, particularly in the implementation of the development program achievement artistic gymnastics men's junior and senior level in Java middle.

As for suggestions that can be submitted relating to the use of the product development model is a fungus tools: Persani for Management District / City in Central Java, Artistic Gymnastics and Sports Clubs Elementary School that fostering the artistic gymnastics men in Central Java, can use the product model of development tools saddled mushroom "Single Pommel Mushroom" as a means of training for athletes artistic gymnastics men's junior and senior level. For the Management of Central Java province Persani can augment product development model fungus tool saddled "Single Pommel Mushroom" is to be distributed or provided to the Branch Board 25 Persani in Central Java that did not have the fungus. For the Department of Youth and Sports of the Province of Central Java product

development model can reproduce the fungus tool saddled "Single Pommel Mushroom" is to be distributed or given to the student sports clubs and schools that have been fostering artistic gymnastics in the province of Central Java.

ACKNOWLEDGMENT

Dedication, This resolved properly due to the help and given to the author so I need to say a big thank you to: Allah SWT, Maskur my father and my mother Suprihatin thanks very much provide guidance and education to date in order to be a useful human writer, Agus Suyanto's brother and his family first, my second brother and his family who always give a boost to be bettered, Dwi Tiga Putri who always took the time to wait to become a better writer.

REFERENCES

- Adrian Stan, 2001. *Management Coaching Policy*. Great Britain : Federation Internationale De Gymnastique.
- Aka, BiasworoAdisuyanto. 2009. *CerdasdanBugardenganSenamLantai*. Jakarta: GramediaWidiasarana Indonesia.
- Chiarella, Sforza. 2009. *Amplitude variables of circle on the pedagogic pommel horse in gymnastics*. The Journal of Strength and Conditioning Research. Vol. 23(3):705-11.
- Fadillah. 2012. *Mekanikagerakdalam di alatkudapelana*: Journal Majora, www.staff.uny.ac.id(diakses2 Agustus 2012).
- G Grassi, M Turci. 2005. Body movements on the men's competition mushroom: a three dimensional analysis of circular swings. Br J Sports Med 2005;39:489–492. doi: 10.1136/bjsm.2003.010256 (diakses 23 Juli 2014).
- JF Sport. 2010. *Distributor Price List JF*, Bekasi :Jatiasih.
- Janssen-Fritzen Gymnastics b.v., 2010.*Top Equipment for Top Gymnasts*, AbHelmond : Netherlands.
- KomisiTeknik, 2003. *StrukturAkreditasidanPendidikanWasitSenamArtistik Putra Program Nasional*.Jakarta : PB PERSANI.
- Mahendra A, 2001. *PembelajaranSenam di SekolahDasar*.Jakarta :DepartemenPendidikanNasional.
- Mujito, 2010.*PedomanOlimpiadeOlahragaNasional III SekolahDasarTahun 2010*. Jakarta: KmentererianPendidikanNasional.
- Nazir M, 2009. *MetodePenelitian*, Bogor :Ghalia Indonesia.
- Michael Quinn, Patton. 2009. *MetodeEvaluasiKulaitatifTerjemahan Budi puspo*. Pengprov PERSANI Jateng.2013. *Daftarlnvetarsisialat-alatsenam*. Semarang: Persani.
- Sugiyono, 2007.*MemahamiPenelitianKualitatif*. Bandung :Alfabeta.

UNNES
UNIVERSITAS NEGERI SEMARANG

THE INFLUENCE OF PLAYING ACTIVITY ON MOTOR SKILLS AMONG LOWER GRADE ELEMENTARY SCHOOL STUDENTS

Gustiana Mega Anggita

Departement of Sports Sciences, Faculty of Sports Sciences, Semarang State University, Central Java
50229, Indonesia

mega.anggita22@gmail.com

Abstract

Purpose: This research aimed to determine the influence of playing activities on motor skills among lower grade elementary school students. **Methods:** This research is an experimental research with initial test and final test. Subjects in this study were lower grade elementary school students of SD Negeri Percobaan 2 Yogyakarta and SDIT Ar-Raihan Bantul. The data were collected by means of tests and measurement, using the general motor ability instrument. Analysis of the data was done using t-test with the test fulfilling the necessary prerequisites. **Result:** The results of this study is that the activity models playing with tools have a greater influence than the activity models playing without tools for motor skills with arithmetic calculations between price t count equal to 8.26. Price t table with significance level at 0.05 with dk= 26 from the distribution list is 2.06. Based on the results, it is concluded that the activity models playing with tools has greater influence on motor skills lower grade elementary school students.

Keywords: playing activity, motor skills



UNNES
UNIVERSITAS NEGERI SEMARANG

INTRODUCTION

According to law No. 20 of 2003 on National Education System, education plan is a conscious effort to create an atmosphere of learning and learning process so that learners are actively developing their potential for them to have the spiritual power of religion, self-control, personality, intelligence, noble character, and skills required in society, nation, and state, (Hartoto: 2009). Education is essentially an attempt to pass a value, which will be a helper and a determinant of human beings in life, and also to improve the lot of humanity and civilization. In the extreme way it can be said, that reciprocation or the merits of civilization of a society, a nation, will be determined by how education undertaken by the community of the nation.

Many factors determine the success of an education those are educators, educational facilities, and educational curriculum itself. The curriculum is a set of plans and arrangements about purposes, basic competences, standard materials, and learning outcomes, as well as ways to guide the implementation of learning activities to achieve the basic competencies and educational purposes, (Mulyasa, 2007). Further definition about the curriculum contained in Government Regulation No. 19 of 2005. It is stated that the curriculum is a set of plan and arrangement about the objectives, content, and learning materials as well as the strategies used to guide the implementation of learning activities to achieve specific educational goals.

Physical education is basically an integral part of the educational system as a whole. Physical education goal is not only to develop the physical realm, but also develop aspects of health, physical fitness, critical thinking skills, emotional stability, social skills, reasoning and moral action through physical activities and sports. Physical education provides a learning environment that enables children to perform tasks motion that will hone the children's motor skills, especially the basic motor skills; in other words through physical education children learn to move and learn through the movement itself.

Further, Rusli Lutan (2001) stated that the physical development of children is not solely depends on the maturation process. The development is also influenced by the movement of children experience both in terms of quality as well as many aspects of the experience. Children must obtain many opportunities to move and play. Therefore, the role of physical education has been very important to provide an experience of motion that can support the growth and development of children in psychomotor, cognitive and affective. Movement experience gained by the children in primary schools greatly contributed to the growth and development of children. In general, the learning process in elementary school for physical education is given through models of game. In other words, teaching physical education in primary schools is conducted by playing. It is because through playing games learning process become fun and children will do activities with pleasure, therefore the learning can run effectively and efficiently. Learning that is done through playing variety of games can give children opportunities to explore their capabilities have and provide the opportunity to interact with the surrounding environment. Thus the role of teachers in providing models of the game is very important in the process of learning. It is also important in the process of growing all aspects that every student has, for example by providing a game with tool and a game without tools.

Playing in the learning process can provide a variety of movement experiences for children, in which the motion experience was instrumental in the growth and development of children. Motor development for elementary school children is defined as the development and refinement of various basic motor skills and motor skills associated with the sport. Skills associated with sport is called motor skills. Motor skills is a process where a person develops a set of responses into a movement pattern that is coordinated, organized and integrated (Rusli Lutan, 2001). Based on content standards in national education standards (2006), a group of physical subjects, sports, and health in primary schools is intended to improve the physical potential and instill sportsmanship and healthy living awareness. One of the potential here is meant physical motor skills. Motor skills a

person's ability to carry out tasks in an organized movement, coordinated and integrated. Many factors that support to improve motor skills, one of which is a type of physical activity that children do. The type of physical activity in question is learning physical education in the form of a game like playing with tools and playing without tools.

Based on observations made of the physical education teachers in elementary Experiments 2 and SDIT Ar-Raihan one of the problems in teaching physical education is learning materials, teachers sometimes feel confused provides learning materials such as what particularly for lower grade elementary school students. While the previous discussion has been stated that the teaching physical education in primary schools have an important role for the growth and development of children in particular motor development of children. So far there are no data that suggests about the level of motor skills in terms of the type of physical activity that children do when such data are essential for the preparation of the physical education program for elementary school students, especially lower-class students, as suggested by the experts above physical education. Based on the above, the authors intend to carry out research activities influence playing activity to motor skills below grade elementary school students.

Based on the background that have been raised, then the problem can be formulated research is whether there are differences in motor skills in lower grade elementary school student influence of the use of models play activities with tools (model A) and the model of play activities without tools (model B). This study aims to determine whether there are differences in motor skills in lower grade elementary school student influence of the use of models play activities with tools (model A) and the model of play activities without the tool (model B). This research can be used as the data to determine the effect on motor skills play activities of primary school students below grade, This research is expected to provide input for the development of physical education teaching in schools, and This research is expected to provide insight into the importance of play activities for the growth and development of children.

METHOD

This type of research in this study is an experimental research using the scratch test (pre-test) and final test (post-test). This study involves the independent variables and the dependent variable manipulated. The dependent variable is the motoric skills of lower grade elementary school students. The independent variables are manipulated play activities consisting of (1) the activity of playing with the tool, (2) the activity of playing without tools (Suharsimi Arikunto, 2007).

The population in this study was lower grade elementary school students in SD Percobaan 2 Yogyakarta that consists of class I, II and III and in SDIT Ar-raihan Bantul, which consists of class I, II, and III. Prior to the experiment carried out, a population of 62 students, then performed a test and measurement skills with general motor ability test. This test is used to determine the initial score which indicates the level of motor skills. Then the sample was divided each of the two groups of methods of playing activities with tools and playing activities without tools by lot (random) so it will be four groups according to the needs of research, so that each group consisted of 14 children.

Data collection techniques to test the initial (pre-test) and final test (post-test). In accordance with the variable, to retrieve data research data collection instruments used were: The instruments used by researchers to measure motor skills are General motor ability test (Drowatsky&Zuccato, 1967). General motor ability test, among others: 1) **Stork Stand**, stand on the foot testy choice, feet tied to the back of the knee of the leg testy choice. Put your hands on your hips and lift your chest feet (tiptoe). Test score is the number of times testy can hold the position well. 2) **Diver's Stand**, stand with both legs and both arms straightened forward (90° with the shoulder). Close your eyes and lift your chest feet (tiptoe). Test score is the number of times testy can hold the position well. 3) **Heel Stand**, preparing the position with feet shoulder width apart. Bend forward slightly until the hand is on his knees. Keep your head in order to remain on top and

press into the back of the heel so the toes are not touching the ground. Test score is the number of times testy can hold the position well. 4) **Sideward Leap**, use tape to mark two spots on the floor about one meter apart. Balance your left foot on top of the ribbon. Jump sideways to another sign, landing with right foot. Balance for 2 counts and then bent to touch the outside of the ankle with the right index finger (while still balancing). Stood up again and after another 2 count, jump back to the left, bending, touching the outside of the left ankle. Stand up and continue this process. Test score is the number of times testy touching the ankle in 30 seconds without falling. If testy fall, returning to the starting point and get to work again. Continue calculate where testi stopped when it fell. 5) **Bass Stepping-Stone**, use tape to mark the five rows (30 cm) above the floor so that the directional perpendicular to an imaginary line as far as 3 meters. The distance between the line to another line far as 0.75 meters. Balance on one foot away from the chest above the first mark. Skip forward to the next mark, landing on top of the chest foot of the other leg. Hold for 2 counts (count out loud) and then jump to each mark. Continue to jump to each mark, turn back when testi get to the end, remained on one foot and turned slowly to jump and get back in the other direction. Test score is the number of lines that passed in 30 seconds. If testi dropped or failed to complete the second count, moved into the path of the line where testy fall and continue until the time expires. 6) **Book-Balancing Walk**, place masking tape (3 meters) above the floor. Starting at one end of the ribbon then running from heel to toe while balancing a book on the head testy. Test score is the amount of time used to walk, turn around and go back without dropping a book or stepping out of line. If testy dropped the book, place it back in the head testy and continue from the point where testy fell.

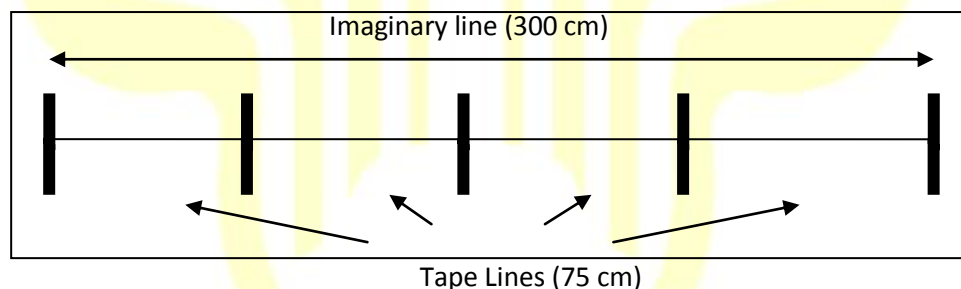


Fig. 1. Bass Stepping-Stone

Technical analysis of the data used in this research is using t-test with $\alpha = 5\%$. To meet the assumptions of the t-test technique, then tested with Lilliefors test normality and homogeneity of variance with Bartlett's test (Sudjana, 2002).

RESULTS AND DISCUSSION

Data motor skills are used for the purposes of the analysis is the total score of a motor skills test items that have been carried out by students. This score is obtained after students attend the learning process by using the activities to play with tools and activities to play without tools. Data were obtained from the motor skills of observation after the end of treatment, so scores of motor skills is the influence of the learning process that has been done.

Data motor skills had analyzed and then presented in a summary that contains the prices of n , $\bar{x}$, S , Σx , and Σx^2 , for each treatment. Summary of prices of motor skills of data are presented in the following Table 1.

Table 1. Summary of Results Calculation-Pricen, $\bar{x}$, S , Σx , dan Σx^2 on data result.

Source Statistics	Activity Model		Amount
	Playing with	Playing without	

		tools	tools	
Total	N	14	14	28
	$\bar{x}$	49.90	49	98,9
	S	1.79	1.20	
	$\sum x$	698,60	686	1384,59
	$\sum x^2$	311369,34	235330	546699,34

Information:

n : the number of samples in each treatment

$\bar{x}$: the average score motor skills

S : standard deviation

$\sum x$: total score

$\sum x^2$: total score squared

Motor skills model group play activities with tools overall, from the data model group learning motor skills to play with tools as a whole, with a score range of 46.54 to 52.32, gained an average of 49.90 with a standard deviation of 1.79 and a frequency distribution as listed in Table 2.

Table 2. Distribution of the frequency of motor skills score model group play activities with tools overall.

No.	Grade Interval	Absolute Frequency	Relative Frequency (%)
1	46,54-47,54	1	7,14
2	47,55-48,55	3	21,43
3	48,56-49,56	2	14,29
4	49,57-50,57	4	28,57
5	50,58-51,58	1	7,14
6	51,59-52,59	3	21,43
		14	100

Based on the table above, note 42.86% (6 people) acquire motor skills scores below average, 28.57% (4 people) on average, and 28.57% (4 people) are above average. Histogram data shown in Fig. 2.

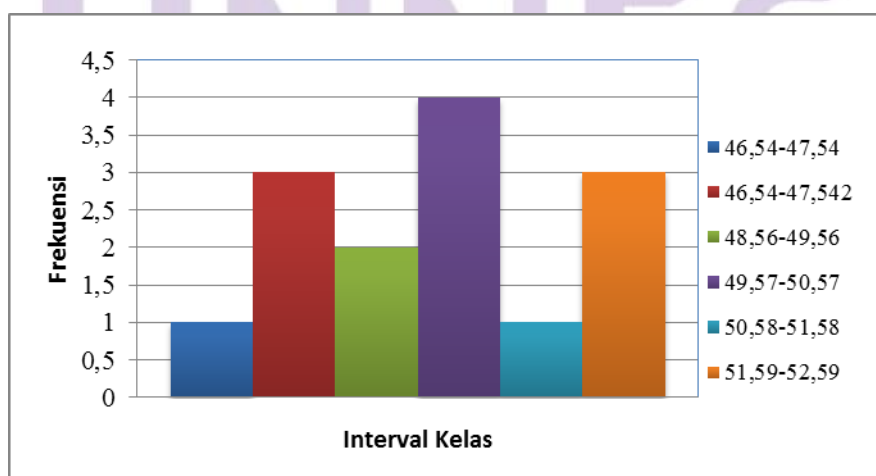


Fig. 2. Distribution of the frequency of motor skills score model group play activities with the tools overall.

Motor skills model group play activities without tools overall, from the data of motor skill learning model group without tools overall with a score range of 46.56 to 50.67, the price obtained an average of 49.00 with a standard deviation of 1.20 and a frequency distribution as shown in Table 3.

Table 3. Distribution of scores frequency motor skills model group play activities without tools overall.

No.	Grade Interval	Absolute Frequency	Relative Frequency (%)
1	45,56-46,56	1	7,14
2	46,57-47,57	1	7,14
3	47,58-48,58	3	21,43
4	48,59-49,59	4	28,57
5	49,60-50,60	4	28,57
6	50,61-51,61	1	7,14
		14	100

Based on the table above, note 35.71% (5 people) acquire motor skills scores below average, 28.57% (4 people) on average, and 35.71% (5 people) are above average -rata. Histogram data shown in Fig. 3.

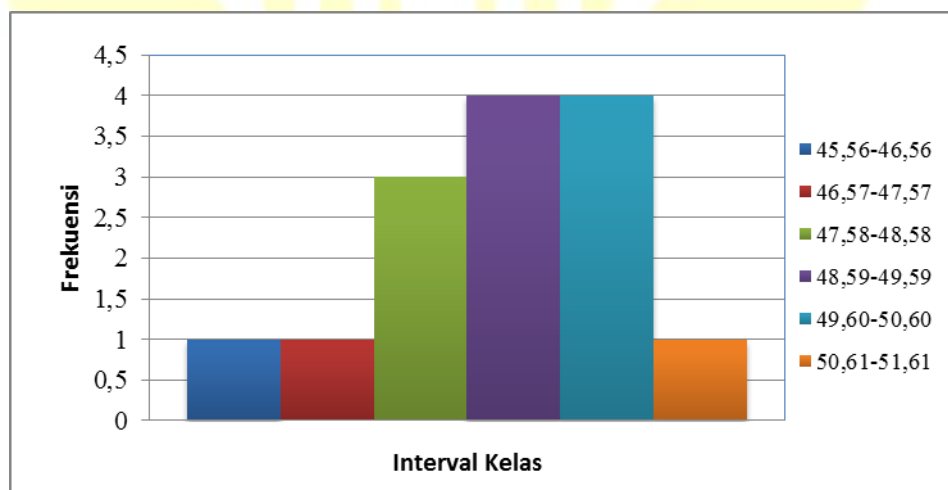


Fig. 3. Distribution of motor skills balanced frequency model group play activities without tools overall.

Testing Requirements Analysis, for the purposes of testing the hypothesis, first requires some test requirements are: (1) normality test conducted by using Liliefors test, and (2) homogeneity test using Bartlett test.

Normality test conducted on the motor skills in each treatment group using Liliefors test with significance level (α) 0.05. Summary test for normality in this study can be seen in the following table.

Tabel 4. Summary of the normality test

Group	N	L_o	$L_{tabel}\alpha = 0,05$	Conclusion

1	14	0,0885	0,227	Normal
2	14	0,0823	0,227	Normal

Information:

Group 1 : Model group play activities with tools overall
Group 2 : Model group play activities without tools overall
 L_o : Value Liliefors count
 L_{tabel} : Value Liliefors table
N : Members of the group

Based on the table above, the price Liliefors count for the entire treatment group is smaller than the price of Liliefors table. It can be concluded that the samples obtained from normal distributed population. Thus the first hypothesis testing requirements are fulfilled.

Homogeneity test of variance of the data motor skills for each treatment group performed using Bartlett test with significance level (α) 0.05. Homogeneity test was also conducted on the overall variance group is a group activity models play with the tools and play without tools. Testing is done by comparing the largest variance with the smallest variance of saline in each group. Summary of the equality of two variance calculation can be seen in Table 5.

Tabel 5. Summary of the homogeneity test

Group	Varians	F_o	Value F tabel $\alpha = 0,05$	Conclusion
A_1 dan A_2	0,4225 0,4569	1,0812	2,51	Homogen

Keterangan:

A_1 : Model group play activities with tools overall
 A_2 : Model group play activities without tools overall

Based on the results of such calculations are summarized in the table above, obtained F_o price of 1.0812 smaller when compared with F_t of 2.51 at significance level of 0.05. Thus have the same or a homogeneous population. Based on the test results of normality and homogeneity testing, the requirements for the testing of hypotheses have been met and that the research data over the normal distribution and homogeneous.

With tested for normality and homogeneity of the research data, the requirement for the purposes of data analysis have been met. Furthermore, hypothesis testing performed by analysis of t-test at significance level of 0.05.

T-test results of the calculation of the differences influence the activity of playing with tools compared with the activity of playing without tools for motor skills as a whole, as it appears that the price t count equal to 8.26. Price t table with a 0.05 significance level with $dk = 26$ from the distribution list t is 2.06 (Sudjana, 2005: 491). Thus H_o is no difference in the effect of the activity playing with tools and activity playing without tools to the motor skills of the motor skills declined, so it can be concluded that there are real differences between the models activity playing with tools and activity playing without tools for motor skills. In other words, activity playing with tools ($\bar{x} = 49.90$, $s = 1.79$) give different effect on motor skills than activity playing without tools ($\bar{x} = 49.00$, $s =$

1.20). Thus the research hypothesis which states that there are differences between the models influence the activity of playing with the tools and models play activities without tools for motor skills tested.

Judging from the overall research data obtained by the average price of motor skills using the activity playing with tools for $\bar{x} = 49.90$ with a standard deviation of $s = 1.79$, and the average price of motor skills using the activity playing without tools for $\bar{x} = 49.00$ with a standard deviation of $s = 1.20$, can be interpreted that the hypothesis which states that the overall model of the activity of playing with the tool higher than the model of play activities without the tools to be tested motor skills.

CONCLUSION AND SUGGESTION

Based on the results of research and testing hypotheses can be drawn a conclusion that overall motor skills lower grade elementary school students are using the activity playing with tools higher than the lower grade elementary school students are using the activity playing without tools. Based on the research that has been done, activity model playing with tools more effective are used primarily for teaching physical education in grades 1, 2 and 3 elementary schools. Physical education teachers are advised to use models with the game as an alternative way in the learning process.

Model activity playing with tools is just one of the many learning model with various approaches, use is highly dependent on the characteristics of the child and the type of lessons given. There is no the best learning model that can be used to achieve the learning objectives. By combining several learning models adapted to the needs of children, presumably the best way to solve the problems of learning, especially learning physical education in grades 1, 2 and 3 elementary schools.

ACKNOWLEDGMENT

It is dedicated to my beloved mother Tenawati, my father Nasim and my family for the support. My sincere gratitude to Professor Dr. Hari A. Rachman, thanks you for guidance.

REFERENCE

- Drowatsky&Zuccato.(1967). Diambil pada tanggal 10 November 2012 dari http://hk.humankinetics.com/BiomechanicsOfMusculoskeletalInjury/pdf/lab6_1.pdf.
- Hartoto.(2009). *Definisi Pendidikan*. Diambil pada tanggal 3 November 2012 dari <http://fatamorghana.wordpress.com/2009/11/02/definisi-pendidikan/>.
- Mulyasa.(2007). *Kurikulum tingkat satuan pendidikan (KTSP)*. Bandung: PT Remaja Rosdakarya.
- Rusli Lutan. (2001). *Asas-asas pendidikan jasmani*. Jakarta: Direktorat Jenderal Olahraga, Depdiknas.
- Sudjana. (2002). *Desain dan analisis eksperimen*. Bandung: Tarsito.
- Suharsimi Arikunto. (2007). *Manajemen penelitian*. Jakarta: PT Rineka Cipta.
- Tim Asa Mandiri. (2006). *Standar nasional pendidikan (SNP)*. Jakarta: Asa Mandiri.

THE DEVELOPMENT OF KICKING ACCURACY PRACTICE IN SOCCER FOR THE CHILDREN WITH THE AGE GROUP OF 13 TO 14 YEARS OLD

Khoiril Anam

Department of Sports Sciences, Faculty of Sports Sciences, Semarang State University, Central Java, Indonesia

khoirilanam17@gmail.com

Abstract

This study aims to produce a kicking accuracy practice model in soccer for children with the age group of 13 to 14 years old. The study used research and development design, consisting the steps of (1) identified the potential and problems, (2) collect data, (3) develop initial products, (4) design a validation, (5) design revision, (6) small-scale product test, (7) product revision, (8) large-scale test, (9) product revision, and (10) the final product. Product quality assessment involving 3 experts. Instruments used for data collection are general guideline interviews, field notes, questionnaire validation value scale, the observation model, the effectiveness of observation model, and a questionnaire for students. The quantitative descriptive analysis and the qualitative descriptive analysis techniques are used to collect the data. The result of this research is a practice kick accuracy model consisting of (1) triangular passing game; (2) passing and moving game; (3) moving the ball game; (4) passing the ball game; (5) passing and coordination game ; (6) scoring goal game; (7) targeting ball game of 4 vs 2 ; (8) targeting goal game of 2 vs 1; and (9) targeting goal game of 2 vs 2, arranged in a training DVD shape and training handbook.

Keywords: practice model, kicking accuracy, soccer

INTRODUCTION

Soccer is a team work that is played by two teams; each consisted of eleven players including a keeper. The play can be played by involving all part of our body but arms. The aim of each team is to make a goal to the opponent's goal and protected its team goal from the opponent's attack.

Basic technique in soccer includes without ball technique and with ball technique (Subroto, 2009, p.8.5). One of with ball technique is technique in kicking the ball. Technique in kicking ball is the baseline in soccer game, because a good soccer team is if all the players master the kicking ball technique correctly. Parrish (2011, p.76) explained that kicking the ball aims to (1) passing the ball, (2) making a goal, (3) bring the ball back to the game after some faults such as free kick, corner kick, fault kick, etc, and (4) for clearing.

Kicking with the ball technique is the mostly used technique in soccer game. Approximately 80% of the games involve passing the ball and receiving the ball. A good passing will increase the confidence and momentum. On the other hand, a bad passing could mess the team (Chapman, Derse, & Hansen, 2008, p.113). Soccer kick indicator which is accuracy and speed of the ball could be an alternate indicator to define a good kicking (Majelan, et. al., 2011, p.37).

Accuracy in sport context could be defined as the ability to direct a motion to the specific target. Kicking and accuracy in soccer are highly related. According to Gifford (2003, p.20) an accurate passing is a passing that could direct the ball to the target without any intercept from the opponent. Passing should also reach the target so the receiver could easily control the ball. According Young et. al. (2010, p.7) kicking accuracy in soccer was influenced by the level of

endurance fitness and playing experience. Fitness level of higher endurance can tolerate stress and prevent the weakening of skill games, while playing experience can provide advantages in considering the accuracy of the kick has been done. Whereas according to Sukadiyanto (2002, p. 102) there are several factors that affect accuracy, including: (1) the difficulty level, (2) experience, (3) the previous skill, (4) gender, (5) the types of skill, (6) the feeling, and (7) the ability to anticipate the motion.

Kellis & Katis (2007, p.163) explained about the impact foot quality to the ball. The impact foot quality is an important thing that determines an end speed, a route, and a rotation of the ball. Kicking result does not always accurately get the target; it is because there are some other factors that are needed to be considered. According to Wesson (2002, p.25) there are two things that caused the kicking become inaccurate, both are appeared because of the style that is given by the foot when kicking. Research by Katis, et. al. (2013, p.125) concluded that the increase of tibialis anterior muscle and bicep femoris, also the decrease of gastrocnemius muscle activity can help the players to kick accurately to reach the target. On the other hand, the increase of tibialis anterior muscle activity and bicep femoris, also the decrease of gastrocnemius muscle activity could lower the kicking accuracy to the lower target.

At the age of 14 in certain sports branches, including in the advanced exercises where the targets of the exercise is to strengthen will power to practice and faced a variety of psychological and physical barriers, to develop the physical condition with the harmonization of coordination such as strenght, speed, endurance, agility, and mobility) to reach specializes sports with strong physical basic towards high achievement, and to develop techniques and tactics by doing exercises and test matches (Lumintuarso, 2007, p. 49).

Soccer's practice process sometime makes students feel bored, especially one that used drilling method. Play based exercise could be an alternative way to reduce the feeling of bored in soccer practice. It is fun and could help us to reach the aims of practice.

The author conducted observations and interviews in several soccer schools, especially for the age group of 13-14 years old. It was found that the player passed the ball wrongly. Therefore the ball could easily be taken by the opponent. In addition to that, players often been found could not maximize any opportunity in front of the goal, because of their kicks were widen or did not go toward to goal. The practices held were also were not designed to improve players kicking accuracy. Even though the trainer has tried to give some portion of pairs passing training, still it was monotonous and boring because it was conducted several times without any variation. According to the problems above, various kicking accuracy practices model in soccer school for the age group of 13-14 years old are highly needed, especially by using a fun learning approach. The models will be produced in the form of DVD practice completed with the training guideline.

It goes without saying that kicking is a vital skill. A good kicking skill is the one that is quick and accurate. The problem that appears during the practice process is the kicking accuracy practice has not been conducted optimally; it is mainly because the limitation of infrastructure and facilities in practice. It is also caused by the limitation of practice models. The practice models should be interesting and varied. The kicking accuracy practice that has been given seen as monotonous, this make the players feel bored and the purposes of the practice could not be reached. According to the problems, it could be assumed that kicking accuracy practice model that is developed with play based approach could make the players happy, also motivate them in joining the training that is given by the coach. Therefore, the aims and purposes of practice could be reached. Fishburne, McKay & Berg (2005, p.47) stated that playing activities have many benefits for players, either to develop the strength, agility, control, and speed. Therefore, playing could increase locomotors skill and other sport skills, playing could also recover our health.

Choosing model substantial is made according to the characteristic of players for the age group of 13-14 years old and based on the characteristic of the function of kicking in soccer game,

where the kicking characteristic are used for passing and shooting to make a goal (Parrish, 2011,p.76). The innovation in kicking accuracy practice model could be a solution for problems faced by coach in the practice process. Firstly, the coach will have various choices in training kicking accuracy. Secondly, players will enjoy fun and interesting practices. Thirdly, by enjoying the practice, the players could understand the material better. Those mean that the aims and purposes of practice are reached. Based on the above explanation, this research aims to create a kicking accuracy practice model in soccer for the players with the age group of 13-14 years old through play based approach that are fun and interesting but still managed to reach the aims and purposes of the practices.

The result of this development will give some benefits such as: (1) theoretically, it will add the variation of kicking accuracy practice model in soccer for the age group of 13-14 years old, and could be used as a reference for future research; (2) practically, it will add the knowledge and experience of the coach in developing various type of kicking accuracy practice models and in finding innovative ways to coach. It is also will give contribution to the world of coaching, especially for the coaching department students in creating kicking accuracy practice model. This research could also be used as a consideration in creating a training program. In addition to that, the research will give a contribution to the society and institution that are closely related to soccer.

METHODS

This research conducted using research and development method. According to Gall & Borg (2003, p. 569) research and development is a research method that is used to create new products and procedures, which are then tested in the field, evaluated and filtered systematically to meet the criteria of effectiveness, quality, or the same standard specifically. Whereas according to Sugiyono (2011, p.407) research an development is research that is used to produce a particular product, and test the effectiveness of the product. Based on the opinion of that research and development method is a research method that is used to produce a particular product, and then tested in field, evaluated, and tested to see the effectiveness of the product.

The study adopted ten steps of research from sugiyono (2010, p. 409), those are (1) identified the potential and problems, (2) collect data, (3) develop initial products, (4) design validation, (5) design revision, (6) small-scale product test, (7) product revision, (8) large-scale test, (9) product revision, and (10) the final product. The following are the ten steps to be taken.

Identified The Potential And Problems, an initial study about the training program in the soccer school (SSB) is conducted at this stage, especially in the age group of 13-14 years old and assumed that there is a problem facing by the coach in carrying out the exercise. The analysis conducted on the issue of exercise used in the soccer school (SSB), then the characteristics of the children with the age group of 13-14 years old were also analyzed. Therefore, the products that will be produced are fit to the characteristics of the children who become the subject of research. Whereas the potential of this research is the development of kicking accuracy practice in soccer game for children with the age group of 13 to 14 years old with play based approach that hasn't been researched before.

Data Collection, observing and interviewing soccer school's coaches in Sleman, namely Gelora Soccer School, Real Madrid Soccer School, and Bina Putra Jaya Soccer School were conducted at this stage.

Develop Initial Products, there are several things need to be considered in developing initial product research, those are (1) the analysis of the objectives and characteristics of the development of kicking accuracy practice in soccer game for children with the age group of 13 to 14 years old, (2) analysis of the basic motor skills and movement practice for children with the age group of 13-14 years old, (3) kicking skills analysis in the soccer game, and (4) developing kicking accuracy practice in soccer for children with the age group of 13 to 14 years old.

Design Validation, design validation is conducted before a small-scale trial to the initial product, the product must have a validation material from experts and soccer school coaches, those are (1) expert or specialist of soccer that is Subagyo Irianto, (2) expert or specialist of sports coaching and theory of play that is Sukadiyanto, (3) soccer school's coaches that is Anang Dwi Prasetyo. The role of Soccer school's coaches as one of material experts is very important, besides role as an expert in sports coaching, soccer school's coaches are subject that will use this game product later. The validation purpose from the experts is to get the endorsement of the practice models that were developed, as well as to get feedback and suggestions for product draft for the children with the age groups of 13-14 years old. In the validation process, material experts and soccer school's coaches assess and give suggestion for the initial product.

Design Revision, based on experts and soccer school's coaches assessment and advises, a revision of the initial product has been conducted. This revision process continued to do until early product reached a certain value that has been set, indicating that the initial product is valid and worthy tested.

Product Trials (Small-Scale Product Testing), product trials or small-scale trials conducted after getting feedback and approval from the material experts. The result of small-scale trial are documented in the form of DVD (Digital Video Disc), which will be observed by the material experts by using the observation guide that has been compiled.

Product Revision, the revision of the product is performed again after the trial results with small-scales that are documented in the form of DVD (Digital Video Disc) and observed by material experts and soccer school's coaches, product revision is conducted after getting assessed and get suggestion from material experts and soccer school's coaches.

Large-Scale Test, the result of small-scale trial, that already got suggestion from the experts, further revised. After that a trial on a real group is conducted in a large-scale. Processes performed at the stage of large-scale trials similar to the process performed on the stage of small-scale trials. Trial's subject that have followed the small-scale trials did not participate in large-scale trials.

Product Revision, the revision process of the product is performed again after tests of usage (large-scale trials) that are documented in the form of DVD (Digital Video Disc), then observed by material experts and soccer school's coaches who give assessments and suggestion to produce the final product.

The Final Product, the final result is in the form of a product that has already got approval from the experts and practitioners in the form of DVD training and handbook training.

Trial Design, product or drafts trials in this research was done twice, those are small-scale trials and large-scale trials. The product of the trials are development of kicking accuracy practice in soccer game for children with the age group of 13 to 14 years old. Before the trial, experts who have been appointed have validated the trial models, therefore it could be claimed that the practice models are eligible to be tested in the field. In the field trial, the experts role to observe the eligibility of the draft that has been constructed according to the condition in the field. After a large-scale trials, it will generate practice model that hold validity.

Trials Subjects, trials subjects in this research is the students of Gelora Soccer School, Bina Putra Jaya Soccer School, and Real Madrid Soccer School with the age group of 13-14 years old. Small-scale trials in this research involving 12 students and large-scale trials involving 42 students.

Techniques and Instruments of Data Collection, there are two types of data that are collected in this research, those are qualitative and quantitative data. Qualitative data obtained from: (1) the result of interviews with soccer school's coaches, (2) field note, and (3) the suggestions data from mode draft and observations result of small-scale trials and large-scale trials. Whereas the quantitative data obtained from: (1) the assessment of the validation scale values of draft model, (2) the assessment of the observation scale value of the implementation of model, and (3) the

assessment of the observation scale value of the effectiveness of the implementation of the practice model.

Data Analysis Techniques, descriptive data analysis quantitative and qualitative techniques were used in this research. Quantitative descriptive data analysis techniques are performed on (1) the validation assessment result with scale value of material expert about the practice model draft before the test, (2) the assessment data for the results of the observation from observers for practice models, (3) the observation data from observers for the effectiveness of kicking accuracy practice model in the process of practice. There are four stretch of the score on validation question form, an observation model, and model effectiveness observation: (1) score 1 for not appropriate assessment, (2) score 2 for quite appropriate assessment, (3) score 3 for accordingly assessment, and (4) score 4 for very appropriate assessment.

Compiled model is worth tested with either small-scale or large-scale if quantitatively calculated score reach the minimum standards of eligibility. Categorization norm that will be used in accordance with Azwar (2005, p. 109) is as follows:

Table 1. Norm Categorization.

No	Formula	Categorization
1	$X < (\mu - 1,0\sigma)$	Low
2	$(\mu - 1,0\sigma) \leq X < (\mu + 1,0\sigma)$	Moderate
3	$(\mu + 1,0\sigma) \leq X$	High

This study assumes that the low categorization norm is also called not appropriate or not effective, the moderate categorization norm is also called as quite appropriate or quite effective, and the high categorization norm is also called as appropriate/effective.

Descriptive qualitative techniques are conducted on: (1) the results of interviews data with coaches soccer school on the study of introduction, (2) the suggestion data from material experts and coaches for the practice model, both before trial and after trial in the field. Analysis activity of the data for model is the data representation, data reduction, and makes the conclusion of data.

RESULTS AND DISCUSSION

There were four revised process on the kicking accuracy practice model in soccer for children with the age group of 13-14 years old having, those are (1) before validation, (2) before a trial product with small-scale, (3) after small-scales trials, and (4) after large-scale trials.

The Initial Draft Of The Product Validation, the validation is done by way of providing a initial product draft of practice model that has been revised based on suggestion from material expert and soccer school's coaches. Every practice model created has its evaluation sheet to get the a detail assessment.

The initial draft of the product validation is conducted by the expert by looking at the result of conformity assessment of the draft implementation which consists of nine (9) games of kicking accuracy for the children with the age group of 13-14 years old. Model compiled deemed worthy to be tested with small-scale and large-scale when quantitatively calculated score reach the minimum standards of eligibility.

Table 2. Categorization Norm For Validation.

No	Interval	Category	Conformity
1	$X < 30$	Low	Less appropriate
2	$30 \leq X < 45$	Moderate	Quite appropriate
3	$45 \leq X$	High	Appropriate

As for the results of an assessment by experts as follows: triangular passing game located at intervals of $45 \leq X$, passing and moving game located at intervals of $45 \leq X$, moving the ball game located at intervals of $45 \leq X$, passing the ball game located at intervals of $45 \leq X$, passing and coordination game located at intervals of $45 \leq X$, scoring goal game located at intervals of $45 \leq X$, targeting ball game of 4 vs 2 located at intervals of $45 \leq X$, targeting goal game of 2 vs 1 located at intervals of $45 \leq X$, and targeting goal game of 2 vs 2 located at intervals of $45 \leq X$. Based on the assessment of the experts then ninth game entered in the appropriate categories which judging from the total value provided by the experts are all located on the interval $X \leq 45$. This calculation is the basis that drafts of the initial product for mode of practice kick accuracy for the group of 13-14 years old was worth to do small-scale trials.

Assessment Of Small-Scale Trials, on the conformity assessment of the implementation of small-scale trials consisting of nine games of the kicks accuracy, three of experties gave judgment as follows: triangular passing game located at intervals of $39 \leq X$, passing and moving game located at intervals of $39 \leq X$, moving the ball game located at intervals of $39 \leq X$, passing the ball game located at intervals of $39 \leq X$, passing and coordination game located at intervals of $39 \leq X$, scoring goal game located at intervals of $39 \leq X$, targeting ball game of 4 vs 2 located at intervals of $39 \leq X$, targeting goal game of 2 vs 1 located at intervals of $39 \leq X$, and targeting goal game of 2 vs 2 located at intervals of $39 \leq X$.

Table 3. Categorization Norm For The Conformity Of The Game On A Small-Scale.

No	Interval	Category	Conformity
1	$X < 26$	Low	Less appropriate
2	$26 \leq X < 39$	Moderate	Quite appropriate
3	$39 \leq X$	High	Appropriate

Refers to the categorization, then the results of the assessment by experts for the nine of kick accuracy games is already in compliance, which judging from the total value provided by the experts, all of games located on the interval $39 \leq X$.

On the assessment of the effectiveness of the implementation of the small scale test consisting of nine games of kick accuracy, three of experties gave judgment as follows: triangular passing game located at intervals of $30 \leq X$, passing and moving game located at intervals of $30 \leq X$, moving the ball game located at intervals of $30 \leq X$, passing the ball game located at intervals of $30 \leq X$, passing and coordination game located at intervals of $30 \leq X$, scoring goal game located at intervals of $30 \leq X$, targeting ball game of 4 vs 2 located at intervals of $30 \leq X$, targeting goal game of 2 vs 1 located at intervals of $30 \leq X$, and targeting goal game of 2 vs 2 located at intervals of $30 \leq X$.

Table 4. Categorization Norms For Effectiveness Of Games On A Small-Scale.

No	Games	Interval	Category	Effectiveness
1	1	$30 \leq X$	High	Effective
2	2	$30 \leq X$	High	Effective
3	3	$30 \leq X$	High	Effective
4	4	$27 \leq X$	High	Effective
5	5	$30 \leq X$	High	Effective
6	6	$27 \leq X$	High	Effective
7	7	$30 \leq X$	High	Effective
8	8	$30 \leq X$	High	Effective
9	9	$30 \leq X$	High	Effective

Refers to the categorization, then the results of the assessment by experts for the nine of games kick accuracy is already effective, seen from the total value given by the experts are all located at intervals of high categories.

Development of practice model should pay attention to some point of view, one of them is the response from the students. Responses from the students is important to note because the students who become the object of target products are made. The following responses of students for practice model using questionnaire. Based on the results of the data questionnaire for students or players shows that the response of the students or players who become a sample test on a small-scale, generally they giving a positive response toward the practice kick accuracy model in soccer with play based approach. Students or players had the pleasure for practice with play based approach that taught, and make student want to do it again. In addition, students also feel increasingly motivated in training soccer. There is one student (8.3%) declaring less to understand the rules of the game are taught, this is due to lack of concentration of these students while listening to instructions from coach when describing the game rules.

Assessment Of Large-Scale Trials, on the conformity assessment of the implementation of large-scale trials consisting of nine games of the kicks accuracy, four of experties gave judgment as follows: triangular passing game located at intervals of $39 \leq X$, passing and moving game located at intervals of $39 \leq X$, moving the ball game located at intervals of $39 \leq X$, passing the ball game located at intervals of $39 \leq X$, passing and coordination game located at intervals of $39 \leq X$, scoring goal game located at intervals of $39 \leq X$, targeting ball game of 4 vs 2 located at intervals of $39 \leq X$, targeting goal game of 2 vs 1 located at intervals of $39 \leq X$, and targeting goal game of 2 vs 2 located at intervals of $39 \leq X$.

Table 5. Categorization Norm For The Conformity Of The Game On A Large-Scale.

No	Interval	Category	Conformity
1	$X < 26$	Low	Less appropriate
2	$26 \leq X < 39$	Moderate	Quite appropriate
3	$39 \leq X$	High	Appropriate

Refers to the above categorization, it could be concluded that the results of the assessment by experts for the nine of kicking accuracy games was already met the criteria,

which judged from the total scores provided by the experts, all of scores were located on the interval $39 \leq X$.

On the assessment of the effectiveness of the implementation of the large-scale test consisting of nine games of kick accuracy, four of experties gave judgment as follows: triangular passing game located at intervals of $30 \leq X$, passing and moving game located at intervals of $30 \leq X$, moving the ball game located at intervals of $30 \leq X$, passing the ball game located at intervals of $30 \leq X$, passing and coordination game located at intervals of $30 \leq X$, scoring goal game located at intervals of $30 \leq X$, targeting ball game of 4 vs 2 located at intervals of $30 \leq X$, targeting goal game of 2 vs 1 located at intervals of $30 \leq X$, and targeting goal game of 2 vs 2 located at intervals of $30 \leq X$.

Table 6. Categorization Norms For Effectiveness Of Games On A Small-Scale.

No	Games	Interval	Category	Effectiveness
1	1	$30 \leq X$	High	Effective
2	2	$30 \leq X$	High	Effective
3	3	$30 \leq X$	High	Effective
4	4	$27 \leq X$	High	Effective
5	5	$30 \leq X$	High	Effective
6	6	$27 \leq X$	High	Effective
7	7	$30 \leq X$	High	Effective
8	8	$30 \leq X$	High	Effective
9	9	$30 \leq X$	High	Effective

Refers to the categorization, then the results of the assessment by experts for the nine of games kick accuracy was already effective, seen from the total scores given by the experts were all located at intervals of high categories.

Followed were students responses on practice model taken from the used questionnaire. Based on the results of the data questionnaire for students or players showed tht the response of the students or players who become a sample test on small-scale generally they gave a positive response toward the practice kick accuracy model in soccer with play based approach. Students or players had the pleasure for practice with play based approach that were taught, and made student want to do it again. In addition, students also feel increasingly motivated in training soccer. There were some students (7.2%) declaring less to understand the rules of the game that were taught, this was due to lack of concentration of the students while listening to instructions from he coach when describing the game rules.

The Study Of Final Product, based on the assessment and suggestions by material experts and soccer school's coaches (SSB), a revision for draft of the kicking accuracy practice model were conducted. Finally, this study produced a practice kick accuracy model for children with the age group of 13-14 years old using play based approach. Substance selection of the model is based on the characteristics of the children aged of 13-14 year old and is based on the characteristics of the usefulness of kicks in soccer. Whereas the play based approach was chosen because with playing, a child will feel happy, will get motivated to do exercises and will avoid boredom. Therefore, the goal and objectives of the exercise will also be achieved.

Based on the explanation above, result of this research is a kicking accuracy practice model consisting of (1) triangular passing game; (2) passing and moving game; (3) moving the ball game; (4) passing the ball game; (5) passing and coordination game ; (6) scoring goal game; (7) targeting ball

game of 4 vs 2 ; (8) targeting goal game of 2 vs 1; and (9) targeting goal game of 2 vs 2, arranged in a training DVD shape and training handbook.

CONCLUSION AND SUGGESTION

The result of this development research is a kicking accuracy practice model in soccer for the children with the age group of 13-14 years old with play based approach which consist of nine games, namely (1) triangular passing game; (2) passing and moving game; (3) moving the ball game; (4) passing the ball game; (5) passing and coordination game ; (6) scoring goal game; (7) targeting ball game of 4 vs 2 ; (8) targeting goal game of 2 vs 1; and (9) targeting goal game of 2 vs 2, arranged in a training DVD shape and training handbook and this model was appropriate, effective, and feasible to use.

Suggestions for further product development is further research can be conducted with more research subjects and wider coverage of a field. In addition, similar development research can be conducted on different age group of soccer school's students (SSB).

ACKNOWLEDGMENT

It is dedicated to my beloved mother Lilik Umi Nasriyati and my father Khozin. My sincere ratitude to Professor Suharjana and Professor Sukadiyanto, thank you for your guidance.

REFERENCES

- Azwar, S. (2005). *Penyusunan skala psikologi*. Yogyakarta: Pustaka Pelajar.
- Chapman, S., Derse, E., & Hansen, J. (Eds). (2008). *LA48 foundation soccer coaching manual*. Los Angeles: LA84 Foundation.
- Fishburne, G., McKay, H., & Breg, S. (2005). *Building strong bones and muscles: 71 activities*. Campaign, IL: Human Kinetics.
- Gall, M. D., Gall, J. P., & Borg, W. R. (2003). *Educational research: an introduction*, 7th ed. New York: Pearson Education, Inc.
- Gifford, C. (2003). *Sepakbola: panduan lengkap untuk permainan yang indah*. (Terjemahan Rudijanto). Jakarta: Penerbit Erlangga.
- Katis, A., et. al. (2013). Mecanisms that influence accuracy of the soccer kick. *Journal of Electromyography and Kinesiology*, 23,125-131.
- Kellis, E. & Katis A. (2007). Biomechanical characteristics and determinants of instep soccer kick. *Journal of Sports Science and Medicine*, 6, 154-165.
- Lumintuarso, R. (Ed.). (2007). *Teori kepelatihan dasar (materi untuk kepelatihan tingkat dasar)*. Jakarta: Kemenegpora.
- Majelan, A. S., et. al. (2011). The effects of approach angle and target position on instep kicking accuracy and ball speed with skilled soccer players. *Sport SPA*, 8, 35-39.
- Parrish, M. (2011). *Essential soccer skills: key tips and techniques to improve your game*, 1st ed. New York: DK Publising.
- Subroto, T., dkk. (2009). *Permainan besar (bola voli dan sepakbola)*. Jakarta: Universitas Terbuka.
- Sugiyono. (2010). *Metode penelitian pendidikan: pendekatan kuantitatif, kualitatif, dan R & D*. Bandung: Alfabeta.
- Sukadiyanto. (2002). *Pembinaan kondisi fisik petenis*. Yogyakarta: Universitas Negeri Yogyakarta.
- Wesson, J. (2002). *The science of soccer*. Philadelphia: Institute of Physics Publishing.
- Young, W., et. al. (2010). Acute effect of exercise on kicking accuracy in elite Australian football players. *Journal of Science and Medicine in Sport*,13,85-9.

AFFECTING FACTOR OF SWIMMING EXERCISES BASED ON MULTI-LATERAL METHOD TO INCREASING COGNITIVE INTELLIGENCE OF CHILDREN

Kusuma, Moh. Nanang Himawan¹, Julianti, Kelli²

^{1,2}Department of Medicine, Faculty of Medicine and Health Sciences, University of Jenderal Soedirman, Purwokerto 53146, Indonesia

¹anangkusuma@yahoo.com

Abstract

Short-term memory plays a major role in all cognitive process affecting children intelligence and academic performance. Short-term memory is affected by many factors. One of them is physical exercise. Physical exercise can affect the function of cognitive process through mechanism of neurogenesis improvement, synapse plasticity, brain blood flow, angiogenesis, vascular growth, neurotransmitter and epigenetic. One of physical activity is aerobic exercise. Swimming is an aerobic water-based exercise which involves almost all the muscle of body, so it has benefit for health and keep body fit. Aims of study was to determine the effect of swimming as one of aerobic physical exercise (swimming) to short-term memory in children. The method used in this study was an experimental research with *pre test - post test* group design. The subjects were 13 children listed as member in the Bina Taruna Pool Club in Purwokerto. The intervention is 5-weeks swimming with the frequency of 2-3 times per week, each swimming session is 30 minutes, divided into 5 series. Each series consisted of 6 minutes swimming and 5 minutes of rest. Swimming will be carried out in moderate exercise zone (64-76% of maximum heart rate). Short-term memory was measured using the digit span and symbol coding before and after intervention. Paired T-test was used as the statistical test with significance value $p < 0,05$. There is an effect of swimming to short-term memory (auditory and visual) in children. P value = 0.006 for auditory short-term memory (digit span) and p value = 0.045 for visual short-term memory (symbol coding). There is an effect of swimming to short-term memory in children.

Keywords: swimming, short-term memory, children, digit span, symbol coding

INTRODUCTION

Short-term memory plays a major role in all cognitive process affecting children intelligence and academic performance. Short-term memory is affected by many factors. One of them is physical exercise. Physical exercise can affect the function of cognitive process through mechanism of neurogenesis improvement, synapse plasticity, brain blood flow, angiogenesis, vascular growth, neurotransmitter and epigenetic. One of physical activity is aerobic exercise. Swimming is an aerobic water-based exercise which involves almost all the muscle of body, so it has benefit for health and keep body fit. Research Ratey & Loehr (2011) said that physical activity is associated with increased brain function and cognition during childhood and young adulthood, said also that aerobic activity can improve cognitive function. The main purpose of aerobic exercise is to use as much oxygen as possible or multiply the amount of oxygen that can be processed by the body (Alex, et al., 2012). One study of physical activity using the respondent children under the age of 5 years. The study aims to explore the benefits of outdoor learning is to physical, emotional, social and intellectual. Results from these studies are statistically significant, where there is physical development, language and cognition among respondents (Jorgensen, 2012). Other studies on the effect of exercise on short-term memory is done by previous researchers in adult women. The results showed an increase in short-term memory scores were significant compared with the scores before exercise. The

conclusion of the study is that exercise can improve short-term memory in older women (Susanto, et al., 2010). However, no studies on the effect of swimming against short-term memory in children of school age. So researchers interested in studying the effect of physical exercise swimming against short-term memory in children.

METHODS

This experimental design was pre-post test group design. The subjects were all children who join Bina Taruna pool club in Purwokerto, Central Java which amount 13 children. Inclusion criteria were 1) children aged between 7-12 years old and they were at "Preparation" level in the pool club, 2) Respondent's parent fill out a letter of approval (informed consent) which state willing their child be a respondent for this research and verbal informed consent from respondent 3) In a good health condition measured from the PAR-Q questionnaire which there is no "Yes" in the questionnaire colom, 4) Respondent can understand numbers and letters. Smokers were excluded from this research. Respondent will be drop out when 1) resondent resigned as a respondent for some reason, 2) respondent who ever absent when swimming programe were on going, 3) respondent didn't do one from two test which would be given.

Subjects were swimming for 30 minutes which divided into five series of time. Each series consist of 6 minutes and 5 minutes break. Swimming were doing in moderate zone (64%-76% of maximum heart rate) and it was going along 5 weeks with a frequency of 2-3 times per week. Short term memory was measured using digit span test and symbol coding , and it took before and after 5 weeks swimming. We used paired T-test as a statistic test with significance $p < 0,05$. The proccess of taking data has been approved by ethics committee from medical faculty of Jenderal Soedirman University.

RESULTS AND DISCUSSION

This research was held at Bina Taruna swimming pool on 4th November 2015 until 5th December 2015 for 5 weeks. Respondent were children at Preparation level. Total of children in Preparation level were 21 children with 4 boys and 17 girls. Eight respondent didn't join one of the short term memory test, so we're not included them in this study. Respondent who joined the study until the end of session were 13 children.

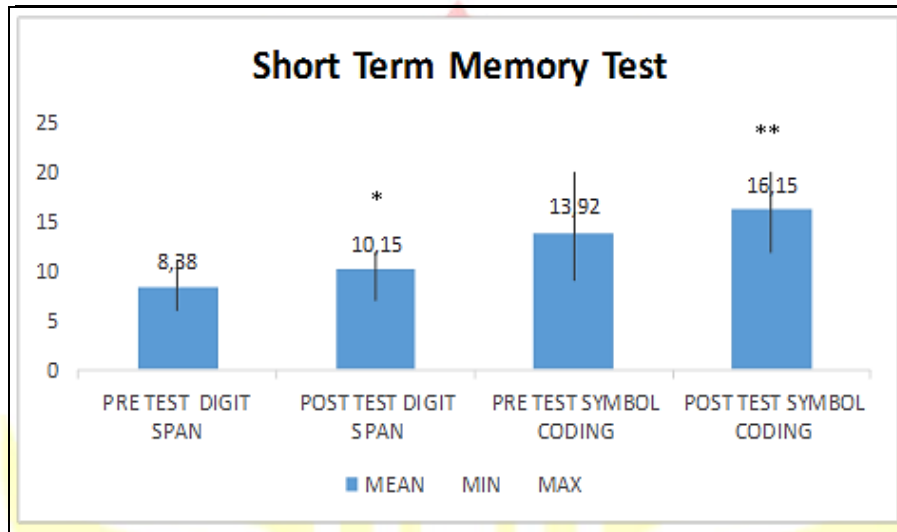
Table 1. Distribution Table according by Respondent Gender and Nutritional Status.

Classification		n (%)
Gender	Boy	2 (15,38)
	Girl	11 (84,62)
Status Gizi	Normal	8 (61,54)
	Fat	5 (38,46)

Univariate analysis used to determine the distribution, frequency and percentage of each subject. This analysis performed on each variable of the study results. Respondent characteristics include age in years, Body Mass Index (BMI) (Kg/m², sleep duration (hours) , the duration of swimming time in Preparation level (month) and exercise pulse (x/minutes).

Table 2. Respondent Characteristic Table.

Classification	Mean $\pm$ SD	Min	Max
Age (year)	9,15 $\pm$ 1,46	7	12
BMI (Kg/m ²)	20,02 $\pm$ 4,30	13,88	26,37
Sleep duration (hour)	8,31 $\pm$ 0,63	8	10
Swimming time (month)	12,15 $\pm$ 7,46	0	20

**Fig. 1. Short Term Memory Test.**

Bivariate Analysis,

Note:

* = there are differences between the mean value of digit span pre test and post test with $p < 0,05$ was 0,006

** = there are differences between the mean value of symbol coding pre test and post test with $p < 0,05$ was 0,045

The study sample consisted of 85% girls and 15% boys. There is no data about the influence of gender on short term memory in children so that we took a whole population that exist at Bina Taruna pool club. Age of respondent according the inclusion criteria were aged 7-12. The mean age of respondents who were 9,15 $\pm$ 1,46 years old. These periode of age is a critical period of short term memory maturation (Mundkur, 2005).

Cognitive development begins from the gestation, reaching a peak at 1-3 years old and then improve slowly until 16 years old (Grantham-McGregor, et al., 2007). Adolescence still experience an increase of neurons plasticity but not as fast as in children, so it needs an action for use children late age in increasing their memory function (Thompson & Nelson, 2001). Cognitive development is also affected by stimulus exposure. The greater the exposure to the stimulus, the greater the cognitive development (Grantham-McGregor, et al., 2007). According to Thompson and Nelson (2001) improvement, integration and growth of brain function occurs during childhood and adolescence. If children were given experience with the intervention programme which started in early age and ongoing, it can support cognitive growth in children associated with plasticity. Analysis of the Body Mass Index of respondents indicated the maximum value 26.37 and 13.88 mininal value, with the average of 20.02 $\pm$ 4.30. According to WHO (2007) regarding body mass index in children distinguished on gender and age, to obtain the classification of underweight, normal and overweight. Most of the respondents (61.54%) were classified into normal group and others are classified as overweight. The treatment which given is physical exercise of swimming in moderate

intensity (64-76%). Details of the swimming exercise are as follows: first week butterfly style - butterfly, backstroke second week, third week breaststroke, freestyle and fourth week of the fifth week of mixed style.

Digit span is used to measure children short-term memory (auditory). The mean of digit span pre test was 8.38 ± 1.45 . The maximum value was 20 and the minimum value was 9. Seven of the respondents got digit span pre-test results with low interpretation and 6 respondents with moderate interpretation. The mean of digit span post test was 10.15 ± 1.77 . The maximum value was 20 and the minimum value was 12. Two respondents achieved digit span post test with low interpretation and 11 respondents with moderate interpretation. There are differences between the mean for the digit span pre test and post test, $10.15 - 8.38 = 1.77$ thereby indicating an increase.

Symbol coding was used to measure the visual short-term memory. The mean pre test symbol coding was 13.92 ± 3.40 . The maximum value was 20 and the minimum value was 9. Six respondents got pre test symbol coding results with moderate interpretation, 4 respondents with high interpretations and 3 respondents very high interpretations. Mean of symbol coding post test was 16.15 ± 2.79 .

The maximum value was 20 and minimum value was 12. One respondent obtain symbol coding post test with moderate interpretation, 8 respondents with high interpretation and 4 very high interpretations respondents and here is no lower interpretation of the results of symbol coding pre-test and post-test. There are differences between the mean and standard deviation for the value of symbol coding pre-test and post test 2.23 ± 0.61 . Thus seen an increase in test results of symbol coding. Mean of pre-test digit span overweight respondents was 8.6. Mean of pre-test digit span normal respondents was 8.25. Mean of pre-test symbol coding obese respondents was 14.2 and the normal was 13.75. The mean value of the digit span pre test - post test obese respondents was 1.8 and the normal was 1.75. The mean value of the symbol coding pre test - post test obese and normal respondents was 4 and 1.125. Characteristic of short-term memory in normal and obese respondents are relatively the same, so the researchers included all respondents regardless of nutritional status. Analysis respondents duration sleep had a maximum value of 10 hours and a minimum value of 8 hours with a mean of 8.31 ± 0.63 hours. Mean sleep duration were obtained from respondents is enough sleep for school-age children according to Agustin (2012). Romcy-Pereira, et al. (2009) said that sleep can restabilize and strengthen synaptic pathways in the brain, because sleep can rest a reseptor like NMDA receptors, AMPA-R and TrkB. These receptors will affect the learning activities and affects LTP from the synapse to the cycle of short-term memory and increase the plasticity (Minichiello, 2009). LTP affected by BDNF which response for learning and memory, which will work on the pre-synaptic and post-synaptic (Cunha et al., 2010).

CONCLUSION AND SUGGESTION

There was a significant influence of swimming to short term memory in children and knew the value of short term memory before and after swimming in children. We suggest that it needs to study further to determine the short-term memory by measuring serum BDNF in humans. After getting the result that the swimming influence on short-term memory in children, researchers hope their future research to look at the effect of swimming to the long-term memory in children. The effect of swimming to short-term memory can be performed in younger children than the age of the respondents of this study. With the aim that brain development occurs more and improve the quality of children's achievement.

ACKNOWLEDGMENT

I would like to express my first utmost gratitude to lecturers, students of Faculty of Medicine, Universitas Jenderal Soedirman, who have given full support in completing this research. My second family, all colleagues in Margono Soekarjo Hospital of Purwokerto for all kindness

guidance, moral support and remarkable fellowship, foremost in Department of Neurology, who always give supports.

REFERENCES

- Aeschbach, D., Sher, L., Postolache, T.T., Matthews, J.R., Jackson, M.A., et al. 2003. A Longer Biological Night in Long Sleepers Than in Short Sleepers. *The Journal of Clinical Endocrinology & Metabolism*, LXXVIII, Pp. 26-30.
- Agustin, Destiana. 2012. Faktor-faktor yang Mempengaruhi Kualitas pada Pekerja Shift Di PT Krakatau Tirta Industri Cilegon. Depok: Universitas Indonesia.
- Alex, M.S., Subiono, H.S., Sutardji. 2012. *Journal of Sport Sciences and Fitness*: Pengaruh Latihan Senam Aerobik Low Impact dan High Impact Terhadap Kesegaran Jasmani. Jawa Tengah: Universitas Negeri Semarang.
- Beard, J.L. 2001. Journal of Nutrition: Iron biology in immune function, muscle metabolism and neuronal functioning.
- Binder, D.K & Scharfman, H.E. 2004. Brain-derived Neurotrophic Factor. *National Institute of Health* vol. 22(3): 123-131.
- Budiningsih, Asri. 2005. Belajar dan Pembelajaran. Jakarta: Rineka Cipta.
- Chugani, H.T. 1998. Biological basis of emotion: Brain systems and brain development. *Pediatrics*; 102:1225-9.
- Cunha, C., Brambilla, R., & Thomas, K.L. 2010. A simple role for BDNF in learning and memory. *Frontiers in Molecular Neuroscience*, 3,1.
- Destiany, I. 2013. Pengaruh Metode Latihan Stabilisasi Terhadap Kekuatan Otot Lengan dan Kekuatan Otot Tungkai Pada Perenang Kupu-Kupu. Jakarta: Universitas Pendidikan Indonesia.
- Ensminger, A.H., Ensminger, M.E., Konlade, J.E., Robson, J.R.K. 1997. The Concise Encyclopedia of food & nutrition. CRC Press.
- Eysenck, M.W & Keane, M.T. 1997. *Cognitive Psychology* Ed.3 page 123-155.
- Graham-McGregor, S., Cheung, Y.B., Cueto, Glewwe, P., Richter, L., et al. 2007. Child development in developing countries 1: Developmental potential in the first 5 years for children in developing countries. *Lancet* 2007; 369: 60-70.
- Hateman, J.S., Kaczorowski, J.M., Aligne, A., Auinger, P., Szilagy, P.G. 1998. Iron deficiency and Cognitive Achievement Among School-Aged Children and Adolescent in United State.
- Hidayat, M., I.S. Amy, J. Suherman. 2008. Pengaruh Kenaikan Glukosa Darah terhadap Peningkatan Daya Ingat Jangka Pendek pada Wanita Dewasa. *JKM*. 8(1) : 15-19.
- Hidayatullah, M.F. 1995. General Theory of Training. Surakarta: Sebelas Maret University Press.
- Hilton, Elizabeth. 2001. Differences in Visual and Auditory Short-Term Memory. *Undergraduate Research Journal* Vol IV.
- Huwae, F.J. 2006. Hubungan Antara Kadar Seng (Zn) Dengan Memori Jangka Pendek Pada Anak Sekolah Dasar. Semarang: UNDIP.
- Jorgensen, Robyn. 2012. Early-years swimming: Adding Capital to Young Australians. Australia: Griffith University.
- Katz, Jane. 2002. *Swimming for Total Fitness: A Complete Program for Swimming Stronger, Faster, and Better*. The Library of Congress Cataloging-in-Publication Data
- Karp, Gerald. 2007. Cell and molecular biology: Concepts and experiments (5th ed). New Jersey: Wiley J and sons.
- Longordo, F., Kopp, C., & Luthi, A. 2009. Consequences of sleep deprivation on neurotransmitter receptor expression and function. *The European Journal of Neuroscience*, 29 (9), 1810-1819.
- Minichiello, L. 2009. TrkB signalling pathway in LTP and learning. *Nature reviews. Neuroscience* 10 (12), 850-860.

- Mundkur, N. 2005. Neuroplasticity in Children. *Indian J Pediatr*; 72(10):855-7.
- Neeper, S.A., Gomez-Pinilla, F., Choi, J., Cotman, C. 1995. Scientific Correspondence: Exercise and brain neurotrophins. *Nature* vol 373 page 109.
- Pane, Ramses Sitorus. 2011. Pengaruh Latihan Katrol di Darat dengan Latihan Wheelbarrow Terhadap Kecepatan Hasil Renang Gaya Bebas 50 Meter pada Atlet Putra Kelompok Umur II (Ku 13-14) Club Bina Tirta Tahun 2011. Medan : UNIMED.
- Praag, H.V., Shubert, T., Zhao, C., Gage, F.H. 2005. Exercise Enhances Learning and Hippocampal Neurogenesis in Aged Mice. *National Institute of Health* vol 25(38): 8680-8685.
- Protzner, A.B., Cortese, F., Alain, C., McInosh, A.R. 2009. Neuropsychologia: The temporal interaction of modality specific and process specific networks supporting simple working memory tasks. *Elsevier* 47 (2009) 1954-1963.
- Putranto, Puji Leksono. 2009. Pengaruh Senam Otak Terhadap Fungsi Memori Jangka Pendek Anak dari Keluarga Status Ekonomi Rendah. Semarang: UNDIP.
- Ratey, J.J & Loehr, J.E. 2011. The positive impact of physical activity on cognition during adulthood: a review of underlying mechanisms, evidence, and recommendation. *Rev. Neurosci.*, Vol. 22(x).
- Ravassard, P., Pachoud, B., Comte, J. C., Mejia-Perez, C., Scote-Blachon, C., Gay, N., et al. 2009. Paradoxical (REM) sleep deprivation causes a large and rapidly reversible decrease in long-term potentiation, synaptic transmission, glutamate receptor protein levels, and ERK/MAPK activation in the dorsal hippocampus. *Sleep*, 32 (2), 227-240.
- Romcy-Pereira, R. N., Erraji-Benchekroun, L., Smyrniotopoulos, P., Ogawa, S., Mello, C. V., Sibille, E., et al. 2009. Sleep-dependent gene expression in the hippocampus and prefrontal cortex following long-term potentiation. *Physiology & Behavior*, 98 (1-2), 44-52.
- Rosales, F.J., Reznick, J.S., Zeisel, S.H. 2009. Understanding the Role of Nutrition in the Brain & Behavioral Development of Toddlers and Preschool Children: Identifying and Overcoming Methodological Barriers ; *National Institute of Health*.12(5):190-202.
- Siegel, J. M. 2003. Why we Sleep. *Scientific American*. Pp. 92-97.
- Smith, P.A. 2014. Neuroscience Journal: BDNF: No Gain Without Pain. Canada: Centre for Neuroscience and Department of Pharmacology, 9.75 Medical Sciences Building, University of Alberta, Edmonton, AB T6G 2H7.
- Sumadikarya, I.K. 1999. Memori Jangka Pendek: Penerimaan, Penyimpanan dan Pemanggilan Informasi. Jakarta: UKRIDA.
- Susanto, Y., P. Djojosoewarno, Rosnaeni. 2010. Pengaruh Olahraga Ringan Terhadap Memori Jangka Pendek Wanita Dewasa. *JKM*. 8 (2) : 144-150.
- Sutaryo. 2004. Aspek klinis anemia defisiensi besi. Jogjakarta: Seminar Anemia Defisiensi Besi.
- Thompson, R.A & Nelson, C.A. 2001. Developmental Science and the Media: Early Brain Development. *American Psychological Association* Vol. 56, No. 1, 5-15.
- Viteri, F.E. 1998. Prevention of Micronutrient Deficiencies. Institut of Medicine Washington DC.
- Zhang, J. 2004. Memory Process and The Function of Sleep. *Joournal Theoritic*. 6(6) : 1-7.

UNIVERSITAS NEGERI SEMARANG

EVALUATION OF AMATEUR BOXING NATIONAL CHAMPIONSHIPS IN INDONESIA

Soedjatmiko

Department of Sports Coaching Education, Faculty of Sports Sciences, Semarang State University,
Central Java 50229, Indonesia

jatmiko_unnes@yahoo.com

Abstract

Boxing championship is the most appropriate purpose to measure the achievements of amateur boxers. Implementation of a boxing must run accordingly with the rules of the game rules. In Indonesian boxing championship should receive more attention in to run the game accordingly with the expected goals. The problems that emerge are [1]. How the antecedents implementation of the national amateur boxing championships in Indonesia [2]. How the transaction implementation of the national amateur boxing championships in Indonesia [3]. How the outcome of the implementation of the national amateur boxing championships in Indonesia. Implementation of championship boxing is the management of an organization that should be managed with good management. The hallmark of good management are planning, organizing, actuating and controlling. Implementation of championship boxing is set by world boxing body (AIBA) technical called AIBA and AIBA Rules competition rules. Amateur boxing championships in Indonesia still deepening needs through the research to check if it is run as planned or not. This type of research is the author of evaluative research. This study was directed to assess the success of the benefits, uses, donations and the feasibility of a program of activities of a particular organization. The population is all national amateur boxing championships of participants who included representatives from the central committee, technical committee, executive committee, Coach, boxers and Spectators. The sample in this study is 60 people were taken each group of 10 people. Data collected by questionnaires, interviews and documentation. The results showed that [1]. Implementation antecedents of the national amateur boxing championships in Indonesia still needs to be improved. [2]. Transaction Implementation of national amateur boxing championships to be implemented a through step by step. [3]. Outcome boxing championship has not been as expected. The conclusion of this research is the implementation of the national amateur boxing championships in Indonesia still needs to be improved from the preparation, implementation and its outcome. Recommendations that the authors give is. Need to be made guidelines for the implementation of the national amateur boxing championships in Indonesia.

Keywords: boxing, events, evaluation

INTRODUCTION

Boxing event become to interesting event and have a lot of fans in Indonesia. There are so many people who love this sport, especially men both young and old. Even today women also began to participating in to boxing both as spectators and as athletes, coaches and referees. This condition is a potential chance that can be developed to improve the performance of the sport of amateur boxing.

Boxing is one of the branches of martial arts and including to unmeasured sport. To determine the boxer achievements is by means of the match. Source with the correct procedure is needed so the match can run smoothly. The purpose of sports coaching amateur boxing is an integral part of the sports movement in Indonesia. Amateur boxing is a sport based on indulgence

and exercise. The end goal is to establish a healthy physical and spiritual, sublime personality and increase the sense of high nationalism and patriotism, especially for the younger generation (PP. Pertina: 2012: 3).

Good boxing match will produce a talented boxer who will excel. Validity of the game is needed to allow the boxer who really excel to develop his talent. As a determinant of the success and achievements of boxers, boxing needs to be made as possible so that the desired objectives can be achieved.

The purpose of the game in addition to measure the achievement and the success of the exercise program. Implementation of the training program by the trainers always measured his progress through the program try in and try out. As a test event match also should be able to run well in order to increase achievement boxer can be seen clearly.

Amateur boxing is almost always competed at the multi-sport event party at national and international level. In the event the SEA Games, Asian Games and Olympic Games sports amateur boxing became mandatory that always competed. Number of class and general so increased. Beginning in 2005 women's boxing also be unveiled at the Sea Games XXII/2005 in the Philippines. This means opportunities amateur boxer Indonesia at operform better at international level.

Indonesian amateur boxer achievement declined over the last few decades. The decline of Indonesian boxer feat can be seen in their participation in the multi-event championships level international. The table below shows that the decline of Indonesian boxer's achievement in their participation at Sea Games. In order to more clearly see the table below:

Table 1. Performance at Nine times Indonesia boxer's participation in the SEA Games (1997-2013)

No	Multi Event	Coutry	Gold	Silver	Bronze	Class Total
1	Sea Games XIX/1997	Indonesia	6	0	4	10 Kelas Men
2	Sea Games XX/1999	Brunei Darussalam	1	3	4	10 Kelas Men
3	Sea Games XXI/2001	Malaysia	2	0	6	10 kelas Men
4	Sea Games XXII/2003	Vietnam	0	0	8	15 Kelas Men/Women
5	Sea Games XXIII/2005	Philippine	0	3	6	15 Kelas Men/Women
6	Sea Games XXIV/2007	Thailand	0	0	8	15 Kelas Men/Women
7	Sea Games XXV/2009	Laos	0	3	0	15 Kelas Men/Women
8	Sea Games XXVI/2011	Indonesia	2	1	7	15 Kelas Men/Women
9	Sea Games XXVII/2013	Myanmar	0	1	6	15 Kelas Men/Women

Source: Presentation of data Pertina Central Board in 2014.

Indonesian boxer's achievement according to the table above started to decrease when participated on the Sea Games. Indonesian boxer just got a gold medal at Sea Games XXVI was due to be the host. At the moment no host performance declined.

Subsequently presented the participation of Indonesian boxer's achievement at the Asian Games.

Table 2. Achievement Indonesian boxer participation for ten times in the Asian Games (1978-2014)

No	Event	Country	Gold	Silver	Bronze	Total Medal
1	Asian Games VIII/1978	Thailand	1	1	2	4
2	Asian Games IX/1982	India	0	0	0	0
3	Asian Games X/1986	Korea Selatan	0	1	0	1
4	Asian Games XI/1990	China	1	0	2	3
5	Asian Games XII/1994	Japan	0	0	2	2
6	Asian Games XIII/1998	Thailand	0	2	0	2
7	Asian Games XIV/2009	Korea Selatan	0	0	0	0

8	Asian Games XV/2011	Qatar	0	0	0	0
9	Asian Games XVI/2013	China	0	0	0	0
10	Asian Games XVII/2014	Korea Selatan	0	0	0	0

Source: Presentation of data Pertina Central Board in 2014.

Indonesian boxer feat decline was also seen at the Asian Games event. From ten times participation, Indonesian boxer twice to win six gold. Namely the Asian Games VIII in 1978 and the Asian Games in 1990. The Indonesian boxer XI last time won two silver medals at the Asian Games XIII in 1998. After that on four occasions until the last Asian Games in 2014 yesterday Indonesian boxer could not afford to donate a piece achievements.

Pertina Central Board reported that many games that ended with the commotion and unrest that led to the goal the match was not achieved as it should be. Commotion much cause losses both material and non-material losses. These conditions must be rectified so in the future, the games can run smoothly and achieve goals as expected. (PP. Pertina: 2014).

The purpose of this study is to determine how the implementation of the national amateur boxing championships in Indonesia in the review of Preparation, execution and supervision. The benefits of this research are to provide a national overview of the implementation of amateur boxing championships in Indonesia compared to ideal conditions that exist. From the evaluation it is expected to have recommendations for the implementation of national amateur boxing championships ideal.

Amateur boxing has been using computer-based assessment. Since 1992 the world amateur boxing Agency has used computer games to determine victory boxer numbers. Ratings computer always corrected periodically and the latest use "AIBA computer system". In every game that is recognized by AIBA should use cameras from four angles. All of the equipment intended to safe guard the objectivity and confidence of the participants of the game.

METHODS

This type of research is the author of evaluative research. Evaluative research is research that aims to remedy gathering information about what is happening, which is the real condition of the feasibility plan that requires evaluation. This study was directed to assess the success, the benefits, uses, donations and the feasibility of a activity program of a unit or institution.

Evaluative research is an evaluation exercise but follow the norms that apply to research. Norm in question is the requirement Scientifics, followed systematics and methodology correctly so it can be accounted for. Evaluative studies have their uses, namely: [1]. Adding a research-based knowledge about a particular practice. 2). Develop research about certain practices [2]. The corner stone in decision-making in certain activities. The design study is evaluation model developed Stake. The research model developed stake consists of the following steps: [1]. Antecedent, [2]. Transaction [3]. Outcomes.

The population in this study were all participants of the national championship amateur boxing elite men / women 2014 national championship amateur boxing elite men / women is held from 2 to 9 November 2014 in the field Karemposi Makassar South Sulawesi. Number of boxers, trainers, technical committee, executive committee and representatives of the central Board Pertina numbered 224 people. Whereas Average daily audience numbered 250 people. Samples used are taking each five people to represent the groups above are taken at random. So the total sample of 30 people. The sample technique used is proportional random sampling stratified.

The instrument used in this study, there are three kinds: Observations, questionnaires and field documentation. Data analysis is done by the quantitative data were analyzed with quantitative Statistically. While the qualitative data was analyzed by qualitative analysis. Results of quantitative

analysis used to determine the success of the program by first analyzed by analysis of product moment. This analysis is to see the correlations between the discription of the judgment.

RESULTS AND DISCUSSION

This research was held at Bina Taruna swimming pool on 4th November 2015 until 5th December 2015 for 5 weeks. Respondent were children at Preparation level. Total of children in Preparation level were 21 children with 4 boys and 17 girls. Eight respondent didn't join one of the short term memory test, so we're not included them in this study. Respondent who joined the study until the end of session were 13 children.

The results showed that the preparation of the implementation still needs to be repaired again. Data documents show that implementation was not well planned. This fact is evident from the invitation of the organizing committee presented just three weeks ahead of the implementation of the championship. As a result, the participant could not prepare for the maximum in the national championship amateur boxing.

The correct organization including Pertina organization should plan their activities for a year arranged in a container organization called the National Labour Council (Mukernas). In these deliberations followed by the entire board Pertina provinces across Indonesia. Determination of host and organizer of amateur boxing national championships held on the implementation of a national working meeting held a year earlier. (AD / ART Pertina: 18).

Planning is the preparation of a pattern of the activities of the future that integrated and pre determined. Planning requires the ability to forecast, visualize and look forward fortified with specific objectives. Planning functions comprise the fundamental function of management. (Terry: 2006).

Implementation and organization of the game are still have many shortcomings that need to be repaired in order to increase the confidence of participants of the match. There are no standard operating procedures in the administration of amateur boxing national championships. Standard operating procedures are needed for governance of the game running as expected. These standards are to reduce suspicions participants and spectators who watched the match boxing match at the time.

According to Robinson L. in Sony T. Trilaksono (2009) Good organization characterized by the following characteristics: [1] Strong leadership [2] Competency Resource [3] Proper and adequate human [4] Organizational structure, processes and resources appropriate and adequate [5] The existence of both internal and external satisfaction [6] Is a learning organization. In order for the implementation of the national amateur boxing championships to run smoothly then the six points mentioned above should be improved and adapted to the prevailing regulations.

Match fixtures also be the cause of hampered match. Completeness of the game serves as a boxer safety. Equipment also serves to instill confidence about the match participants objectivity and transparency in the match. The completeness of the equipment will help facilitate official game match in their duties. Supplies games that suitable with the standards required by the executive committee held a match under the supervision of a sport governing body (AIBA: 2012).

Weak human resources is also an obstacle that must be repaired in the implementation of amateur boxing national championships. Not all of the referee / judge and jury duty have the same skills and experience. Educational level technical committee still needs to be improved further matches. The goal is to have all the information about the development of the game rules and technical regulations to be followed by the referee / judges and other technical committees to run well. Inputs provided by the supervisor can be understood and implemented correctly.

The outcome of the national championship amateur boxing in Indonesia has not shown the expected results. Outcome administration in the form of championships report is still not implemented properly. Impressed the match finished so everything was done without any report of

championships as well as the execution of another event. Documentation championship just a photo picture of activities that are not intact. Championship outcome document is not well documented. Consequently Pertina Central Board doesn't have not enough data to construct achievement data boxers.

Evaluation is an important step in the management process a sporting event. Evaluation of the programs implemented raises advantages and showed weakness weaknesses of existing programs. Of the evaluation will be used to develop programs in the form of the next event.

CONCLUSION AND SUGGESTION

Evaluation of the implementation of the national amateur boxing championships in Indonesia can be summed up as: [1]. Preparation of national amateur boxing championships in Indonesia needs to be repaired from the central committee and the executive committee. [2]. Implementation of the national amateur boxing championships in Indonesia needs to be repaired from the procedure, human resources, equipment and the implementation of the rules match the right. [3]. Supervision of the implementation of the national amateur boxing championships also needs to be improved by extending Documentation matches, championships and a general evaluation report championships.

The conclusion of the study is that poor management of the game will affect [1]. The number of people who participate in the sport of amateur boxing. [2]. Indonesian amateur boxer achievement at national and international level [3]. Audience participation and sponsorship that will assist the implementation of the national amateur boxing championships in Indonesia.

Suggestions that the authors propose in this study were: [1]. Implementation of the national amateur boxing championships in Indonesia should be improved from the start of preparation, implementation and control. [2]. Implementation of the national amateur boxing championships to be based technical AIBA Rules, AIBA Competition Rules and Statutes and Rules of stairs Pertina. [3]. Need to be made standard operational procedures for the implementation of the national championship of amateur boxing in Indonesia.

ACKNOWLEDGMENT

This study is a preliminary research for the preparation of a dissertation at the Graduate Program, Semarang State University. The author would like to thank for all those who used as a source of research data. All participants to the national amateur boxing championships Elite Men/Women 2014 in Makassar, Southern Sulawesi. Our thanks goes to the distinguished 1). Chairman of the PP Pertina Drs. Ali Reza H., 2). Secretary General of the PP Pertina Mr. Martines and 3). Chairman of the PP Referee Pertina Drs. Agung Samsul Hadi. And for all those who already assisted in the implementation of this research that the author can not mention one by one.

REFERENCES

- AIBA, 2012. *Association International de Boxe Amateur Technical Rules*. Jakarta: Central Board Pertina.
- Depdiknas, 2003. *Sports History Indonesia*. Jakarta: Directorate General of Sports.
- Eckehard, Fozzy, Morit, 2008. Holistic Inovasion in Sport. Journal : (<http://link Springer.com>. accessed April, 2. 2015).
- Edison, 2009. *Research and Evaluation in the Field of Education, Evaluation CIPP* (<http://ed150n5.blogspot.com/2009/05/evaluasi-cipp.html>, accessed February 11. 2015).
- Fox, Edward, L. Mathew, Donald K. 1981. *The physiology of Physical Basic Education and Athletics*. Philadelphia: Saunders College Publishing.

- Hughes, Richard L., 2005. *Becoming a Strategic Leader: Your Role In Your Organization's Enduring Success*, McGraw-, New York.
- Kemenpora, 2007. *Law Num 3 of 2015 National Sports System*. Jakarta: Kemenpora Legal Bureau of the Republic of Indonesia.
- KONI, 2014. *Grand National Achievement Sports Development Strategy 2014 -2024*. Jakarta: KONI Center.
- Kerlinger, Fred N., 2000. *Principles of Research Behavioral*. Jogjakarta: Gajah Mada University Press.
- KONI Research and Development, 2014. *Analysis of Strengths, Challenges, Opportunities and Strategies Indonesia Toward Multi Event*. Jakarta: KONI.
- Narendra, Mayun, 2000. *Art Sports Boxing*. Jakarta. Board of Pertina.
- Philip Lane, 2010. *The Transparent Leadership strategy is to build the Great Company. Through Communication, Transparency, and Accountability*. Jakarta : PT Gramedia.
- Rashid, Abdul, 2002. *Handbook For Sport Boxing with IlmiahMethods* Jakarta: Board of Pertina.
-, 2002. *Become Perfect Boxing Referee Judge*. Jakarta: Board of Pertina.
- Sony, T.Trilaksono, 2009. *Subject Matter Competency-Based Human Sumbardaya Managemen*, Yogyakarta: MM UGM. [un publish]
- Tudor O, Bomp, 2001. *Theory and Methodology of Training*. Toronto: Kendall Hunt Publishing Company.



CENTRAL JAVA SPORTS ACHIEVEMENTS MAPPING ON PON XV, PON XVI, PON XVII, AND PON XVIII

Sri Haryono

Department of Sports Coaching Education, Faculty of Sports Sciences, Semarang State University,
Central Java 50229, Indonesia

sriharyono_fik@yahoo.com

Abstract

Purpose: The purpose of this study is mapping the sports achievements of Central Java in the last four Pekan Olahraga Nasional (PON), namely PON XV, XVI PON, PON XVII and XVIII PON. **Methods:** This study using a descriptive method. Data presentation using tables and graphs. Data obtained from the KONI of Central Java. **Results:** The results of the mapping achievements in Central Java during the last four PON concluded that the individual measurable sport has an increased achievement, the team sport achievements relatively constant, and an the individual immeasurable sport is tends to decrease. **Conclusion:** All the policies which is relating to sports development in Central Java need to be considering carefully by the achievements that has been achieved in every sport in the last four PON. Noting to the sports achievements during these 10 years, there are some of sports that can be a mainstay to gain some gold medals in the next PON, such as; aquatic, shooting, athletics, paragliding, taekwondo, sepaktakraw, archery, and rollerblading. Those potential sports have to get more support in every aspects. And for the other sports, they have to be evaluated further to discover the causes why they were not have a bright achievement. In an effort to improve sports development program in Central Java to get the maximum achievements, the sports development should be carried out by the cross-sectoral and interdisciplinary in the planning, implementation, and monitoring. It's a must to improve the integration of government development programs and sports development programs in horizontally and vertically. Sports development patterns should be tiered and sustainable with high commitment and dedication. Changing the assumption that exercise a waste of costs with the mindset that sport can bring in money.

Keywords: mapping, achievement, achievements mapping, pon, jawa tengah

INTRODUCTION

Central Java's athletes competitiveness at the national level, in general it can be said that until now they have not show a proud achievements. This is proofed by the data that Central Java since the PON 1977 frequently occupy the 4th position. Even in the PON XVII in 2008 East Kalimantan, Central Java got the 5th position and missed the target to occupy the big 3. Another fact can be seen by the contribution of Central Java athletes in the national contingent which plunge in the international events. Year to years there's only a few numbers of Central Java athletes that includes as a national athlete. In the 2009 SEA Games in Laos indicate that the Central Java only sent 39 athletes from 16 sports, from a total of 334 athletes, or 11.6% from whole contingent. And 31 athletes from 15 sports who managed to achieved medals, with the acquisition of 9 gold medals (17.0 %), 11 silver medals (17.5%), and 21 bronze medals (19.3%), from the total of 53 gold medals, 63 silver medals, and 109 bronze medals. Based on data in 2010 the contribution of Central Java athletes for national athletes who fostered through Indonesia Gold Program (PRIMA) only 25 athletes (12.3%) of the total 203 athletes. Central Java ranking in the PON 2012 has increased from the PON 2008 which placed on the 5th position. But still misses the target, which is targeted to be the 3rd position in the PON 2012. Based on the number of medals achievement, Central Java

contingent in PON 2012 has decreased from the medals achievement in PON 2008. If the preparation was better, there were more time and support sufficient funds in development process, and focus on the potential sports, then it was possible to managed to shift West Java from the 3rd position.

Based on the data above, Central Java should make an acceleration in an effort to increase sports performance. Careful planning which is based on an accurate analysis of the existing potentials need to be conducted jointly with the involvement of all components within their authority. Furthermore, with a high commitment from all stakeholders whose involved, ensure that the planning run well. Creating a regional sports development and national sports development strategies requires an integrated significant time and systemic arrangement in a manner. KONI Province as an arm of the provincial government can not work alone without any synergy with other institutional which is related to sports system development in the area. Arrangement of sports based on potencies, should be start from "sports in society" which is expected to bring out the seeds of potential athletes at the beginning of school age. Therefore, the arrangement must be done in a systemic, integrated, and tiered so the results will be the highly optimized products.

METHODS

This research uses descriptive method. Data collection techniques using structured observation techniques. The collected data is data of Central Java medals in PON XV Surabaya, XVI PON Palembang, PON XVII East Kalimantan, and PON 2012 Riau. The presented datas include:

1. Central Java rankings Data in PON.
2. Central Java graphics medals table in several PON.
3. Central Java medals profile mapping for in the last 4 PON.
4. Medals data in team sports, individual measurable sports, and the individual immeasurable sports in the last 4 PON.

Researcher used microsoft excel as a tool in calculates, percentages, and displays in a graph.

RESULTS AND DISCUSSION

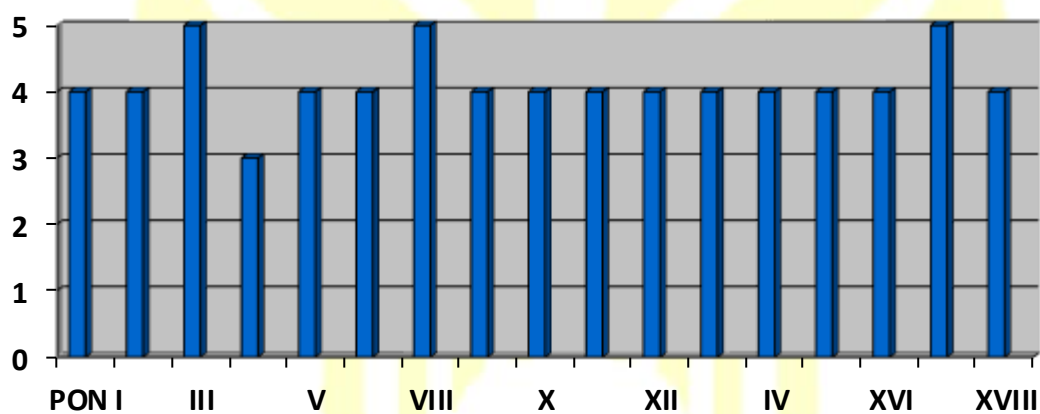
Central Java Sports Achievements in PON, in an effort to make a plan and development of long-term programs related to sports development in Central Java, so that the achievements of Central Java contingent will fulfill the target in every PON in the future. KONI of Central java should make breakthroughs, such as start to analyze related to Central Java contingent achievements in the last 4 PON. To recognize the strengths, weaknesses, opportunities, and challenges of a Central Java contingent in PON XIX 2016 Bandung and PON XX 2020 Papua, then arrange and mapping of the achievements that have been accomplished in every sport, especially in the last 4 PON.

Based on the those objectives, the following will be presented a variety data related to the achievement of the athlete's performance in every sport in the last 4 PON from Central Java contingent. For more details, achievements that can be achieved in each PON of Central Java contingent, the spread of achievements in every sport, the spread of the achievements of individuals and teams sport, deployment of gold medal, silver medal, and bronze medal in each of PON. The achievements data show in the table 1 below.

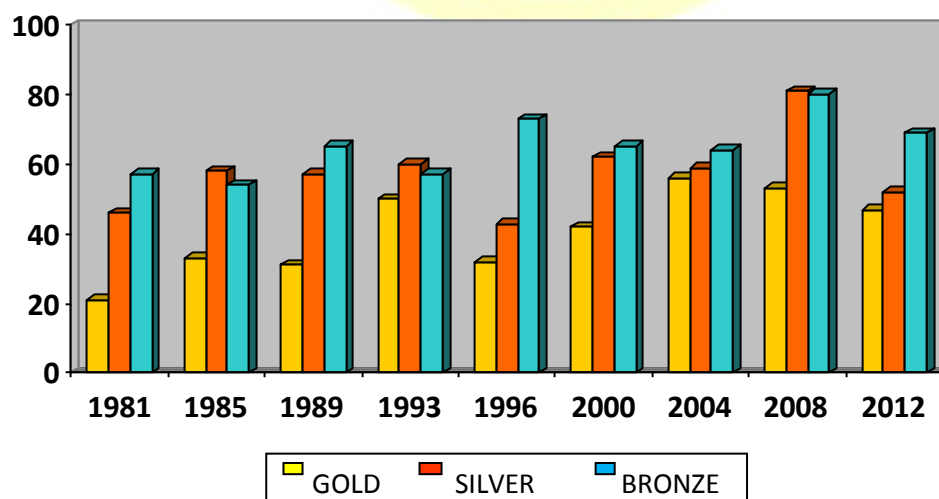
Tabel 1. Central Java Rankings in PON

PON	Year	Place	Medals			Rank
			Gold	Silver	Bronze	
I	1948	Solo	<i>unrepresentative regional</i>			
II	1951	Jakarta	7	14	13	IV
III	1953	Medan	6	12	14	V
IV	1957	Makasar	15	9	15	III

V	1961	Bandung	14	17	18	IV
VI	1965	<i>denied</i>				
VII	1969	Surabaya	12	24	35	IV
VIII	1973	Jakarta	13	31	49	V
IX	1977	Jakarta	14	23	33	IV
X	1981	Jakarta	21	46	57	IV
XI	1985	Jakarta	33	58	54	IV
XII	1989	Jakarta	31	57	65	IV
XIII	1993	Jakarta	50	60	57	IV
XIV	1996	Jakarta	32	43	73	IV
XV	2000	Surabaya	42	62	65	IV
XVI	2004	Palembang	56	59	64	IV
XVII	2008	East Kalimantan	53	81	80	V
XVIII	2012	Riau	47	52	69	IV



Graph 1. Central Java Medals Acquisition in PON X/1981 – PON XVIII/2012



Graph 2. Central Java Medals Achievements Details in PON X/1981-PON XVIII/2012

Based on the data and the chart above, based on the ranking achievements can be concluded that the Central Java since PON IX 1977 till PON XVI 2004, or in the period that is long enough that in 27 years, Central Java did not move from the 4th position. This proves that the development program which conducted so far does not provide a significant improvement. Even in PON XVII 2008 East Kalimantan, slipped to the 5th position. Therefore, we must be vigilant in PON XIX to come. Besides, the trend of declining performance as shown in Table 1, Central Java competitors to compete for positions 3 and 4 will increase, namely West Java, Riau, South Sumatra, and East Kalimantan.

Achievement of a contingent in PON cannot be separated from the acquisition of achievements by each sport. In fact, the problems always arise during the preparation of the contingent establishment, on whether or not some sports will participate then athletes and coaches quota who participate. The following table will show how the contributions of each sport to the Central Java contingent in obtaining medals in the 4 last PON.

Table 2. Medals profile mapping of Central Java contingent in the last 4 PON

	SPORT	GOLD				SILVER				BRONZE			
		XV	XVI	XVII	XVIII	XV	XVI	XVII	XVIII	XV	XVI	XVII	XVIII
1	AEROMODELING	0	1	0	2	1	0	1	1	0	0	0	1
2	FENCING	0	0	2	0	0	2	0	0	0	0	0	0
3	WEIGHT LIFTING	1	0	1	0	6	4	3	1	1	3	1	4
4	AQUATIC	6	2	6	2	11	4	10	1	11	9	7	2
5	ATHLETICS	5	4	5	7	9	8	8	4	9	9	6	3
6	BASKETBALL	0	0	0	1	0	0	1	1	0	0	0	0
7	VOLLEYBALL	0	0	0	0	0	0	0	1	0	0	0	1
8	BOWLING	0	2	0	0	0	2	0	0	0	0	0	0
9	CYCLING	0	0	1	1	2	0	1	1	3	1	0	1
10	DOWNHILL	0	0	0	-	0	1	2	-	0	0	0	-
11	EQUESTRIAN	0	0	0	0	0	0	0	0	0	0	0	0
12	MOTORCYCLE	0	2	1	0	0	0	1	1	0	1	0	2
13	BILLIARD	1	0	2	3	2	0	2	5	0	4	4	3
14	BRIDGE	1	0	1	1	1	3	2	3	1	0	3	2
15	BADMINTON	3	0	1	3	2	1	2	3	1	1	4	3
16	CHESS	0	1	0	0	1	0	0	0	0	0	0	1
17	DANCE SPORT	-	-	0	0	-	-	0	0	-	-	3	0
18	ROWING	1	1	1	0	1	1	1	0	3	0	0	3
19	DRUMBAND	-	-	0	0	-	-	0	0	-	-	0	0
20	HANG GLIDER	-	-	1	0	-	-	0	0	-	-	0	0
21	GOLF	0	0	0	0	0	0	0	0	0	0	0	0
22	WRESTLING	0	0	2	0	3	0	1	1	3	3	2	3
23	HOCKEY	-	0	-	-	-	0	-	-	-	0	-	-
24	JUDO	2	0	1	1	0	1	1	0	6	5	3	5
25	KARATE	0	0	1	0	0	0	0	2	0	3	5	4
26	KEMPO	0	1	1	0	1	2	3	0	2	2	1	0
27	SAILING	0	0	0	0	0	0	0	0	2	0	0	0
28	SHOOTGUN	6	8	6	3	3	8	11	1	3	3	2	1
29	ARCHERY	5	4	1	0	2	3	4	1	6	2	0	3
30	PENCAK SILAT	2	3	2	0	0	0	2	7	1	3	4	4
31	WALL CLIMBING	0	0	3	6	2	0	2	3	1	1	2	1
32	PARAGLIDING	0	3	5	5	1	2	2	2	1	0	1	1
33	DIVING	0	0	1	0	0	2	0	0	0	1	0	0
34	GYMNASTIC	0	0	0	0	0	0	1	1	1	0	0	2

35	ROLLER SKATE	0	7	2	2	1	4	6	2	6	3	6	2
36	SOCCER	-	0	-	0	-	0	-	0	-	0	-	1
37	SEPAK TAKRAW	0	3	3	2	1	0	2	0	0	0	0	0
38	WATER SKI	0	0	0	0	0	0	0	0	0	0	1	0
39	SQUASH	0	0	0	0	0	0	0	0	0	0	0	1
40	TAEKWONDO	3	6	3	2	3	2	3	3	2	1	4	3
41	TARUNG DRAJAT	1	0	0	2	0	0	3	3	0	0	3	1
42	TENNIS	0	1	0	2	0	3	2	0	1	0	3	3
43	TABLE TENNIS	0	2	0	0	0	0	1	0	2	2	2	6
44	GLIDING	0	1	1	1	2	1	0	1	0	2	4	0
45	SKYDIVING	0	2	0	0	0	0	0	1	0	0	1	0
46	BOXING	0	0	0	0	1	0	0	2	0	0	4	2
47	WUSHU	5	3	1	1	6	5	4	0	5	5	4	0
TOTAL MEDALS		42	56	53	47	62	59	81	52	65	64	80	69
AMOUNT OF SPORTS		42	43	44	42	42	43	44	42	42	43	44	42

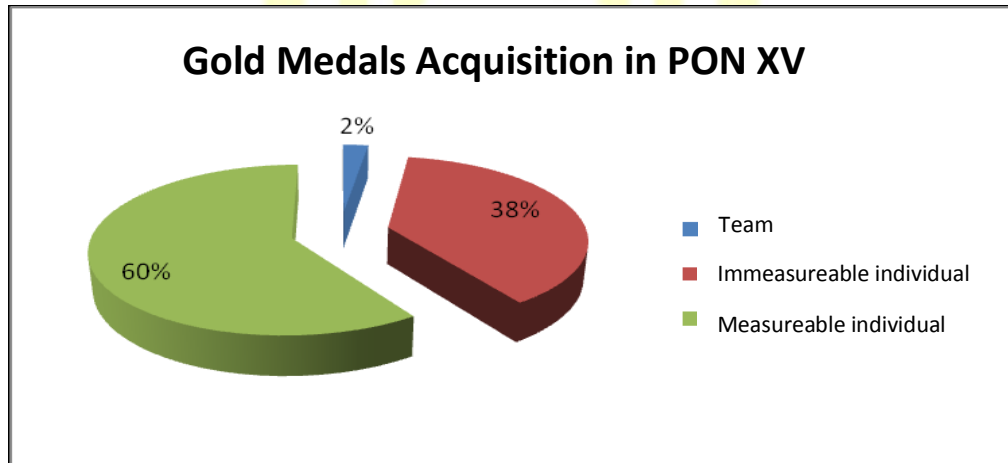
Description: - = not participation

0= no medal

Table and Graphs of Gold Medals Acquisition in the last 4 PON

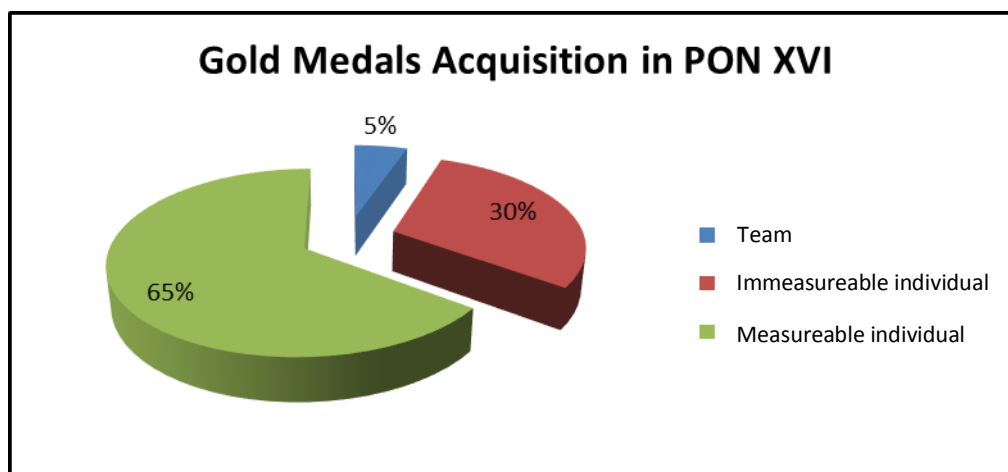
PON XV/2000

SPORTS	MEDALS ACQUISITION	PERCENTAGE
TEAM SPORTS	1	2.38%
IMMEASURABLE SPORTS	16	38.09%
MEASURABLE SPORTS	25	59.52%
Total	42	



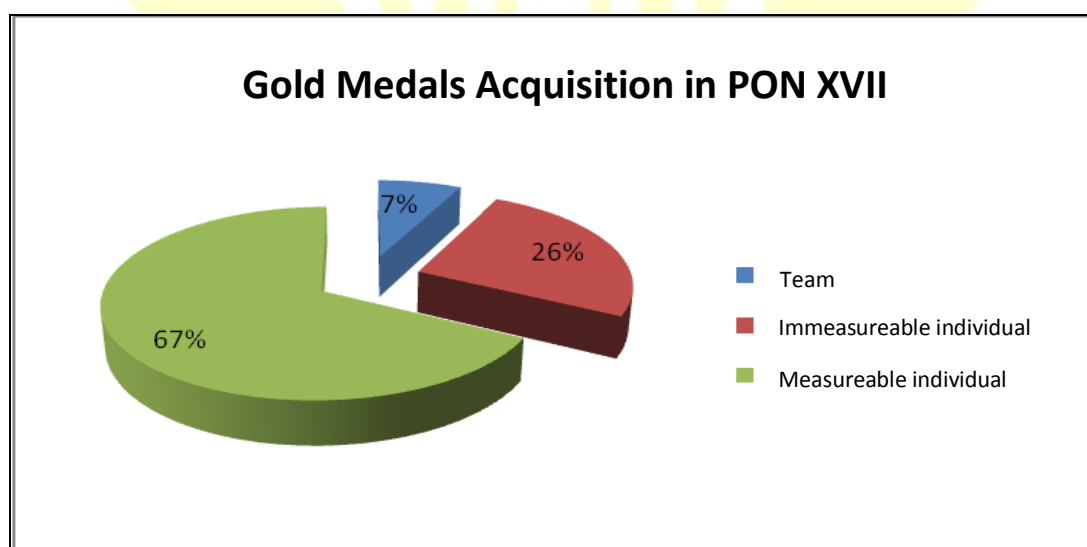
PON XVI/2004

SPORTS	MEDALS ACQUISITION	PERCENTAGE
TEAM SPORTS	3	5.26%
IMMEASURABLE SPORTS	17	29.82%
MEASURABLE SPORTS	37	64.91%
Total	57	



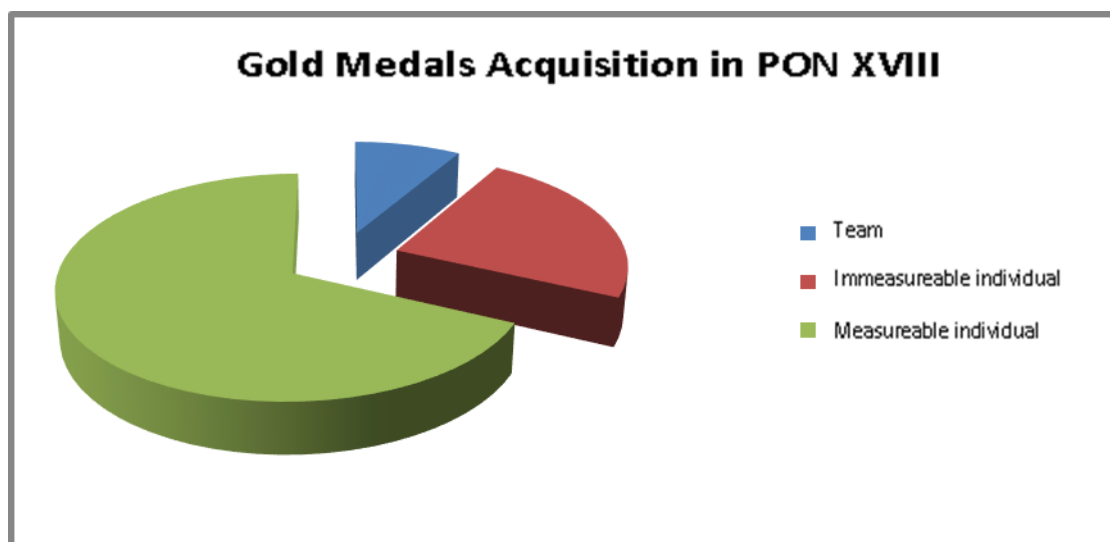
PON XVII/2008

SPORTS	MEDALS ACQUISITION	PERCENTAGE
TEAM SPORTS	4	7.27%
IMMEASURABLE SPORTS	14	25,5%
MEASURABLE SPORTS	37	67,27%
Total	55	



PON XVIII/2012

SPORTS	MEDALS ACQUISITION	PERCENTAGE
TEAM SPORTS	4	8,51%
IMMEASURABLE SPORTS	11	23,40%
MEASURABLE SPORTS	32	68,08%
TOTAL	47	

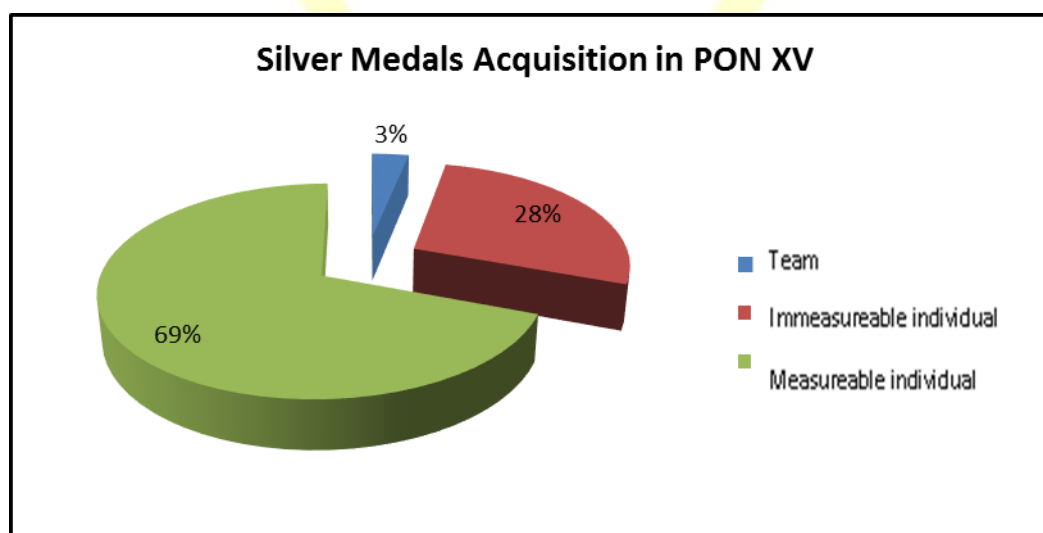


From the charts above it can be stated that the group of measured individual sports always show an increase of gold medals acquisition, namely from 60%, 65%, 67%, and 68.08%. Similarly, for team sports, although very little contribution to the full peripheral increased, from 2%, 5%, 7%, and 8.51%. In contrast to individual sports are not precisely measurable decline, from 38%, 30%, 26%, and 23.40%.

Table and Graphs of Silver Medals Acquisition in the last 4 PON

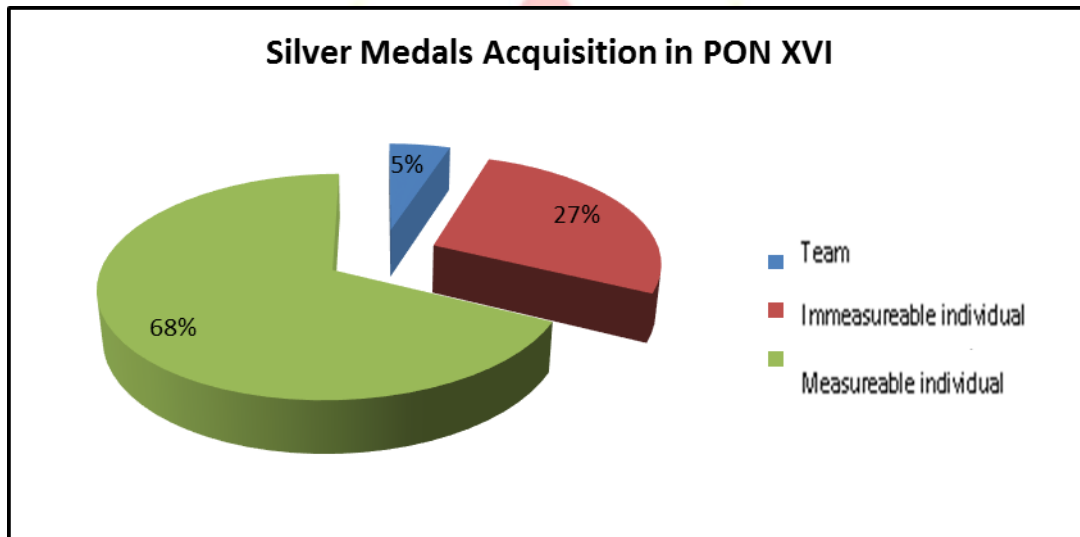
PON XV/2000

SPORTS	MEDALS ACQUISITION	PERCENTAGE
TEAM SPORTS	2	3.2%
IMMEASURABLE SPORTS	17	27.4%
MEASURABLE SPORTS	43	69.4%
Total	52	

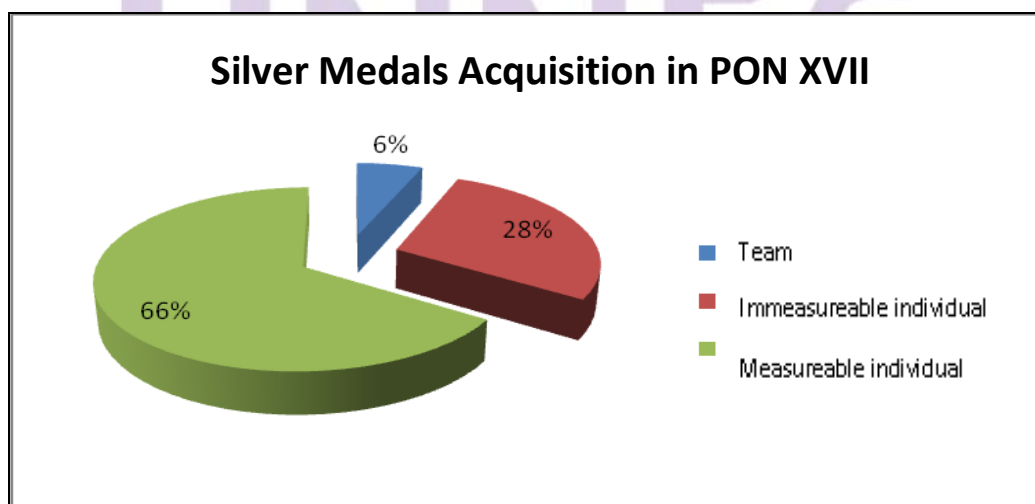


PON XVI/2004

SPORTS	MEDALS ACQUISITION	PERCENTAGE
TEAM SPORTS	3	5.1%
IMMEASURABLE SPORTS	16	27.1%
MEASURABLE SPORTS	40	67.8%
Total	59	

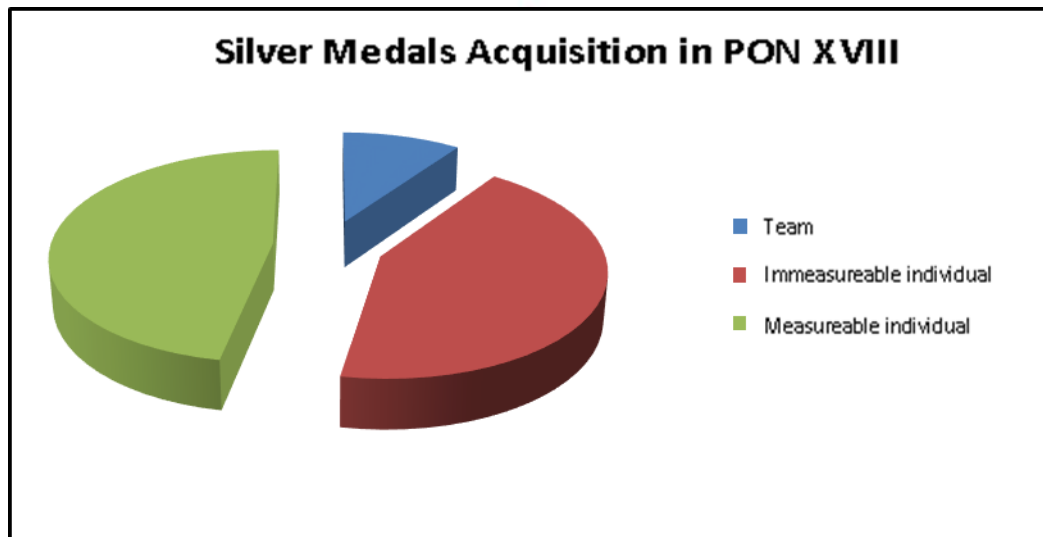
**PON XVII/2008**

SPORTS	MEDALS ACQUISITION	PERCENTAGE
TEAM SPORTS	5	6.1%
IMMEASURABLE SPORTS	23	28.0%
MEASURABLE SPORTS	54	65.9%
Total	82	



PON XVIII/2012

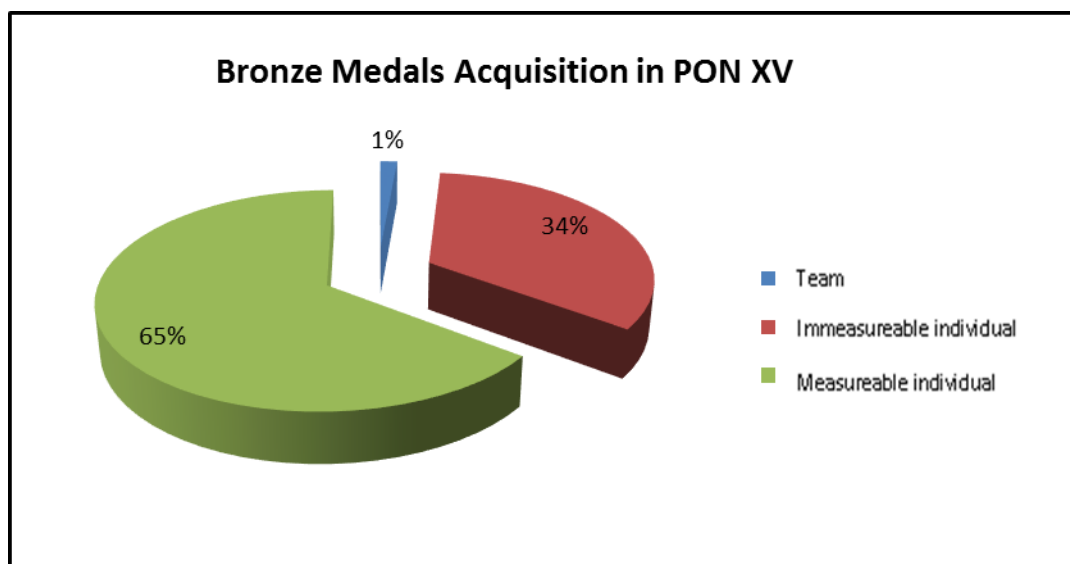
SPORTS	MEDALS ACQUISITION	PERCENTAGE
TEAM SPORTS	5	9,80%
IMMEASURABLE SPORTS	22	43,14%
MEASURABLE SPORTS	24	47,06%
Total	51	



From the silver medals graphs above it can be stated that the group of measured individual sport, because an increase in the achievement of the gold medal, the silver medal acquisition decreased, from 69%, 68%, 66%, and 47.06%. As for other sports groups are relatively fixed except in PON XVIII, that individual sports are not measurable from 28%, 27%, 28%, and 43.14%. Instead of team sports has increased, from 3%, 5%, 6%, and 9.80%

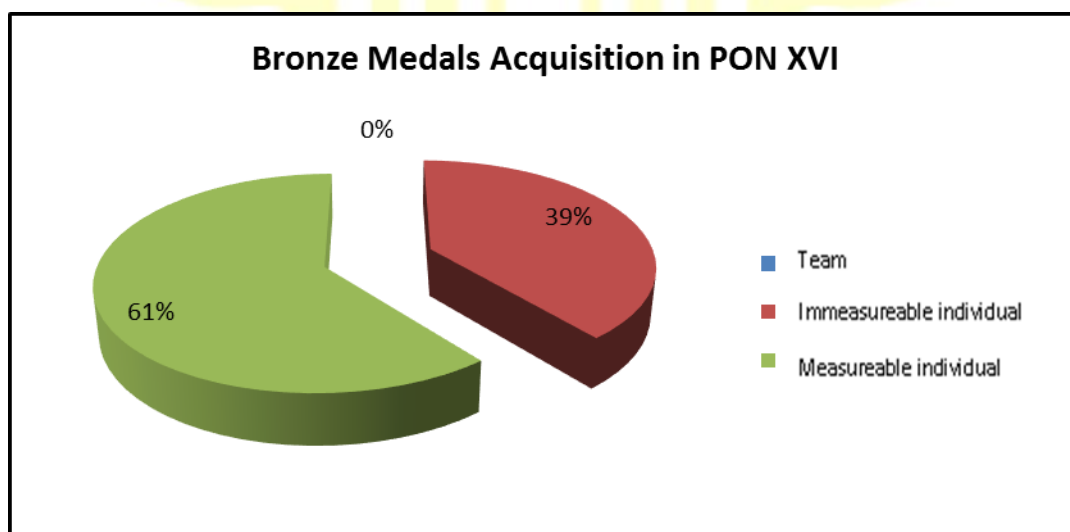
Table and Graphs of Bronze Medals Acquisition in the last 4 PON**PON XV/2000**

SPORTS	MEDALS ACQUISITION	PERCENTAGE
TEAM SPORTS	1	1.4%
IMMEASURABLE SPORTS	24	33.8%
MEASURABLE SPORTS	46	64.8%
Total	71	



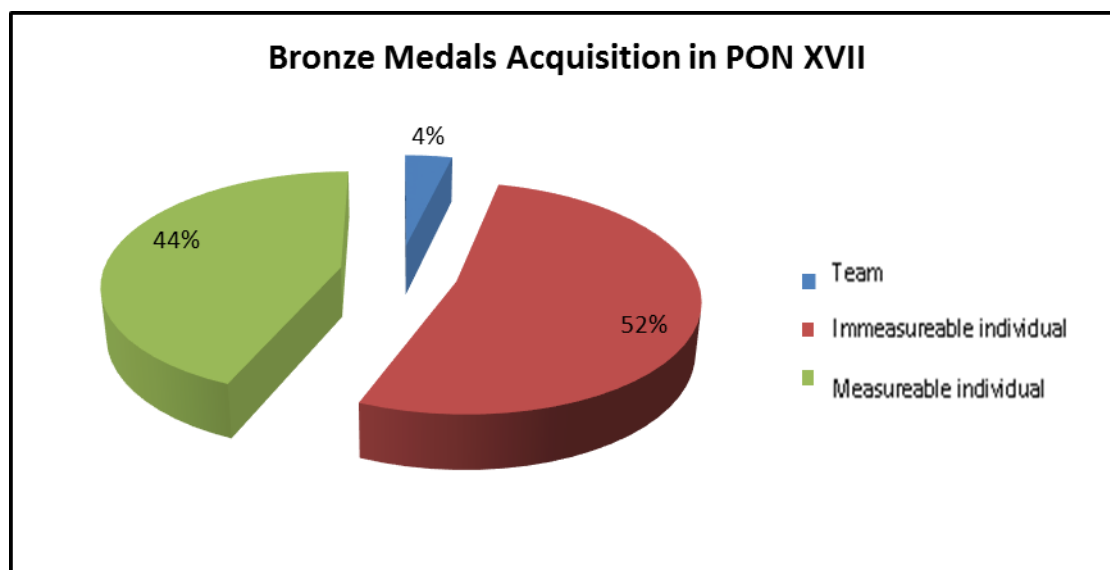
PON XVI/2004

SPORTS	MEDALS ACQUISITION	PERCENTAGE
TEAM SPORTS	0	0.0%
IMMEASURABLE SPORTS	25	39.1%
MEASURABLE SPORTS	39	60.9%
Total	64	



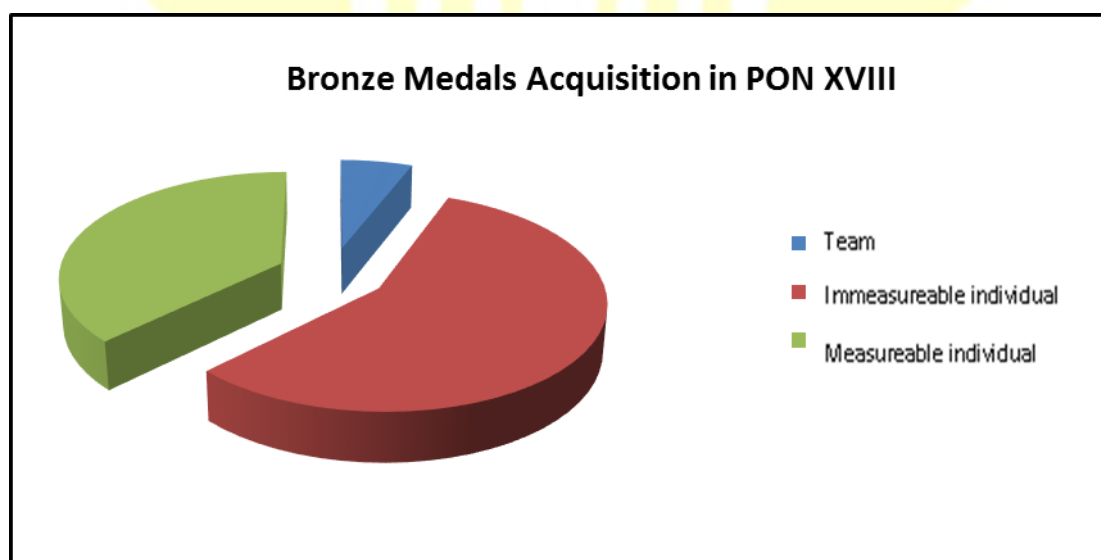
PON XVII/2008

SPORTS	MEDALS ACQUISITION	PERCENTAGE
TEAM SPORTS	3	3.8%
IMMEASURABLE SPORTS	42	52.5%
MEASURABLE SPORTS	35	43.8%
Total	80	



PON XVIII/2012

SPORTS	MEDALS ACQUISITION	PERCENTAGE
TEAM SPORTS	4	5,97%
IMMEASURABLE SPORTS	38	56,72%
MEASURABLE SPORTS	25	37,31%
Total	67	



Similarly, the acquisition of a bronze medal, in the graph above it can be stated that the individual measurable sport, because an increase in the achievement of the gold medal, the bronze medal acquisition decreased, from 65%, 61%, 44%, and 37.31 %. As for individual sports remains measurable increase, from 34%, 39%, 52%, and 56.72%, as well as for team sports has increased, from 1%, 0%, 4%, and 5.97%.

Table 3. Mapping of the medals acquisition in the measureable individual sports of Central Java.

	SPORTS	GOLD				SILVER				BRONZE			
		XV	XVI	XVII	XVIII	XV	XVI	XVII	XVIII	XV	XVI	XVII	XVIII
1	AEROMODELING	0	1	0	2	1	0	1	1	0	0	0	1
2	ANGGAR	0	0	2	0	0	2	0	0	0	0	0	0
3	ANGKAT BS/BR/BN	1	0	1	0	6	4	3	1	1	3	1	4

4	AQUATIK	6	2	6	2	11	4	10	1	11	9	7	2
5	ATLETIK	5	4	5	7	9	8	8	4	9	9	6	3
6	BOWLING	0	2	0	0	0	2	0	0	0	0	0	0
7	BALAP SEPEDA	0	0	1	1	2	0	1	1	3	1	0	1
8	BLP SPD GUNUNG	0	0	-	0	0	1	2	0	0	0	-	0
9	BERKUDA	0	0	0	0	0	-	-	0	0	-	0	0
10	BERMOTOR	0	2	1	0	0	0	1	1	0	1	0	2
11	BILLIARD	1	0	2	3	2	0	2	5	0	4	4	3
12	BULU TANGKIS	3	0	1	3	2	1	2	3	1	1	4	3
13	CATUR	0	1	0	0	1	0	0	0	0	0	0	1
14	DAYUNG	1	1	1	0	1	1	1	0	3	0	0	3
15	GANTOLE	-	-	1	0	-	-	0	0	-	-	0	0
16	GOLF	0	0	0	0	0	0	0	0	0	0	0	0
17	GULAT	0	0	2	0	3	0	1	1	3	3	2	3
18	JUDO	2	0	1	1	0	1	1	0	6	5	3	5
19	KARATE	0	0	1	0	0	0	0	2	0	3	5	4
20	KEMPO	0	1	1	0	1	2	3	0	2	2	1	0
21	LAYAR	0	0	0	0	0	0	0	0	2	0	0	0
22	MENEMBAK	6	8	6	3	3	8	11	1	3	3	2	1
23	PANAHAH	5	4	1	0	2	3	4	1	6	2	0	3
24	PENCAK SILAT	2	3	2	0	0	0	2	7	1	3	4	4
25	PANJAT TEBING	0	0	3	6	2	0	2	3	1	1	2	1
26	PARALAYANG	0	3	5	5	1	2	2	2	1	0	1	1
27	SELAM	0	0	1	0	0	2	0	0	0	1	0	0
28	SENAM	0	0	0	0	0	0	1	1	1	0	0	2
29	SEPATU RODA	0	7	2	2	1	4	6	2	6	3	6	2
30	SKI AIR	0	0	0	0	0	0	0	0	0	0	1	0
31	SQUASH	0	0	0	0	0	0	0	0	0	0	0	1
32	TAEKWONDO	3	6	3	2	3	2	3	3	2	1	4	3
33	TARUNG DRAJAT	1	0	0	2	0	0	3	3	0	0	3	1
34	TENIS	0	1	0	2	0	3	2	0	1	0	3	3
35	TENIS MEJA	0	2	0	0	0	0	1	0	2	2	2	6
36	TERBANG LAYANG	0	1	1	1	2	1	0	1	0	2	4	0
37	TERJUN PAYUNG	0	2	0	0	0	0	0	1	0	0	1	0
38	TINJU	0	0	0	0	1	0	0	2	0	0	4	2
39	WUSHU	5	3	1	1	6	5	4	0	5	5	4	0
TOTAL PEROLEHAN MEDALI		41	54	51		60	56	81		70	64	74	
JUMLAH CABANG OLAHRAGA		38	37	38		38	37	44		33	37	38	

DESCRIPTION: - = NOT PARTICIPATE 0 = NO MEDAL

From Table 3 above it can be seen that the individual sport groups, horse riding, golf, and squash never contributed a medal at all, whereas chess, hang gliding, sailing, gymnastics, water ski, parachute, and boxing were made a minimal contributions. Those sports need to be given serious attention.

Table 4. Mapping of the medals acquisition in the team sports of Central Java.

NO	CABANG OLAHRAGA	EMAS				PERAK				PERUNGGU			
		XV	XVI	XVII	XVIII	XV	XVI	XVII	XVIII	XV	XVI	XVII	XVIII
1	BASKETBALL	0	0	0	1	0	0	1	1	0	0	0	0
2	VOLLEYBALL	0	0	0	0	0	0	0	1	0	0	0	1
3	BRIDGE	1	0	1	1	1	3	2	3	1	0	3	2
4	DRUMBAND	-	-	0	0	-	-	0	0	-	-	0	0

5	HOCKEY	-	0	-	-	-	0	-	-	-	0	-	-
6	SOCCER	-	0	-	0	-	0	-	0	-	0	-	1
7	SEPAK TAKRAW	0	3	3	2	1	0	2	0	0	0	0	0
TOTAL MEDALS		1	3	4	4	2	3	5	5	1	0	3	4
AMOUNT OF SPORTS		7	7	7	7	7	7	7	7	7	7	7	7

DESCRIPTION: - = NOT PARTICIPATE 0 = NO MEDAL

Very poor results shown by the group of sports teams or teams. As in Table 4, only sepaktakraw which can provide satisfactory results in the team sports. Volleyball and soccer slightly contribute a minimal achievement, while the drumband and hockey did not contribute a medal. Bridge can provide sufficient results, though still to be further enhanced in the future.

Table 5. Mapping of the medals acquisition in the measureable sports of Central Java.

	SPORTS	GOLD				SILVER				BRONZE			
		XV	XVI	XVII	XVIII	XV	XVI	XVII	XVIII	XV	XVI	XVII	XVIII
1	FENCING	0	0	2	0	0	2	0	0	0	0	0	0
2	BADMINTON	3	0	1	3	2	1	2	3	1	1	4	3
3	CHESS	0	1	0	0	1	0	0	0	0	0	0	1
4	DANCE	-	-	0	0	-	-	0	0	-	-	3	0
5	WRESTLING	0	0	2	0	3	0	1	1	3	3	2	3
6	JUDO	2	0	1	1	0	1	1	0	6	5	3	5
7	KARATE	0	0	1	0	0	0	0	2	0	3	5	4
8	KEMPO	0	1	1	0	1	2	3	0	2	2	1	0
9	PENCAK SILAT	2	3	2	0	0	0	2	7	1	3	4	4
10	GYMNASTIC	0	0	0	0	0	0	1	1	1	0	0	2
11	SQUASH	0	0	0	0	0	0	0	0	0	0	0	1
12	TAEKWONDO	3	6	3	2	3	2	3	3	2	1	4	3
13	TARUNG DRAJAT	1	0	0	2	0	0	3	3	0	0	3	1
14	TENNIS	0	1	0	2	0	3	2	0	1	0	3	3
15	TABLE TENNIS	0	2	0	0	0	0	1	0	2	2	2	6
16	BOXING	0	0	0	0	1	0	0	2	0	0	4	2
17	WUSHU	5	3	1	1	6	5	4	0	5	5	4	0
TOTAL PEROLEHAN MEDALI		16	17	14	11	17	16	23	22	24	25	42	38
JUMLAH CAB OLAHRAGA		17	17	17	17	17	17	17	17	17	17	17	17

DESCRIPTION: - = NOT PARTICIPATE 0 = NO MEDAL

Group of measurable individual sports, as shown in table 5, can contribute to the acquisition of a medal although still not satisfactory and needs improvement efforts in the future. Some of the sports such as taekwondo, martial arts, wushu, wrestling, fencing, badminton, tennis, and kempo. Another sport still needs further improvement, even warnings should be given to squash.

Table 6. Mapping of the medals acquisition in the immeasurable sports of Central Java.

NO	SPORTS	GOLD				SILVER				BRONZE			
		XV	XVI	XVII	XVIII	XV	XVI	XVII	XVIII	XV	XVI	XVII	XVIII
1	AEROMODELING	0	1	0	2	1	0	1	1	0	0	0	1
3	WEIGHT LIFTING	1	0	1	0	6	4	3	1	1	3	1	4
4	AQUATIC	6	2	6	2	11	4	10	1	11	9	7	2
5	ATHLETIC	5	4	5	7	9	8	8	4	9	9	6	3
6	HORSING	0	0	0	0	0	0	0	0	0	0	0	0
7	BOWLING	0	2	0	0	0	2	0	0	0	0	0	0
8	CYCLING	0	0	1	1	2	0	1	1	3	1	0	1

9	DOWNHILL	0	0	0	0	0	1	2	0	0	0	0	0
10	MOTORCYCLE	0	2	1	0	0	0	1	1	0	1	0	2
11	BILLIARD	1	0	2	3	2	0	2	5	0	4	4	3
12	ROWING	1	1	1	0	1	1	1	0	3	0	0	3
13	HANG GLIDER	-	-	1	0	-	-	0	0	-	-	0	0
14	GOLF	0	0	0	0	0	0	0	0	0	0	0	0
15	SAILING	0	0	0	0	0	0	0	0	2	0	0	0
16	SHOOTS GUN	6	8	6	3	3	8	11	1	3	3	2	1
17	ARCHERY	5	4	1	0	2	3	4	1	6	2	0	3
18	ROCK CLIMBING	0	0	3	6	2	0	2	3	1	1	2	1
19	PARAGLIDING	0	3	5	5	1	2	2	2	1	0	1	1
20	DIVING	0	0	1	0	0	2	0	0	0	1	0	0
21	ROLLER SKATE	0	7	2	2	1	4	6	2	6	3	6	2
22	WATER SKI	0	0	0	0	0	0	0	0	0	0	1	0
23	TERBANG LAYANG	0	1	1	1	2	1	0	1	0	2	4	0
24	SKYDIVING	0	2	0	0	0	0	0	1	0	0	1	0
TOTAL PEROLEHAN MEDALI		25	37	37	32	43	40	54	25	46	39	35	27
JUMLAH CAB OLAHRAGA		24	24	24	24	24	24	24	24	24	24	24	24

DESCRIPTION: - = NOT PARTICIPATE 0 = NO MEDAL

Noting to the data in Table 6 above and see total medals produced, that measured individual sport groups can provide better performance than individual sports are not measurable, or even team sports (team), although there are some branches that do not contribute enough or not at all. Medals contingent Central Java sourced from sporting groups, especially that of aquatic sports, shooting, athletics, and archery. Paragliding, roller skates, and rock climbing need to be maintained or even improved. Another sports still need attention to improvement better. Even necessary warning to the horse riding, golf, aeromodeling, bowling, sailing, water skiing, parachuting, hang gliding, and diving.

CONCLUSION AND SUGGESTION

1. Based on the results of the study, it was concluded that policies relating to sports coaching in Central Java need to be developed further by considering the achievements that can be achieved by each sport in PON.
2. Based on the achievements during these 10 years, then some of the sports that can be a mainstay acquisition mainly gold medal in the next PON is; aquatic, shooting, athletics, paragliding, taekwondo, sepaktakraw, archery, and rollerblading.
3. In an effort to improve the sports development program in Central Java to achieve maximum performance, there are some general strategies such as:
 - a. Coaching and sports development should be carried out cross-sectoral and interdisciplinary in the planning, implementation, and monitoring.
 - b. Needs to be improved integration of construction and development of sports horizontally and vertically at the provincial and city/district.
 - c. Sports development patterns should be tiered and sustainable with high commitment and dedication in practice.
 - d. Changing the assumption that sports only a waste of costs with the mindset that sport can gain some money for income.

THE EFFECT OF DIFFERENCES BETWEEN LEARNING APPROACH, DISTANCE OF HIT, AND KINESTHETIC PERCEPTION TO ABILITY GROUND STROKES FOREHAND ON TENNIS

Rivan Sagita Pratama

Semarang State University

rivan_jateng@hotmail.com

Abstract

The study objective was to determine The Effect of Difference Between Learning Approach, Distance of Hit and Kinesthetic Perception of Skills Groundstrokes Forehand on Tennis. This study uses a factorial design experiment with a $2 \times 2 \times 2$. The study population was 44 students come from students majoring in Sport Coaching Education, University of Tunas Pembangunan Surakarta. Sample was 40 students with a purposive random sampling technique. Data collection techniques with kinesthetic perception tests and skills tests tennis groundstrokes forehand. Engineering analysis using Analysis of Variance (ANOVA) at level $\alpha = 0.05$ signifikansi. From the results of this study concluded that (1) Blocked learning approach has better effect in achieving the learning outcomes of tennis groundstrokes forehand skills, so that the teacher or trainer advised prefer learning approach blocked practice in learning programming. This is very helpful if applied in a relatively brief. (2) Students who have a good kinesthetic perception proved to be very influential on the achievement of learning outcomes tennis groundstrokes skills. To the teachers or trainers in making the learning program to always pay attention to differences in perception and kinesthetic student grouping study groups so that more effective course of training and skills learning outcomes tennis groundstrokes will be rapid. (3) The fixed distance hit and distance hit different stages, although not in the results but have an influence on the achievement of the skills of tennis groundstrokes. For teachers or trainers suggested that the need to learn programming weave patterns at varying distances tailored to the student's ability.

Keywords: Learning Approach, Distance of Hit, Kinesthetic Perception, Learning Outcomes Groundstrokes Forehand Tennis Ability

INTRODUCTION

Sports is all activities that systematic to encourage, to build and develop potential physical, spiritual, and mental health. (UU. No. 3 th 2005). The purpose according to national sport of Law No. 3 in 2005 article 4 which reads "National sport aims to maintain and improve the health and fitness center, their achievement, quality people, will invest the moral values and high moral standards, his sportiveness, discipline, to strengthen and to build the union and a united nations, strengthen our national defense, and to lift human dignity, the dignity, and honor the". To achieve the national there are 3 the scope of construction and development sports include: 1) sports education, 2) sports recreation, 3) sports achievement. Sports achievement is a sport which to build and develop sportsman planned, multi-level, and on through competitions to achieve greater performance with the support of science and technology of sport (Indonesian UU No. 3/2005 on national of sport system article 1 paragraph 13). Sports achievement that referred to here is as the effort to improve their ability and potential of athletes in order to improve human dignity and mertabat nation to achieve achievement. Faculty of Teacher Training and Education (Guidance and Counseling), Department of Education and Health (JPOK) UTP Surakarta, is one of the educational institutions that have a purpose for printing power of education (sports teachers) and professional trainers. In the implementation of the lecture, the students get course theory and practice a variety

of sports and diisiplin sciencesupport in sports activities.As an educator and coach candidates must know the various aspects that support the motion activity or sport activities. Through the course the students are expected to be energy and educators are ready to use in accordance with the demands and needs of the community. The development and progress of the times demanded power-educators and trainers who have a good knowledge and skills, so that the quality of education in Indonesia can be more advanced as expected.

One of the efforts to boost the skills of both the motion in certain sports as well as how the methods for doing a good observation as a coach, University Development Branch through the Faculty of Sports Coaching Education Department, held a coaching course achievements in various fields of sports such as fencing, badminton, volleyball, football, sepak takraw, martial arts, basketball and tennis courts.Based on the observation of the authors in the field March 11, 2015. The author conducted observations of various aspects of the implementation perkuliah tennis coaching accomplishments. Both in terms of aspects of athlete development program, coaching program aspects of coaching and refereeing aspects of coaching programs. In the implementation of the observation, the authors conducted interviews with, Mr. Iwan Kusuma Arya. He is one of the coaches and also lecturers tennis coaching achievements in Coaching Studies Program Faculty of Sport Science University of Tunas Pembangunan. Mr Iwan Kusuma Arya is a former athlete who later switched professions to become a coach. In his coaching career he has certified tennis coach the national level. University of Tunas PembangunanSurakarta also has students who excel in the field of tennis and is still in coaching. The athlete's name is Dean Tine, Satya Imam, Wiku Pandu, Fruri Dawn, Eno, Ari, Nida. They are an outstanding junior athlete and still productive today. Achievement tennis athletes University Development Tunas quite encouraging, it is because the acquisition of the achievements in the past year in a variety of good matches between students or the match a common game quite encouraging. Achievement student achievement coaching tennis majors including sports coaching men's team is the third place match between the national-level student in 2012 at the University of Brawijaya Malang, East Java, Champion III men's doubles and men's singles match between the national level national student at the State University of Semarang, Winner and the third prize doubles match between the national-level student at the State University of Yogyakarta in 2012, Champion men's team and women's pre Porprov rayon I Gymnasium Manahan Surakarta, 1st POMDA provincial level in 2015. Seeing the developmentachievement of the sport of tennis at the University of Tunas Pembangunan Surakarta, hence the importance of the role of appropriate learning approach in learning tennis court forehand groundstrokes, approach to learning that can improve the ability of students in the game of tennis, among others, the learning approach blocked and random. For example, someone athlete wants to learn three different tasks, for example, three different strokes in tennis (such as servicing, groundstrokes, volleyball). An approach in terms of scheduling imposes limits fixed time duration for trainees to perform the first task before practicing with the next task. Then the athletes will spend a period of time to perform a second exercise before moving on to the third practice. The approach in this case is called with blocked scheduling practices, where a substantial portion of the exercise participants are fully utilized to complete one task before starting the next exercise. Blocked practice especially seen during training, where participants perform the same movements over and over - again. in the blocked system emphasizes the practice exercises from simple aspects to elaborate. Random practice is exercising some skills simultaneously conducted alternately.In random practice, for example, the sequence of exercises a number of different tasks performed mingled during exercise time. Athletes take turns continuously in practice these tasks and, in many practices that happened, they just did it one time, there is no repetition.Tennis game has a variety of basic techniques of punches that must be controlled by a player, the forehand, backhand, volley, serve and smash. To be able to play tennis with someone better to be able to master the basic principles, namely: (1) Seeing the ball carefully, (2) Estimating the direction of the ball, (3) Estimate the punch early, (4) Movement of the right foot,

(5) Balance solid, (6) Sensitivity to estimate the racket with the ball, (7) Concentration practice. Kinesthetic sensibility is one's consciousness in movement or activity. This means, kinesthetic perception owned a tennis athletes will be able to support the increasing skills of tennis groundstrokes. According Sugiyanto and Sujarwo (1992:227) that, "kinesthetic perception plays an important role because of the perception of kinesthetic elements of the physical abilities that allow a person aware of body position and movement is being done".

METHOD

The research design used in this study is the research design factorial $2 \times 2 \times 2$ is to determine the effect of variables and combinations of variable degree, as well as the influence of the interaction between the factors to increase student skills to play tennis courts son. Sujana (1988: 87) defines a factorial experiment is an experiment in which all (almost all) the level of a particular factor combined with all (almost all) the level of any other factors contained in the experiment. According Sujana (1994: 124-128), experimental design based factorial $2 \times 2 \times 2$ is where the respective independent variables were classified into 2 levels. The variables in this study includes three factors or independent variables studied its effect on the dependent variable is the result of learning the skills to play tennis on male students. Independent variables include learning approach, striking distance, and kinesthetic perception, that each independent variable consisted of two levels: (1) Variable learning approach consists of learning approaches blocked and random (2) Variable distance of hit consists of a fixed distance of hit and gradually distance of hit, (3) The kinesthetic perception consists of kinesthetic perception good and the kinesthetic perception less.

RESULTS AND DISCUSSION

The results of research is based on the analysis of statistics that will be done in a hard forehand test result groundstroke Education Study Program student son, the Faculty of Coaching Sports educations in teaching and care and Education, the University of Science Tunas Pembangunan. Description data research results are as follows:

Table 1 Description of Research

Learning Approach(A)	BLOKED (A1)				RANDOM (A2)			
	Fixed Distance of Hit(B1)		Gradually Distance of Hit (B2)		The Fixed Distance of Hit (B1)		Gradually Distance of Hit (B2)	
Distance Hit (B)	Good (C1)	Less (C2)	Good (C1)	Less (C2)	Good (C1)	Less (C2)	Good (C1)	Less (C2)
Kinesthetic Perception (C)								
Average	14,40	11,40	13,20	11	8,40	8,20	10	10,4
SD	1,34	1,51	1,92	1,22	1,51	1,64	1,22	2,50
n	5	5	5	5	5	5	5	5

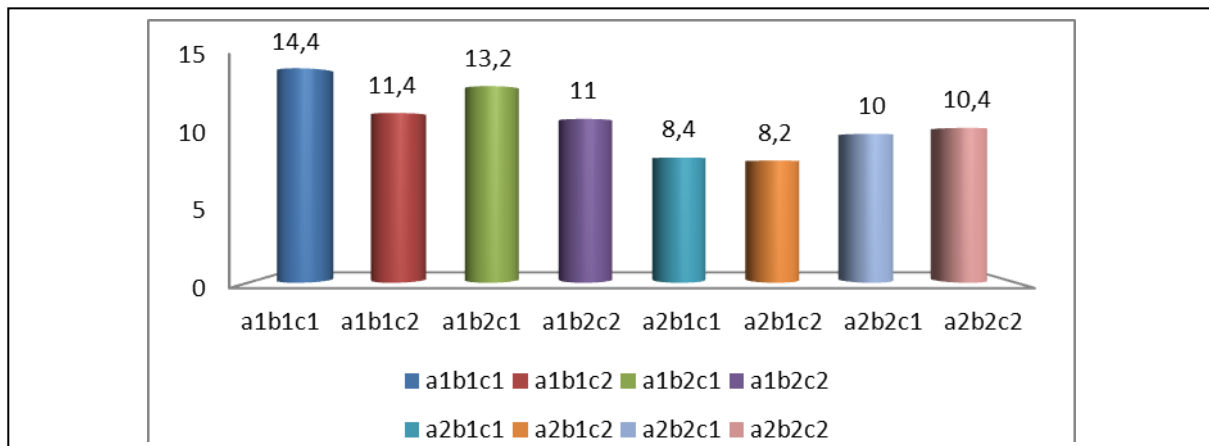


Figure 1. Histogram Average Test Results Forehand Groundstroke Tennis

Table 2 Normality Test

Treatment Group	Shapiro-Wilk	
	n	Sig
1. Learning approach blocked, the fixed distance of hit, good kinesthetic perception (A1B1C1)	5	0,201
2. Learning approach blocked, fixed distance of hit, less kinesthetic perception (A1B1C2)	5	0,086
3. Learning approach blocked, gradually distance of hit, good kinesthetic perception (A1B2C1).	5	0,223
4. Learning approach blocked, gradually distance of hit, less kinesthetic perception (A1B2C2)	5	0,146
5. Learning approach random, fixed distance of hit, good kinesthetic perception (A2B1C1)	5	0,492
6. Learning approach random, fixed distance of hit, less kinesthetic perception (A2B1C2).	5	0,054
7. Learning approach random, gradually distance of hit, good kinesthetic perception (A2B2C1).	5	0,146
8. Learning approach random, gradually distance of hit, less kinesthetic perception (A2B2C2).	5	0,314

From the table above it was found that the data on: 1). Blocked group learning approach, fixed distance of hit and good kinesthetic perception (A1B1C1) sig = 0.201 > 0.05 ($P > 0.05$) means the normal distribution of data, 2). Blocked group learning approach, fixed distance of hit and less kinesthetic perception (A1B1C2) sig. = 0.086 > 0.05 ($P > 0.05$) means the normal distribution of data. 3). Blocked group learning approach, gradually distance of hit and good kinesthetic perception (A1B2C1). sig. = 0.223 > 0.05 ($P > 0.05$) means the normal distribution, 4). Blocked group learning approach, gradually distance of hit and less kinesthetic perception (A1B2C2) sig. = 0.146 > 0.05 ($P > 0.05$) means the normal distribution, 5). Random group learning approach, fixed distance of hit and good kinesthetic perception (A2B1C1) sig. = 0.492 > 0.05 ($P > 0.05$) means the normal distribution, 6). Random group learning approach, fixed distance of hit and less kinesthetic perception (A2B1C2) sig. =

0.054 > 0.05 ($P > 0.05$) means the normal distribution. 7). Random group learning approach, gradually distance of hit and good kinesthetic perception (A2B2C1) The value sig. = 0.146 > 0.05 ($P > 0.05$) means the normal distribution, 8). Random group learning approach, gradually distance of hit and less kinesthetic perception (A2B2C2) sig. = 0.314 > 0.05 ($P > 0.05$) means the normal distribution.

Table 3 Homogeneity Test

	df1	df2	Sig.
1,973	7	32	0.396

From the table above is based on Levene Test was found that the value of sig = 0.396 > 0.05 ($P > 0.05$) means otherwise homogeneous sample.

Table 4 Summary Analysis Result ANOVA

Test of Between-Subjects Effects

No	Hipotesis Nol (Ho)	Fo	Ft	Sig	Ho
1	There are no significant difference between learning approach block and learning approach random the ability of groundstrokes forehand on tennis.	38,23	3,26	0,000	rejected
2	There are no significant difference between fixed distance of hit and at gradually distance of hit towards the ability groundstrokes forehand on tennis.	1,095	3,26	0,303	be accepted
3	There are no significant difference between good kinesthetic perception and less kinesthetic perception of the ability groundstrokes forehand on tennis.	5,656	3,26	0,024	rejected
4	There are no interaction between distance of hit and learning approach of the ability groundstrokes forehand on tennis.	6,597	3,26	0,015	rejected
5	There are no interaction between learning approach and kinesthetic perception of the ability groundstrokes forehand on tennis.	6,597	3,26	0,015	rejected
6	There are no interaction between distance of hit with kinesthetic perception of the ability groundstrokes forehand on tennis.	0,443	3,26	0,510	be accepted

7	There are no interaction between learning approach, distance of hit and kinesthetic perception of the ability groundstrokes forehand on tennis	0,009	3,26	0,925	be accepted

CONCLUSION AND SUGGESTION

Discussion of the results of this study provide further interpretation of the results of the analysis of the data that has been presented. Based on hypothesis testing has resulted in the following analysis:

There are Significant Difference Between Learning Approach Block And Learning Approach Random The Ability of Groundstrokes Forehand on Tennis, In the process of training given to students majoring in sports coaching education, learning more blocked practice suggested by the experts, especially the blocked learning approach where development capabilities focused more emphasis on students to be more focused in the control of a blow. On the blocked learning approach, students will be more focused in studying the movement and can feel the reflection of the ball on the racket repeatedly - again and produce a good punch and accurate, so that the learning objectives will be achieved more quickly that a student can perform punch forehand and backhand groundstrokes with well. From the theory and the results of this study proved that the learning approach blocked practice better when compared with random practice learning approach. This shows that the blocked practice learning approach is the basis for the commencement of the phase of learning for students majoring in sports coaching, University of Tunas Pembangunan, where students will start learning with the aim of gaining experience motion as much as possible and focus on one learning. Menu fun exercise is accompanied by the interaction between the individual, the learning barriers blocked saturation in practice will be resolved. Learning can be done in conjunction with the conditions of exercise techniques and the approach to the real game. On the other hand drills learning approach in the form of random practice is less random motion more experience, so students did not master in one motion and will affect the achievement of learning outcomes skill groundstrokes less than the maximum.

There are no Significant Difference Between Fixed Distance of Hit And At Gradually Distance of Hit Towards The Ability Groundstrokes Forehand on Tennis, In a striking distance learning essentially serves as a stimulus and elicit a response from the body of the athlete. Striking distance in accordance with the theory that explains that the training exercises starting from the simple to the complex and from easy to difficult. At fixed striking distance learning students are given a blow groundstrokes starting from behind the baseline, so that students are required to be able to feel how to hit the ball up over the net and produces a good and accurate blows, from striking distance farther from the net than the striking distance gradually. On striking distance learning students are given gradually blow groundstrokes with distance hitter position at the start of the service line line diperjauh gradually until the baseline position. So that students can more easily in sensing the reflection of the ball on the racket and is expected menghasilkan good punch and accurate, with a striking distance learning will gradually make it easier for students to learn a blow because it is closer than the net. Based on the results of data analysis showed that the absence of differences between fixed and within striking distance at gradually towards skill groundstrokes This implies that both striking distance of the drill method can be applied in teaching approaches do, so the approach is applied to the student with striking distance permanent and can gradually become a form of striking distance variation in practice with reference to the learning objectives to be achieved.

There Are Significant Difference Between Good Kinesthetic Perception And Less Kinesthetic Perception to The Ability Groundstrokes Forehand On Tennis, Learning the technique

can not be separated from how an athlete is able to perform the task of training the right moves. Truth movement will affect the level of energy expenditure. If any athlete or not able to perform the correct movement it will be a waste of energy. This condition will affect the results to be achieved. The most important factor affecting the quality of athletes in performing the duties of motion exercises correctly and effectively is kinesthetic perception. The ability of the high mastery of one's motion tennis player to perceive an organ functions - human organs are closely connected with the motion of the body and limbs, both active and passive. The movements associated with the basic movements tennis skills. Students who have a good kinesthetic perception will be easier to perform a given task in the learning movement, with the ability to do the kind of exercises that will be able to provide faster results than those who have less kinesthetic perception Sugiyanto and Sudjarwo (1992:213) that "perception is catch the meaning of the received signals senses. The meaning of the gesture is called information, and information captured through the senses and then processed in mental work to find or recognize the information, revealed back of collected information and make an assessment of the information received." Results of the data analysis shows that there is a difference between athletes who have a good kinesthetic perception compared with those having less kinesthetic perception, this is in accordance with the above theory that kinesthetic perception would indicate a person's ability to perform the duties of motion correctly, quickly and effectively. Increasingly these athletes have a good kinesthetic perception, the athlete will be able to carry out all kinds of exercises correctly and accurately in accordance with the required level of energy expenditure.

There Are Significant Interaction Between Learning Approach And Distance of Hit to Ability Groundstroke Forehand on Tennis, Results of research shows that interaction between approach to learning and distance around, this is because that is theoretically approach to learning and distance at the two methods that can complement each other, it means that any method is used in every lesson must be accompanied by model distance hit. By Learning approach blocked practice and teaching approaches random practice in the form exercise that is easy to exercise that is difficult, will be more revolutionaries as a result if it is done by using this method drill distance around, which will be implemented methods drill distance at remained and distance so that it is more varied at within and didn't make them bore. With this condition then exercise can use methods drill distance at which can be adjusted to a condition that there is no such as the ability athletes, means that are available as well as exercise time.

There Are Significant Interaction Between Learning Approach And The Kinesthetic Perception to Ability Groundstroke Forehand on Tennis, These disparate perceptions kinestetik students is something that must be considered in every procedures training. Two methods exercise the same consider differences individual skills in order to carry out different lessons that were programd. Thus the increase skills groundstroke from both groups perception kinestetik happened in the two types of learning approach. Results of research has shown approach to learning blocked have done even better when they are used for students who have had a wrong perception kinestetik low, and learning approach random good to be used for students who have had a wrong perception kinestetik good.

There Is No Significant Interaction Between Distance of Hit and Perception Kinestetik To Ability Groundstroke Forehand on Tennis, Research results show no happened stock exchange interaction between distance around and the perception kinestetik, this can be caused by the distance around and the perception kinestetik is two methods that can complement each other, it means that any method is used in any distance at must be accompanied by by kinesthetic perceptions.

There Is No Significant Interaction Between Learning Approach, The Distance of Hit And The Kinesthetic Perception To Ability Groundstroke Forehand on Tennis, Overall there is no interaction in the third model varabel exercise learning achievement, which means a hard forehand

skills groundstroke tennis, because pembelajaran programd with good. Between, the distance learning approach beat, and perception kinestetik can complement each other in achieving skills groundstroke tennis. Thus the application approach to learning exactly should consider not directly factors difference these disparate perceptions and at a distance kinestetik students.

REFERENCES

- A. Katili 1987. *Teknik Dasar Strategi dan Taktik yang Akurat*. Semarang : Dahara Prize.
- Atwi Suparman 1987. *Pengembangan Intruksional*. Jakarta : Ditjen Dikti. Depdikbud.
- Barron's 2000. *Tennis Course, Technique and Tactics*. BLV Publising, Inc.
- Baumgatner, T.A. Jackson, A.S. 1991. *Measurement for Evaluation in Physical Education and Exercise Science*. Dubugue WN.C. Brown Publisher.
- Bey Mageti 1999. *Tenis Prestasi*. Terjemahan Dian Barlaini. Jakarta : PT Raja Grafindo Persada.
- Billie Jean King 1991. *Rahasia Sang Juara*. Semarang : Daham Prize.
- Dangsina Moeloek 1984. *Kesehatan dan Olahraga*. Jakarta : Fakultas Kedokteran Universitas Indonesia.
- James Brown 2002. *Tenis Tingkat Pemula*. Terjemahan Dian Bariani. Jakarta : PT. Raja Gravindo Persada.
- Jim Brown 2001. *Tenis Tingkat Pemula*. Dian Rusalini. Jakarta : PT. Raja Grafindo Persada.
- Jossef Nossek 1995. *Teori Umum Latihan*. Institut Nasional Olahraga Lagos. Pan African Press.
- Lardner. R. 1987. *Teknik Dasar Tennis Strategi dan Taktik yang Akurat*. Semarang : Dahara Prize.
- Molendra. R. 1989. *Instructional Media and The Technologies Instruction*. New York. Mac-Milan Publishing.
- Muhammad Sajoto 1996. *Pembinaan Kondisi Fisik Dalam Olahraga*. Semarang. IKIP Semarang Press.
- Mulyono. B. 1999. *Teori dan Praktek Tennis Lapangan*. UNS. Press.
- Schmid R A. dan Craig A. Wisberg 2003. *Motor Learning & Performance*.
- Robert N. Singer. 1980. *Motor Learning and Human Performance*. New York: Mazmillan Publishing co. Inc.
- Rusli Lutan 1988. *Belajar Ketrampilan Motorik Pengantar Teori dan Metode*. Jakarta. Depdikbud.
- _____ (1998 : ;22). *Belajar Gerak Pengantar Teori dan Metode*. Jakarta. Depdikbud.
- Siswandari 2009. *Statistika Computer Based*. Surakarta : LPP UNS & UNS Press.
- Soedjarwo 1993. *Ilmu Kepeatihan Dasar*. Surakarta : BPK FKIP UNS.
- Sudjana 2005. *Metode Statistika*. Bandung . Tarsito.
- Sudjarwo 1985. *Ilmu Kepeatihan Dasar*. Surakarta. BPK FKIP UNS.
- Suharno HP 1978. *Ilmu Coaching Umum*. FPOK IKIP Jogjakarta.
- _____ 1978. *Ilmu Kepeatihan Olahraga*. Yogyakarta : IKIP Yogyakarta.
- Yudoprasetyo 1981. *Belajar Tennis*. Jakarta : Bharata Karya Aksara.
- [Http://id.lftennis.org/wiki/Tenis.l/06/2010](http://id.lftennis.org/wiki/Tenis.l/06/2010)
- [Http://masnyomega.wordpress.com/2013/01/31/Pegangan-grip-dalam-tenis- lapangan](http://masnyomega.wordpress.com/2013/01/31/Pegangan-grip-dalam-tenis- lapangan)
- [Http://translate.google.co.id/translatehl=id&langpair=enlid&u=http//.www.brianmac.co.uk/energy.htm](http://translate.google.co.id/translatehl=id&langpair=enlid&u=http//.www.brianmac.co.uk/energy.htm).

EFFECTS OF THE PERCEIVED SELF-EFFICACY WALKING EXERCISE PROGRAM ON HbA1c AND BODY COMPOSITION IN DIABETES MELLITUS

Benjaporn Keawkumtai¹, Chairat Choosakul²

Health and Sport Science Department, Faculty of Education, Mahasarakham University, THAILAND

¹ben.keawkumtai@gmail.com, ²chairat.c@msu.ac.th

Abstract

The purposes of this study were to study and compare the effects of the perceived self-efficacy walking exercise program on HbA1c and body composition in diabetes mellitus (DM). The study samples were 50 patients, Diabetic Clinic at Faculty of Medicine, Mahasarakham University, Thailand. The experimental group was treated with the perceived self-efficacy walking exercise program and the conventional nursing care while those in the control group was treated with the conventional nursing care for consecutive 8 weeks. Subjects from both groups were measured HbA1c level by Automatic analyzer and body composition parameters by Bioelectrical Impedance Analysis (BIA), during pre-test and post-test. The data was analyzed by descriptive statistics, one way analysis of variance, one way analysis of variance with repeated measure and multiple comparison by using Scheffe ' method. The results were found that after 8th week of training, in experimental group showed significantly decrease in HbA1c level and increase in muscle mass ($p < .05$). There were no significant differences in body mass index, fat mass and percent of body fat. Also, after 8th week of training, the experimental group had more significant decrease in HbA1c level than the control group ($p < .05$). There were no significant differences in all body composition. The perceived self-efficacy walking exercise program can control the HbA1c and improve muscle mass. Therefore, this program should be encouraged among the elderly with DM their exercise continuously and appropriately.

Keywords: perceived self-efficacy walking exercise program, HbA1c, body composition

INTRODUCTION

Diabetes mellitus is a chronic metabolic disorder characterized by hyperglycemia and derangement in protein and fat metabolism. The worldwide prevalence of diabetes was approximately 2.8 % in 2000 and is estimated to grow to 4.4 % by 2030 (WHO, 2010). High concentrations of glucose can increase the glycation of common proteins such as hemoglobin, forming Hemoglobin A1c (HbA1c). However, it is important to note that HbA1c is considered neither dysfunctional nor harmful. Nevertheless, the concentration of HbA1c predicts diabetes complications because it reflects more harmful glycation sequelae of diabetes, such as retinopathy and nephropathy, which are understood to be due to harmful advanced glycation end products (Ken Sikaris, 2009). To prevent the development of complication, a tight glycemic control and self-care practice has been emphasized (American Diabetes Association: ADA, 2012). Effective diabetes treatment requires changes in important aspects of each patient's daily routine. Treatment is based on adequate diet, physical activity, and various drugs (ADA, 2011). Diabetes education is concerned with encouraging independence and self-confidence so that people carry out their self-care activities. Patients report that carrying out their self-management program is even more difficult than dealing with the diagnosis of diabetes. The challenge is to help individuals develop their own strategies for the long-term management of their diabetes (Hurley AC, Shea CA, 1992). The self-efficacy framework and its application to the treatment of diabetes are being studied and implemented in a variety of diabetes education programs (Howells LAL, 2002). Aerobic exercise, especially, walking is one of strategies to improve blood glucose control and can prevent a

complication which is considered safe and convenient for diabetes mellitus (ACSM, 2009). Thus, this study aimed to examine the effects of the perceived self-efficacy walking exercise program on HbA1c and body composition.

METHOD

The protocol of this study was reviewed and approved by Mahasarakham University Ethics Committee: No. 0140/2556.

Subjects and design, Fifty volunteers clinically patients with type 2 diabetes. Additional requirement were age 60-70 years both male and female from Diabetic Clinic at Faculty of Medicine, Mahasarakham University. The experimental group and control group were matched in term of age, sex and duration of illness. Subjects were randomized into two groups: The experimental groups received the perceived self-efficacy walking exercise program and the conventional nursing care (n=25), whereas the control groups were those who received the conventional nursing care for consecutive 8 weeks (n=25).

Exercise program, The experimental group was treated with the perceived self-efficacy walking exercise program and the conventional nursing care while those in the control group was treated with the conventional nursing care for consecutive 8 weeks. Walking exercise program consisted warm up sessions (5-10 minutes), exercise sessions (5-40 minutes) and cool down session (5-10 minutes), 3 days a week for 8 weeks. Activity of self-efficacy walking exercise program in each time to stimulated confidence in modification behavior exercise. The researcher integrated the Bandura's self-efficacy concept (Bandura, 1997) into this program to promote and motivate the subjects to perform this exercise during the exercise interventions and post discharge comprising 4 aspects including enactive mastery experience, vicarious experiences, verbal persuasion and emotional and physiological status. Before and after the perceived self-efficacy walking exercise program were tested different variables. HbA1c levels were drawn blood from a vein and analyzed by automatic analyzer (D10, Bio-Rad., USA) shown in percent of HbA1c levels. Body composition were analyzed by Bioelectrical Impedance Analysis (BC-418, TANITA., USA) measured the body mass index, fat mass, muscle mass and percentage of body fat.

Statistical Analysis , The 16.0 version of Statistical Package for Social Sciences Software was used for statistical analysis. Descriptive data are presented as means and standard deviations of HbA1c level and body compositions. The one- way analysis of variance with repeated measure test was used to test the differences of HbA1c level and body compositions before and after participating in the study in experimental group, one- way analysis of variance test was used to differential the differences of the demographic data between groups, multiple comparison test was performed with the Scheffe method. Statistical significance was stated at $P < 0.05$.

RESULTS AND DISCUSSION

After 8 week of training, experimental group showed significantly decrease in HbA1c level and increase muscle mass ($p < .05$). There were no significant differences in body mass index, fat mass and percent of body fat (Table 1).

Table 1 Comparison mean scores of HbA1c level and body composition pre-test and at 8 weeks post of training in experimental group

Variable	Pre-Test		After 8 weeks.		F	p
	Mean	S.D.	Mean	S.D.		
HbA1c (%)	7.83	1.54	7.36	1.13	10.634	.003*
Body composition						
Body mass index (kg/m^2)	24.25	3.43	24.08	3.34	2.222	.148
Muscle mass (kg)	39.42	7.60	40.77	8.43	8.593	.007*

Fat mass (kg)	19.25	7.34	18.05	6.60	4.001	.056
Percent of body fat (%)	30.47	8.80	29.37	8.19	4.588	.510

*p < 0.5

After 8th week of training, the experimental group had more significant decrease in HbA1c level than the control group (p < .05). There were no significant differences in body composition (Table 2).

Table 2 Comparison mean scores of HbA1c level and body composition of the patients between experimental group and control group after training.

Variable	Experimental group		Control group		F	p
	Mean	S.D.	Mean	S.D.		
HbA1c (%)	7.36	1.13	8.36	1.35	8.888	.004*
Body composition						
Body mass index(kg/m ²)	24.08	3.34	25.5	4.31	1.887	.175
Muscle mass (kg)	40.77	8.43	38.52	6.01	1.325	.255
Fat mass(kg)	18.05	6.60	21.62	9.20	2.783	.101
Percent of body fat (%)	29.37	8.19	33.06	10.88	2.061	.157

*p < 0.5

This is the study to show that the perceived self-efficacy walking exercise program could be used as an effective tool to improve physical functions in patient with the diabetes mellitus, specially HbA1c decreasing and muscle mass increasing. *HbA1c level* :The result from this study was supported to the previous study in both Thailand and International researches in term of decreasing of HbA1c after involved any aerobic exercise activity, such as Fawn Jerng Mor Chor(Saengrut, 2008), Mai Phong Dance (Konghan,2010), aerobic activity (Franciele et al., 2013), and aquatic aerobic exercise (Sporis et al,2013). Only by this study could represent that self-efficacy theory (Bandura , 1997) can integrate in walking exercise program through the various activities with a source of theory concerning, such as given the diabetes knowledge to the patient, taken the opportunity to answer their question, met and discussed with the role model patient, and learned and practiced to walking exercise. This then may be linked to motivate the patient to commit their exercise (Panyoyai,2007 ; Yainta, 2008; Sananok , 2010; Sakulpitak , 2012), and also could be controlled their diabetes pathology in term of blood glucose level decreasing or HbA1c normal level (Nitanon, 2010). An explanation, when the patient can control their blood glucose or HbA1c level by regularly aerobic exercise, it would explain by increasing of oxygen demand that affect to using of glucose for energy producing (ADA, 2012). According to the past evident, one week continuous aerobic exercise found to increase insulin sensitivity in type 2 diabetes mellitus, increase glucose transporter type 4 (GLUT4) or insulin signaling, and also increase glucose utilizing (Winnick, Sherman, Habash, Stout, Failla, Belury ,et al., 2008), then there cause to decrease HbA1c (Sigal et al. 2004; Gordon et.al. 2008). This study represented that the perceived self-efficacy walking exercise program can improve physical function in diabetes mellitus patient and would recommend to be the alternatively tool in exercise.

Body composition : This result found the patient's muscle adaptation, hypertrophy, after participated the 8 weeks of self-efficacy walking exercise program. It may explain to human body adaptation to progressively exercise program (Srilamad, 2008). By this study, there are improve our exercise intensity by increasing of exercise duration in each week (5 minutes at the 1st week, 40 minutes at the 8th week), and controlling their heart rate between 35 – 70 percent of maximum heart by using the level 10-13 in Borg's scale. The further research and application of exercise program designing need to be recommended by concerning. Our result is still similar to walking exercise and other

aerobic activity study in worker woman, reported that there have only muscle mass increased, while BMI and fat have not changed (Tantiwiboonchai, 2009; Siwanuwatr, 2007 ; Pasit, 2008). The self-efficacy walking exercise program would also be one challenged exercise activity for muscle improvement in diabetes patient.

CONCLUSION AND SUGGESTION

The perceived self-efficacy walking exercise program by using a varies activity and emphasized knowledge engaging about diabetes controlling, persuasion to exercise benefit and significance, demonstration and practicing of the correctly walking is the effectively intervention program in diabetes controlling with HbA1c level decreasing, and muscle mass gaining. Therefore, this program would need to consider in health promotion for aging elderly. Also, could be recommended to their vary exercise setting and apply in community.

ACKNOWLEDGMENT

This research was supported by The King Bhumibol of Mahasarakham University in the year 2014. The authors would also like to thank all the participants in this study.

REFERENCES

- American College of Sports Medicine, 2009. Exercise and physical activity for older adults. *Medicine and Science in Sports and Exercise*. 41(7). P1510-30.
- American Diabetes Association, 2004. Standards of medical care for patients with diabetes mellitus (Position Statement). *Diabetes Care*, 27, S15-S35.
- American Diabetes Association, 2011. Standards of medical care in diabetes. *Diabetes Care*. 34, S11-S61.
- American Diabetes Association, 2012. Standards of medical care in diabetes 2012. *Diabetes Care*. 35, S13-11.
- Bandura A, 1997. Self-efficacy: *The Exercise of Control*. New York: W.H. Freeman & comp
- Fanciele, R.F, 2013. *Aerobic and combined exercise sessions reduce glucose variability in type 2 diabetes*. Retrieved December 2, 2014, from Cross randomized trial. PLOS ONE. Website : www.plosone.org, 8 (3), e57733
- Gordon, L.A. (2008). Effect of exercise therapy on lipid profile and oxidative stress indicator in patients with type 2 diabetes. *Complementary and Alternative Medicine*. 8 (21), 10-1
- Hurley AC, Shea CA, 1992. Self-efficacy: strategy for enhancing diabetes self-care. *Diabetes Educ*. 18, 146-50.
- Howells LAL, 2002. Self-efficacy and diabetes: why is emotional 'education' important and how can it be achieved? *Horm Res*. 57, 69-71.
- Ken Sikaris, 2009. The correlation of Hemoglobin A1c to blood glucose. *Journal of Diabetes Science and Technology*. Vol. 3, 429-438.
- Konghan S, 2014. The Effects of Self-Management Program and Ram Mai Plong Exercise on HbA1C and Quality of Life in Older Persons with Type 2 Diabetes. *Region 11 Medical journal*. 28(4), 943-951
- Niltanon D, Sota C, 2010. Health Promotion for Diabetes Patients Type 2 Using Enhancement of Self – Efficacy, Group Processes and Social Support - A Study Undertaken at the Erawan Hospital, Amphur Erawan, Loei Province. *KKU Research Journal (Graduate Studies)*. 10(3), 51-60.
- Panyoyai P, 2007. Effect of the self-efficacy and social support enhancement program on exercise

- behavior among the elderly with diabetes mellitus. *Nursing Journal*. 34(4),104-115.
- Pasit N, 2009. A comparison between the effects of conventional walking and directional walking on health -related physical fitness in working women. *Journal of Sports Science and Health*. 10(3), 81-98.
- Sawlao K, Kanungsukadern V, (2012) .Effects of arm swing exercise, walking and walking exercise combined with arm swing exercise on health-related physical fitness of the elderly women. *Journal of Sports Science and Health*. 13(1), 92-103.
- Saengrut, B.,)2009(Effect of fawn jerng mor chor exercise on glycosylated hemoglobin level among elders with type 2 diabetes mellitus. *Nursing Journal*.36(4), 59-72.
- Sakulpitak N, 2013 . The Effects of Application of Self-Efficacy Theory, Group Process and Social Support on the Development of Health Behavior Among The Elderly Patients With Type 2 Diabetes Mellitus in Thawat Buri Hospital, Roi Et Province.*Research and Development Health System Journal*. 6(1), 116-125.
- Sananok T, 2010. *Effects of Self-Efficacy Theory Application, Group Process and Social Support on Food Consumption and Exercise Behavior of Elderly with Diabetes Mellitus in Khu Mueang District, Buri Ram Province*. Master's thesis, Health System Management, Mahasarakham
- Sigal R J, Kenny G P, Wasserman D H, Castaneda-sceppa C. (2004). Physical activity/exercise and type 2 diabetes (technical review). *Diabetes Care*. 27(10),2518-2539.
- Siwanuwatn N, Chakraphan D, Kritpet T, (2007) .A comparison of effects of accumulated and continuous walking on health-related physical fitness in working –women. *Journal of Sports Science and Health*.8(1), 23-33.
- Sporis G, et al, 2013. The effects of aqua aerobic on patients with type II diabetes mellitus. *Hrvat.Sportskomed.Vjesn*. 28,33-38.
- Srilamad S, Srialamad D, 2008. *Weight Training : Application of Anatomy and Physiology to working Teachnique*. Bangkok: V print(1991) .
- Tantiwiboonchai N, 2010. A comparison between the effects of walking exercise with and without weighted vests on bone resorptions and Health-related physical fitness in working women. *Journal of Sports Science and Health*. 11(2),22-37.
- Winnick J J, Sherman W M, Habash D L, Stout M B, Failla M L, Belury M A, Schuster D P, 2008.Short-term aerobic exercise training in obese humans with T2DM improves whole-body insulin sensitivity through gains in peripheral, not hepatic insulin sensitivity. *J Clin Endocrinol Metab*. 93(3),771-778.
- World Health organization, 2012. *Diabetes Mellitus* [online] 2010. Available: URL: http://www.who.int/diabetes/facts/world_figures/en/
- Yainta N, 2010. *Effect of the exercise self-efficacy and social support enhancement program on glycosylated hemoglobin level among elders with type 2 diabetes mellitus*. Master's thesis, Nursing Science , Chiang Mai University.

**EFFECTS OF WEIGHT TRAINING AND AQUAROBIKS ON BONE REMODELING IN OBESE
WOMEN
(STUDY IN IL-6, CTx AND N-MID OSTEOCALSIN)**

Siti Baitul Mukarromah

Department of Sports Science, Faculty of Sports Science, Semarang State University

¹sitibaitul@yahoo.co.id

Abstract

Background: The prevalence of obesity increased in premenopausal women both developed countries and developing countries, including Indonesia. Obesity conditions provide mechanical load on the bone excessive and likely to cause osteoporosis. Weight training (WT) and aquarobic exercise (AQ) increase the activity of bone remodeling in obese women. **Purpose:** the purpose of the study was to investigate the effect of 8 weeks of weight training and aquarobics on obesity and bone remodeling (study in IL-6, carboxy-terminal cross-linking telopeptide of type I collagen (CTx) and procollagen type 1 amino-terminal pro-peptide (N-MID osteocalcin))

Methods: thirty-six healthy, sedentary postmenopausal obese women (BMI > 30 kg/m²) participated. The groups were weight training (WT; n=12), aquarobic exercise (AQ; n=12) and control (n=12). Venous blood chemistry included cholesterol, triglycerides, glucose, and apolipoprotein B. WT group 75% RM, 3 sets, 12 reps, every other days for 8 weeks and AQ 75% HRmax, every other days for 8 weeks. Examined the percentage of body fat, IL-6, CTx and N-MID Osteocalcin levels before and after treatment. Hypothesis testing using test (One-Way ANOVA, Kruskal Wallis with a mean difference test (Tukey HSD and Mann Whitney's)). **Result** showed the percentage of body fat was higher in AQ than the WT group and controls (6.21±0.98; 4.21±1.29; 0.45±0.49; p<0.05). Levels of IL-6 was increased higher in WT than the AQ group and controls (0.256±0.105; 0.157±0.073; 0.013±0.093; p<0.05). Levels of CTx was decreased higher in WT than the AQ group and controls (116.16±16.75; 70.67±26.98; 9.75±4.43; p<0.05). Increased levels of N-MID Osteocalcin higher in WT and AQ group than in controls (7.66±7.58; 0.21±0.17; -0.81±0.40; p<0.05). WT and AQ reduced the obesity and increased the activity of bone remodeling activity in obese women.

Conclusion: AQ program was efficient in attenuating bone resorption raise and enhancing bone formation.

Keywords: Body fat percentage, CTx, N-MID Osteocalcin

INTRODUCTION

The prevalence of obesity increasing worldwide is, previously studied by Bessesen and Afridi between 1976-1980 years compared with 1999-2000 there is an increasing prevalence of overweight from 46% up to 64.5%. (Bessesen, 2008) WHO in 2003 noted that approximately one billion people were overweight and at least 300 million are clinically obese. WHO also predicts that by 2015, 2.3 billion adults will be overweight and 700 million are obese. The prevalence of obesity and overweight in Indonesia is still high, in 2010, obesity in women is higher than men. In premenopausal women aged 45-50 years the prevalence of obesity by 40% than in men by 13%. (Sumanto, 2009) Physiologically in premenopausal women to be obese and osteoporosis caused by the decreased of ovarium function with loss of estrogen, causing increased bone resorption and makes the bone mass decreases. (Bonnelye & Aubin, 2005)

Obesity is associated with changes in the production of adipokines such as increased levels of tumor necrosis factor- α (TNF- α), interleukin-6 (IL-6), resistin, leptin and decreased adiponectin. (Strandberg, 2009) Contributions of obesity to health problems become appeal to various studies

including control efforts. Previous study showed the reduction of adiponectin, formation and bone resorption through the production of proinflammatory cytokines (IL-6). (Bente K. Pederson and Mark A. Febbraio & Introduction, 2008; Cao, Sun, & Gao, 2010) IL-6 can stimulate proliferation of hematopoietic progenitors to activate osteoclasts (Henriksen, Bollerslev, Everts, & Karsdal, 2011) and adiponectin levels decreased and IL-6 levels increased in obese women. (Punyadeera et al., 2005)

Bone loss is to measure the process of bone resorption and formation is called bone turnover, that is by measuring the biochemical compound that is the result of the activity of osteoclast cells and osteoblast cells. (Leeming et al., 2006; Viapiana et al., 2007) Previous studies have found a reliable parameter and a bone collagen product that will be released into the blood circulation in the event of interference on the cell pairs (coupling) early. These parameters are β -crosslaps (CTx=Crosslink C-terminal telopeptide) and PinP (N-terminal propeptide of type I procollagen / N-MID Osteocalcin) in serum. (Okuno et al., 2005) These parameters is a good indicator for determining the activity of osteoclast cells and osteoblast cells with the purpose of estimating the speed of bone resorption and new bone formation through the process of bone turnover. (Lee & Suzuki, 2010; Narong Bunyaratavej, 2005)

The practice of exercise has been one of the most widely-studied strategies to improve the quality of life on adults and older people ((Weinsier, Hunter, Schutz, Zuckerman, & Darnell, 2002) Some researchers have found positive results when using strength training to induce increases in FFM and physical ability in older people (Bemben and Bemben, 2000; Elliot et al., 2002; Fahlman et al., 2002). The American College of Sports Medicine recommends that people who begin a program of strength training should use free-weights or weight machines (WMs). (Donnelly et al., 2009) However, in many cases, it is not possible to access these devices due to a lack of facilities or financial resources. The practice of exercise in an aquarobics has expanded greatly in recent decades because it is the only therapeutic and rehabilitation practice to be used in both recreational practice in healthy individuals (Han et al., 2011; Moreira et al., 2013) These new fields of application are supported by short-term improvements in muscle strength, power and fat-free mass. Additionally, recent studies comparing the physiological improvements and the increased physical capacity resulting from training programs based in postmenopausal women found no significant differences between the use of these various force training devices (William M. Denning, 2010) However, there are no studies comparing the effects of weight training (WT) and aquarobics exercise (AE) on these parameters in respect to which one best decrease obesity. Consequently, this study aimed to determine the short-term effects of a weight training and aquarobics program on obesity and bone remodeling in obese women. Once the effects of these programs have been established, it will be possible to determine which of them is most effective, and could thus result in maximal benefits for obesity and bone remodeling in obese women.

MATERIAL AND METHODS

Study design, we used a randomized pretest posttest controlled group experimental design to assess the effects of weight training and aquarobics in obese women. Three experimental groups were formed: one was the weight training (WT), the second aquarobics (AQ) and the control group. Body composition and physical capacity were assessed before and after the intervention period. Subjects, before the beginning of the study, 60 volunteer obese women were examined to confirm that they were not taking medicines, were not under any hormonal therapy and were functionally independent, free from neurological, cardiovascular, metabolic, inflammatory or musculoskeletal problems that could exclude them from the study. Furthermore, it was confirmed that none of them had previously participated in a program of weight training or had completed any type of aerobic exercise in the previous three months. After the initial screening, 24 women were excluded because they did not meet the study inclusion criteria. The remaining 36 obese women were randomly assigned to three groups, there were 12 obese women in each group and 12 in the control group,

with this sample size the power of the study was of 95%. All subjects were informed of the training and testing, signed a written informed consent to participate, and were instructed not to modify their behavior or diet, nor to perform any other type of physical exercise for the duration of the study. The study was approved by Research Ethics Committee of Health and Medicine, Faculty of Medicine, University of Diponegoro.

Food recall, The 24-hour recall aims to provide a complete record of all food and drink eaten on the previous day between midnight and midnight. When the 24-hr recall has been completed, respondents are asked questions regarding drinking water and dietary supplements. (Donnelly et al., 2003)

Training protocol, the obese women were taught the techniques for each of the different exercises in two sessions before the start of the training program, following established criteria for body position, range of motion and respiration (Fujimura et al., 1997). Moreover, the speed of movement was standard for the land-based exercises, using an individualized and slow pace (for example, 2 seconds concentric, 4 seconds eccentric) in the WT exercises because the speed of these exercises affects their intensity, that is, the faster the execution speed, the greater the intensity. The programme of weight training we chosen *Bench Press (Barbell)*, *Seated Row*, *Dumbbell Biceps Curl*, *Dumbbell Shoulder Press*, *Lat Pulldown* dan *Triceps Pushdown*. Gerakan *lowerbody* terdiri dari 6 gerakan yaitu *Leg Press*, *Leg Curl (Hamstrings)*, *Leg Extension (Quadriceps)*, *Calf Raises*, *Abdominal Crunch* dan *Lower Leg Raises*. All the subjects adhered strictly to the program, with a minimum of 95% attendance at training sessions. For aquarobics exercise we chosen walking or running, not just "bicycling" legs in the water and the pool isn't just for cardio. The extra resistance of the water makes it ideal for building muscle with strength workouts. In the first 4 weeks, 2 sets were performed for the lower and 1 set for the upper extremities; from weeks 5 to 8, the number of sets was equalized for the upper and lower body, and for weeks 7 and 8, the number of sets was increased to 3. Between exercises, there was an active recovery period of 30 seconds consisting of gentle jogging. The sessions were always monitored by the same qualified technicians and were also supervised by trained monitors in order to corroborate the methodology, performance, materials, room conditions and program adherence. Warm-up and cool-down protocols were designed and followed by both groups. Due to the design and monitoring of the training protocol, none of the women were injured during the training program.

Statistical analysis, the homogeneity of the dependent variables was checked using Levene's test, and their normality was also evaluated by means of Kolmogorov-Smirnov statistics. Descriptive statistics were then calculated and are expressed as mean (SEM). One-way repeated-measures analyses of variance (ANOVA) were used to determine the effect of each intervention in those variables that passed the normality. When differences were found, a Bonferroni post-hoc analysis was performed. A non-parametric Wilcoxon test for paired samples was used to find differences within groups in the variables that did not corroborate the assumptions. In addition, a Kruskal-Wallis test was applied to establish differences between groups at the pre- and post-test for these variables. When differences were found, a post-hoc analysis was performed by means of a Mann-Whitney U test for unrelated samples. The level of significance for all analyses was set at 0.05.

RESULTS AND DISCUSSION

The mean age of study, height, weight, body fat percentage and intake of energy, protein and fat, before treatment in all groups was not significant ($p \geq 0.05$). The recommended dietary allowance for Indonesia is adjusted to the level of age and sex is the energy for women aged 30-49 years is 2625 kkal, 65g protein, 73g fat and energy for women aged 50-64 is 2325 kkal, 65g protein and 65g fat. Results of 24-hour food recall (nutrisoft software) the level of consumption of energy, protein and fat in each of the groups was not significant ($p \geq 0.05$). These results indicate that in all

groups of food intake during the treatment is the same. Different test of body fat percentage treatment groups showed no significant difference between treatment groups and controls group (table.1) and the Effects of treatment on IL-6, CTx and N-Mid Osteocalcin (table .2). Different test of IL-6 levels before treatment and delta IL-6 levels after treatment showed significant difference ($p \leq 0.05$) (Fig.1). Different test of CTx levels before and after treatment between showed significant difference ($p \leq 0.05$) (Fig.2) as well as the different test of N-MID Osteocalcin levels and delta N-MID Osteocalcin showed significant difference ($p \leq 0.05$),(Fig.3).

Table 1. Subject characteristics

Variable	WT (n=12) mean $\pm$ SD	AQ (n=12) mean $\pm$ SD	CGn=12 mean $\pm$ SD	p
Age (years)	46,49 $\pm$ 1,41	46,74 $\pm$ 1,30	46,79 $\pm$ 1,35	0,225 ⁽¹⁾
Intake energy (kkal)	2157 $\pm$ 119.97	2125 $\pm$ 165.81	2134 $\pm$ 136.11	0,112 ⁽¹⁾
Intake protein (g)	48,38 $\pm$ 1,67	44,91 $\pm$ 1,63	45,38 $\pm$ 1,78	0,608 ⁽¹⁾
Intake fat (g)	69,87 $\pm$ 3,83	63,93 $\pm$ 3,12	65,66 $\pm$ 3,34	0,265 ⁽¹⁾
Height (m)	1,52 $\pm$ 0,04	1,55 $\pm$ 0,05	1,52 $\pm$ 0,04	0,151 ⁽¹⁾
Weight (kg)	76,41 $\pm$ 3,11	75,66 $\pm$ 5,54	75,41 $\pm$ 6,61	0,539 ⁽¹⁾
Body fatpre (%BF)	37,64 $\pm$ 1,58	36,82 $\pm$ 1,00	36,48 $\pm$ 1,05	0,074 ⁽¹⁾
Body fatpost (%BF)	33,44 $\pm$ 1,26	30,61 $\pm$ 1,11	36,03 $\pm$ 1,16	0,000 ⁽¹⁾
delta body fat (%BF)	4,21 $\pm$ 1,29	6,21 $\pm$ 0,98	0,45 $\pm$ 0,49	0,000 ⁽¹⁾

⁽¹⁾ one-way anova, data are expressed as mean and SD. WT= weight training; AQ= aquarobics and CG= control group. Significant difference between groups in the post test ($p \leq 0.05$)

Table 2. Effects of intervention in IL-6, CTx and N-Mid Osteocalcin

Variable	WT (n=12) mean $\pm$ SD	AQ (n=12) mean $\pm$ SD	CGn=12 mean $\pm$ SD	
IL-6 (pg/mL) pre	0,327 $\pm$ 0,163	0,227 $\pm$ 0,070	0,293 $\pm$ 0,072	0,327 ⁽¹⁾
IL-6 (pg/mL) post	0,585 $\pm$ 0,229	0,384 $\pm$ 0,112	0,280 $\pm$ 0,046	0,001 ⁽¹⁾
CTx (ng/mL) pre	365,58 $\pm$ 66,84	339,83 $\pm$ 73,59	379,67 $\pm$ 80,27	0,393 ⁽¹⁾
CTx (ng/mL) post	249,42 $\pm$ 64,25	269,17 $\pm$ 77,41	369,92 $\pm$ 78,77	0,001 ⁽¹⁾
N-MID Ost (ng/mL) pre	21,34 $\pm$ 6,73	18,86 $\pm$ 3,37	18,32 $\pm$ 3,27	0,276 ⁽¹⁾
N-MID Ost (ng/mL) post	29,00 $\pm$ 11,15	19,07 $\pm$ 3,44	17,51 $\pm$ 3,49	0,001 ⁽¹⁾
delta IL-6 (pg/mL)	0,258 $\pm$ 0,105	0,157 $\pm$ 0,073	0,013 $\pm$ 0,093	0,000 ⁽²⁾
delta CTx (ng/mL)	116,16 $\pm$ 16,75	70,66 $\pm$ 26,98	9,75 $\pm$ 4,43	0,000 ⁽²⁾
delta N-MID Ost (ng/mL)	7,66 $\pm$ 7,58	0,21 $\pm$ 0,17	-,81 $\pm$ 0,40	0,000 ⁽²⁾

⁽¹⁾ one-way anova, ⁽²⁾Kruskal-Wallis, data are expressed as mean and SD. WT= weight training; AQ= aquarobics and CG= control group. Significant difference between groups in the post test ($p \leq 0.05$)

Decreased in body fat percentage is higher in AQ group related to use of energy sources during exercise and decreased in body fat percentage at the AQ cause weight loss, in which the first twenty minutes during exercise, the source of energy used is glycogen reserves from the liver and muscle and fat reserves will burned if someone exercise a long time. AQ it was benefits to the health and appearance characterized by decreased body fat percentage and skin fat lipolytic is more active than the fat from other deposits. (van Aggel-Leijssen, Saris, Hul, & van Baak, 2001) These results are supported by previous studies that exercise training can decreased percentage of body fat in obese women. (Manning, 2011)

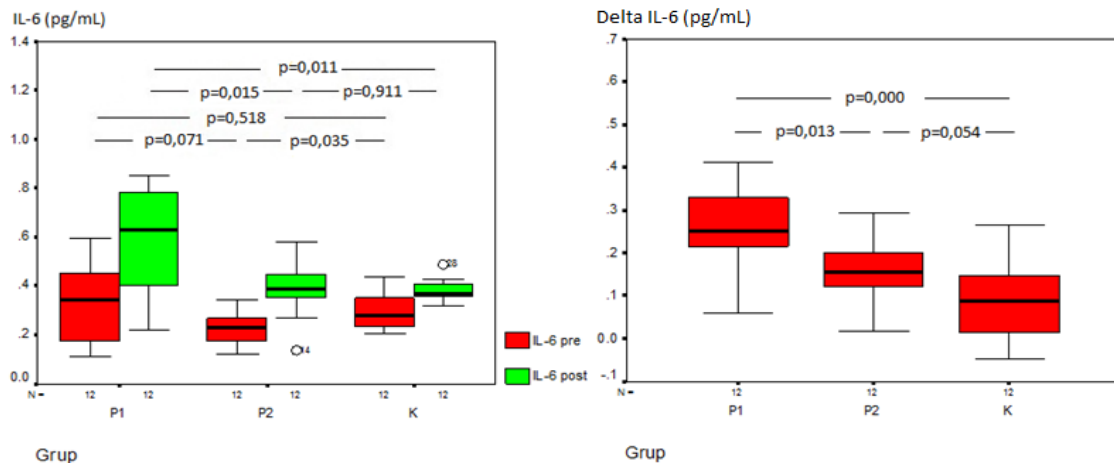


Fig. 1. Comparisons between three groups in the pre-test, post-test and delta IL-6 showed differences in WT, AQ and CG.

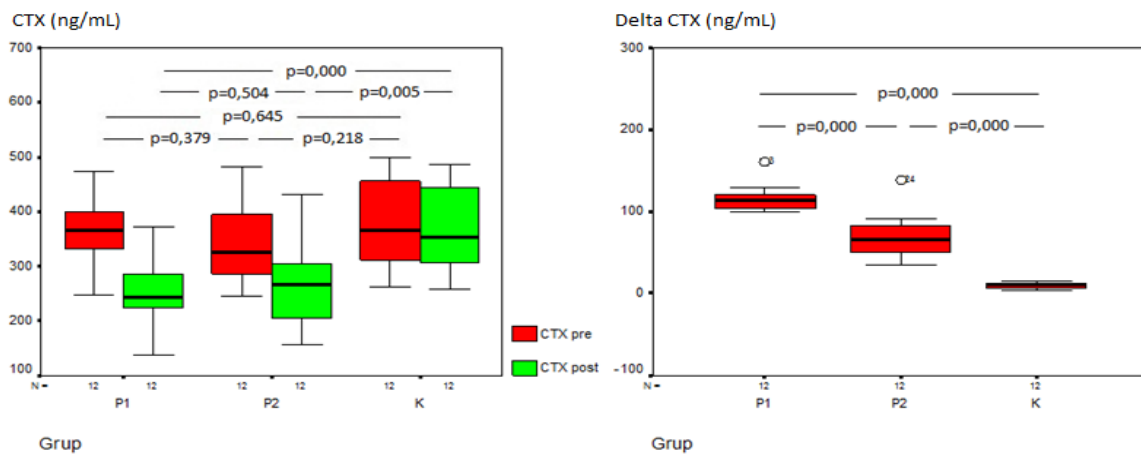


Fig. 2. Comparisons between three groups in the pre-test, post-test and delta CTx showed differences in WT, AQ and CG.

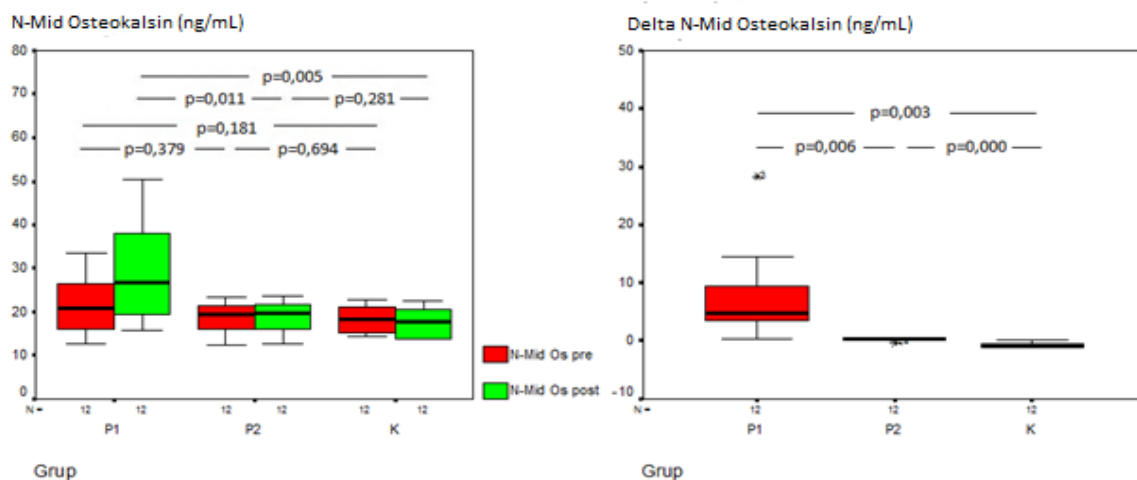


Fig. 3. Comparisons between three groups in the pre-test, post-test and delta N-Mid Osteocalcin showed differences in WT, AQ and CG.

Skeletal muscle contraction (40%) all of body tissues require energy source substrate, (Jonsdottir et al., 2000) skeletal muscle needed the energy during contraction. One of the fulfillment of these sources is through the mechanism of lipolysis. Lipolysis occurs by exposure to epinephrine through the mechanism of the secreted beta-adrenergic responses during stress on physical exercise and immediately after physical exercise. (Phillips et al., 1996) Increased lipolysis in physical exercise can reduce of fat in adipocyte, further size of adipocyte reduction causes a decrease in fat mass, where the energy used for aerobic exercise comes primarily from fat and fat will produce more energy than carbohydrates or protein. (Watt, Febbraio, Garnham, & Hargreaves, 1999) The results of this study supported previous research that physical exercise 25% -60% VO_2max increase fat oxidation 5-10 times. The effectiveness of the increase in lipolysis occurs after 30 minutes in subjects who are not trained than untrained subjects. (Horowitz, 2003; Trinity, Pahnke, Lee, & Coyle, 2010) Stress from weight training will stimulate activity in the hypothalamus that secrete thropic cortico hormone (CRF), which then sends a message through the two paths. One pathway through the nerves in the brain stem and spinal cord, which then stimulates the adrenal gland. The adrenal gland will secrete epinephrine and nor epinephrine that affect increases heart rate, respiratory rate, alertness and muscle response. The pituitary gland will stimulate at the base of the brain to release Adreno thropic cortico hormone (ACTH), which in stimulates the adrenal glands to produce skin cortisol. Cortisol into the bloodstream and the effect increases the metabolism. Both of these pathways will provide feedback to the pituitary gland. (Azizi, Rahmani-nia, & Mohebbi, 2012)

WT can stimulate osteoblast with electric currents generated when the stress on the bones, especially the periosteal surface of the bone and increase bone structure during growth and to reduce the loss of bone mass in obese individuals. WT provides mechanical load on the bones and muscles that will increase proinflammatory cytokines such as IL-6, on the condition of obese IL-6 plays a role as a modulator of lipid metabolism by increasing lipolysis and fat oxidation. (Swift, Hogan, & Bloomfield, 2013; Watt et al., 1999) The role of IL-6 in bone resorption that is by activating osteoclasts together with parathyroid hormone, calcitriol, and $\text{TNF-}\alpha$ by modulating osteoclast activity through a factor that is synthesized and secreted by osteoblasts. (Figuerola et al., 2003; Ostrowski, Rohde, Zacho, Asp, & Pedersen, 1998) IL-6 which acts as a proinflammatory and anti-inflammatory cytokines released by T cells and macrophages to stimulate an immune response because the trauma and damage other tissues that cause inflammation due to WT. IL-6 stimulates energy mobilization with the availability of calorie-burning muscle glycogen in muscle tissue and fat. (Bente K. Pederson and Mark A. Febbraio & Introduction, 2008)

Osteoclast activity occurs early in the first 3 weeks of bone remodeling process, while osteoblasts showed significant activity after three weeks and lasts up to 3 months. Blood sampling in this study conducted at the end of the 8th week after treatment exercise, which means that the process of remodeling is transitioning domination osteoclast and osteoblast activity. This dominance tendencies show a positive thing that supports the process of bone remodeling. Positive uncoupling of bone remodeling influenced by systemic and local factors. Systemic factors involving the dynamics of the levels of IL-6 which will provide stimulus to the hypophysis pituitary adrenal axis (HPA axis) resulting in securities regulation through a neuroendocrine pathway. (Bente K. Pederson and Mark A. Febbraio & Introduction, 2008; Tinduh & Roeshadi, 2012) Respons adaptation syndrome is controlled by the hypothalamus which receives input from the physical and psychological stress receptors throughout the body. Hypothalamus directly activates the sympathetic nervous system to stimulate issued CTH ACTH and cortisol secretion. (Fujimura et al., 1997; McGuigan, Egan, & Foster, 2004; William M. Denning, 2010)

CONCLUSION AND SUGGESTION

Decreased in body fat percentage was higher in the AQ group, while decreased in CTx and increased levels of N-MID Osteocalcin higher in WT compared AQ and CG. Suggested to obese

women to perform WT and AQ as efforts to reduce of obesity and increases of bone remodeling activity.

ACKNOWLEDGMENT

This study was carried out thanks to my beloved parents Bakhram Najmudin and Titik Lusmiyati. My supervisor Professor Hardhono Susanto, Professor Ign.Riwanto, Professor Tandiyo Rahayu and thank you so much to my little family.

REFERENCES

- Altarescu, G.,Phillips, M.,Foldes, A. J., & Elstein, D. (2003). The interleukin-6 promoter polymorphism in Gaucher disease : a new modifier gene, 575–578.
- Azizi, M.,Rahmani-nia,F., & Mohebbi, H. (2012). Cortisol Responses and Energy Expenditure at Different Times of Day in Obese Vs. Lean Men, 6(3), 314–320.
- Bente K.Pederson and Mark A. Febbraio, & Introduction, I. (2008). Muscle as an Endocrine Organ : Focus on Muscle-Derived Interleukin-6. *Physiol Rev*, 88, 1379–1406.
- Bessesen, D. H. (2008). Update on Obesity, 93(June), 2027–2034.
- Blanchard, F., Duplomb, L., Baud'huin, M., & Brounais, B. (2009). The dual role of IL-6-type cytokines on bone remodeling and bone tumors. *Cytokine & Growth Factor Reviews*, 20(1), 19–28.
- Bonnelye, E., & Aubin, J. E. (2005). REVIEW : Estrogen Receptor-Related Receptor : A Mediator of Estrogen Response in Bone, 90(5), 3115–3121.
- Cao, J. J., Sun, L., & Gao, H. (2010). Diet-induced obesity alters bone remodeling leading to decreased femoral trabecular bone mass in mice, 1192, 292–297.
- Dhamrait, S. S., James, L., Brull, D. J., Myerson, S., Hawe, E., Pennell, D. J., Bone, K.P (2003). Cortical bone resorption during exercise is interleukin-6. *Eur J Appl Physiol*, 89, 21–25.
- Donnelly, J. E., Blair, S. N., Jakicic, J. M., Manore, M. M., Rankin, J. W., & Smith, B. K. (2009). American College of Sports Medicine Position Stand. Appropriate physical activity intervention strategies for weight loss and prevention of weight regain for adults. *Medicine and Science in Sports and Exercise*, 41(2), 459–71.
- Donnelly, J. E., Kirk, E. P., Jacobsen, D. J., Hill, J. O., Sullivan, D. K., & Johnson, S. L. (2003). Effects of 16 mo of verified, supervised aerobic exercise on macronutrient intake in overweight men and women: the Midwest Exercise Trial. *The American Journal of Clinical Nutrition*, 78(5), 950–6.
- Fäldt, J., Wernstedt, I., Fitzgerald, S. M., Wallenius, K., Bergström, G., & Jansson, J. (2004). Reduced exercise endurance in interleukin-6-deficient mice. *Endocrinology*, 145(6), 2680–6.
- Febbraio, M. a, Steensberg, A., Keller, C., Starkie, R. L., Nielsen, H. B., Krstrup, P., ... Pedersen, B. K. (2003). Glucose ingestion attenuates interleukin-6 release from contracting skeletal muscle in humans. *The Journal of Physiology*, 549(Pt 2), 607–12.
- Figueroa, A., Going, S. B., Milliken, L. A., Blew, R. M., Sharp, S., Teixeira, P. J., & Lohman, T. G. (2003). Effects of Exercise Training and Hormone Replacement Therapy on Lean and Fat Mass in Postmenopausal Women, 58(3), 266–270.
- Fujimura, R., Ashizawa, N., Watanabe, M., Mukai, N., Amagai, H., Fukubayashi, T., ... Suzuki, M. (1997). Effect of resistance exercise training on bone formation and resorption in young male subjects assessed by biomarkers of bone metabolism. *Journal of Bone and Mineral Research : The Official Journal of the American Society for Bone and Mineral Research*, 12(4), 656–62.

- Han, G., Cho, M., Nam, G., Moon, T., Kim, J., Kim, S., ... Cho, B. (2011). The Effects on Muscle Strength and Visual Analog Scale Pain of Aquatic Therapy for individuals with Low Back Pain. *Journal of Physical Therapy Science*, 23(1), 57–60.
- Henriksen, K., Bollerslev, J., Everts, V., & Karsdal, M. A. (2011). *Osteoclast Activity and Subtypes as a Function of Physiology and Pathology — Implications for Future* (Vol. 32).
- Horowitz, J. F. (2003). Fatty acid mobilization from adipose tissue during exercise. *Trends in Endocrinology and Metabolism*, 14(8), 386–392.
- Jonsdottir, I. H., Schjerling, P., Ostrowski, K., Asp, S., Richter, E. a, & Pedersen, B. K. (2000). Muscle contractions induce interleukin-6 mRNA production in rat skeletal muscles. *The Journal of Physiology*, 528 Pt 1, 157–63.
- Lee, C. Y. S., & Suzuki, J. B. (2010). CTX biochemical marker of bone metabolism. Is it a reliable predictor of bisphosphonate-associated osteonecrosis of the jaws after surgery? Part II: a prospective clinical study. *Implant Dentistry*, 19(1), 29–38. doi:10.1097/ID.0b013e3181cec8bc
- Leeming, D. J., Alexandersen, P., Karsdal, M. a, Qvist, P., Schaller, S., Tankó, L. B., & Article, R. (2006). An update on biomarkers of bone turnover and their utility in biomedical research and clinical practice. *European Journal of Clinical Pharmacology*, 62(10), 781–92. doi:10.1007/s00228-006-0174-3
- Manning, K. (2011). *Effects of Exercise Training on Fat Oxidation in Untrained Overweight and Obese Females*.
- Mcguigan, M. R., Egan, A. D., & Foster, C. (2004). Salivary Cortisol Responses And Perceived Exertion During High Intensity And Low Intensity Bouts Of Resistance Exercise, 8–15.
- Moreira, L. D. F., Fronza, F. C. a O., Dos Santos, R. N., Zach, P. L., Kunii, I. S., Hayashi, L. F., ... Castro, M. L. (2013). The benefits of a high-intensity aquatic exercise program (HydROS) for bone metabolism and bone mass of postmenopausal women. *Journal of Bone and Mineral Metabolism*.
- Narong Bunyaratavej. (2005). Monitoring of Risedronate by Biochemical Bone Markers in Clinical Practice. *Departement of Orthopaedic Surgery, Faculty of Medicine, Mahidol University.*, 88, 34–36.
- Nishimoto, N., Kanakura, Y., Aozasa, K., Johkoh, T., Nakamura, M., Nakano, N., ... Nakano, S. (2011). Humanized anti – interleukin-6 receptor antibody treatment of multicentric Castleman disease Humanized anti – interleukin-6 receptor antibody treatment of multicentric Castleman disease. *Blood Reviews*, 106, 2627–2632.
- Okuno, S., Inaba, M., Kitatani, K., Ishimura, E., Yamakawa, T., & Nishizawa, Y. (2005). Serum levels of C-terminal telopeptide of type I collagen: a useful new marker of cortical bone loss in hemodialysis patients. *Osteoporosis International: A Journal Established as Result of Cooperation between the European Foundation for Osteoporosis and the National Osteoporosis Foundation of the USA*, 16(5), 501–9.
- Ostrowski, K., Rohde, T., Zacho, M., Asp, S., & Pedersen, B. K. (1998). Evidence that interleukin-6 is produced in human skeletal muscle during prolonged running. *JMB*, 508 (Pt 3, 949–53.
- Petersen, A. M. W., & Pedersen, B. K. (2005). The anti-inflammatory effect of exercise. *Journal of Applied Physiology (Bethesda, Md. : 1985)*, 98(4), 1154–62.
- Punyadeera, C., Zorenc, A. H. G., Koopman, R., McAinch, A. J., Smit, E., Manders, R., ... van Loon, L. J. C. (2005). The effects of exercise and adipose tissue lipolysis on plasma adiponectin concentration and adiponectin receptor expression in human skeletal muscle. *European Journal of Endocrinology / European Federation of Endocrine Societies*, 152(3), 427–36.
- Ridker, P. M., Rifai, N., Stampfer, M. J., & Hennekens, C. H. (2000). Plasma Concentration of Interleukin-6 and the Risk of Future Myocardial Infarction Among Apparently Healthy Men. *American Heart Association*.

- Sims, N. a, & Walsh, N. C. (2010). GP130 cytokines and bone remodelling in health and disease. *BMB Reports*, 43(8), 513–23.
- Strandberg, L. (2009). *Interactions between Nutrition , Obesity and the Immune System*.
- Sumanto, A. (2009). Tetap Langsing dan Sehat dengan Terapi Diet.
- Swift, J. M., Hogan, H. a, & Bloomfield, S. a. (2013). β -1 Adrenergic Agonist Mitigates Unloading-Induced Bone Loss by Maintaining Formation. *Medicine and Science in Sports and Exercise*, 45(9), 1665–73.
- Tinduh, D., & Roeshadi, D. (2012). Pengaruh Latihan jalan kecepatan sedang terhadap mobilisasi, differensiasi dan maturasi stem cell pada PBMC, serta remodelling tulang perempuan pasca menopause. *JBP*, 14(3), 123–132.
- Trinity, J. D., Pahnke, M. D., Lee, J. F., & Coyle, E. F. (2010). Interaction of hyperthermia and heart rate on stroke volume during prolonged exercise. *Journal of Applied Physiology (Bethesda, Md. : 1985)*, 109(3), 745–51.
- Van Aggel-Leijssen, D. P., Saris, W. H., Hul, G. B., & van Baak, M. a. (2001). Short-term effects of weight loss with or without low-intensity exercise training on fat metabolism in obese men. *The American Journal of Clinical Nutrition*, 73(3), 523–31.
- Viapiana, O., Gatti, D., Dalle Grave, R., Todesco, T., Rossini, M., Braga, V., ... Adami, S. (2007). Marked increases in bone mineral density and biochemical markers of bone turnover in patients with anorexia nervosa gaining weight. *Bone*, 40(4), 1073–7.
- Watt, M. J., Febbraio, M. a, Garnham, a P., & Hargreaves, M. (1999). Acute plasma volume expansion: effect on metabolism during submaximal exercise. *Journal of Applied Physiology (Bethesda, Md. : 1985)*, 87(3), 1202–6.
- Weinsier, R. L., Hunter, G. R., Schutz, Y., Zuckerman, P. a, & Darnell, B. E. (2002). Physical activity in free-living, overweight white and black women: divergent responses by race to diet-induced weight loss. *The American Journal of Clinical Nutrition*, 76(4), 736–42.
- William M. Denning. (2010). *The Effects of Aquatic Exercises on Physiological and Biomechanical Respons*. Utah State University.
- Yoshitake, F., Itoh, S., Narita, H., Ishihara, K., & Ebisu, S. (2008). Interleukin-6 directly inhibits osteoclast differentiation by suppressing receptor activator of NF-kappaB signaling pathways. *Journal of Biological Chemistry*, 283(17), 11535–40.



THE EFFECT OF *DRIBBLING SHIELDING FUNDAMENTAL* ON DRIBBLE COORDINATION OF THE U-12 CHEVRON RUMBAI FOOTBALL SCHOOL CLUB

Kristi Agust¹, Muhammad Iqbal Suherman²

^{1,2}Sport Education, Faculty of Teachership and Education, Riau University

¹kristiagust87_unri@yahoo.com, ²suhermaniqbal@gmail.com

Abstract

This research want to know is there any effect of dribbling shielding fundamental exercise toward dribbling coordination of U-12 Chevron Rumbai Pekanbaru football club, so when doing dribbling, the opposing player will hardly grab the ball to increase the chances in scoring and getting win. This research was experimental research. The population in this research was the athletes of Chevron Rumbai Pekanbaru football club, while the sample was the 12-year-old athletes of the football club in the total of 16. Sampling technique used in this research was Total Sampling. Instrument that was used in this research was soccer dribble test, which is aimed to measure the ankle coordination while dribbling. This research was analyzed by using statistic to examine the normality with liliefors test on the significant level 0,05 α . The submitted hypothesis was there is a significant effect of dribbling shielding fundamental toward coordination. Based on the statistic data analysis, the average of pretest was 18.57 and the average of posttest was 17.08. It shows that there was a significant effect of dribbling shielding fundamental exercise toward coordination of U-12 Chevron Rumbai Pekanbaru football club.

Keywords : *Dribbling Shielding Fundamental, Coordination*

INTRODUCTION

One sport which is demanded an optimal achievement is football. According to Joseph A. Luxbacher (1996-V), football is the most famous sport in the world. More than 200 million people in the world play more than 20 million matches every year. Football is defined as a game which brings two teams and is played by 11 players on 11 players which uses 2 goal posts and uses a round-shaped ball. While Sucipto et.al (2000:07) say that football is a team game, which is in each team consists of eleven players and one of them is a goalkeeper. This game is almost entirely using the legs, except the goalkeeper who is allowed to use his hands in the penalty area. In its development, this game can be played outdoor and indoor.

The most important thing in football is the application of tactics and techniques. Good physical and mental condition are also needed. In order to gain those things, there are 4 training aspects which need to be considered and trained by the athletes, those are physical, techniques, tactics, and mental training (Harsono:100). According to Josef sneyers (2002:24), the game quality of a team is determined by the basic technique control. The more skilled a player with the ball, the easier he can escape from the situation without losing the ball, and the better the game for his squad. But, once again, the skill is for his team, not individual.

Some of the basic techniques learned in training are controlling the ball with the legs, thighs, and head : forwarding the ball without being held : *dribbling* : overhead kicking : short and long passing : throwing : direct free kick and indirect free kick : short and long corner kick : heading : giving effects to the ball (Josef Sneyers, 2002 : 11). Meanwhile, one of the basic techniques which plays an important role in supporting achievements in football is dribbling. According to Joseph A. Luxbacher (1996 - 47),

Based on the researcher's observation in the field, the players of U-12 Chevron Rumbai Football School Club looked a liitle stiff in doing a quick dribble, turn around dribble, and control

dribble, so the coordination while doing dribble looked poor. In some football matches, the players of U-12 Chevron Rumbai Football School Club looked overwhelmed in dribbling, so that the ball was easily captured by the opposing players.

According to Indonesian Football Coach Agency (Badan Pelatih Sepakbola Seluruh Indonesia, 2009: 20-25), there are some training methods which can increase football players' dribble coordination, those are: Fundamental (Dribbling feinting), Dribbling Shielding II Fundamental, Dribbling Shielding Fundamental, Fundamental, Situation Game of 5 vs 5, 1 vs 1 with 2 neutral players (Game Related). Therefore, the researcher wanted to carry out a research any farther in order to increase the dribble coordination by giving a training and to determine whether those training methods can increase the dribble coordination ability. Before selecting one of the training methods, the researcher had understand all of dribble training methods based on the objectives to be achieved. Based on the objectives, *Dribbling Shielding Fundamental* was considered appropriate to be applied to increase the dribble skill because of its movements are more well-coordinated. Besides, the researcher had discussed with the head coach of the U-12 Chevron Rumbai Football School Club and he suggested to take *Dribbling Shielding Fundamental* to be researched because this kind of training method aims to increase the athletes' basic ball dribble individually. While the others aims to increase the ability cooperatively in the form of teams. Based on the problems above, the researcher was interested to carry out a research entitled: "The Effect of *Dribbling Shielding Fundamental* on Dribbling Coordination of the U-12 Chevron Rumbai Football School Club".

Dribble, Dribble in football is similar to basketball that allows the players to keep the ball as it ran across the opponent or forwarding into the open space. While according to National Education Ministry (KEMENDIKNAS) (2014:8), *Dribbling* is one of movement skill in football to control the ball. According to (Josef sneyers, 2002: 24) The quality of a game is determined by the surveillance teams basic techniques. The more skilled a player with the ball, and the younger he can (without losing the ball) to escape from a situation, the better the game for his team. But the starting point remains that it is in the interests of skills across the team.

Dribbling Shielding Fundamental, This exercise aims to improve the ability of players to perform dribbling shielding (dribble while protecting the ball). Badan Pelatih Sepakbola Seluruh Indonesia (2009). This exercise uses 4 balls and 5 cones with a field length of 10 meters x 10 meters. Players were divided into 4 groups according to the four sides of a square cone.

A sequence of movements:

- The player with the most forward position of each sub-group in the ready position.
- Players who began a series of movements leading to dribble together, while pointing at each other with close each player dribbling, feinting with his feet do the outside.
- Do leg alternately using the outer and inner legs.

METHODOLOGY

This research was designed by doing *pretest-posttest one group design*. It started by conducting *Soccer Dribble Test* for pretest (Ismaryati, 2008:56). After conducting the pretest, *Dribbling Shielding Fundamental* programme was given to the athletes in 16 meetings. Then, *Soccer Dribble Test* programme was conducted again for the posttest (Ismaryati, 2008:56 in order to determine whether there is an increase or not after doing *Dribbling Shielding Fundamental* on dribble coordination of the U-12 Chevron Rumbai Football. The following is the design of this research:

$$O_1 \times O_2$$

O_1 = pretest score (before given the programme)

X = the programme

O_2 = nilai posttest (after given the programme)

The population of the research was 16 people who are the core players of the U-12 Chevron Rumbai Football School Club. They were chosen based on the competition conducted by the researcher.

According to Suharsimi Arikunto (2006 : 130), population is the whole research subjects. If a researcher wants to do a research to all element in research area, that is population research. Its study is also called as population study or census study. Suharsimi Arikunto (2006 : 131) also explains that population research is conducted if the researcher wants to observe the intricacies in the population. Population research can only be conducted for a finite population and its subject is not too much.

RESULT AND DISCUSSION

The data obtained as the result was quality data through test before and after conducting *Dribbling Shielding Fundamental* programme. The data was taken from the test and the measurement of 16 athletes of the U-12 Chevron Rumbai Football School Club. The variables of this research were *Dribbling Shielding Fundamental* which is symbolized by X as dependent variable, and Dribble Coordination which is symbolized by Y as independent variable.

1. Result Data of Pretest Soccer Dribble Test, The preliminary data of *Soccer Dribble Test* before conducting *Dribbling Shielding Fundamental* programme are as follow: the maximum score was 27.22, the minimum score was 13.15, the mean was 18.57, the variance was 13.24, and the standard deviation was 3.63. The analysis data of pretest *Soccer Dribble Test* could be seen on the following table:

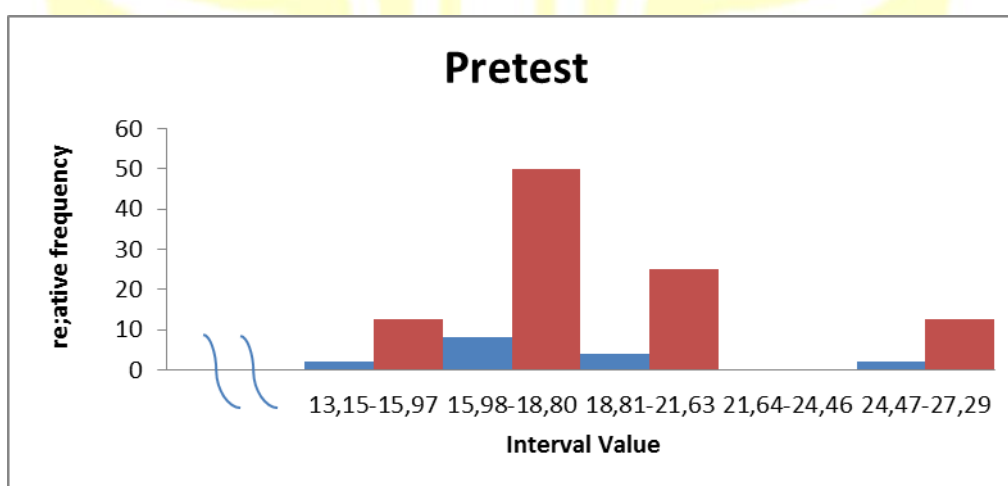
Table. Result Analysis of Pretest Soccer Dribble Test

STATISTICS	Pretest
Sample	16
Mean	18,57
Maximum	27,22
Minimum	13,15
Variance	13,24
Standard Deviation	3,63

Table. The Frequency Distribution of Pretest Soccer Dribble Test

The Value of Interval Data of Pretest Soccer Dribble Test		
Interval Value	Absolute	Relative Frequency %
13,15-15,97	2	12.50
15,98-18,80	8	50.00
18,81-21,63	4	25.00
21,64-24,46	0	0.00
24,47-27,29	2	12.50
Total of Sample	16	100.00%

Based on the frequency distribution table above, from 16 people as the sample, 2 people (12.5%) were in an interval range of 13.15-15.97, 8 people (50%) were in an interval range of 15.98-18.80, 4 people (25%) were in an interval range of 18.81-21.63, 0 person (0%) was in an interval range of 21.64-24.46, and 2 people (12.50%) were in an interval range of 24.47-27.29. It could be seen on the following histogram:



Result Data Histogram of Pretest Soccer Dribble Test

2. Result Data of Posttest Soccer Dribble Test, The preliminary data of Soccer Dribble Test after conducting *Dribbling Shielding Fundamental* programme are as follow; the maximum score was 23.15, the minimum score was 13.03, the mean was 17.1, the variance was 7.9, and the standard deviation was 2.81. The analysis data of posttest Soccer Dribble Test could be seen on the following table:

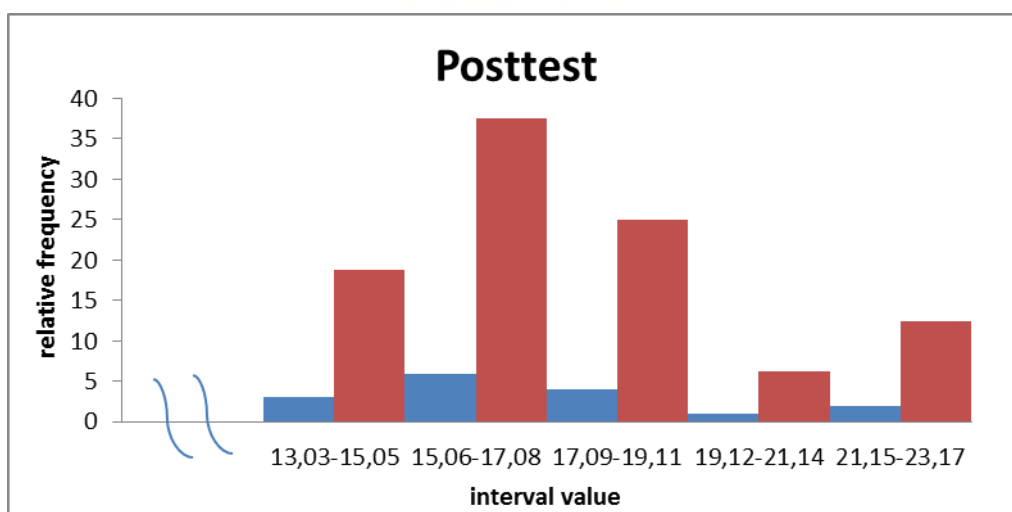
Table. Result Analysis of Posttest Soccer Dribble Test

<i>STATISTICS</i>	<i>Posttest</i>
<i>Sample</i>	16
Mean	17,08
Maximum	23,15
Minimum	13.03
Variance	7,882
Standard Deviation	2,81

Table. Frequency Distribution of Posttest Soccer Dribble Test

The Value of Interval Data of Posttest Soccer Dribble Test		
<i>Interval Value</i>	<i>Absolute</i>	<i>Relative Frequency %</i>
13,03-15,05	3	18.75
15,06-17,08	6	37.50
17,09-19,11	4	25.00
19,12-21,14	1	6.25
21,15-23,17	2	12.50
Total of Sample	16	100.00

Based on the frequency distribution table above, from 16 people as the sample, 3 people (18.75%) were in an interval range of 13.03-15.05, 6 people (37.5%) were in an interval range of 15.06-17.08, 4 people (25%) were in an interval range of 17.09-19.11, 1 person (6,25%) was in an interval range of 19.12-21.14, and 2 people (12.5%) were in an interval range of 21.15-23.17. It could be seen on the following histogram:



Result Data Histogram of Posttest Soccer Dribble Test

a. Normality Test

The normality test was conducted through *liliefors* test. The result of normality test to the research variables, those are *Dribbling Shielding Fundamental* (X) and the test result of *Soccer Dribble Test* (Y) can be seen on the following table:

Table Normality Test

Variable	L _{count}	L _{table}	Information
The Result of Pretest <i>Soccer Dribble Test</i>	0,1982	0,213	Normal Distribution
The Result of Posttest <i>Soccer Dribble Test</i>	0,2062	0,213	Normal Distribution

Based on the table above, it could be seen that after doing a calculation, the result data of pretest *Soccer Dribble Test*, it was obtained L_{count} was 0,1982 and L_{table} was 0,213. It means L_{count} < L_{table}. It can be inferred that the result data of pretest *Soccer Dribble Test* was normal. While for the test of result data of posttest *Soccer Dribble Test*, it was obtained L_{count} 0,2062 < L_{table} 0,213. It can be inferred that the result data of posttest *Soccer Dribble Test* was normal.

3. DISCUSSION, After conducting a research which was started from collecting to analyzing the data, and then the result was obtained as follows: The effect of *Dribbling Shielding Fundamental* (X) on Dribble Coordination (Y) of the U-12 Chevron Rumbai Football School Club. It showed there was a significant effect between the two variables.

The hypothesis of the result showed there was a significant effect of *Dribbling Shielding Fundamental* (X) on Dribble Coordination (Y) of the U-12 Chevron Rumbai Football School Club. It is needed to find a training method which refers to basic football dribble for gaining a good dribble coordination. One of the training methods is *Dribbling Shielding Fundamental*.

This training method used 4 balls and 5 cones with a field length of 10 meters x 10 meters. The players were dividd into 4 teams according to the 4 sides of the cone square. Then, each player from the post did dribble toward the middle cone. After arrived, they did *feinting* using inside or outside leg and then returned to the post to change with the next friends. (Indonesian Football Coach Agency (Badan Pelatih Sepakbola Seluruh Indonesia), 2009 : 20).

At the time of conducting the research, the researcher did not deny that there were any weaknesses. In 16 sessions of training, especially on Tuesday and Thursday, the sample who came late became a major obstacle in this research. This is understandable because those days were the afternoon training schedule. Further, they had different school hours, so a few of the samples came late. Beside the technical problem, it also became a cause that the sample were aged under 12 years were generally not serious and always joking with their friends while training. It is because psychologically, this age is the age to play. However, this problem could be solved through a variety of persuasive approach and using a training method which was preferred by the children.

With those problems above, the researcher finally could finish the research well. However, if there are further researchers who want to conduct the research with the same concept and subject, then the result of this research can be used as a reference to increase the quality of the research. Based on the discussions above, it can be inferred that there was a significant effect of *Dribbling*

Shielding Fundamental (X) on Dribble Coordination (Y) of the U-12 Chevron Rumbai Football School Club.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions, Based on the T-test analysis, it showed that Tcount was 5.02 and Ttable was 1.753. it means Tcount > Ttable. And based on the statistics data analysis, the mean of the pretest was 18.57 and the mean of the posttest was 17.08. Based on the T-test, there was a difference of the number which increased 1.4. It can be inferred that dribble coordination was really affected by doing *dribbling shielding fundamental* which was required to support the current frequency of training in improving the athletes' ball dribble coordination.

Based on the research finding and the data analysis, it can be inferred as follows: There was a significant effect of *dribbling shielding fundamental* (X) on dribble coordination (Y) of the U-12 Chevron Rumbai Football School Club.

Recommendations, Based on the finding obtained in this research, the researcher would like to give suggestions which could be helpful in increasing the athletes' ball dribble coordination, those are:

- 1) This research might be useful as a reference in arranging the training strategy in order to increase the ball dribble coordination in football matches.
- 2) The athletes of Chevron Rumbai Football School Club are expected to be more creative in developing their talents and try to apply a better, more effective, and more efficient training method

REFERENCES

- Badan Pelatih Sepakbola Seluruh Indonesia (2009). *Lisensi D Nasional*. PSSI
- Harsono. (1988). *Coaching dan Aspek-Aspek Psikologis Dalam Coaching*. Jakarta
- Ismaryati. (2006). *Tes dan Pengukuran*. Surakarta
- KEMENDIKNAS RI. (2014). *Pendidikan Jasmani Olahraga dan Kesehatan*. Jakarta
- Luxbacher, Joseph A. (1996). *Sepakbola*. Jakarta
- Sucipto, dkk. (2000). *Sepakbola*. Bandung



THE INFLUENCE OF WEIGHT TRAINING IN THE METHOD OF SET SYSTEMS ON THE WEIGHT GAIN AND FAT PERCENTAGE

Ahmad Nasrulloh¹, Yudik Prasetyo²

^{1,2}Yogyakarta State University

¹ahmadnasrulloh@uny.ac.id, ²yudikprasetyo@uny.ac.id

Abstract

Purpose: This research aims to find out how big the influence of weight training in the method of set systems on the weight gain and fat percentage of students of Sports Science Department of Sports Science Faculty of Yogyakarta State University (IKOR FIK UNY). **Methods:** This research uses the experimental method in the design of *the one group pre-test – post-test design*. The research participants were the students of IKOR FIK UNY class 2011. The sample in this study involves the entire students of IKOR FIK UNY class 2011 taking the fitness expertise. The instrument used was the weight scale with units of kilograms. The data were analyzed using the normality test to find out if the data were at the normal Gaussian distribution. The test of its variant homogeneity was conducted to test the similarity of data variant of the experimental groups. A t-test was conducted to find out if there was a difference between the pre-test and post-test variables on the experimental groups. **Results:** The research results show that the analysis on the t-test obtained the t value of 4,972 with the significance value of 0.000. Because the significance value of 0.000 was smaller than 0.05 ($p < 0.05$), it can be concluded there was a significant difference on the students' weight between the pre-test and the post-test. These results demonstrate that the weight training using the method of set systems can gain weights of the students of IKOR FIK UNY. The t-test analysis on the fat percentage results in the t-value of 1,935 with a significance value of 0,068. The significance value of 0,068 was greater than 0.05 ($p > 0.05$). **Conclusion:** It can be concluded that there was no significant difference in fat percentage of students during the pre-test and the post-test. It can be inferred that the weight training using the method of set systems has no effect on the fat percentage of the students of IKOR FIK UNY.

Keywords: weight training, the method of set systems, weight, fat percentage

INTRODUCTION

The ideal and athletics body shape is very desirable by every person in life. Various ways and attempts are made to get the ideal body shape. One popular way is to do physical exercise. Training is usually defined as a systematic process of repetitive exercises, progressive, having the ultimate goal of improving athletic performance (Bompa, 1999: 1). Exercise is a type of physical activity that is planned, structured, and repetitive body movements with the purposes of improving or maintaining one or more physical fitness components (Wenner, 2010: 7). In short, exercises give regular, systematic, and sustained physical pressure in such a way so that the athletes can improve the physical abilities in undertaking activities (Fox et al., 1993: 69). Exercises are physical activities performed systematically, standardized, and organised in accordance with the proper dose in a relatively long and with progressive sustainable burden aimed at improving one's physical abilities gradually.

The physical activity is often done with the loading system that is often known as weights. According to Suharjana (2007: 87), weight training is an exercise performed systematically by using loads as tools to increase the strength of the muscle function in order to improve the athlete's physical condition, to prevent the occurrence of injury, or for health purposes. Weight training can be done using one's own weight or the outside load or free weights such as dumbbell, barbell, weight machines (gym machines). The most widely used forms of exercises using one's own weights are chin-ups, push-ups, crunches, or back up, and ones using free weight are very numerous and vary according to the purpose of the exercise as well as the muscles subjected.

According to Sadoso Sumosardjuno (1990: 39), weight training is a way of maintaining condition of the body with the repetitive motions, such as scrunching biceps, shrugged with a sub-maximum load, and others. Baechle (2014: 1) says that weight training will be able to increase muscular strength, muscular endurance, neuro-muscular (nerve-muscle) coordination, and bone density (helping prevent osteoporosis). According to Djoko (2000: 59), weight training is a form of exercises that uses media tools in order to support the process of load exercises with the aim at improving fitness, muscle strength, speed, muscle hypertrophy, muscle toning, rehabilitation, as well as the weight gain and reduction.

According to Djoko (2009: 65), weight training is also called as resistance training which is one of the sports exercises using weights as a means to provide stimulus of motion in the body. Initially, weight training was developed to train the muscles especially to increase its strength and durability as well as muscle hypertrophy. In the development, weight training can be designed to enhance the durability of cardiovascular and to improve body composition.

Most people who undertake weight training want their bodies to be in the ideal category, similarly for someone experiencing underweight. The ideal or athletic body shape will be obtained for any person when that person wants to do weight training in accordance with an appropriate exercise programme. One of the exercise programmes that can be performed to gain weight is the weight training. This exercise program should be carried out in accordance with the appropriate dose so that the desired goals can be achieved. In addition, it should also implement the basic principles of exercise in order to achieve maximum physical performance.

An exercise program is one of the planned references that are used as the basis to do exercise in the training process so that it can run effectively, efficiently, and securely. Here are the forms of exercise programs for weight gaining. The goal of this exercise is the enlargement of muscle mass and muscle formation. The safe weight gaining program can be performed gradually of 0.5-1 kg/week.

Table 1. The weight gaining exercise program

Kinds of Exercises	Exercise Portion	Information
The Main Exercise: <i>Weight training</i>	Frequency: 3-4 times/week Intensity: 70-80 % RM Numbers of Sets: 3-6 Set Repetition: 8-12 times Recovery: 30-90 seconds interval	The levels of exercises are gradually increased Numbers of posts: 10-12 Intensity: medium The method: <i>Set block/Set systems</i>
Additional Exercises: - Aerobic with medium intensity - Anaerobic	Frequency: 3-4 times/week Intensity: 65-75 % MHR Duration: > 20 minutes Intensity: > 85 % MHR Duration: 20-60 minutes	The levels of exercises are gradually increased - Increasing body metabolism - Increasing appetite

In addition to the weight gain, researchers also will look at the extent of the influence of weight training using the method of the set systems on the fat percentage. This was performed in order to note that the increase in body weight was not gained from the increase fat percentages. According to Dadang (2000: 42), fat is the largest energy-producing nutrients, more than twice the amount of energy produced by carbohydrates. However, fat is an energy source that is not economically in use. It is because fat metabolism spends more oxygen than of carbohydrates. Djoko (2007: 9-10) states that fat is salt formed from the unification of fatty acids with organic alcohol called glycerol or Glycerine. The basic components of fat are triglycerides, which is made up of glycerol and fatty acids (Noerhadi, 2004: 51). In addition, there is cholesterol that is derived from fat. Cholesterol is required to help the formation of gall juices and hormones. However, cholesterol also can harm cardiovascular health if it is consumed in large quantities. There are a lot of cholesterol in foods that come from animals, such as the brain, heart, intestines, tripe, egg yolk, and skin.

The excess fat will cause the muscle on the framework should work harder to do the motion, so that the energy necessary is larger and it also become dependents for the heart. In addition to burdening the heart, excess fat will also affect on the process of circulation of oxygen and carbon dioxide. Excess fat will also affect the work of other organs such as the liver and kidneys as it will serve more tissue in the body.

Fat is one of energy sources needed by our body. Body fat was involved during activities, especially in sport or physical exercises. During the exercises, fat is broken down into fatty acids and glycerol. Free fatty acids are transported into the muscle tissue and used as energy. However, the energy formation from fatty acids requires more oxygen than from carbohydrates. Fat can only produce energy when the oxygen is available or sufficient. Thus, the fat can produce energy only at aerobic.

According to Djoko Pekik (2004: 81), the quality of the human body composition is represented by the percentage of body fat. The normal body fat levels are 15%-20% form men and 20%-25% for women. The body composition is defined as the relative fat percentage, muscles, bones, and other tissues in the human body. It can also be interpreted that body composition involves two components, namely, body fat and lean body mass. Given the importance of the ideal body fat percentage and the levels that exist in the human body, the researchers intended to conduct research on the influence of weight training using the method of set systems on the weight gain and fat percentage on the students of IKOR FIK UNY whose weights were less than ideal.

METHOD

This is experimental research. According to Zainuddin (1988: 56) experimental research is likely to test the relationship between a cause and an effect. Experimental research can be defined as a method of research used to determine a particular treatment effect against the other in controlled conditions (Sugiyono, 2013: 109). It is said that this research is experimental research because this research will examine the relationship of cause and effect on the influence of weight training with against weight gain.

The research design of this study is *the one-group pre-test – post-test design*. According to Leedy (1980: 169), *the one-group pre-test – post-test design is a type of experiment where a single group has (1) a pre-experimental evaluation, then (2) the influence of the variable, and finally (3) a post-experimental evaluation*. Thus, it can be said that the one-group pre-test – post-test design is a form of research experiments in which one group becomes an evaluation prior to the experiment, giving influence on the variables, and the last, giving an evaluation and experimentation. Therefore, it can

be said that the results of the pre-test are the control for this research. The design of this research can be described as follows:



Note:

O1 : The *Pre-test*

P : *Treatment*

O2 : The *Post-test*, Zaenuddin (1988: 71).

Instruments for collecting data in this study are measurement tools using the weight scales of kilograms. While the instruments for measuring the body fat are the electric tools with digital system i.e. Omron Body Fat Monitor. Measurement was carried out by entering data on weight, height, age, and gender. The results of body fat percentage can be directly read on a digital screen which can then be categorized according to the amount of body fat percentage, gender, and the age and then inserted into the table of the Omron Body monitors.

Data analysis techniques used in this research are as follows: the normality test was performed to find out if the data were at the normal Gaussian distribution. The test used was the Kolmogorov Smirnov test. The homogeneity test is a test to find out whether the variants of the populations were the same (Budiyo, 2004: 175). The homogeneity test on the variants was carried out to test the equality of data variants of the experimental group in the pre-test and post-test. The homogeneity test was Even's Test using the F-test. The T-test was done to find out if there was a difference between the pre-test and post-test variables on the experimental group. The analysis of the results revealed that there was a difference if the significance value was less than 0.05 ($P < 0.05$). Data obtained from the initial test (the pre-test) and the ultimate test (the post-test) will descriptive-statistically be analyzed using the t-test on the SPSS computer program with the significance level of 5% or 0.05.

RESULTS AND DISCUSSION

The data of this research is the results of the measurement on the weights and fat percentage after weight training using the method of set systems. The measurement data were obtained from two tests, i.e. before the treatment (the pre-test) and after the treatment (the post-test). The data was made into the descriptive analysis to facilitate the presentation of research data. The results of data analysis can be seen in the following table.

Table 2. The results of data analysis

Data	Min.	Max.	Mean	Median	Modus	Std. Dev
Weight (the pre-test)	49.00	73.00	59.65	57.75	51.00	7.16
Weight (the post-test)	51.00	74.00	61.37	61.75	51.00	6.79
Fat Percentage (the pre-test)	8.50	24.80	16.87	16.00	8.50	5.29
Fat Percentage (the post-test)	8.70	24.20	17.40	16.95	16.70	4.67

1. The Description of the Pre-test Data on Weights

Results of data analysis of weights on the pre-test show that the lowest score was 49.00 and the highest score was 73.00. The descriptive statistics analysis results demonstrate the average value

(M) = 59.65; Standard deviations (SB) = 7.16; Median (Me) = 57.75; and Mode (Mo) = 51.00. The following is the table of frequency distribution of weight data on the pre-test.

Table 3. The frequency distribution of weight data on the pre-test

Class Intervals	Frequency	Percentage (%)
69 – 73	2	10.0
64 – 68	6	30.0
59 – 63	1	5.0
54 – 58	6	30.0
49 – 53	5	25.0
Total	20	100.00

The histogram of the frequency distribution of weight data on the pre-test is as follows.

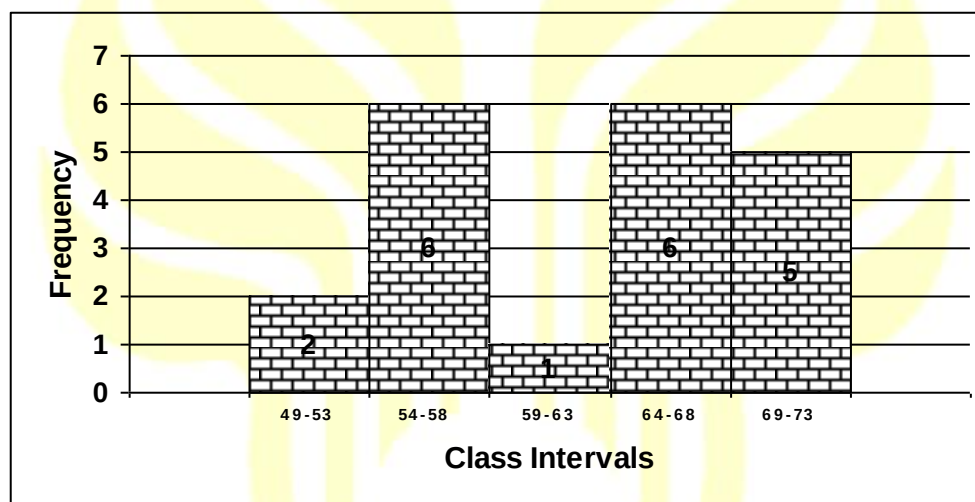


Fig. 1. The histogram of weight data on the pre-test

Based on the above picture, it can be inferred that the weight data on the pre-test were mostly on the interval scores of 54 - 58 and 64 - 68.

2. The Description of the Post-test Data on Weights
Results of data analysis of weights on the post-test show that the lowest score was 51.00 and the highest score is 74.00. The descriptive statistics analysis results demonstrate the average value (M) = 61.37; Standard deviations (SB) = 6.79; Median (Me) = 61.75; and Mode (Mo) = 51.00. The following is the table of frequency distribution of weight data on the post-test.

Table 4. The frequency distribution of weight data on the post -test

Class Intervals	Frequency	Percentage (%)
71 – 75	1	5.0
66 – 70	5	25.0
61 – 65	5	25.0
56 – 60	4	20.0
51 – 55	5	25.0
Total	20	100.00

The histogram of the frequency distribution of weight data on the post-test is as follows.

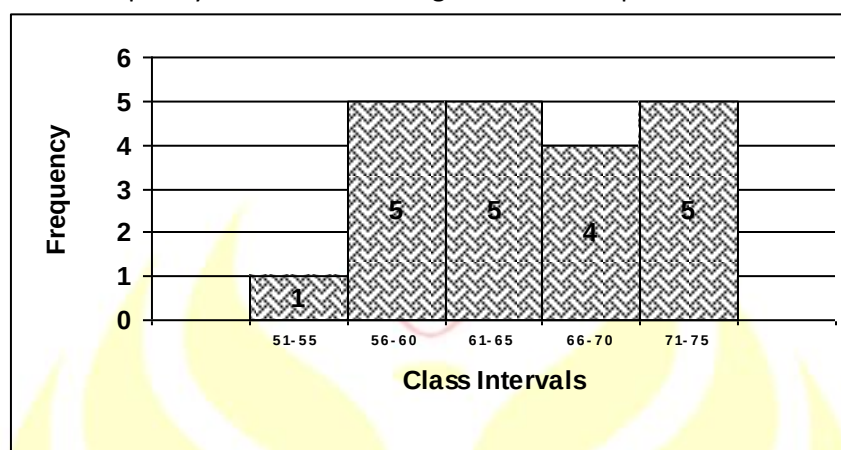


Fig. 2. The histogram of weight data on the post-test

Based on the above picture, it can be inferred that the weight data on the post-test were mostly on the interval scores of 51-55, 61-65, and 66-70.

3. A Description of the Pre-test Data on the Fat Percentage
Results of data analysis of fat percentage on the pre-test show that the lowest score was 8.50 and the highest score was 24.80. The descriptive statistics analysis results demonstrate the average value (M) = 16.87; Standard deviations (SB) = 5.29; Median (Me) = 16.00; and Mode (Mo) = 8.50. The following is the table of frequency distribution of fat percentage data on the pre-test.

Table 5. The frequency distribution of fat percentage data on the pre-test

Class Intervals	Frequency	Percentage (%)
21.6 – 24.8	5	25.0
18.3 – 21.5	3	15.0
15.0 – 18.2	4	20.0
11.8 – 14.9	5	25.0
8.5 – 11.7	3	15.0
Total	20	100.00

The histogram of the frequency distribution of fat percentage data on the pre-test is as follows.

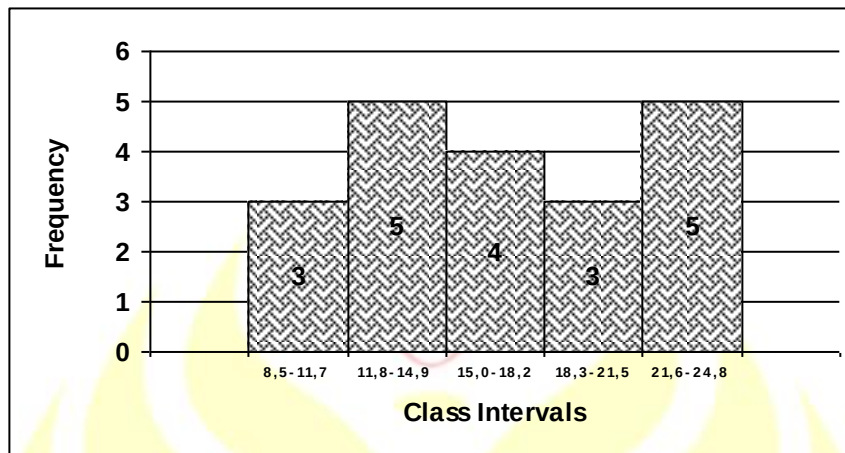


Fig. 3. The histogram of fat percentage data on the pre-test

Based on the above picture, it can be inferred that the fat percentage data on the pre-test were mostly on the interval scores of 11.8 - 14.9 and 21.6 - 24.8.

4. A Description of the Post-test Data on the Fat Percentage

Results of data analysis of fat percentage on the post-test show that the lowest score was 8.70 and the highest score was 24.20. The descriptive statistics analysis results demonstrate the average value (M) = 17.40; Standard deviations (SB) = 4.67; Median (Me) = 16.95; and Mode (Mo) = 4.67. The following is the table of frequency distribution of fat percentage data on the pre-test.

Table 5. The Frequency Distribution of Fat Percentage Data on the Pre-test

Class Intervals	Frequency	Percentage (%)
21.1 – 24.2	6	30.0
18.0 – 21.0	2	10.0
14.9 – 17.9	6	30.0
11.8 – 14.8	3	15.0
8.7 – 11.7	3	15.0
Total	20	100.00

The histogram of the frequency distribution of fat percentage data on the post-test is as follows.

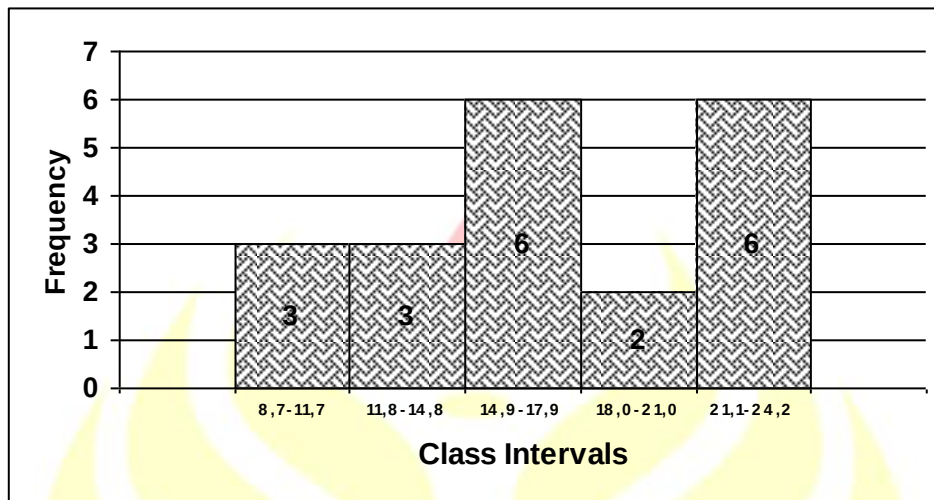


Fig. 4. The histogram of fat percentage data on the post-test

Based on the above picture, it can be inferred that the fat percentage data on the post-test were mostly on the interval scores of 14.9 - 17.9 and 21.1 - 24.2.

5. Hypothesis testing

The hypothesis of this research states "there is the influence on the weight gain of weight training using the method of set systems on the students of IKOR FIK UNY". Hypothesis testing was through the t-test. Results of the data analysis on research hypothesis testing are as follows.

a. The Results of T-test on the Weight Data

The results of the t-test on weight data of weight training using the method of set systems on the weight gain are as follows:

Table 7. The results of the t-test on weight data on the pre-test and the post-test

Data	Tests	Mean	T-Score	p	Mark
Weight	The Pre-test	59.65	4.972	0.000	Significant
	The Post-test	61.37			

The analysis on the results of the t-test show the t-score of 4.972 with the significance value of 0.000. Because of the significance value of 0.000 was smaller than 0.05 ($p < 0.05$), it can be concluded there was significant weight differences of the participants on the pre-test and on the post-test. These results demonstrate that weight training using method of the set systems could gain weights of the students of IKOR FIK UNY. Thus, the hypothesis of this research is acceptable.

Weight changes as the results of weight training using the method of set systems could clearly be seen in the following graph.

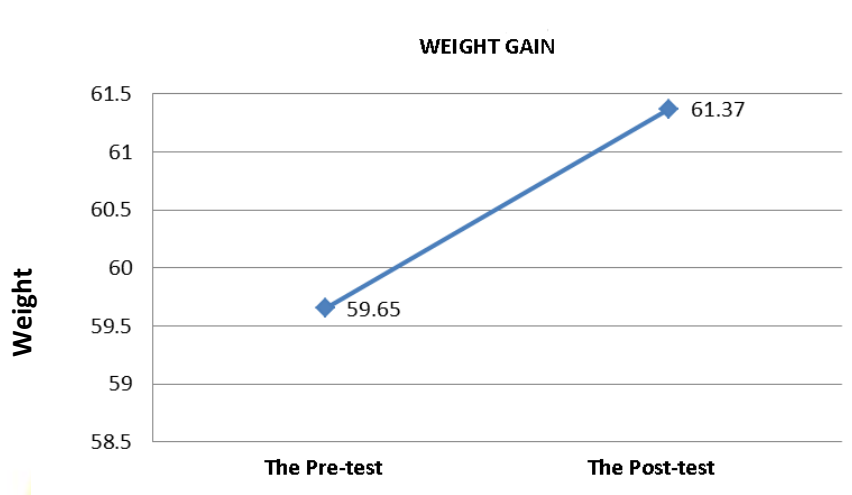


Fig. 5. Weight changes as the result of weight training using the method of set systems

Based on Figure 5, there was an increased weight as the result of weight training using the method of set systems from 58.65 to 61.37 and it was statistically proven significant.

b. The Results of T-test on the fat percentage

The results of the t-test on fat percentage data of weight training using the method of set systems on the weight gain are as follows:

Table 8. The results of the t-test on the fat percentage on the pre-test and the post-test

Data	Tests	Mean	t-score	p	Mark
Fat Percentage	The Pre-test	16.87	1.935	0.068	Not significant
	The Post-test	17.40			

The analysis on the results of the t-test show the t-score of 1.935 with the significance value of 0.068. Because of the significance value of 0.068 was bigger than 0.05 ($p < 0.05$), it can be concluded there was no significant weight differences of the participants on the pre-test and on the post-test. These results demonstrate that weight training using method of the set systems had no effects on the fat percentage of the students of IKOR FIK UNY.

The changes of fat percentage as the results of weight training using the method of set systems could clearly be seen in the following graph.

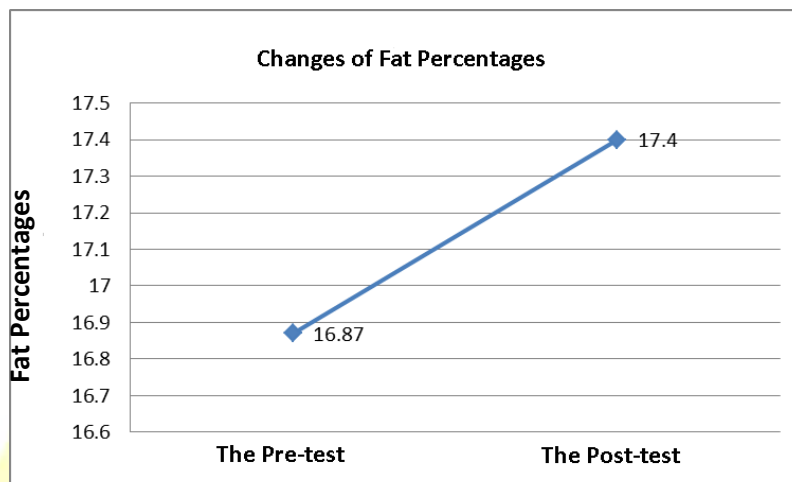


Fig. 6. The change of fat percentage as the results of weight training using the method of set systems

Based on Figure 6, there was an increased fat percentage as the result of weight training using the method of set systems from 16.87 to 17.40 and it was statistically proven insignificant.

The analysis on the results of the t-test show the t-score of 4.972 with the significance value of 0.000. Because of the significance value of 0.000 was smaller than 0.05 ($p < 0.05$), it can be concluded there was significant weight differences of the participants on the pre-test and on the post-test. These results demonstrate that weight training using method of the set systems could gain weights of the students of IKOR FIK UNY. Thus, the hypothesis of this research is acceptable.

Based on the above research results, it can be concluded that weight training to gain weight was completed using the method of set systems and organized into 10-12 stations or posts, with the loads of 70-80% of maximum loads, and 12 times of repetitions completed in 4 sets with 30-second rests was proved to be able to gain weight.

The analysis on the results of the t-test show the t-score of 1,935 with the significance value of 0,068. Because of the significance value of 0,068 was greater than 0.05 ($> p 0.05$), it can be concluded there was no significant difference in fat percentage of students during the pre-test and the post-test. These results demonstrate that weight training using the method of set systems has no effect on the fat percentage of students of IKOR FIK UNY.

Based on the above description, it can be concluded that there was insignificant changes on the fat percentage as the results of weight training using the method of set systems and organized into 10-12 stations or posts, with the loads of 70-80% of maximum loads, and 12 times of repetitions completed in four sets with 30-second rests.

CONCLUSION AND SUGGESTION

Based on the results of the study, it can be concluded that there were effects of weight training using the method of set systems on the weight gain of students of IKOR FIK UNY. However, there was no significant effect on the fat percentage of weight training in the method of set systems on the students of IKOR FIK UNY. The increase of body weight that occurs after the preferential treatment of weight training using the method of set systems was because of the increase of muscle mass. This could be inferred from statistical tests on the significant increase of body weight with the insignificant increase of fat percentage. Thus, weight training using the method of set systems can be used to gain weight.

REFERENCES

- Bompa, T. O., 1994. *Theory and methodology of training*, The Key to Athletic performance Third Edition, Toronto, Ontario Canada: Kendall/Hunt Publishing Company.
- _____, 1999. *Periodization Training for Sport*. United States: Human Kinetics.
- Budiyono, 2004. *Statistik untuk penelitian*. Surakarta: Sebelas Maret University Press.
- Dadang A. Primana, 2000. *Penggunaan Lemak dalam Olahraga*. Jakarta: Departemen Kesehatan dan Kesos.
- Djoko Pekik Irianto, 2000. *Panduan latihan kebugaran (yang efektif dan aman)*. Yogyakarta: Lukman Offset.
- _____, 2004. *Pedoman praktis berolahraga*. Yogyakarta: Andi Offset.
- _____, 2007. *Panduan Gizi Lengkap (Keluarga dan Olahraga)*. Yogyakarta: Andi Offset.
- _____, 2009. *Peranan jogging dan circuit weight training pada profil lemak tubuh dan kebugaran aerobik penyandang overweight*. Disertasi, Universitas Negeri Surabaya. Surabaya
- Fox. E. L, Bowers. R. W, dan Foss. M. L., 1993. *The physiological basis for exercise and sport*, fifth edition. Iowa: Brown & Benchmark Publishers.
- Jensen, P. (1987). *Training Lactat Puls Rate*. Finland: Publisher Polar Electro.
- Klinik Kebugaran, 2006. *Pelatihan Instruktur Fitness FIK UNY*.
- Leedy, P. D., 1980. *Practical research*. New York: Macmillan Publishing Co. Inc.
- Noerhadi, 2004. *Panduan Pelatihan Instruktur Fitness*. Yogyakarta: Universitas Negeri Yogyakarta.
- Sadoso Sumosardjuno, 1992. *Pengetahuan praktis kesehatan dalam olahraga*. Jakarta: PT Gramedia Pustaka Utama.
- Sugiyono, 2013. *Metode Penelitian Kombinasi (Mixed Methode)*. Bandung: CV Alfabeta.
- Suharjana, 2007. *Latihan Beban: Sebuah Metode Latihan Kekuatan*. *Jurnal Ilmiah Kesehatan Olahraga, MEDIKORA*, Vol. III, No.1, 80-101.
- Thomas R. Baechle and Roger W. Earle, 2014. *Fitness Weight Training*. United States: Human Kinetics.
- Werner W. K. Hoeger and Sharon A. Hoeger, 2010. *Principles and Labs for Physical Fitness*. Wadsworth: United State of America.
- Zaenudin, M., 1988. *Metodologi Penelitian*. Surabaya: Universitas Airlangga.



FACTORS SUPPORTING ROWING ACHIEVEMENT IN THE DISTRICT TANJUNG JABUNG BARAT PROVINCE OF JAMBI

Atri Widowati

University Jambi, Faculty of Sports

atriwidowati_porunnes@yahoo.co.id

Abstract

District of Tanjung Jabung Barat a teritorial waters area in Jambi province, in part people wrestle with paddling activities in conducting activities. District of Tanjung Jabung Barat regularly commemorate the great days, by organizing traditional boat races, is already entrenched activities as well as a promotional tool to introduce rowing. Various achievements rowing, has been achieved by athletes Jambi in various championships. One source rower in Jambi province are from the District of Tanjung Jabung Barat. The purpose of this study is to identify what are the factors that support the achievement of rowing in the District of Tanjung Jabung Barat. This type of research is descriptive qualitative with phenomenological approach. The data in this study is data relating to athletes, coaches, administrators and community leaders. Data collection techniques used in this study include observation, interviews and document study. Triangulation is done to get the validity of the data. The process of data analysis using an interactive model, shaped cycle through the four components of the analysis, namely data collection, data reduction, copy of a data and drawing conclusions or verification. The results showed that the economic, social and cultural life of society becomes the main factor supporting the development of rowing in this area. The supporting factors greatly impact on a good achievement. The study concluded that "The potential economic, social and cultural be a contributing factor in the achievement of rowing in the District of Tanjung Jabung Barat."

Keywords: Supporting Factors, Achievment, Rowing

INTRODUCTION

The peak of achievement in sport can only be achieved through a systematic development process, planned, organized and sustainable. Therefore, achievement of the summit needs to be translated into an overall concept in a pattern formation cascade. The success of the concept of coaching talented athletes for athletes who scored highly dependent application in the organization of the training system.

Jambi province is one of the provinces in Indonesia which has a very rich natural potential. Wealth is not only seen from the results of its natural course, but also has a diversity of arts and culture community and living in the community. Most of the area is still a jungle and swamps, including the district West Tanjung Jabung. The region has a unique life, unique and not shared by other regions in the province of Jambi. All activities of life, ranging from the search for the necessities of life to economic activity and communication can not be separated from the boat, water and paddling activities, because the region are mostly swamps. Besides, the District of West Tanjung Jabung Jambi province has considerable streams, such as the Batang Hari river and small rivers that empties into the river Batang, including Batang river Merangin, Tungkal river, Batang Asai river, and the river Batang Tembesi. Generally, these rivers are navigable as far upstream and long ago have traditionally

been used by the community as a means of connecting. Activity or rowing tradition, has been inherited by every child in the region West Tanjung Jabung. Since childhood, children in the district West Tanjung Jabung has been taught how to paddle. This is possible because of the nearby residential community with rivers and swamps that allows people always interact with water. So it is not surprising that people in this area proficient, skilled and have good skills in paddle boat or canoe. District of West Tanjung Jabung regularly commemorate the great days with traditional boat races held. These activities have been entrenched in the community, as well as a promotional tool to introduce the sport dayung. paian crowning achievement in sport can only be achieved through a systematic development process, planned, organized and sustainable. Therefore, achievement of the summit needs to be translated into an overall concept in a pattern formation cascade. The success of the concept of development talented athletes for athletes who scored highly dependent application in the organization of the training system.

Jambi position on rowing at national level a little better than other areas. Obviously this condition is not a surprising thing, mengingat natural conditions, environmental and regional masyarakat West Tanjung Jabung District as one of the suppliers rower excel in Jambi Province is very supportive to the development of rowing in this area. Therefore, it should be linked between the potential environmental, community and culture in the area of West Tanjung Jabung District the process of building conducted on rowing.

Custom of public West Tanjung Jabung is a strong stimulus to be a natural talent as a rower, is in line with the statement "To react to the stimulus is a fundamental demand of life. In the field of games and sports reaction Determining ability is a factor of performance "(Biswas, Ashoke Kumar et al, 2012: 7-10). This statement can be interpreted that to react to the stimulus is a basic requirement of life. In games and sports such stimulus greatly affect the ability. Another opinion states that *"One important determinant of physical activity is simply Youths' perceived enjoyment of such activity. Data from Several studies show that motivation to Participate in physical activity in children is influenced by perceptions of physical activity as fun, interesting, and challenging "*(John Cairney et al, 2012: 1-8). May mean that one of the important factors of adolescent physical activity are just perceived pleasure from such activities. Data some research suggests that the motivation to participate in physical activity in children is influenced by the perception of physical activity fun, exciting, and challenging. This statement reinforces the researchers to conduct a study relationship between physical activity habits of children or people Tanjabbar who enjoy everyday life with rowing as an activity that is fun, exciting and challenging due to the phenomenon of waters or rivers erratic. Thus the phenomenon is deemed necessary to do a more thorough assessment of the potential economic, social cultural and rowing that can be justified scientifically. Issues to be studied in this research is "what are the factors that support the achievement of Rowing West Tanjung Jabung In the district of Jambi province?" Goals to be achieved through this research is to know what are the factors that support the achievement of Rowing West Tanjung Jabung In the district of Jambi Province.

METHOD

The approach used in this research is descriptive qualitative approach-analytical meaning that the data obtained (the form of words, images, behaviors) are not contained in the form of numbers or statistics, but in qualitative terms that have a richer meaning than just the numbers or the frequency (Zuriah, 2006: 94).

This research was carried out by focusing on the factors that supported the achievement of Rowing

West Tanjung Jabung In the district of Jambi Province. Stages of implementation of the study, include: preparation, observation, documentation, interviews, consultations.

The selected observation is the regular observation, open, and passive role. Ordinary observation, means the study does not involve an emotional connection with the target under study and also does not control the target of the study (Rohidi, 2011). Open, meaning that the presence of researchers known by the perpetrator (athletes, coaches, administrators PODSI) were observed. Passive role, meaning that the presence of researchers known public figures were observed, researchers are passive and do not play a role in the observed situation. Samsudi (2009: 102) states that this observation is a kind of non-participant observation, the observations made either directly or indirectly terhadapobyek studied, which in this observation research institute, does not engage in the activity of the subjects studied.

Interviews are data collection techniques used by researchers to obtain oral statement through conversations and face to face with people who can provide information to investigators. Moleong (2010: 186) states, the interview is a conversation with a specific purpose, the conversation was carried out by the two parties, namely the interviewer (interview) who ask questions and who were interviewed (interviewer) which provides answers to questions.

Documentation is seeking data about things or variables in the form of notes, transcripts, books, newspapers, magazines, inscriptions, minutes of meetings, ugger, agendas and so forth (Arikunto, 2006:231).Technique documentation consists of two kinds:

- 1) Documentation Research, is a document that already exist in the field.
- 2) Documentation researcher, is the documentation conducted by researchers at the time of the study. For example, a photo taken at the time of observation of researchers in the field.

Source of data in this research is data relating to athletes, coaches, administrators rowing and community leaders. Sources of data in the form of participants who have the meaning that partispan are people who are invited to interview, observed, asked to provide data, opinions, thoughts, perceptions (Sukmadinata, 2006: 94).

Data athletes include personal data, activities and implementation of the exercise. Data athletes also includes personal data, activities and implementation of the exercise. Data relating to the implementation of the coach training program and the efforts made mengobtimalkan potential coaches for athletes. Data administrators are closely related to the implementation and functioning of the organization. While the data from public figures related to social and cultural life of the community in West Tanjung Jabung District. The information obtained is the space or place, behaviors, activities, objects, actions, events / events, time and feelings (Sagiyono, 2010: 77).

Data collection techniques used in this study include observation, interviews and document study. Triangulation is done through interviews, direct observation and direct observation, indirect observation is intended in the form of observations on some of the behavior and events which then from the results of these observations are taken red thread that connects in between. To obtain the truth of the results that can be trusted or internal validity, in this research data collection triangulation of data sources, triangulation techniques or methods, triangulation theory, peer debriefing, member check or Riview key informant (Sugiyono, 2010).

Data collection techniques used will complete in obtaining primary and secondary data, observation and interviews are used to capture primary data. Study the documentation used to collect secondary data that can be lifted from the various documentation about the culture and characteristics of the motion in West Tanjung Jabung District Jambi.

The process of data analysis used interactive model, which do form a cycle, through the four components of the analysis, namely data collection, data reduction, copy of a data and drawing

conclusions or verification.

RESULTS AND DISCUSSION

Results

From the data the development of the athlete's performance on Student Sports School (PPLP) in Jambi Province from 2003 to 2011 showed the best performance occurred in Popnas in Riau Province in 2011, Jambi province even able to penetrate the top 10 (ten) large with rank 8 (eight) and is able to obtain a 26 (twenty-six) achievements such as: three (3) gold medals, 11 (eleven) silver medals, and 12 (twelve) bronze medals. While the worst performance occurred in Popnas 2003 championship held in South Sulawesi province is achieving the lowest prestasi Jambi province during the championship Popnas with only acquire one (1) silver medal and four (4) bronze.

At the senior level rowing Jambi province also has some achievements of which began in the year 2000-2012 PON least not missed the medals table. Here is an accomplishment achieved by rowing Jambi Province from PON tahun 1989 to 2012.

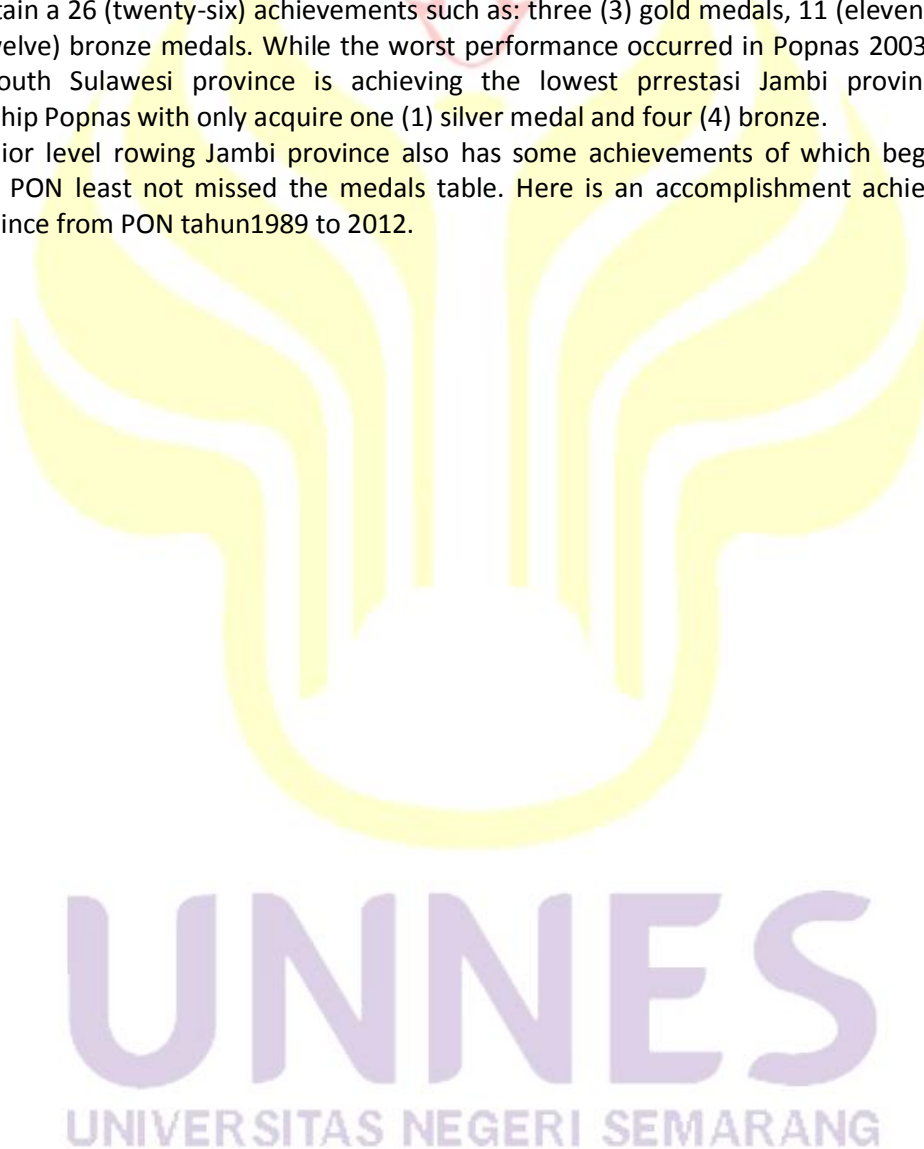


Table 1. Medal Rowing Achievment at PON Jambi Province

No	PON	MEDAL		
		Gold	Silver	Bronze
1	1989	0	0	0
2	1992	0	0	0
3	1996	0	0	0
4	2000	1	0	1
5	2004	2	2	0
6	2008	2	2	3
7	2012	0	1	5

(Source : KONI Jambi, 2012)

Achievement rowing Jambi province at the national level can compete with other regions. In addition to coaching is done, this achievement appears menginggat natural conditions, the environment and the community is very supportive of Jambi Province. Natural conditions that make masyarakatnya have paddled culture, especially in West Tanjung Jabung District. This phenomenon is very positive impact on the development and achievement in rowing in Jambi Province. Not a few of the athletes rowing Jambi province are sons and daughters of the district of Tanjabbar. Here is a list rower West Tanjung Jabung District the miraculous times also represent Jambi.

Table 2. List of Athlete West Tanjung Jabung District

No	Name Athlete		Note
	Male	Female	
1	Rahmad Feri	Mutiara	
2	Riski	Puji Astuti	
3	Fahrul Rozi	Ima Oktaviani	
4	Bahri Muslim	Dela	
5	Topik Hidayat	Nur Fadila	
6	Sholiqin	Sindi	
7	M Rizki	Silvi	
8	Gunhawari	Serli	
9	Herman Syaputra	Ayu	
10	Arkan Fuad	Suci	
11	Khoirul Akbar	Ina	
12	Muhakding ferdana	Sabrina	
13	Syam Putra		
14	M Admi		
15	Misba Hulmurni		

(Source : Rowing coach Jambi)

West Tanjung Jabung District is one of the contributors to the athlete who can lift the achievement Paddle Jambi Province. West Tanjung Jabung District by Capital Kuala Tungkal located on the East Coast Jambi province has an area of 141.75 km² or sea waters, with a length of ± 45 km coastline that stretches from the north (village Suak Pumpkin) to the south (the village of River Dualap) , West

Tanjung Jabung District have some river port river transport activities that serve both among districts or villages, or between districts in the province while also serving activities between inter-provincial district. West Tanjung Jabung District there are two (2) pieces of large rivers and creeks, which is still in use as a shipping channel transport stream, either to transport people and goods. These findings strongly support to associate with the purpose of research. How not to water is one of the aspects of life in this area. For long distance trip may have to use motorized boats. But the journey that close and not accessible by motor boats rowed form of natural energy is a must. Water and paddling activities very closely and become hereditary. The findings of the study showed that the potential in this area is to support the development athlete who can be fostered in sports rowing.

Here are the findings of a related study the factors that affect rowing achievement in the West Tanjung Jabung District.

1. Economy

West Tanjung Jabung District as one regional division has been implementing regional autonomy with the progress that has been achieved (HM, H. Shamsuddin, 2011: 83-102). Economic growth reflects the development of regional economic activity is characterized by the movement of the wheels of economic activity of the region through the production, consumption and investment which have an impact on employment and social welfare.

Most areas West Tanjung Jabung is water in the form of swamps and rivers. These conditions have an impact on the economic life of the people who are always struggling with water. To connect several areas always use the ship or boat (canoe).

Boats used residents as the pulse of liaison activities in the transport distances and especially past the large rivers. However, not all rivers and swamps drivable residents with motorized boats. These conditions forced almost every citizen has a boat that is used for transportation rarely close like from home to harbor large, from house to house other residents, from home to school and etc..

Economically that some people have a job as a fisherman struggling with a canoe for fishing. Economic potential of communities in West Tanjung Jabung District strongly supports the activities of rowing. Because most people have eyes pencaharian as fishermen who are familiar with rowing since small, then the row or paddle sports activities is already a people's daily activities. Economic activity is what mebuat rowing activity becomes something that always made public Tanjabbar. This is what could be the basis of how rowing can grow in this area.

2. Social Culture

Rapoport (1980: 9-10), quoted by Rohendi TR (2000: 7-8) states that the culture can be viewed as the backdrop for a type of man, which is normative for certain groups, who gave birth to a certain lifestyle that typically and significantly different with other groups.

West Tanjung Jabung District that is capitalized in Kuala Tungkal has a heterogeneous society. Banjar tribe, Minang, Malay, Javanese, Bugis and various ethnic groups mingle in the famous district along the city's nickname. But with this diversity and cultural differences became a characteristic and increase the repertoire of cultural richness as well as capital for this area.

Rowing has always raced on the activities of the area. This shows that the rowing has become part of a culture of physical activity as well as a social media among residents.

Activities carried out continuously consciously or not will have an impact on community life itself. Rowing activities undertaken since the small community makes rowing as a culture that is inherent in this area. Communication and relationships between people in the county is mostly done by relying on direct communication and rely on water transportation links between regions and between islands in

the district. The activities carried out almost every day, either by children, adolescents, and adults, in an effort to make ends meet. Rowing habits conducted by the community as the primary means of transportation into motion a culture which is a special characteristic of the people there. Habits that made this motion, which causes people there to have a good physical fitness, strong arm muscles are formed due to the habit of rowing and excellent durability. It is as one proof of the origin of how the rowing can be developed in this area.

3. Support Local Governments To Rowing Development

In addition to natural factors such research findings indicate that the development of rowing in West Tanjung Jabung District not independent role in supporting the development of local government. To be a good rower and perform optimally, it is necessary coaching exercise regularly and continuously, so that these athletes have good physical abilities, technical skills that support, implementation strategy or coaching techniques are varied and mastery and control of a strong mental play and resilient in the face of the game. One of the ways that need to be taken in efforts to increase achievement development rowing, by way of breeding age group athletes or program.

Department of Education has an important role in breeding efforts rower, because it oversees all stakeholders both public and private schools in which there are potential students as prospective athletes. Efforts can be made in the form of nursery To promote and competition among students by age group. Similarly, administrators rowing sports ranging from local to central, may cooperate with relevant agencies in an effort to promote sports nurseries and rowing, hoping to obtain seeds of potential athletes.

National building development sports strategy requires time and structuring an integrated system. Government in this case is the Ministry of Youth and Sports can not work alone without any synergy with other institutions associated with the development of national sports system. Structuring sporting achievements should be started from the problems of sports in society that are expected to bring the seeds of potential athletes and athletes will be obtained at the beginning of school age. Therefore, the arrangement should be integrated and gradually from the area so that the results achieved are highly optimized products.

To be able to drive the development the sport should be organized in various ways which may include or provide greater opportunities for the public to participate actively in sports activities, continuous, and full awareness of the actual sporting purposes. Sports coaching like this can only be held if there is a sports management system integrated, and sustainable in kebersamaaan spirit of the whole society. It is necessary for the preparation of athletes breeding program from an early age with sports is a priority. In this case rowing has become a priority branch in the West Tanjung Jabung District Jambi.

Discussion

Herdiansyah (2007) states, through friendship and interaction can build strong social relationships, to: (1) develop a sense of mutual sympathy, mutual understanding, mutual respect and affection, (2) facilitate access to a wide range of information including information on employment opportunities and the chance business, (3) foster the values which agreed that aims to address a shared problem and in fact rarely generate institutional joint venture, and (4) rebuild the memories that have nothing dikonteksikan in social and economic interests to the lives of individuals who bersilaturahmi and society at large. Culture is seen as a system, which is seen as a unit of study or analysis tool that consists of elements that are interrelated, connected with each other in an integral unit, function,

operation, or move in unity wholeness. This notion refers to the individual aspects, social, cultural and human life as elements that have a guidance function and energy on a reciprocal basis.

Culture has universal elements, which are linked to one another in shaping patterns of culture as a whole, in accordance with the potential, function, and properties of the elements and the relationships between these elements. Universal elements of culture include: (1) the system language, (2) a system of knowledge, (3) system of belief (religious), (4) the system of kinship and social organization, (5) livelihood systems, (6) system technology and (7) the system of art.

Culture is the overall knowledge, beliefs, and values possessed by humans as social beings.

Cultural contents are the models of knowledge or systems thoroughly intertwined meanings in the symbols transmitted historically. This knowledge models used selectively by the residents of supporters for communicating, preserving and connecting knowledge, and behave and act in the face of the environment, in order to meet various needs.

This theory is very describe social relationships West Tanjung Jabung District that always interact socially using the boat as a means of transportation to get home-home neighbors and towards public facilities. In this case the culture serves as a guideline and adaptation strategies. Adaptation is found that the paddle into the cultural activities of the community movement. Social values are also reflected in rowing is the spirit, teamwork, and mutual cooperation among citizens. Social and cultural potential which supports the development of rowing in West Tanjung Jabung District Jambi inadvertently result of socialization among the community. Abdullah Idi (2013: 101) states that socialization occurs through environmental conditions that cause people to study the pattern of fundamental culture (language, way of walking, eating, manners, work, etc.). The process of socialization is also a learning process of individuals to behave in accordance with the standards in the culture of the community. Soerjono Soekanto (2005: 183) states that the culture and the community is an inseparable duumvirate, where cultural properties are realized and distributed from human behavior itself. Reinforces the theory that unconscious gait and work always use a canoe or paddle boat in a manner that makes cultural movement inherent in each individual in society West Tanjung Jabung Jambi Province. This is the basis of strong socio-cultural linkages to the development of rowing.

A culture may be changed such that when the members of the community feel that their needs can not be met by culture. The requirement in the form of biological needs in the form of eating and living, as well as social needs such as social, status, and social roles (Soekanto, 2005: 359). But rowing culture in society West Tanjung Jabung is a habit that can meet the needs of all aspects of life, so rowing is a result of community culture attached. This statement describe how these factors be one reason for the development of rowing in this area.

The statement reinforces the social economic position of culture in the development of rowing in West Tanjung Jabung District Jambi. How culture rowing boat which carried out continuously in everyday society to meet the biological needs which is to make a boat or canoe for a living. In terms of the fulfillment of social needs, where people West Tanjung Jabung using canoe or boat to perform social activities, like going to school and study for children, a visit to the neighboring and other social communication activities. This phenomenon is very positive impact in supporting the development of rowing olahraga which impact on achievement

CONCLUSION AND SUGGESTION

Based on the results of research and discussion, it can be concluded that: 1) The potential economic, social and cultural West Tanjung Jabung strongly support the development of rowing in West Tanjung Jabung District Jambi, 2) the potential economic, social and cultural strongly supports the achievement

of rowing in West Tanjung Jabung District Jambi, 3) the potential economic, social and cultural development was instrumental in efforts to rowing in West Tanjung Jabung District in Jambi Province. As a suggestion in this study that the potential economic, social and cultural support the development of rowing which impact on the achievement should be supported by the pattern of good coaching. Good development to be done on the coordination of local government through the sports department, KONI, rowing sports administrators and athletes and coaches who are involved directly in the field. Thus the existing potential will be more meaningful for the advancement of rowing in West Tanjung Jabung District.

REFERENCES

- Arikunto, Suharsimi. 2006. *Prosedur Penelitian Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.
- Biswas, Ashoke Kumar, Sudip Sundar Das, Shika Debnath, Sudarshan Bhowmick. 2012. "Reaction Time of Female with respect to nature of stimulus and Age". *International Journal of Health, Physical Education and Computer Science in Sports*. Volume 2. No 1. Page 7-10.
- Cairney, John, Matthew YW Kwan, Scott Veldhuizen, John Hay, Steven R Bray and Brent E Faught. 2012. "Gender, perceived competence and the enjoyment of physical education in children: a longitudinal examination". *International Journal of Behavioral Nutrition and Physical Activity*, Volume 9. No 26. Page 1-8.
- Hardiansyah, 2007. *"Inovasi Gizi dan Pengembangan Modal Sosial."* Orasi Ilmiah Guru Besar Tetap Ilmu Gizi Fakultas Ekologi Manusia Institut Pertanian Bogor. Bogor: IPB, Bogor.
- Idi, Abdullah. 2013. *Sosiologi Pendidikan: Individu, Masyarakat, dan Pendidikan*. Jakarta: Rajawali Pers.
- Moleong. Lexy J. 2007. *Metodologi Penelitian Kualitatif*. Bandung: Penerbit Remaja Rosdakarya.
- Rohidi. 2000. *Kesenian dalam pendekatan Kebudayaan*. Semarang: STISI Bandung Press. Samsudi. 2009. *Desain Penelitian Pendidikan*. Semarang: Unnes Press.
- Soekanto, Soerjono. 2005. *Sosiologi Suatu Pengantar*. Jakarta: PT. Raja Grafindo Persada.
- Sugiyono. 2010. *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif dan R & D*. Bandung: CV Alfabeta.
- Rohidi, T.R., 2000. *Ekspresi Seni Orang Miskin*. Bandung: Nuansa.



CONTROLLED PLAYGROUND ACTIVITY TO IMPROVE MOTOR COMPETENCE, PHYSICAL FITNESS AND EXECUTIVE FUNCTIONS

Tortella P.¹, Fumagalli G.²

¹University of Verona

¹patrizia.tortella@gmail.com, ²guido.fumagalli50@gmail.com

Abstract

Levels of motor competence influence amount, intensity and level of physical activity performed by children. Physical activity is related to health (Diamond, 2013). Different physical activities produce different outcomes on EFs but it is still debated which kind of physical activity and motor skills are fundamental for development of cognitive skills (Best, 2010). We investigated in 110 five years old children (4 kindergartens on Treviso, Italy) the effects on motor skills and executive functions of 10 sessions of outdoor motor activities played in the "Primo Sport 0246" playground (Treviso, Italy) where equipment and their distribution are controlled. 71 (experimental group) played once a week for 10 consecutive weeks (March to May) in the "Primo Sport 0246" playground. The control group did not attend the playground. All 110 children were analyzed before and at the end of the 10 session (Fjørtoft et al., 2011; Henderson et al., 2007; Leversen et al., 2012). We found significant differences in the experimental but not in the control group in four gross motor tasks. No significant differences were found in fine motor tasks. We found a significant correlation between balance skills and executive functions (inhibition). The data indicate that a (relatively limited) experience at the "Primo Sport 0246" playground positively stimulates improvements of gross motor skills but not fine motor skills. The improvement in balance skills seems to be significant correlated to improvement in inhibition skills.

Keywords: motor skills, executive functions, playground

UNNES
UNIVERSITAS NEGERI SEMARANG

COMPARING DAILY AND SESSION UNDULATING PERIODISED PROTOCOLS FOR THE MAINTENANCE OF STRENGTH AND POWER IN RESISTANCE-TRAINED WOMEN

Lian-Yee Kok

Department of Sports Studies, Faculty of Educational Studies, University Putra Malaysia

koklianyee@yahoo.com

Abstract

Reduced training volumes through a competition period may result in decreased muscle mass, which in turn, may subsequently lead to a decline in performance. The use of maintenance training may help avert this phenomenon. Not many studies have investigated periodised maintenance training and the few that did utilized male subjects with results demonstrating that strength was improved or retained during maintenance training. Thus, further investigation is needed especially in the female resistance-trained population using periodised protocols. Sixteen active females (mean $\pm$ SD: age 22.2 ± 4.3 y, mass 64.6 ± 12.3 kg, height 168.8 ± 8.6 cm) females who had at least nine months of resistance-training experience, and had just completed a 12-wk periodised strength/power program participated in this study. Participants were matched and randomly assigned to daily undulating (DUP) or session undulating (SUP) training based on their one-repetition maximum squat (1-RM SQ) and bench press (1-RM BP) scores. The DUP group performed strength training on Monday and power training on Thursday, while the SUP group performed both strength and power training within the same training session, with training (4 upper-body, 4 lower-body exercises) performed 2 d per wk for 3 wk. Overall training volume (DUP: 38.15×10^3 ; SUP: 41.23×10^3 , $p = 0.247$) and intensity was similar for both groups at the end of training. There were no significant improvements pre- to post-test in arm and thigh girths, average mechanical power output during the bench press throw (BPT) and countermovement jump (CMJ), and barbell height during the BPT and CMJ. Pooled data showed a significant increase in 1-RM BP (DUP 6.0 %, SUP 3.7 %), and minimal changes in 1-RM SQ (DUP 1.1 %, SUP 0.9 %) that approached significance. The main finding was that DUP and SUP maintenance programs were able to maintain upper- and lower-body strength adequately across a 3-wk phase in women. It appears that maintenance programs with similar training volumes (workload) promote similar strength and power responses, regardless of the manipulation of volume and intensity applied. Strength increments are still possible during maintenance training, but appear limited to areas that are less developed initially.

Keywords: *periodization*, maintenance, strength and power

UNNES
UNIVERSITAS NEGERI SEMARANG

EFFECTS OF MUAY THAI EXERCISE PROGRAM UPON PHYSICAL PERFORMANCE AND SLEEP QUALITY IN THE ELDERLY

Anurakpapop Meeton Ph.D.¹

¹ Department of Health and Sport Science, Faculty of Education, Mahasarakham University, Thailand

¹bank.anurakpapop@gmail.com mail

Abstract

Exercises in the elderly academic studies are confirmed to enhance physical fitness in various fields. Effectively Including education and the guarantee of exercise can improve sleep quality. However, no studies and reports more widespread about workouts with Muay Thai, and studying physical activity alongside the quality of sleep in older people that compares with a boxing fitness program. comparison between groups and between male and female parallel. The goal of this study is to study and compare exercise with a form of physical activity three different styles that affect the physical fitness and sleep quality in the elderly. Among the elderly in the Thailand community, 90 elderly were randomly assigned to participate in fitness activities throughout eight weeks divided into 3 groups of 30 peoples, divided into male and female groups of 15 people each. 1 (exercise with Muay Thai program), 2 (exercise by Muay Thai program coupled with general fitness activity), 3 (control group, exercise only general fitness alone). All subjects will test by 3 physical fitness tests for elderly: And also assess their sleep quality by using the Pittsburgh Sleep Quality Index (PSQI) and wristbands Jawbone Up24. Statistics lie parallel supersymmetric contains statistical parametric Kruskal -Wallis and One-Way Repeated Measure ANOVA. The research findings is likely to be suitable for adoption to exercise in the elderly, which can enhance physical performance and quality of sleep of older adults. The guidelines will be helpful in the development of physical abilities, and better quality sleep together.

Keywords: muay thai, exercise program, physical performance, sleep quality elderly



THE EFFECTS OF DYNAMIC STRETCHING ON PERFORMANCE MEASUREMENT (STRENGTH, SPEED, AGILITY, POWER, ENDURANCE, FLEXIBILITY) AMONG HOCKEY'S PLAYERS.

Zaharul Azwan Bin Abdul Razak

Universiti Teknologi MARA

zaharulazwan@salam.uitm.edu.my

Abstract

To date, many people already recognize about the importance of warm up before doing the main activity but not all of them know which one of the stretching method that are relevant or can contribute to more specific benefit in term of increase performance, physical fitness and so on. Before this, the traditional techniques that have been utilized by coach for recent years before this is used more static stretching. Generally coach, personal instructor, physical and health teacher, and also athletes themselves have used this strategy. Day to day, there are recent research suggest that dynamic stretching provide greater effectiveness effects rather than static stretching. Based on study that has been completed by Jaclyn C. Oakley (2007) toward Division III collegiate football players about which types of stretching protocol is more beneficial toward the subjects it can concluded that dynamic stretching protocol showed significant decrease in agility time and it showed that dynamic stretching positively benefited performance, it is important to keep implementing dynamic stretching into warm-up routine. This research takes opportunity to investigate about performance measurements among hockey players toward dynamic stretching and static stretching. The researcher will investigate about the ability of subjects to perform in performance measurement test during pre test and post test followed four week intervention. This investigation will focus on subject's strength, power, agility, flexibility, endurance and speed. This research is done to ensure whether dynamic or static stretching can increase subject's performance especially in their sports. The hockey players will complete pre test before implement their stretching method in four intervention week and doing post test after that to compare their achievement toward both. Ideally, compared to static stretching, there believed that dynamic stretching can provide a lot of benefit toward performance among athletes. So this research is to investigate how far this statement is true and to know how far dynamic stretching is more effectiveness compared to static stretching.

Keywords : Dynamic stretching, performance measurement

UNNES
UNIVERSITAS NEGERI SEMARANG

BANGUS CULTURE IN CAGES: PROPOSED EXTENSION TRAINING

Angelo B. Dalaguit, Mary Ann L. Dalaguit

Cebu Technological University San Francisco Campus
San Francisco, Cebu, Philippines

loloy2ann@yahoo.com

Abstract

This study determined the viability and financial analysis of Bangus Culture in Cages at Cebu Technological University San Francisco Campus fish farm. This study use sampling techniques and procedures to gather data. Factors considered were average body weight; growth range; mortality; daily feeds requirements and parts per thousand. There were three cages constructed using bamboo frames and nets with a measurement of 7x7x2 meters. The actual number of stocks in Cage one were 2,568 pieces for cage two have 1,878 pieces while cage three were 2,978 pieces with the salinity average of 35 ppt. within the culture period. The average increment body weight in cage one was 223.7 grams, in cage two, 259.8 grams and 281.7 for cage three during harvest. Cage one and two were within the standard growth range of 216 - 275 grams in 91 - 105 days culture while cage three was in the growth range of 276 - 340 grams in 106 – 120 days culture. A mortality rate of 8.81% for cage one which is less than the standard of 10%, cage two have 29.5% mortality the last cage have .73% mortality. The finding showed that the growth and maturity range in the feeding scheme employed was normally established. Based on the findings, it was concluded that the milkfish culture in cages at Cebu Technological University San Francisco Campus fish farm was suitable. It is recommended to continue the project for further studies, using the same type of formulated feeds.

Keyword : bangus culture, training

UNNES
UNIVERSITAS NEGERI SEMARANG

COMPARISON OF STABLE AND UNSTABLE CORE TRAINING ON BALANCE, ENDURANCE AND STRENGTH AMONG SCHOOL ATHLETES

Thanapackiam Raja Gopal¹, Lian-YeeKok²

^{1,2,3}Department of Sport Studies, Faculty of Educational Studies, Universiti Putra Malaysia

¹thanaamu@yahoo.com, ²koklianyee@yahoo.com

Abstract

Core training has been performed to improve performance, prevent injuries, and treat lower back injuries. Core training programs can be conducted on stable surfaces with the trainees on the ground or unmoving structures, or unstable surfaces such as fit balls, BOSU equipment, and wobble boards. This study compared core training on both stable and unstable surfaces as the efficacy of either is still debatable. Twenty male school athletes (15-18 yr) participating in athletics, basketball, and softball with a minimal score of level 4 in the 7-level abdominal strength test were recruited for this study. Participants were allocated into 2 groups using the A-B-B-A procedure based on the 1-min sit up test scores before being randomly assigned to stable (n=10) and unstable (n=10) surface core training. Fit balls were utilized to generate an unstable surface in this study. Prior to and after the 6-week experimental treatments, all participants were tested for balance (standing stork test), core strength (straight-leg lift) and core endurance (prone bridge, right-side bridge, left-side bridge). Data analyzed using mixed methods ANOVA indicated that there was no significant interaction between training surface and test occasion, and also no significant between-group main effect for all variables examined. However, significant differences were observed between pre- and post-tests. Collapsed data from both training programs showed significant increases in balance ($p=0.0001$), core strength ($p=0.0001$), and core endurance (prone bridge $p=0.0001$; right-side bridge $p=0.001$) but there was no difference between test occasions for the left-side bridge ($p=0.247$). The study suggests that core training using stable or unstable surfaces can improve balance, core strength and core endurance in young athletes within a period of 6 weeks.

Keywords: core training, stable surface, unstable surface

UNNES
UNIVERSITAS NEGERI SEMARANG

PHYSICAL ACTIVITY FOR WORKING AGE

Pluemsamran, T.¹, Boonveerabut, S.²

^{1,2}Faculty of Physical Education, Srinakharinwirot University, Thailand

apanchanits@hotmail.com

Abstract

From the survey data about the health of the Office of national statistics, we found an interesting issue regarding the behavior of health care of working age people. In Thailand, although a range of demographic advantages is that there are people working ages, which is causing economic productivity and contribute to the country's economic position is important. In other ages, a higher proportion (67%), but the next few years this working age people will gradually decrease and aging society to the fullest; This team, which must give priority to the health and exercise more.

Today, the people in working age believe that they are healthy because eat good foods on the principles of nutrition but not necessary to exercise. Therefore they try to avoid exercising or doing physical activity (PA), which is a risk behavior to be a diabetes and high blood cholesterol. We found that people in working age are the main food consumption all 3 meals less than other age is clearly. This is the main meal intake surveys of the population of the year 2005 - 2009 and of the national statistical office.

Keywords: physical activity, working, age

UNNES
UNIVERSITAS NEGERI SEMARANG

PECING DODGE

Devi Tirtawirya

Sport Science Faculty, Yogyakarta State University

tirtawirya@gmail.com

Abstract

Pecing dodge is a kicking-exercise model by using pecing pad (rectangular-pecing) as target where two athletes are facing one another, one holds pecing and another one kicks. This exercise is development of previous kicking-exercise model by using pecing, pecing will be hold and available in stand still or/and will also be provided in front of atheles abruptly to kick. On previous exercises, pecing target was moved and its repsond was kicking, on this exercise both holder and kicker may move with its pecing and/or kicking. Pecing may avoid kicking, but kicker shall make his/her best effort to kick pecing-target. This is a simple model, however atheletes will find its benefit as they practice it themselves. Two atheletes are facing one another, one holds pecing-target and another one kicks it, simultaneously pecing-target is also ready to avoid from the kick. Pecing-target may move backward or forward, pecing-target will not move because of holder's hand movement, rather, it moves because of holder's body movement. When target avoids kicking without body movement, kick may attack holder's body. Pecing-target exercise shall embody tehniques and strategies in gaining opportunities and chances to kick target and avoid kicking. In principle, it uses pecing dodge/pecing-target to train technique and strategy of taekwondo atheletes in influencing enemy and to replace kyorugi (fight) exercises in period of simulation or tapering. In competition or tapering periods, training will combine physic, technique, tactic and mental exercises that training model will be closely imitating real competition. Pecing-target exercises are safer to implement at periods closer to the main competition since minimizing injuries but achieving goals of competition-simulation exercises. Thus, it is advisable to use pecing-target exercises to replace competition-simulation exercises.

Keywords: pecing, dodge

UNNES
UNIVERSITAS NEGERI SEMARANG

THE DEVELOPMENT OF MEASUREMENT DESIGN FOR MAXIMUM AEROB CAPACITY USING 1 MILE AND 2000 M RUNNING

Edy Mintarto

State University of Surabaya

edytrack@yahoo.co.id

Abstract

The Maximum Aerob Capacity measurement (MAC) is very important to find out an athlete's fitness after certain training program, as an evaluation program. It is also useful for people who do regular exercises in order to maintain their health. The objective of this experimental research is to measure and determine the MAC as a result of 1 mile and 2.000 m running test with best effort. Next, the result of such measurement, is compared to the test on a treadmill by using of a standardized test Astrand Protocol. The subject of this research is students of Sport Training Education Program, Sport Science Faculty, State University of Surabaya, academic year 2008-2009, which are stated in a good health condition by medical doctor. The subject is divided into three groups, each contains of 39 persons. The first group did 1 mile running, the second did 2000 m, and the third used treadmill.

The score of MAC for 1 mile running, were analysed by using of ANOVA model of statistic that there is $p = 0.546$, then $p > \alpha (0.05)$, which means that H_0 is accepted and H_1 is rejected. There is no significant differences between the MAC score in the first and the second test of 1 mile running an MAC with Astrand Protocol. The difference between MAC in the first test of 1 mile running and MAC with Astrand Protocol is 0.503410; while between the second test and Astrand Protocol is 0.005949. In this case, the result of the AMC in the second test is more effective than the first test. The score of MAC for 2.000 m running is $p = 0.103$, then $p > \alpha (0.05)$, which means that H_0 is accepted and H_1 is rejected. There is no significant differences between the MAC score in the first and the second test and MAC with Astrand Protocol in 2.000 m running. The difference between MAC in the first test of 2.000 m running and MAC with Astrand Protocol is 1.09915; while between the second test and Astrand Protocol is 0.89997. Thus, the result of the MAC in the second test of 2.000 m running is more effective than the first test.

It can be concluded that the score of the MAC in the second test of 1 mile running is more identical with the score in MAC with Astrand Protocol than the MAC in the second test. The difference is 0.005949. Thus, MAC in the second test of 1 mile running is one of the alternative test which is also effective.

Key words: Measurement Design, Maximum Aerob Capacity

DEVELOPING MODEL OF PHYSICAL EXERCISE FOR SEPAKTAKRAW ATHLETES

Iyakrus

Sriwijaya University

iyakrusanas@yahoo.com

Abstract

This study aims to produce a model of physical exercise for athletes sepaktakraw which can be used to train trainers in the sport sepaktakraw in order to improve the physical components that include flexibility, explosive power, endurance, agility and speed. The research method used was the method of product development research in the form of physical exercise model for sepaktakraw athletes carried out several stages which are: design draft of the initial product, validation experts, small group testing, the revised product, powerhouse trials, product revision, and final products. Research subjects were sepaktakraw Sriwijaya University athletes amount to 20 athletes. Collecting data on the test phase using the observation and questionnaires dinalisis use on stage while the percentage of small-scale trials and large scale experiments performed by t test analisaa technique to determine the level of feasibility, effectiveness and quality of products. The results have shown the effectiveness of the product with the following results: 1) There was improve physical of sepaktakraw athletes, especially on the explosive power aspect. 2) There was increased physical of sepaktakraw athletes especially on the speed. 3) There is improve sepaktakraw athletes, especially on physical of agility aspects. 4) There was improve sepaktakraw athlete, especially on physical of flexibility aspects. 5) There was improve sepaktakraw athletes, especially on physical of durability aspects. Could be concluded that the development model of physical exercise for sepaktakraw athletes produce an effective product that can improve the physical components of the athlete. Based on research findings and conclusions it was advisable for the coach to be able to use the product model of physical exercise for sepaktakraw athletes.

Keywords: Models of Physical Exercise, Athletes, Explosive Power.

UNNES
UNIVERSITAS NEGERI SEMARANG

THE DIFFERENCE OF INFLUENCE FROM ADJOURNMENT 5 SECONDS AND 20 SECONDS AFTER THE FEEDBACK GIVEN TO THE RESULTS OF THE STUDY ON PUSH IN FOREHAND GAME OF TABLE TENNIS ON JUNIOR HIGH SCHOOL STUDENTS IN THE COUNTRY 1 TOMOHON 2014

A.R.J. Sengkey¹, Tisri Laura Wajong²

^{1,2} Manado State University

¹jeffrysengkey29@yahoo.co.id

Abstract

Formulation of the problem, namely: 1) whether there is influence from adjournment 5 seconds after feedback is given to the improvement of learning results in the game push forehand table tennis on JUNIOR HIGH SCHOOL students in the country 1 Tomohon?; 2) whether there is influence from adjournment 20 seconds after feedback is given to the improvement of learning results in the game push forehand table tennis on JUNIOR HIGH SCHOOL students in the country 1 Tomohon?; 3) whether there is a difference of influence from adjournment 5 seconds and 20 seconds after feedback is given to the improvement of learning results in the game push forehand table tennis on JUNIOR HIGH SCHOOL students in the country 1 Tomohon?. This research aims to find out: 1) influence of periods of delay 5 seconds after feedback provided; 2) influence of period of 20 seconds delay after feedback provided; 3) differences influence the period of delay 5 seconds and 20 seconds after the feedback given to the results of the study on push in forehand game of table tennis on JUNIOR HIGH SCHOOL students in the country 1 Tomohon. Research hypotheses are: 1) the applicability period of delay 5 seconds after the feedback given provide influence on learning outcomes improved forehand push in the game of table tennis on JUNIOR HIGH SCHOOL students in the country 1 Tomohon; 2) application of the periods of delay 20 seconds after the feedback given provide influence on learning outcomes improved forehand push in the game of table tennis on JUNIOR HIGH SCHOOL students in the country 1 Tomohon; 3) there may be differences influence the period of delay 5 seconds and 20 seconds after the feedback given to the results of the study on push in forehand game of table tennis on JUNIOR HIGH SCHOOL students in the country 1 Tomohon. The research method used is the method of experimentation. The student population is the son of class VIII SMP Negeri 1 Tomohon 2013/2014 school year amounted to 106 people. A sample of 20 people taken randomly is simple (simple random sampling). The research was carried out in 4 times for Group A (periods of delay 5 seconds) and Group B (periods of delay 20 seconds). The research instrument was a forehand push skills test is performed for 1 minute. Technique of data analysis using statistical analysis techniques to test test t. hypothesis 1 and 2 used the t-test paired observations and to test hypothesis 3 uses two independent samples t-test. Conclusion of the research was: 1) application of the periods of delay 5 seconds after the feedback given provide a significant influence on the results of the study improved forehand push in the game of table tennis on JUNIOR HIGH SCHOOL students in the country 1 Tomohon. 2) application of the periods of delay 20 seconds after the feedback given provide a significant influence on the results of the study improved forehand push in the game of table tennis on JUNIOR HIGH SCHOOL students in the country 1 Tomohon. 3) there are differences in periods of delay 5 seconds and 20 seconds after the feedback given to the results of the study on push in forehand game of table tennis on JUNIOR HIGH SCHOOL students of State 1, where periods of delay — 5 seconds after the feedback given provide the influence is better than a delay period of 20 seconds.

Keywords: Different, Table Tennis.

EFFECT OF 12 WEEKS HOME BASED INTERVENTION PROGRAMME ON PHYSICAL ACTIVITY OF UNDERGRADUATE FEMALE STUDENTS IN IRAQ

Jian Abdullah Noori¹, Soh Kim Guek², Norhaizan Mohd Esa³, Rohani Ahmad Tarmizi⁴

^{1,2} Department of Sport Studies, Faculty of Education Studies, University Putra Malaysia,

³Department of Nutrition and Dietetics, Faculty of Medicine and Health Sciences, University Putra Malaysia, ⁴Laboratory of Statistical Services and Computing, Institute for Mathematical Research,

University Putra Malaysia

Abstract

The objective of this study was to design a home based intervention programme and investigate the effect of this programme enhancing the physical activity level of female undergraduate students in Iraq. Subjects were Forty four undergraduate female students aged 18-22. Randomly selected from northern Region of Iraq. The subjects completed a 12 weeks home based intervention programme and completed a questionnaires on demographic information. The daily steps counts were calculated for 12 weeks. The results showed that there were significant difference between the steps counts during post-test1 (6 weeks) ($p < 0.001$) and post-test2 (12 weeks) ($p < 0.001$). The mean score of PA increased by 9007.7 steps (pre-test to post-test1 = 6825.73 steps, post1 to post2 = 21819007.7 steps). Additionally, the experimental group was significantly difference from the control group in post-test1 (Mean difference = 6834.33, $p < .001$, $\eta^2 = .963$), post-test2 (Mean difference = 9162.901, $p < .001$, $\eta^2 = .984$). Moreover, the results of the two groups was different in test (time) pre, post1, post2, $F(2, 84) = 713.00$, $P < 0.05$, $\eta^2 = .944$. Based on the results, it was concluded the home based 12 week intervention programme was effective in enhancing physical activity level among undergraduate female students in Iraq.

Keywords: Intervention programme, Physical activity, Pedometer



THE STUDY OF COMPETITIVE ANXIETY ON SEMARANG BADMINTON ATHLETES

Donny Wira Yudha Kusuma

State University of Semarang

donnywirayudhakusuma@yahoo.co.id

Abstract

Good performance is the goal of an athlete. To achieve a good performance there are many factors that influence. But the most obvious factor which really affects the capability of an athlete is anxiety control. Anxiety that usually occurs in athletes is competitive anxiety. Competitive anxiety is a specific negative emotional response to competitive stressors (Fletcher et al., 2009). The purpose of the study was to investigate the competitive anxiety and the effectiveness of the efforts that have been done to reduce anxiety in Semarang badminton athletes. Forty badminton athletes from different skill level, twenty parents, and ten badminton coaches served as subjects of the study. With the Revise Competitive State Anxiety Inventory-2 (CSAI-2R) and overview anxiety questionnaire as analyzing tools, data were further verified by applying descriptive statistics of SPSS 19. Study results could be concluded as followed: data presented here indicate that competitive anxiety in Semarang badminton athletes were high, and theoretically can affect the athlete's performance in the competition, the data recorded on each variable were cognitive anxiety and somatic anxiety experienced high anxiety (22.5% and 20%), and less self-confidence (17%). While, treatment has been done by the coach is not effective for reducing competitive anxiety on badminton athletes, because the treatment performed separately.

Keywords: *competitive, anxiety, badminton*

INTRODUCTION

Good performance is the goal of an athlete, especially badminton athletes. To achieve a good performance there are many factors that influence. Performance is determined by the effectiveness in maintaining adequate power output in solving problems in a wide range of resistance, depending on the sporting events that followed. Continuous power output depends on the level of energy emitted and can be maintained throughout the game, and the efficiency with which that energy can be converted into mechanical power. While the mechanical efficiency dependent on the efficiency of the muscle (David, 1995).

Sport performance also is interpreted because of the exercise in the form of completion of each movement best ever done in practice by using specific parameters. Aware that the issues of an athlete's performance in the achievement not only pay attention to physical problems, in other words that they are physically stronger will win the match. However, in fact it is a multi-factorial. There are three basic factors that are believed that could affect the performance of athletes, namely physiological factors, anthropometries, and psychology. Physiological factors associated with potential and ability bio motor such as speed, strength, agility and endurance. Anthropometric factors associated with measurements such as height, weight, arm length, degree of urgency of different sports from one branch to another. Meanwhile, psychological factors related to readiness and mental ability to train and compete in achievement (David, 1995).

The most obvious factor which really affects the capability of an athlete is psychological factors. One of the aspects that affect performance of athletes on the game is anxiety. Influence of

anxiety in sports performance has been examined by many researchers (Cerin, Szabo, Hunt, & Williams, 2000; Craff, Magyar, Becker, & Feltz, 2003; Woodman & Hardy, 2003). In common, anxiety reported when athletes are not confident in dealing with the situation may be causing stress (Hardy, Jones, & Gould, 1996) and may affect the various types of sports (Weinberg & Gould, 1995). In addition, anxiety is often to be the interpretation of psychological arousal (Hardy, et al, 1996).

When in a state of stress and anxiety wrap, some athletes have observed decreased performance, even to the point of "choking". Therefore, the relationship between anxiety and performance sport as a topic of interest to researchers in the field of sport psychology. Sports psychologists began studying anxiety in an effort to develop appropriate interventions that can be useful in improving the negative experiences that sometimes detrimental for athletes, initially as an independent construct and lately as interdependent constructs (Andrew, 2009; Jones, 1995 ;Krane, 1992; Scanlan& Passer, 1978; Simon & Martens, 1977).

Anxiety that usually occurs in athletes is competitive anxiety. Competitive anxiety is a specific negative emotional response to competitive stressors (Fletcher et al., 2009). Research on the relationship of competitive anxiety and performance was originally based on an inverted-U hypothesis (Yerkes & Dodson, 1908). Basic assumptions or hypothesis put curvilinear relationship between performance and physiological arousal (Gould & Krane, 1992; Jones, 1995; Krane, 1992; Yerkes & Dodson, 1908). Moderate level of arousal is usually associated with better performance, while the arousal level that were too high or too low cause a very bad performance (Spielberger, 1966; Gould & Krane, 1992).

Others anxiety theorists have widened the dimensional approach of inverted-U to examine other potential dimensions of anxiety. Martens et al. (1990) sought to explain the multidimensional of sport anxiety. Their theory shows that anxiety was composed of both somatic and cognitive subcomponents. From this theory, cognitive anxiety is defined as "the mental component of anxiety and is the caused by negative expectations about success or by negative self-evaluation" (Martens et al., 1990). They convey a negative linear relationship between performance and cognitive anxiety. That is, if the cognitive anxiety was high that athletes have lower performance and vice versa.

There are two different views about anxiety, the first is the state anxiety and trait anxiety were made by Spielberger (1966), and the second is the somatic anxiety and cognitive anxiety conveyed by Martens et al (1990). Trait anxiety refers to anxiety in the aspect of personality. Someone is experiencing high trait anxiety will always anxious, regardless of the variety of situations. Some people are usually more anxious and moody than others are because they are genetically programmed to overreact to potential threats in their environment. Whereas state anxiety refers to the emotional state (cognitive and somatic), and is usually experienced at the time before and during the competition.

Martens et al. (1990) said when we are anxious we experience the physiological changes associated with high arousal, including increased heart rate and blood pressure, 'butterflies' in the stomach, faster breathing and flushed face. Anxiety increases heart rate and blood pressure. Increases metabolism and increased oxygen consumption. Would feel faster fatigue and reduce attention (Beauchamp, 2002).Anxiety factors in sports performance has been examined by many researchers. Revealed that the dimensions of competitive anxiety tend influenced by sex, type of sport and level of ability. Concerning sex, female athletes are more prone to feel more anxious compared with male athletes (Martens, R., Vealey, R.S., & Burton, D, 1990).

Researchers have observed several phenomena such as; Semarang athletes rarely become champions in several provincial and national level matches in period 2012 to 2014. Whereas, the results of the survey on comparison of some factors (amount of exercise, long exercise, physical exercise, techniques, and match followed) with some other areas showed no significant differences (Donny, 2015).

This study was conducted to determine the level of competitive anxiety and the things that have been done by athletes and coaches in Semarang. The results of this study are expected to serve as a reference frame for the coaches or teachers of various levels of schools to train players in the future.

METHOD

Study 1, Samples, Proportional random sampling was used in this study. The selection of a sample based on age and ability levels. Sample was used in this study was composed of 40 athletes (26 men and 14 women), of different ability (local and province level), aged between 13 and 18 years old from all badminton club in Semarang. The athletes were professional badminton players in Semarang.

Procedures

The forty participants were informed of the objectives of the investigation, and signed a free and informed consent term, in which anonymity and confidentiality of all data collected were guaranteed. The questionnaires of the Revise Competitive State Anxiety Inventory-2 (CSAI-2R) were filled out test approximately ± 30 minutes before competitions begin. Forty-athletes participate in this phase. Demographic information: The athletes were requested to provide information about sex and age. For collecting data of competitive anxiety, the athletes responded to an Indonesian version of the CSAI-2R (Cox, R. H., Martens, M. P., & Russell, W. D, 2003). This is a self-reporting instrument composed of 17 items, grouped into three factors, in the following manner: items 2, 5, 8, 11 and 14 pertain to the cognitive anxiety factor; 1, 4, 6, 9, 12, 15 and 17 to somatic anxiety; and, 3, 7, 10, 13 and 16 for self-confidence. The answers were given according to a Likert-type scale of four points (1 = not at all and 4 = very much so). It is possible to calculate a standardized score for each dimension, through the sum of the responses of the items of each factor, divided by the respective number of items, with the values varying from between 1 and 4. The final scores for each subscale will range from 5 to 20 for cognitive anxiety and self-confidence and from 7 to 28 for somatic anxiety or from 17 to 68 for all score of CSAI-2R, with 17 indicating low anxiety/confidence and 68 indicating high anxiety/confidence.

Study 2, samples, sample was used in this study were the same as the previous study (40 badminton athletes) and plus with parents and coaches (20 parents & 10 coaches). Parents and coaches were selected by random sampling technique.

Procedures

Seventy of participants participated in next study. Open questionnaire used to collect data on an overview of the overcome competitive anxiety that occurs. The intent of the open questionnaire is given discretion participants to describe in broad terms about his condition without limitation answer, the questions are describes what athletes do, what coaches do to cope with the anxiety that occurs when the competition, as well as action at practice that can be used at the time of the competition. The question consists of three parts, namely: (1) what athletes do if anxiety attack at a time when competing?, (2) what coaches do if athletes experiencing anxiety when competing?, and (3) what exercise that coach given during daily exercise in reducing anxiety in athlete's?

RESULTS AND DISCUSSION

Study 1, the results of competitive badminton athletes (CSAI-2R) are used to categorize Semarang badminton athletes into three categories (high, moderate, and low), which includes cognitive anxiety, somatic anxiety, and self-confidence. To categorize these results it is necessary to test the normality of the data using *Lilliefors* test (SPSS 19.00 for Windows), the test is used to

determine the distribution of the data is normal or abnormal. Parametric methods were used if the data analysis comes from a normal distribution, the normality requirements must be fulfilled. If the data distributed abnormally, then an alternative method that can be used is a non-parametric statistics.

The value of the data normality CSAI-R on the athletes seen the *Kolmogorov-Smirnova* column significant value for all items CSAI-2R were 0,00. Because of the significance for the entire variable is smaller than 0.05 (Sig. < 0.05), the data was not normal distribution. Because the data distribution is not normal, the next method used non-parametric statistics. The grouping is based on quartile values (K_1 , K_2 , and K_3).

In percentiles column shows the value of K_1 for *cognitive anxiety* ($K_1=7.25$); *somatic anxiety* ($K_1=8.00$); and *self-confidence* ($K_1=14.00$). Then, for the value of K_3 for *cognitive anxiety* ($K_3=10.00$); *somatic anxiety* ($K_3=13.00$); and *self-confidence* ($K_3=19.75$). Ignore the value of K_2 , because it is not used for categorization. I remind you again about the categorization: the high category ($x > K_3$); moderate category ($K_1 \leq x \leq K_3$); and low category ($x < K_1$).

Table 1: Categorization of competitive anxiety in Semarang badminton athletes (n=40)

Aspect	Range of values	Categories	Frequencies	Percentage
Cognitive anxiety	$x > 10,00$	High	9	22,5%
	$7,2500 \leq x \leq 10,00$	Moderate	21	52,5%
	$x < 7,25$	Low	10	25%
Somatic anxiety	$x > 13,00$	High	8	20%
	$8,00 \leq x \leq 10,00$	Moderate	29	72,5%
	$x < 8,00$	Low	3	7,5%
Self-confidence	$x > 19,75$	High	10	25%
	$14,00 \leq x \leq 19,75$	Moderate	23	57,5%
	$x < 14,00$	Less	7	17,5%

Table 1 shows the category of competitive anxiety in Semarang badminton athletes. For cognitive anxiety, high category ($f=9$, 22.5%); moderate category ($f=21$, 52.5%); low category ($f=10$, 25%). For somatic anxiety, high category ($f=8$, 20%); moderate category ($f=29$, 72.5%); low category ($f=3$, 7.5%). For self-confidence, high category ($f=10$, 25%); moderate category ($f=23$, 57.5%); category of less ($f=7$, 17.5%).

The level of competitive anxiety in Semarang badminton athletes is relatively high. The data shows the percentage of athletes who experienced competitive anxiety are greater than athletes who can overcome anxiety, recorded on each variable cognitive anxiety and somatic anxiety experienced high anxiety (22.5% and 20%), and less self-confidence (17%).

According to Martin et al (1980, 1990) competitive anxiety is divided into cognitive anxiety, somatic anxiety, and self-confidence. Competitive anxiety is a specific negative emotional response to competitive stressors (Fletcher et al., 2009; Hanton et al., 2005). Anxiety is a complex emotion with a variety of cognitive, physiological, and behavioral symptoms that has often been linked with stress (Spielberger, 1966; Martens et al, 1990; Lazarus, 1991). The conceptual standpoints adopted by Fletcher et al (2009), the following definitions of competitive anxiety are a specific negative emotional response to competitive stressors. Moderate levels of anxiety involve apprehension, nervousness, worry, and tension. Very high level of anxiety may involve intense feelings of fear, catastrophic thoughts, and high levels of psychological arousal (Smith et al., 1998). *The Revise*

Competitive State Anxiety Inventory 2 (CSAI-2R) was used in this study, because it can measure of the dimensions of state anxiety. The CSAI-2R, a multidimensional state measure of competitive anxiety, measures respondents' feelings and thoughts about competition at a given time or moment (Cox et al., 2003).

Study 2, second study is to know what was athletes and coaches done when experiencing anxiety condition at the time of the competition, and what treatment is being done during exercise to overcome anxiety condition. For more details see the following table:

Table 2: Overview anxiety and treatment on Semarang badminton athletes

Event	Item	Activities	athletes n:40	parents n:20	coaches n:10	F	%
during competition	athletes do	• Praying	32	19	8	59	84,29 %
		• running and physical activity	36	18	9	63	90,00 %
		• shouting	28	13	8	49	70,00 %
		• drinking	19	4	6	29	41,43 %
		• deep breathing	23	11	5	39	55,71 %
		• do nothing	17	5	4	26	37,14 %
	coaches do	• providing motivation	33	18	10	61	87,14 %
		• scolding/angry	19	3	3	25	35,71 %
		• always accompany	29	15	8	52	74,29 %
daily exercise	anxiety treatments	• relaxation exercise	22	9	2	33	47,14 %
		• exercise with high pressure	25	17	8	50	71,43 %
		• give motivation	36	18	10	64	91,43 %
		• sparring partner	26	11	7	44	62,86 %

Note: n=samples; F=frequency; %=percentage.

Table 2 shows that athletes do when anxiety arises at the competition, "running and physical activity" has the highest frequency (f=63, 90%), followed by "praying" (f=59, 84.29%), "shouting" (f=49, 70%), "deep breathing" (f=39, 55.71%); "drinking" (f=29, 41.43%); and "do nothing" (f=26, 37.14%). Then, what coaches does when athletes experience anxiety during competition were "providing motivation" has the greatest percentage (f=16, 87.14%); followed by "always accompany" (f=52, 74.29%); and "scolding / angry" (f=25, 35.71%). Finally, what exercises was given of coaches to overcome anxiety during daily exercise were most of the coaches "give motivation" (f=64, 91.43%);

"exercise with high pressure" placed second with (f=50, 71.43%); then "sparring partner" (f=44, 62.86%); lastly "relaxation exercises" (f=33, 47.14%).

Anxiety level of athletes before and during competition can be high or low and the influences can then be good or bad, producing high or low competitive anxiety depending on how athlete handles everything. There are many strategies and techniques athletes can learn to cope with their anxiety during competition. That is; problem-focused coping, emotion-focused coping, avoidance coping, and appraisal coping (Van Yperen, 2009; Scanlan and Passer, 1979; Kristiansen and Roberts, 2010; and Anshel & Wells 2000), relaxation techniques, cognitive-behavioral techniques (goal-setting), and imagery (mental rehearsal, progress exercise) (Jacobson, 1938; Locke & Latham's, 1985; Matt Jarvis, 1999).

Related to the theory, the results of this study indicate that few coaches who implement that strategies or techniques to reduce anxiety in athletes. Study results showed what athletes did when anxiety arises at the competition were "running and physical activity" and those have the highest frequency of what those athletes did, followed by "praying", "shouting", "deep breathing", "drinking", and "do nothing". Then, what coaches did when athletes experience anxiety during competition was "providing motivation" which has the greatest percentage, followed by "always accompany", and "scolding / angry". Finally, the most frequent thing coaches gave to overcome anxiety is "giving motivation", "exercise with high pressure", "sparring partner", and "relaxation exercises".

The action of coaches to cope with anxiety during exercise and competition was not effective, because those above are all just inconsistent and incomplete techniques which were used in the effort. The statement reinforced by Cox (1998) reported finding no studies showing that all techniques alone improved performance, although several studies showed that techniques combined with other techniques was successful in enhancing performance.

CONCLUSION AND SUGGESTION

In conclusion, the data presented here indicate that competitive anxiety in Semarang badminton athletes were high, and theoretically can affect the athlete's performance in the competition. While, treatment has been done by the coach is not effective for reducing competitive anxiety on badminton athletes. The advice that can be expressed is preferably a coach uses mind and body treatments in controlling anxiety in athletes and not separated. Additional studies with larger samples of follow up would be of great interest to further corroborate these finding.

ACKNOWLEDGMENT

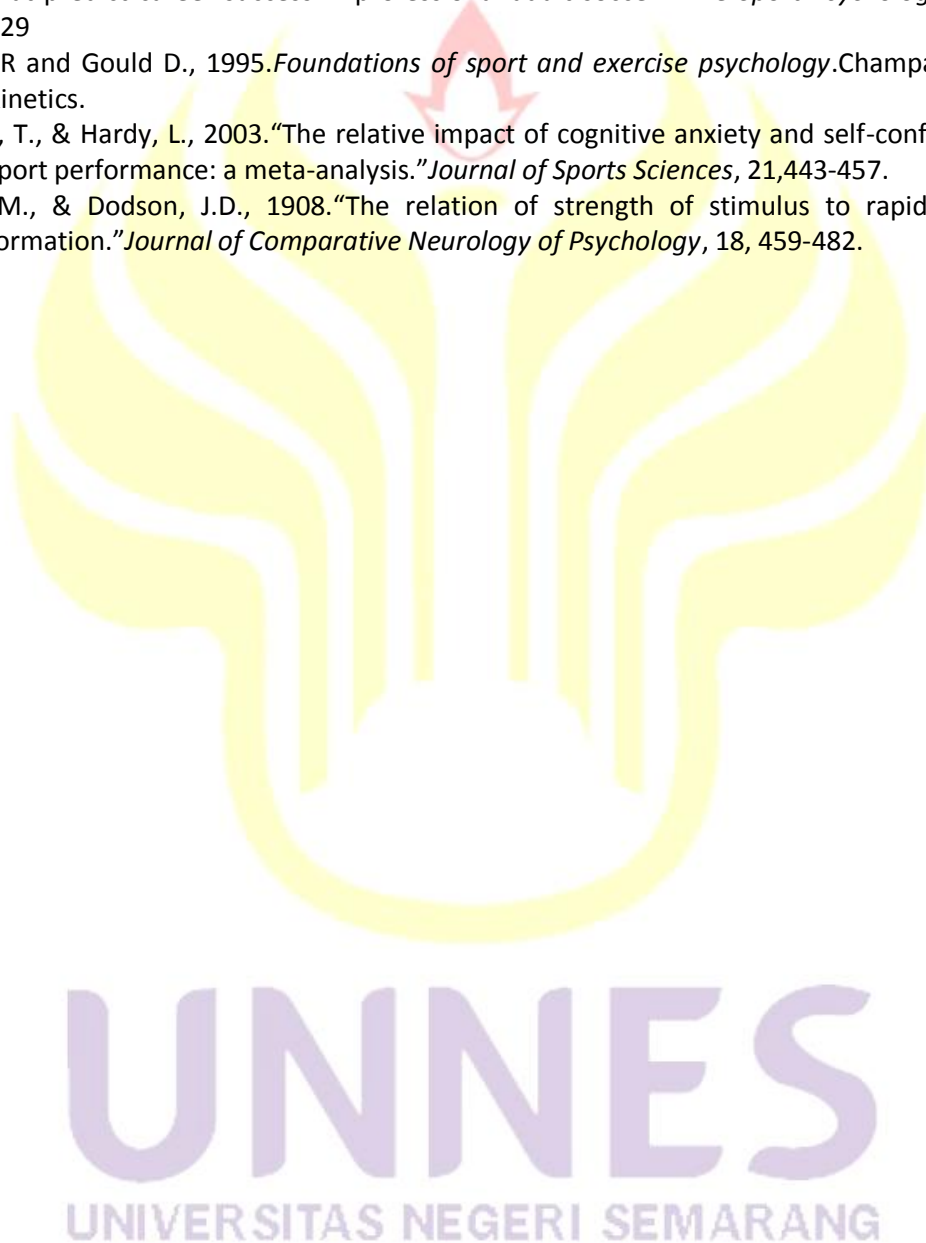
We would like to thank all the Semarang badminton athletes, parents and coaches who participated for this study. We are also grateful to Professor Wang Bin from Central China University for his helpful suggestions. This research is part of my dissertation in the completion of doctoral study in Central China University.

REFERENCES

- Andrew Peden, 2009. "Breathing to Manage Anxiety in Tennis." *ITF Coaching and Sport Science Review* 2009; 16 (49): 17 – 18.
- Anshel, M. H., and Wells, B., 2000. "Personal and situational variables that describe coping with acute stress in competitive sport." *Journal of Social Psychology*, 140, 434-450.
- Beauchamp, MR. Bary, SR. Albinson, JG, 2002. "Pre-competition imagery, self-efficacy and performance in collegiate golfer's." *Journal of Sport Sci.* 20 (9):697-705

- Cerin, E., Szabo, A., Hunt, N., & Williams, C., 2000. "Temporal patterning of competitive emotions: a critical review." *Journal of Sports Sciences*, 18, 605-626
- Cox, R. H., Martens, M. P., Matthews, P., & Russell, W. D., 2003. "Measuring anxiety in athletics: The Revised Competitive State Anxiety Inventory-2." *Journal of Sport and Exercise Psychology*, 25, 519-533.
- Craft, L., Magyar, T. M., Becker, B. J., & Feltz, D. L., 2003. "The relationship between the Competitive State Anxiety Inventory-2 and sport performance: a meta-analysis." *Journal of Sport & Exercise Psychology*, 25, 44-65
- David R. Lamb, 1995. *Basic Principles for Improving Sport Performance*. Sports Science Exchange. The Quaker Oats Company. USA. Vol. 8. 55.
- Donny, W.Y.K., 2015. "The development of techniques to reduce the level of anxiety based on yoga in Indonesian badminton athletes: research and development methods." *Doctoral dissertation*. Unpublishing. Central china normal university.
- Fletcher, D., Hanton, S., and Mellalieu, S. D., 2009. An organizational stress review: Conceptual and theoretical issues in competitive sport. In S. Hanton and S. D. Mellalieu (Eds.), *Literature reviews in sport psychology*. Hauppauge, NY: Nova Science.
- Gould, D., & Krane, V., 1992. *The arousal-performance relationship: Current status and future directions*. In T. Horn (Ed.), *Advances in sport psychology* (pp. 119-141). Champaign, IL: Human Kinetics.
- Hanton, S., Fletcher, D., and Coughlan, G., 2005. "Stress in elite sport performers: A comparative study of competitive and organizational stressors." *Journal of Sports Sciences*, 10, 1129-1141.
- Hardy, L., Jones, G., & Gould, D., 1996. *Understanding psychological preparation in sport: theory and practice of elite performers*. Chichester, UK: Wil
- Jacobson, E., 1938. *Progressive relaxation*. Chicago, IL: University of Chicago
- Jones, G., 1995. "More than just a game: Research developments and issues in competitive anxiety in sport." *British Journal of Psychology*, 86, 449-478.
- Krane, V., 1992. *Conceptual and methodological considerations in sport anxiety research: From the inverted-U hypothesis to catastrophe theory*. *Quest*, 44, 72-87.
- Kristiansen, E., & Roberts, G. C., 2010. "Young athletes and social support: Coping with competitive stress and organizational stress in "Olympic" competition." *Scandinavian Journal of Medicine & Science in Sports*, 20 (4), 686-696
- Lazarus, R., 1991. *Emotion and Adaption*. Oxford University Press, NY
- Locke EA and Latham GP., 1985. "The application of goal-setting to sports." *Journal of sport psychology* 7, 205-22.
- Marten R, Burton D, Rivkin, F., & Simon, J., 1980. "Reliability and Stability of Competitive State Anxiety Inventory (CSAI)." In C.H.N adeau, W.C. Halliwell, K.M. Newell, G.C. Roberts (eds.) *Psychology of Motor Behavior and Sport* 1979. Human Kinetics, Campaign, IL, pp. 91-99.
- Martens, R., Vealey, R.S., & Burton, D., 1990. *Competitive anxiety in sport*. Champaign, IL: Human Kinetics.
- Matt Jarvis, 1999. *Sport Psychology*. 1999 Routledge. London and Newyork
- Scanlan, T. K., & Passer, M. W., 1979. "Sources of competitive stress in young female athletes." *Journal of Sport Psychology*, 1, 151-159
- Simon, J.A., & Martens, R., 1977. "SCAT as a predictor of A-states in varying competitive situations". In D.M. Landers & R.W. Christina (Eds.), *Psychology of motor behavior and sport*, Vol. 2 (pp. 146-156). Champaign, IL: Human Kinetics.

- Smith, R.E., Smoll, F.L., & Wiechmann, S.A., 1998. "Measurement of trait anxiety in sport." In J.L. Duda (ed) *Advances in Sport and Exercise Psychology Measurement in Fitness Information Technology*, Morgantown, WV, pp. 105-127.
- Spielberger CD., 1966. *Anxiety and behavior*. New York, Academic Press.
- Van Yperen, N. W., 2009. "Why some make it and others do not: Identifying psychological factors that predict career success in professional adult soccer." *The Sport Psychologist*, 23, 317-329
- Weinberg R and Gould D., 1995. *Foundations of sport and exercise psychology*. Champaign, Human Kinetics.
- Woodman, T., & Hardy, L., 2003. "The relative impact of cognitive anxiety and self-confidence upon sport performance: a meta-analysis." *Journal of Sports Sciences*, 21, 443-457.
- Yerkes, R.M., & Dodson, J.D., 1908. "The relation of strength of stimulus to rapidity of habit formation." *Journal of Comparative Neurology of Psychology*, 18, 459-482.



INTERNALIZING OF CHARACTER VALUES THROUGH MODIFICATION LEARNING OF PHYSICAL EDUCATION SPORT AND HEALTH IN ATHLETICS MATERIALS

Slamet Riyadi

Sebelas Maret University, Teacher Training and Education Faculty

¹slametriyadi_porunnes@yahoo.co.id

Abstract

Physical education is an integral part of the overall education. Ideal destination physical education program is comprehensive, because it covers not only physical aspects but also other aspects that include aspects of intellectual, emotional, social and moral. Junior High School is a place the children to develop and nurture who are developing and growing, as well as learning a skill sport movement in harmony. The learning objectives must not be separated from the purpose of education in general, including the cultivation of character values.

The purpose of this study was to describe how learning strategies of Physical Education Sport and Health (Physical Education) in to internalize the values of the characters. This study was conducted in 7 (seven) Junior High School in Surakarta. This research method is qualitative research. Data collected by interview, observation and Focus Group Discussion. The results showed that the internalization of characters values in the learning physical education were made, but the planning and execution the same for all competencies in subjects physical education. Physical education teachers more emphasis on the delivery of appropriate materials and theoretical content. Strategies Developing and learning materials through modification of learning to internalize the character values have not been developed primarily in the implementation

Keywords: character, physical education, modification

INTRODUCTION

Physical education is an integral part of the overall education, which aims to develop of physical fitness aspects, motor skills, critical thinking skills, social skills, reasoning, emotional stability, moral action, a healthy lifestyle and clean environment through the introduction of selected physical activity planned systematically in order to achieve national education goals. (BSNP; 2006: 197). Ideal destination physical education program is comprehensive, because it covers not only physical aspects but also other aspects that include aspects of intellectual, emotional, social and moral with the intention of later the young man into someone who is confident, disciplined, healthy, fit and happy life (Lutan Rusli; 2001).

Physical education focuses on the educational process on physical activities that utilize motion mechanism. In the process of teaching physical education, growth and development of the intellectual, social and emotional students mostly occurs through the motion activity does through physical education aspects present in students can be optimally developed to support the achievement of the overall educational goals. Physical education is an educational process that is unique and perfect, because it is through physical education teacher can develop the ability of each student not only on physical and psychomotor aspects alone, but can be developed also cognitive, affective and social together (AAHPERD; 1999). The purpose of physical education, sport and health (physical education) in junior high school are: (1) develop a strong personality, develop an attitude of peace, developing social attitudes and develop tolerance in the context of cultural diversity, ethnic and religious. (2) Develop sportsmanship, honesty, discipline, responsible attitude, an attitude of cooperation, confident attitude, and practice democracy through physical activity through play

activity, and through sports activities. (3) Develop movement skills and skills of various games and sports (outside activities of school or outdoors). (4) Develop self-management skills to develop and maintain fitness through physical activity and sport. (5) Develop skills to maintain the safety of themselves and develop skills to maintain the safety of others or the environment. (6) Know and understand the concept of physical activity and sport as information to achieve health, to maintain fitness, and healthy lifestyle habit. (7) Being able to utilize the free time with physical activities that are recreational. (Depdiknas, 2006).

Based on the purpose and focus of the physical education program, so the Junior High School is a place the children to develop and nurture who are developing and growing, as well as learning a skill sport movement in harmony, including athletics learning. Learning implemented physical education teacher today is still conventional, without design or planning and dominant use commando style. Obviously this condition causes the material athletics in learning physical of Education in junior high school less attractive to students. Students have difficulty and are not interested in following study presented teacher, because this material is considered unattractive and unpleasant. Though learning objectives athletics was certainly not much different from other subjects and can not be separated from the purpose of education in general, namely the process of cultivation of character values. Planting character values in the teaching and learning process, through a variety of learning experiences can be directed to instill the values of social responsibility, patriotic spirit, honesty, and harmony life in society and to prepare young people who have character, personality, and noble character (Kemendiknas, Dirjenpendas Direktorat Pembinaan SMP:2011). Therefore, planting of characters values into an integral part in the learning process. The ability of teachers to implement of characters values in physical education learning, is a responsibility that must be immediately realized. In the teaching and learning process required for certain strategies and learning approach to help students in order to maximize the achievement of learning outcomes in accordance with the learning objectives have been determined. Similarly, in implementing character education in physical education learning, teachers are required to be able to present the material in such a way, so that the physical education learning objectives that instill character values can be accomplished. The more precise strategies and approaches used by the teacher in the learning process, the more effective the learning objectives can be achieved. The effectiveness of the achievement of learning goals is largely determined by the selected learning approaches of teachers on the basis of the teacher's knowledge of the characters values that must be realized and the of skill nature or task the students will learn movement. In order to achieve good learning outcomes, physical education teacher need to seek active learning, innovative, creative and fun. Therefor physical education teachers must take reasonable steps to influence students in the learning process, namely by presenting forms of learning motor skills are good and true, to utilize the facilities and learning media physical education creatively and effectively in order to encourage students to understand, understands, and is able to familiarize perform various positive character values as well as a wide range of competencies that have been established in the curriculum. Based on the above, the purpose of this study was to describe how learning strategies penjasorkes in internalize the character values. In physical education learning, teachers are expected to teach the basic movement skills, techniques and strategy games and sports, internalizing of sportsmanship values, honesty, cooperation, and others as well as the conditioning of healthy lifestyles. Implementation rather than through conventional teaching in the classroom that are theoretical study, but involve an element of physical, mental, intellectual, emotional and social. Activities are given in teaching should get a touch didactic-methodical, so that the activities carried out can achieve the expected competencies.

Physical education is part of a thorough education, and also has the strategic potential to educate including the formation of character. Therefore, Physical Education and Health should be

implemented as well as possible. Annarino et al (1980) describes the characteristics of a good physical education, which are: 1) Is one integral part and parcel of the overall efforts of school education; 2) It is one of the processes that can provide experience in a balanced manner and will encourage growth and development in the physical domain, and psychomotor, cognitive, and affective; 3). Should be based on the needs, goals, and abilities of the students served.; 4) Provide experience associated with the basic areas of life and adapted to the maturity level of the students.

Based on the above description, it can be argued that the general purpose of teaching and educating are: 1). Laid the foundation of strong character through the internalization of values in education. 2). Foster or embed emotional and spiritual intelligence that characterize the activity of life. 3). Fosters critical thinking skills through the implementation of learning tasks. 4). Cultivate the habit of learning and the ability to actively participate regularly in the activities of life and understand the benefits of involvement. 5). Foster healthy lifestyles and maintenance of physical fitness

In order to achieve good learning outcomes, physical education teacher teaching styles need to seek effective and attractive. To that physical education teachers must take reasonable steps to influence students in the learning process, namely by presenting forms of learning motor skills are good and right, in order to encourage students to understand, understand, and be able to do. Education is not the only means of knowledge transfer, but broader than that, namely as a means of civilizing and distribution value (enkulturasasi and socialization) to make learners of character. Shaping character is not as easy as giving advice, not as easy as giving instructions, but requires patience, habituation and repetition. As proposed by Stiles (1998) that the character of development can not be done immediately without any systematic effort and programmed from an early age. From the description, it is clear that the establishment or character development can not take place instantaneously but requires a process and stages, systematic effort and programmed from an early age. Character is something that is not visible to the eye, but can be felt with experience. Definition of characters in Kamus Besar Bahasa Indonesia (2008) is "psychological traits, morals or manners that distinguish one person from another", so it can be interpreted that the characters are unique values, typical and good (knowing the value of kindness, would do good, berkehidupan good, and good effect on the environment) are embedded within and manifested in behavior. Koesoema (2007: 80) argues that, "The character can be understood from the perspective that emphasizes behavioral somatopsikis elements of the individual since birth. This is where the characters are considered the same as a personality ". According to the Ministry National of Education Team, there are two notions of character, namely: First he shows how a person behaves. If someone behaves dishonest, cruel, or greedy, surely the person manifests bad behavior. Conversely, if someone behaves honest, helpful, surely the person manifests the noble character. Second, the term is closely related to the characters 'personality'. A person can only be called a 'man of character' (a person of character) if according to the rules of moral behavior (Direktorat Ketenagaan & Direktorat Jendral Pendidikan Tinggi, 2010). The formation of character is one of the goals of national education. Article 1 of Law System of National Education in 2003 states that one of the goals of national education is to develop the potential of learners to have intelligence, personality and noble character. Furthermore, clearly, the implementation of the National Education Law was stated in the 2010-2014 national development policy, namely the formation of noble character and national character. Character education is possible implemented within the school, it is in line with what is proposed by Baittstich (2008: 45) that build effective character, can be found in a school environment that enables all children to show their potential to achieve a very important goal. While Ellen G. White suggests that the character development is the most important effort ever given to man. Character development is remarkable goal of true education system. Government Regulation No. 17 Year 2010 on Management Education Implementation of Article 17 Paragraph (3) states that basic education, including Junior High School aims to build a foundation for the development of

students' potentials to become a man who 1) faith and fear of God Almighty; 2) noble character and good personality; 3) knowledgeable, skilled, critical, creative, and innovative; 4) healthy, independent, and confident; 5) tolerant, sensitive social, democratic, and accountable. Based on this, it is clear that the purpose of education at all levels, including junior is associated with the formation of the character of the students. Teachers need to have creativity and able to package the athletic learning in the form of interesting activities, so it is not boring learning activities for students. Modification approach in the form of play and competition, is an alternative that teachers can do to make learning fun. In line with what was stated by Saputra M. Yudha (2001; 5), states that the approach play and competition, becoming one approach to learning that can be developed in learning in junior high school athletics. The description above, provide athletic clear that learning can be delivered through a modified approach to learning them play and competition, because it is through this approach will occur attitude formation and cultivation of character values in students.

Various modified forms of learning run, jump and throw can be given by the teacher to the student. Modifications learning run aims to move the limbs, from one place to another is accompanied with good passing movement run, move and carry a variety of media as a form of variation of motion. Jump movement cardboard, old tires, and a rope barrier can be performed as an alternative to present learning materials become more attractive jump. The teacher can present learning jump materials in the form of a game. The throwing motion and shot put more dominant, to be given to students according to the learning objectives that will be studied. For example, refused ball games such as baseball, tennis ball, ball of paper with different variations. Various modifications learning undertaken by teachers aim to facilitate students to master the competency and make physical education learning particularly athletics is becoming more attractive material without fear of losing the substance of learning. In this research study aimed at learning modification athletics for the class VII junior high school, which includes learning sprinting, long jump and shot put learning.

METHOD

The method used in this research is qualitative deskriptif. Stages in the study include the identification and analysis phase in junior high school curriculum well physical education Unit Level Curriculum (SBC) and the Curriculum 2013 (K.13). The next stage is to identify the characters of values that can be internalized in learning. Further observations on the implementation of physical education learning especially the implementation of the internalization of the values in the physical education learning characters that have been implemented by teachers. Data collected by observation, interview and Focus Group Discussion (FGD). Curriculum analysis focuses only on the material covering athletics sprinting, long jump and shot put learning. The data used in this activity is the first secondary school physical education teacher Public and Private as well as administrators subject teachers council (MGMP) junior high school physical education Surakarta. While the observation is made in seven schools. The schools were selected randomly conducted with due regard to the representation with regard school rankings.

RESULTS AND DISCUSSION

Based on data from the responses of teachers, expert, and the results of analysis of physical education curriculum subjects, it can be seen that the main character values that are very important for athletic material is internalized in the value of honesty, dicipline, responsibility, caring, polite and confident:

1). Honestly, is a behavior that is based on an attempt to make himself as a person who always reliable, either in words, actions, and employment, to self and others, 2). Discipline, is the act of orderly behavior and comply with various rules and regulations, 3). Responsible, is the attitude and

behavior of people to carry out their duties as they should, 4). Care, know and understand and implement what belongs to / right themselves and others and duties of ourselves and others, 5). Polite, a subtle nature and good from the standpoint of grammar and grammar behavior to everyone, 6). Confident, confident attitude in the ability of themselves and efforts to achieve compliance with the wishes and hopes. Based on the analysis of documents held by teachers learning device, integrating the characters of values are difficult to implement because it only includes the values of the main character separately. Having conducted in-depth interviews turned out to teachers' understanding of the implementation of the planting still considered confusing character value. Similarly, teacher responses to student competence achievement. This can occur because the interpretation of the teacher against any standardized competencies in the curriculum is biased. Thus, in determining the achievement indicators of teaching, teaching objectives, the selection and planting material is still limited to what the value of the character ever experienced teacher and consideration of the facilities available at the school. Analysis of the learning device used by teachers indicate that all teachers do not develop their own lesson plans but copying an existing lesson plan (RPP). Lesson plan physical education between schools have in common. Based on the focus group interviews, preparation of the lesson plan as if merely to fulfill the administrative procedures of each semester. In developing the material, teachers use learning objectives (in the RPP) as a reference in conveying the material. Most teachers use a teaching style that is usually used is direct instruction in each of the learning process. While the development of media / physical education learning resources, most teachers use school facilities that were already owned by the size and shape of the standard. In the development of evaluation tools physical education learning, that teachers only measure psychomotor abilities by using the test works, while affective attitude assessment by teachers is difficult to implement, including how to assess the character of the students. The statement was also supported by the results of observations, where the implementation of learning is not as stated in the lesson plan. In addition, due also because it is not accompanied by school support in the provision of materials required by the teacher. Obviously this condition causes the material athletics in physical education teaching in junior high school students less attractive. Students have difficulty and are not interested in following study presented teacher, because this material is considered unattractive and unpleasant. Based on interviews with teachers and administrators MGMP physical education in junior high school actually have teachers who are trying to modify the infrastructure of learning, but these activities only limited supplementary course not be the needs and habits of the teacher. The point is, the implementation of the modification is only done occasionally in one year. The motivation of teachers to try and get used to doing the creativity still needs to be improved. Physical education curriculum does not require basic competence expressly athletics, as adjusted by the facilities owned by the school. Thus the basic competence athletics need to be introduced to the students although the school does not have a standard means but by using other objects that can be used as a learning tool without reducing the significance of learning athletics. Facilities and infrastructure in teaching physical education used in physical education teaching in accordance with the size and type of standard. This means that the design of the facilities and infrastructure which are used in accordance with the infrastructure and facilities for the purposes of the actual race. Thus the junior high school students as if they are required to have physical and mental maturity as adults. The lack of interest in the student's course resulted also to the successful cultivation of character values that should be integrated in every subject becomes a maximum. Based on observations at 7 (seven) junior high school, especially in the implementation of learning athletics, showed that the physical education teacher learning undertaken during this more emphasis on appropriate content syllabus. It is actually not infringe, but in fact it dominates teacher in the learning process, but no one has showed creativity in making modifications learning

materials. There is a false assumption that learning is quite convey the material in accordance with the syllabus. Development through modifications require excessive time and preparation, while the physical education lesson is always reduced by 30 minutes to prepare students to follow the lessons.

See the method that has been used is actually pretty good, but when viewed from the interest and enthusiasm of the students in the following study there appears to be some things wrong in mengimlementasikannya. For example, in learning about the shot put, the teacher uses the approach to the style of command and use bullets with standard size. Learning the style of command is appropriate when used in classical learning, but it will make students bored because students only see and demonstrate the appropriate cue or command of the teacher. Students will be more independent and have responsibilities if given the chance active in the learning process. The characters of values will be much more grown if creative teachers in the selection of teaching methods and creative in the use of learning media in accordance with the characteristics of students. Character value grown through commando style without any modifications just learning emphasizes the value of discipline as the main value, besides the views of enthusiastic students still waiting for orders less because familiarized teachers. This causes the students' creativity to grow because the students have to follow what is ruled by the teacher. In physical education teaching, the teacher is still one perceives physical education learning objectives. Physical education lesson that should be used as a tool to foster encourage the development of motor skills, physical abilities, knowledge, reasoning, appreciation of the value, and habituation to a healthy lifestyle is geared to stimulate growth and balanced development, it is run by the demand that students are able to perform like an athlete competence. It can be seen from the use of media or means of learning that are standard in athletics. It is certainly difficult for the majority of students who lacked the talent in the field of the sport. Thus, learning becomes meaningful for students and are less likely to get serious attention. If you see such problems, the solution can be done by teachers are using more creative learning model by modifying both the process and the means of learning adapted to the conditions and karaterisktik grade students that emphasizes the excitement and enrichment of the treasury of motion in order to succeed in developing skills. In the process of learning to internalize the character of values, the teacher can use teaching methods varied, for example by giving freedom to the students to try to exercise in groups with each other to observe and evaluate the movement of his or her exercise performed. Thus the value of self-reliance, responsibility and cooperation can be instilled in the students. In order to support the implementation of optimal learning, teachers can use the media as a means of learning to enable students to more easily understand the material presented. Learning media can be created by teachers to utilize the facilities or other tools are easy to use students in understanding the basic techniques in conducting athletic competence. Although teachers have participated in various training on instructional modifications PE, but due to the limitations of teachers in preparing and making instructional media modified the teachers prefer to use a tool or tools that have been standardized in teaching athletics.

At the end of learning, to determine the competence of student achievement on the material provided, we conducted an evaluation through tests of performance (practice). Teachers in implementing the assessment is not in accordance with the existing assessment rubric in the lesson plan. According to teachers, assessment rubric in lesson plan teachers not yet fully understood, for example, teachers' perceptions regarding the affective domain assessment is always associated with student behavior outside physical education learning. Assessment aspects of affective, cognitive and psychomotor actually can not be separated in the assessment because the three domains are integrated in the implementation. Assessment affective aspect in question is the attitude of the students raised during the learning process PE.

CONCLUSION AND SUGGESTION

In general, teachers are oriented to the delivery of appropriate curriculum materials. Thus the character of values such as honesty, discipline, responsibility, confidence, courtesy and care are contained in physical education subjects need to be raised so that learning becomes more meaningful for students as stock life. Teaching style used is actually pretty good, but when viewed from the spirit of the students in the following study still look less athletic. Based on interviews with teachers, that teaching athletics is perceived less attractive compared with the material of the game. In other words, students are more than happy with the game material. This shows that the creativity of teachers in planning lessons athletics is not maximized.

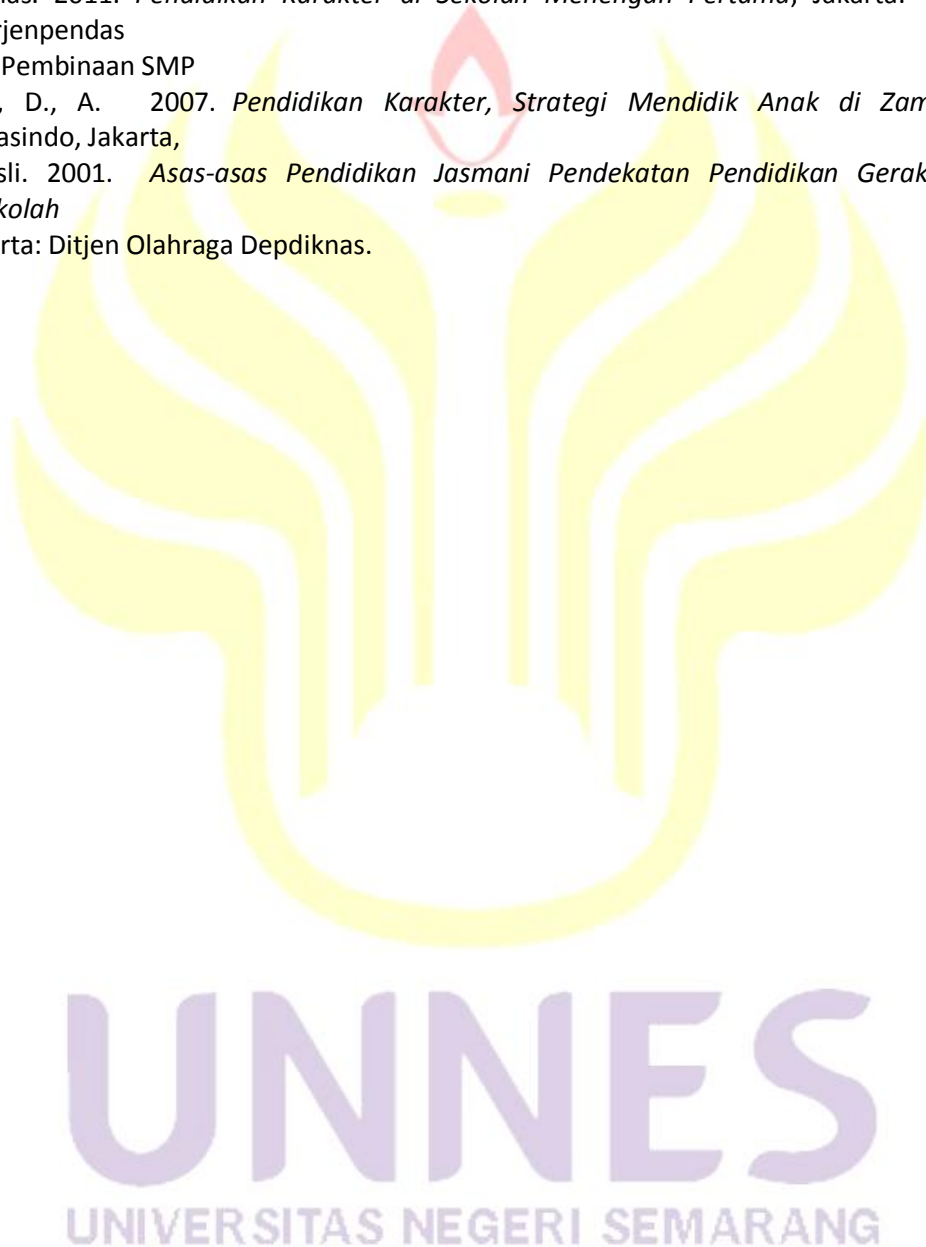
This obstacle can be overcome by modifying the actual learning, for example in shot put learning, the teacher can conduct the game with the provisions or regulations game that leads to the basic techniques of shot put. Learning the style of command is appropriate when used in classical learning, but it will make students bored because students only see and demonstrate the appropriate cue or command of the teacher. Students will be more independent and have responsibilities if given the chance active in the learning process. The characters of values will be much more grown if creative teachers in the selection of teaching methods and creative in the use of learning media in accordance with the characteristics of students. The character of value grown through commando style without any modifications just learning emphasizes the discipline as the main values, besides the views of enthusiastic students still waiting for orders less because familiarized teachers. This causes the students' creativity to grow because the students have to follow what is ruled by the teacher.

Facilities and infrastructure are used in learning to use a standard size and shape. It is certainly difficult for the students of majority who lacked the talent in the field of the sport. Thus, learning becomes meaningful for students and are less likely to get serious attention. If you see such problems, the solution can be done by teachers are using more creative learning model by modifying both the process and the means of learning adapted to the conditions and karakteristik grade students that emphasizes the excitement and enrichment of the treasury of motion in order to succeed in developing skills. Teachers can use the media as a means of learning to enable students to more easily understand the material presented. Learning media can be created by teachers to utilize the facilities or other tools are easy to use students in understanding the basic techniques in conducting athletic competence.

REFERENCES

- AAHPERD. 1999. *Physical education for Lifelong Fitness*. The Physical Best Teachers Guide. Human Kinetics.
- Annarino, A.A., Cowell, C.C., Hazelton, H.W. 1980. *Curriculum Theory and Design in Physical Education*. St. Louis: London: The CV Mosby Company co.
- Badan Standar Nasional Pendidikan. 2006. *Standar Kompetensi Lulusan*. Jakarta: Depdiknas.
- Berkowitz, M, W., Baittstich, V. A., Bier, M.C. 2008. *What Work in Character Education: What is Known and What Needs to Be Known*. Handbook of Moral Character and Character Education. New York: Tailor and Francis
- Depdiknas. 2006. *Petunjuk Pelaksanaan Pengembangan Media Pembelajaran*. Jakarta: Direktorat Pembinaan SMP – Depdiknas.
- Jacques S. Benninga, Marvin W. Berkowitz, Phyllis Kuehn, Karen Smith. 2003. *The Relationship*

- Of Character Education Implementation And Academic Achievement In Elementary Schools.*
Journal of Research in Character Education: Vol. 1, No. 1. pp. 19–32. ISSN 1543-1223.
- Kamus Besar Bahasa Indonesia. 2008. *Kamus Bahasa Indonesia*. Jakarta: Departemen Pendidikan Nasional
- Kemendiknas. 2011. *Pendidikan Karakter di Sekolah Menengah Pertama*, Jakarta: Dirjenpendas
- Direktorat Pembinaan SMP
- Koesoema, D., A. 2007. *Pendidikan Karakter, Strategi Mendidik Anak di Zaman Global*, Grasindo, Jakarta,
- Lutan, Rusli. 2001. *Asas-asas Pendidikan Jasmani Pendekatan Pendidikan Gerak di Sekolah Dasar*. Jakarta: Ditjen Olahraga Depdiknas.



MATERIALISM, SPORTSMANSHIP, AND SPORT PERFORMANCE ON ATHLETES

Anirotul Qoriah

Faculty of Sport Science, Semarang State University, Republic of Indonesia

anirohws@yahoo.co.id

Abstract

Material issue is a context that affecting the dynamics of the sport world. Today, people hardly become an athlete or enjoy sport for its intrinsic value only, for the sport itself. There are some materials or financial benefits desired by athletes, sport managements, corporate sponsors, as well as public as sport passive participants. Financial benefits might be source of motivation for sport, but might also trigger various problems in sport, as proven in cases like, match-fixing scandal, bribery, sport fraud, and sport gambling. Materialism or orientation towards acquisition of material possession, like money and goods, is spread over the sport world. It is one factor that negatively influencing sportsmanship and sport performance among athletes. Athletes who are primarily motivated by prospect of popularity, fame, and wealth or financial rewards tend to less prosocial and ethical. The consequence is they are prone to do misconduct and violate sport ethics, for example using performance enhancing drugs and act unfair over competitors. Because of that reason, this paper is written to give explanation about relationship between materialism, sportsmanship, and sport performance among athletes. It also will suggest some recommendation to help solving sport problem related to materialism, especially from religious point of view.

Keywords: materialism, sportsmanship, sport performance

INTRODUCTION

In the mid of this year, world sports are shocked by corruption and bribery scandal involving *Fédération Internationale de Football Association* (FIFA) elite. This case reveals FIFA's mismanagement, affects business cooperation between FIFA and many sponsors, and profoundly harms public's trust towards sport, especially football. Public demands FIFA to promote a strong ethical standard and operate in transparent way for the sake of sport's ideal. Any sport association and organization shouldn't be a money machine for elites [1]. In today modern society, sport as recreational activity and commercial spectacle becomes one central in capitalist era. People hardly become an athlete or athletes management, or enjoy sport for its intrinsic value only. There are some materials or financial benefits desired by athletes, sport managements, corporate sponsors, as well as public as sport passive participants. In other words, sport becomes commodity to produce and means to gain money [2]. Thus, sport isn't sterile of crime and bad behavior. Sport's crimes are almost all concerning material (money) interest, e.g. in match-fixing scandal, sport fraud, sport gambling, bribery, and corruption. Sometimes, cheats, doping, and aggressive behavior happened in the field are also dragged somewhat by a mindset that become a winner is everything and that winning a game is a means to be popular and to gain material profit. Those signs indicate phenomenon of materialism in sport. Materialism or orientation towards acquisition of material possession, like money and goods, as well as fame, is spread over the sport world. From religious (especially Islam) perspective, it is not right to be neglected, while psychological research has found that in individual athlete, materialistic orientation negatively associates with sportsmanship and sport performance. This paper is purposed to theoretically give explanation about association

between materialistic orientation, sportsmanship and sport performance with focus on athletes. In the end, it will suggest some recommendation to help solving sport problem related to materialism, especially from religious point of view.

PHENOMENON OF MATERIALISM IN SPORT

According to Weber's thought in capitalism, modern age is dominated by the technical and economic conditions of machine production and the lives of all individuals who are born to this mechanism directly concerned with economic acquisition. Material goods gain an increasing and finally an inexorable power over the lives of many people as at no previous period in history. People are living in the prison of materialism. In sport, that phenomenon is real. Today, multimillion-dollar contracts are routine in professional sport and high-performance athletes demand for financial reward as they pursue Olympic or any competitions' medals [3]. Sport now is in "age of the spectator" and "age of the sport consumer". This is proven by rising of attendance figures, the large number of hours fans spend watching televised sporting events, the growing popularity of sport leagues, sport teams, or high-performance athletes, sports gambling, and the amount of space dedicated to sports in newspaper. Many elite sport teams and events are controlled by corporations and corporate sponsors. Individualistic sports, such as tennis, golf, and surfing, are controlled by corporate sponsors too [4]. Sport cannot be simply as recreation and entertainment anymore; now it is a means to pursue material gain. Sport promotes commercialism and materialism since it a product to be consumed by public, athletes are commodities to be exploited, and advertising makes consumers believe that they must have certain product of sport. Athletes want big salaries, sports owners want to make money, sport sponsors want their athletes to win and promote their product, media wants to sell commercial time in an attempt to make broadcasting profit. At every level, economics and materialism are a critical aspect of sport [4]. Desire for money is inevitable for athletes as individual. Most people want power and prestige, and many believe that money will provide both. Economic success is often equated with prestige, as people with money generally gain more respect than the poor in societies [4]. Being materialistic for athletes is somewhat rational orientation of living since people need money to live properly, but it has a dark side since it can adversely affect one's well-being and behavior.

DARK SIDE OF MATERIALISM

Materialism: A Psychological Perspective, Materialism is a preoccupation with, desire for, and emphasis on, material goods and money to neglect of other matters. It refers to the satisfaction of happiness people expect to gain from material goods. Thus, materialism is an orientation emphasizing possessions and money for personal happiness and social progress [5]. There are three approaches to assess one's materialistic tendency:

The materialistic personality, Belk conceptualized materialism as a triad of personality traits that characterize an individual: possessiveness, non-generosity, and envy. Materialism is seen as a manifestation of those three traits since they are so strongly associated with materialism. The more possessive, envious, and non-generous a person is, the more materialistic s/he is believed to be. Possessiveness is a worry about possible loss of possessions, prefer to own rather than rent or borrow material objects, and be more inclined to save and retain possessions. Non-generosity is unwilling to share or give possessions to other. Envy is an attitude of displeasure and ill-will towards people who are seen as superior in happiness, success, reputation, or the possession of anything desirable [5].

Materialism as an individual value orientation, Richins and Dawson define materialism as a set of centrally held belief about the importance of possessions in one's life. Materialism has three

components [5]: *Acquisition centrality* is the belief that material possession and money are a highly important life goal, *Success* refers to the extent to which people see possessions and money as a good parameter for evaluating their own achievements, as well as those of others. *Happiness* captures the conviction that goods and money are the major path to personal happiness, a better life, and a more positive identity.

People with strong materialistic value not only focus on acquiring material goods and money but they also believe that consumer goods can provide important psychological benefits, like material possession can become source of identity. The more people value material goods as a life goal, parameter of success, and means of happiness and identity, the more materialistic they are [5]

The relative importance of financial goal, Kasser and Ryan make distinction between life goals or aspirations as either intrinsic or extrinsic based on their content. There is a difference between intrinsic aspiration (such as self-acceptance, affiliation, and community involvement) and extrinsic aspiration (such as financial success, fame, and image). The more people rates extrinsic aspiration (financial success) as high compared to other intrinsic aspiration, the more materialistic they are [5]. Attaching high importance to an extrinsic life goal is negatively associated with indicators of well-being, because extrinsically motivated goals are guided by external influences, such as coercion or approval from others, whereas intrinsically motivated goals are of interest in their own right, bringing pleasure and true fulfilment. Excessive concentration on external rewards (like money or other material rewards) can distract people from intrinsic endeavors and interfere with personal integration and actualization [5].

Consequence of Materialistic Orientation, From many psychological researches, consequences of materialistic orientation in individual are identified. Materialistic orientation impacts on various aspect of life. It is the cause of low well-being, unhappiness, and life dissatisfaction, as well as high stress and depression [5, 6]. Materialistic people believe that having more possessions (money and goods) is the key to have good life, indicator of successful life, and the source of happiness. Implication of that belief is never ending competition to acquire wealth and spending money to buy things in order to maintain social relationship and identity among people [7]. Because of that habit, they tend to less save money, have bad financial management, and to be haunted by financial anxiety [8, 9]. The more materialistic values are at center of one's life, the more quality of life is diminished [6]. Materialistic orientation also affects performance in academic context. High materialistic students tend to have low intrinsic learning motivation, increasing extrinsic learning motivation, and low academic performance [10]. These students are motivated to learn by material reward, not by the pleasure of learning or to master learning material. In the context of sport, the result is no difference. Athletes who are primarily motivated by the prospect of notoriety, fame, and financial rewards may not be inclined to prosocial behavior, ethical behavior, and good sportsmanship. Consequently, concerted efforts must be made by coaches and parents to promote intrinsic motivation in athletes beginning in youth sports. Intrinsically motivated athletes will be inclined towards prosocial behavior and a strong bias against using performance enhancing drugs to gain an unfair advantage over competitors [11], or in the other words, materialism in sport may lead athletes to play unfairly.

HOW SPORT SHOULD BE DONE: THE CONCEPT OF FAIR PLAY

Sport can be defined in several meanings. From Oxford Dictionary, sport is activity that is done for pleasure and that needs physical effort or skill, usually done in a special area and according to fixed rules [12]. From Indonesian Dictionary, sport is physical activity to strengthen and promote physical healthy [13]. Beyond those definitions, sport has some ethical facet. Sport basically is a competition against one own self or other. Thus, this activity should be based on certain moral attitude in order to maintain righteous spirit, honesty, and obedience to rule. This attitude is named

fair play. Fair play is acknowledgement towards opponent (whether in loss or win) and self-worth with high moral standard and appreciation towards victory that is achieved by one's personal ability, not by cheats [14]. Morality is important aspect in sport because it influences athlete's behavior in the field and protects the sport itself. To play fairly in reality is not an easy matter. Moral reasoning in sport consists of: 1) knowing the game and its rule, knowing personal expectation and feeling towards others competitor, value, and belief, 2) making judgement about what is the best for one own self and others, the meaning of victory and defeat, and the meaning of game and competition, and 3) deciding what to choose and to act accordingly [14]. Every athlete, especially the professional one, certainly encounters question such as whether winning is everything, whether winning is the most important and ultimate goal and no other thing above that; whether gaining much profit and incentive from game is properly desirable, etc. With weak moral value and reasoning, some athletes might end up sacrificing the rule and their moral for winning the game and gain much profit. They are not only harming their self-dignity, but also the game that is intended to be played fairly. However, having morality and good moral reasoning are not the only necessary. There is other factor that influences fair play and vice versa, i.e. athletes' orientation and motivation.

FAIR PLAY AS PRODUCT OF SPORTSMANSHIP

Fair play is considered a result of good sportsmanship. From social-psychological view, sportsmanship research is highly influenced by Haan's theory of moral development [15]. This theory suggests that moral reasoning develops through moral dialogue with other individuals and is major determinant of moral behavior. The social-psychological approach to sportsmanship proposes three key elements of sportsmanship: sportsmanship orientations, development of sportsmanship orientations, and the display of sportsmanship behavior. According to [15], sportsmanship orientations refer to the self-perceptions and internalized structures relevant to each of the sportsmanship dimensions, as well as the propensity to act in line with each orientation. Sportsmanship development refers to the process through which the various sportsmanship orientations develop. The last, the display of sportsmanship behavior concerns the manifestation of sportsmanship-related behavior at a given point of time. Sportsmanship has five dimensions [15]: 1) Concern and respect for the rules and officials, even though they are not good, 2) Concern and respect for the opponent, for example, not taking advantage of the situation when opponent injures. 3) Concern and respect for one's full commitment toward sport participation, for example, by not giving up after doing mistakes. 4) Concern and respect for social conventions, for example after competing, congratulating opponent for he/ she good performance, 5) Relative absence of negative approach toward one's participation in sport.

To provide better prediction of sportsmanship behavior, combination of both personal and social determinants is identified [15]. The major social determinant is anticipation of cost and benefit of performing sportsmanship. Some personal determinants are personal attitude towards sportsmanship, subjective norms, and motivational style of individual athlete. Social and personal determinants are interrelated to each other. The motives or reasons underlying athletes' involvement in sport reciprocally influence how they will play the game [15]. For illustration, there are athletes who play primarily for trophy, medal, money, or recognition from winning. They do not care anything but how to win and do not mind using tricks or breaking the rule to beat their opponent. In opposition, there are athletes who play because of the fun and pleasure from participating and personal excellence. Trophy and medal are important, but the main reason to play is to outdo their own self. Because of that, breaking the rule or playing trick is not their option since those only drift them away from their true goal. Those two illustrations depict two kinds of motivation: 1) extrinsic motivation and 2) intrinsic motivation. The previous has potential to negatively impact sportsmanship, meanwhile the later support sportsmanship. Low sportsmanship

may lead athletes to focus on extrinsic elements of the game (like money, medal, or recognition), meanwhile high sportsmanship leads athletes to tend to intrinsic reward (like personal excellence and pleasure) [15].

HOW MATERIALISTIC ORIENTATION INFLUENCE SPORT PERFORMANCE

Motivation is important aspect of sport. Motivation is underlying psychological component of strength in athletes, a factors that determining the way athletes undergoing hours of training, rehabilitation from injuries, the stress and anxiety of competition, and the agony of defeat. Athletes may be motivated out of two types of motivation, intrinsic or extrinsic. Extrinsic motivation refers to the performance of an activity in order to attain some separable outcome (such as *material reward* like trophies or *social rewards* like prestige or to avoid punishment) and, thus, contrast with intrinsic motivation, which refers to doing an activity for the inherent satisfaction of the activity itself [16, 17]. Athletes' motivation gives various impacts on the type of experience from the sport [17].

There are some conditions, socially and psychologically, that influence athletes' motivation. Materialism is considered as a psychological condition that elicits and sustains extrinsic motivation on athletes and in opposition, subdues and diminishes intrinsic motivation [6]. Materialistic orientation is manifested in motives joining sport or competition primarily for its material benefits, like money, medal, recognition (public praise and reward), and fame, for gain more and more wealth. These motives are kinds of extrinsic motivation. From psychological research, it is known that extrinsic motivation has certain influence to athletes' behavior.

Motivation, sportsmanship, and substance abuse (doping behavior), Study in [18] shows that there are psychological determinants of performance-enhancing substance use in sports. Extrinsic motivation toward sport predict, respectively, negative sportsmanship orientation, which in turn positively predict the use of performance-enhancing substance. While intrinsic motivation supports sportsmanship orientations in preventing athletes from doing unethical behavior, extrinsic motivation supports the opposite. Extrinsically motivated athletes tend to hold low sportsmanship orientation. Study in [19] shows that intrinsically motivated athletes reported lower scores on past doing use and intention of future use. Athletes with low self-determined motivation (intrinsically motivated) tend to be more susceptible to engage in doping behavior. Even though that relation isn't mediated by sportsmanship orientation, it is known to be caused by some athletes don't aware that doping use is immoral and unethical.

Motivation, sportsmanship, and aggression Study in [20] explains that sportsmanship pertains to athletes' endorsement or rejection of injurious or unsuitable acts in sport. Self-determined athletes (dominated by intrinsic motivation) tend to be more respectful and more concerned about many structural and social features of sporting environments than athletes who dominated by extrinsic motivation. Because of that tendency, they are more aware to sportsmanship behavior. Conversely, extrinsically motivated athletes tend to ignore sportsmanship and are more prone to conduct unsportsmanlike behavior, such as physical intimidation, deception, negative attitude, and cheating. The result shows that sportsmanship orientation plays mediating role between self-determined and athletic aggression. Strong sportsmanship orientation may weaken athletes' reliance on reactive aggression. On the other hand, strong sportsmanship orientation may foster the use of non-malicious physical means against an opponent in the hope of hindering her/his performance (instrumental aggression). Athletes who compete sportingly will restrict their use of aggression to norm-abiding behavior. They will set the limits of what is acceptable according to the rule and social convention in the sport [20].

HOW TO TREAT EXCESSIVE MATERIALISTIC ORIENTATION

To improve sport performance accordingly with sportsmanship spirit, it is proposed that one needs to correct his/ her motivational orientation from extrinsic motivation to intrinsic one. It is necessary for athletes and their coach to recognize what actually motives that drive athletes to sport and compete. If athletes primarily give emphasize on material reward like medal or money, or social reward like recognition and praise from others, there should be some intervention so that athletes hold more appropriate goals in sporting.

Materialism in sport is indeed pervasive. Athletes may believe in materialism because sport society is materialistic, and society is so materialistic because many people involved in sport believe that materialistic pursuits are a path to success and happiness. There should be a change in the way people see the sport and how the world goes and turn it back to its philosophy. Sport is aimed to improve human physical, social, psychological, and even spiritual aspect through a fair play and competition. Before giving any program, it should be known factors that influence athletes' motivation. It is proven that rewards and awards, competitions, and positive and negative feedbacks, can decrease or increase athletes motivation [21]. There are negative effects of rewards and awards. Rewards that are provided contingent on engaging in activity, completing activity, or reaching a certain level of performance all decrease intrinsic motivation. Meanwhile, rewards that are not expected and that are not related to the task do not decrease intrinsic motivation. Focus on competition primarily to beat opponent may undermine intrinsic motivation. Finally, positive feedback about athletes' strengths and weaknesses may enhance and negative feedback may decrease intrinsic motivation. When intrinsic motivation is decreasing, extrinsic one will increase [21].

The first thing can be done is helping athletes to change the importance level of rewards, awards, and competitions for their own self. Introducing more healthy values (such as sportsmanship value, social value, and spiritual value) is beneficial so that the athletes are able to see there are things that are highly more important than material benefits, like friendship, good relationship even with opponent, healthy competition, moral integrity, and religiously, the Pleasure of God. Thus, materialistic aims should be in balance with intrinsic aims, and always to have healthier aims dominant [6]. The second is to increase religiosity. Religion has unique role in controlling human tendency toward material things. Religion, for example Islam, teaches people to be generous toward other, to control envy by being grateful to God, and to think possession, whether it is money or medal, or even social recognition, is not lasting forever, so there is no way to be over proud. Religion also teaches that money and material possessions are not the most important thing in life since they are only a worldly success. The most important achievement is that related to the life hereafter.

CONCLUSION

Materialism is a vast phenomenon in the world today. It touches many aspects of life, including sport. In capitalist and consumer culture era, sport is partly losing its intrinsic value as recreational and health-enhancing activity. It becomes means to make money and gain wealth for many parties, such as sport club owners, corporate sponsors, media, sport spectators, and athletes. Money as the source of motivation drives athletes to compete and play the game, but actually that money-driven motivation doesn't always bring good consequences.

Athlete who think material achievement is relatively more important than other things, may focus themselves to be a winner, no matter what it cost. That is why they tend to have low sportsmanship orientation. Low sportsmanship orientation makes them prone to conduct immoral and unethical behavior in sport, like abusing substance, doing doping, being aggressive toward opponent, playing trick, cheating, etc.

To improve athletes behavior, concerning of the problem of materialism, it is needed to introduce athletes more healthy life values so that they can build more appropriate meaning about reward, award, and competition. One useful method is to instill religious and spiritual value and increase athletes' religiosity.

REFERENCES

- [1] "Korupsi FIFA bak Bola Salju". *KOMPAS*, 29 Mei 2015, h. 1.
- [2] Horne, J. 2006. *Sport in Consumer Culture*. New York: Palgrave Macmillan.
- [3] Beamish, R. 2009. "Toward a sport ethic: Science, politics, and Weber's sociology." In E. Smith. *Sociology of Sport and Social Theory*. Champaign, IL: Human Kinetics, p. 3-14.
- [4] Delaney, T. & Madigan, T. 2009. *The Sociology of Sports: An Introduction*. Jefferson, NC: McFarland Pub.
- [5] Gardarsdóttir, R. & Janković, J., & Dittmar, H. 2008. "Is this as good as it gets? Materialistic values and well-being." In H. Dittmar. *Consumer Culture, Identity, and Well-Being*. New York: Psychology Press.
- [6] Kasser, T. 2002. *The High Price of Materialism*. Cambridge, MA: The MIT Press.
- [7] Ahuvia, A. C. 2008. "If money doesn't make us happy, why do we act as if it does?" *Journal of Economic Psychology*, Vol. 29, p. 491-507.
- [8] Gardarsdóttir, R. & Dittmar, H. 2012. "The relationship of materialism to debt and financial well-being: The case of Iceland's perceived prosperity." *Journal of Economic Psychology*, Vol. 33, p. 471-481.
- [9] Goldberg, M. E., Gorn, G. J., Peracchio, L., & Bamosy, G. 2003. "Understanding materialism among youth." *Journal of Consumer Psychology*, Vol. 13, No. 3, p. 278-288.
- [10] Ku, L., Dittmar, H., & Banerjee, R. 2012. "Are materialistic teenagers less motivated to learn? Cross-sectional and longitudinal evidence from United Kingdom and Hongkong." *Journal of Educational Psychology*, Vol. 104, No. 1, p. 74-86.
- [11] Cox, R. H. 2012. *Sport Psychology: Concepts and Applications*. New York: McGraw-Hill.
- [12] Sport. 2015. *Oxford Advanced Learner's Dictionary Eight Edition*, h. 1439.
- [13] Olahraga. *Kamus Besar Bahasa Indonesia (KBBI) dalam Jaringan*. <http://kbbi.web.id/olahraga>
- [14] Qoriah, A. 2011. *Textbook of Sport Philosophy Third Edition (Buku Ajar Filsafat Olahraga Edisi Ketiga)*. PJKR, FIK, Unnes. Unpublished.
- [15] Vallerand, R. J. & Losier, G. F. 1994. "Self-determined motivation and sportsmanship orientations: An assessment of their temporal relationship." *Journal of Sport and Exercise Psychology*, Vol. 16, p. 229-245.
- [16] R. M. Ryan & E. D. Deci. 2000. "Self-determination theory and the facilitation on intrinsic motivation, social development, and well-being." *American Psychologist*, Vol. 55, No. 1, p. 68-78.
- [17] Vallerand, R. J. & Losier, G. F. 1999. "An integrative analysis of intrinsic and extrinsic motivation in sport." *Journal of Applied Sport Psychology*, Vol. 11, p. 142-169.
- [18] Donahue, E. G., Miquelon, P., Valois, P., Goulet, C., Buist, A., & Vallerand, R. J. 2006. "A motivational model of performance-enhancing substance use in elite athletes." *Journal of Sport & Exercise Psychology*, Vo. 28, p. 511-520.
- [19] Barkoukis, V., Lazuras, L., Tsorbatzoudis, H., & Rodafinos, A. 2011. "Motivational and sportpersonship profiles of elite athletes in relation to doping behavior." *Psychology of Sport and Exercise*, Vol. 12, p. 205-212.

- [20] Chantal, Y., Robin, P., Vernat, J., & Bernache-Assollant, I. 2005. "Motivation, sportpersonship, and athletic aggression: A mediational analysis." *Psychology of Sport and Exercise*, Vol. 6, p. 233-249.
- [21] Vallerand, R. J. 2007. "Intrinsic and extrinsic motivation in sport and physical activity." In G. Tenenbaum & R. C. Eklund. *Handbook of Sport Psychology Third Edition*. Hoboken, NJ: John Wiley & Sons, p. 59-83.



OUTBOUND GAME MODELS TO IMPROVE INTERPERSONAL COMPETENCE IN ELEMANTARY SCHOOL

Niken Fatimah Nurhayati¹, TandiyoRahayu², Soegiyanto, K.S.³, Sugiharto⁴

¹Faculty of Psychology, Diponegoro University. ^{2,3,4} Faculty of Sport Science, Semarang State University

¹nikenfatimah@yahoo.com

Abstract

The goal of this research was to produce a product in the form of outbound game models to improve interpersonal competence of students in elementary schools. The method used was a research method suggested by Borg and Gall that modified into seven steps. For a limited scale trial conducted in SDN Sambiroto 1 and SDN Sambiroto 2, each of which amounted to 37 students. Wide scale trial conducted in SDN Sendangmulyo 1 by the number of 34 students, SDN Sendangmulyo 2 by 33 students, SDN Sendangmulyo 4 by 42 students, SDI Tunas Harapan by 24 students, and SDI Al Azhar 14 by 74 students. Effectiveness trials conducted in SDN Meteseh by the number of 38 students. Instruments to collect data used a questionnaire, observation guidelines, and psychological tests. Data analysis used descriptive qualitative approach with the percentage and product moment correlation. Results of research and development show that: (1) effectiveness test resulted measurable changes in all aspects, that: initiative increased 6 (16%), negative assertion increased 8 (21%), self-disclosure increased 8 (21%), emotional support increased 4 (11%), and conflict management increased 6 (13%) or from middle classification was to be good, (2) psychological tests from the first cycle to the second cycle resulted in increase the number of students who have a high classification were 5 people (13%), and reduction the number of students who have moderate classification 3 people (8%), and low 2 people (5%). Conclusion of research and development were: (1) has produced ten outbound game models that can be used to develop aspects of the initiative, negative assertion, self-disclosure, emotional support, and conflict management students in elementary school, (2) has produced ten outbound game models for improving interpersonal competence of students in elementary schools.

Keywords: outbound game models, interpersonal competence, students in elementary school

INTRODUCTION

Humans are social beings, which means that there is a need to interact, communicate and depend on another. As social beings makes this interaction needs as a primary need for every person to carry out his life. Start from the waking up to go back to sleep, everyone needs interaction with other people with different intensities. Interaction with others can be formal, merely lip service and not deep, some have high intimacy so that it can devote deepest feelings and ask for help if in trouble. Can not inevitable that need to interact with others is the primary requirement.

The primary requirement that was not met would make someone's welfare life interrupted. Those who have problems in social life becomes not optimal in running various roles, because almost all aspects of life has a dependency and connectedness with the environment and other people. Efforts to access the environment in order to become a source of potential support for self-

development requires the ability to communicate effectively and have good interpersonal relationships and satisfying, or the so-called interpersonal competence.

Interpersonal competence, such as the competence of others, need to be trained and formed through a variety of efforts early on. The family is the first major environmental and for children to start learning to socialize. Skills obtained from the child's family to learn to socialize in the community. Experience socialize with peers can be used to learn and accept other people's perspective, trying a variety of roles, develop social competence, understanding the socio-cultural rules and norms that exist in their environment. This is similar to Kuh and Terenzini statement cited by Foubert and Grainger (2006: 166-168) which states that interactions with peers have contributed to the interpersonal competence. Someone who had the opportunity to interact with peers, have the opportunity to improve the social, emotional, and interpersonal relationships.

Interpersonal competence have an important meaning in life, because someone with interpersonal competencies are able to maintain a relationship for a long time and satisfying. Some studies reinforce the importance of interpersonal relationships in various aspects of life. These studies include the following: (1) research Mpofu, et al. (2004: 169-173) against the seventh-grade students in Zimbabwe states that students who have interpersonal competence assessed as students are cooperative, responsible, socially accepted by their peers and teachers, and more friendly than the students who lack interpersonal competence, (2) The results of the study Conger and Chao cited by Santrock (2012: 299) states that children from divorced families show poorer adjustment compared to children from intact families. Children from divorced families tend to exhibit academic issues, external issues such as: acting and juvenile delinquency, internal problems such as anxiety and depression, lack of social responsibility, less competent in interpersonal relationships, school dropout, sexually active early, consuming drugs, joined by friends who antisocial, have low self-esteem, and less develop interpersonal competence.

Research on interpersonal competence show that children who have high interpersonal competence have social and academic advantages when compared to children who have moderate and low interpersonal competence. Golson (2006: 178) states, that people who have social skills and be able to communicate with others in a long time tend to be more successful than those who do not have this capability, and one of the factors that determine the success in establishing communication with other people is the competence interpersonal.

The tendency of people who are often at odds because of their targets, ambition, competition in every field, making the warmth of interpersonal relationships with other people on the wane. We often come across children who have intellectual, but not able to establish interpersonal relationships with peers. All parents do not want to have a smart kid, but insecure in relationships, less accepted or ignored the social environment. This shows that the importance of the development of interpersonal competence as a condition of the child in building a successful interpersonal relationships with peers.

What can be done to solve this problem? To find out various problems in the development of interpersonal competence in elementary school, it is necessary to preliminary studies by through observation, surveys, and interviews. Results of a preliminary study conducted by researchers of the penjasorkes (physical, sport, and health education) teachers in elementary schools obtained information that in every class there are students who have problems in establishing and maintaining interpersonal relationships or competence with peers. They are students who are ignored or avoided peers, and feel less comfortable in the family or school.

Saidah (2005: 1) states that difficulties in socializing will affect the development of social skills of children. Children will always alone because they feel themselves isolated by the group. Lack of socializing is often caused by one of the foster parents of children. This situation will result in: (1) the child to be afraid of strangers, (2) is always filled with fear when out of the house, because they

feel unsafe environment, (3) motor development is not balanced, because of lack of movement, (4) the ability to share into limited, so that it becomes more fun playing alone, (5) are always difficulties when communicating with others, (6) the difficulty to work in teams, (7) due to rare and difficult to interact, empathy child be honed, (8) is always in doubt to express their opinions.

Efforts to develop the children's ability of interpersonal relationship begins from self and family. Parents are expected to provide parenting and the best education for children. Children are expected to get the balance parenting and good education in the school environment and family. Therefore, teachers are also required to be creative and innovative in developing the ability of interpersonal relationships with peers at school. In the development of interpersonal competence of children, such as teachers can do to involve children in a variety of game activities with peers.

Lately, more and more outbound activities of public interest. Even today outbound widely used as a nature-based alternative education system. It can be seen from the increasing number of nature schools and public schools are using outbound as variations in learning. Approaches using outbound is one effective learning media. This is in line with the opinion of Ancok (2007: 4) states several reasons for choosing the outbound as an alternative method of learning, namely: (1) outbound is a complex simulation of life made into a simple, (2) This method uses the approach of learning through experience, and (3) This method is full of excitement because it is done with the game.

Based on the above, it is necessary concrete steps to address the problems in the development of interpersonal competence, one of the solutions offered by the authors is to use outbound game model to improve interpersonal competence of students in elementary schools. When conducting outbound game model, cognitive thinking students solve problems, organize student affective emotional and psychomotor conditions of children involved actively in the game. Through the game model student outbound students will learn a few things, such as: solve problems, discuss, communicate, cooperate, take the initiative, managing emotions, emotional support, and solving problems is an indicator of the aspects of interpersonal competence. So the use of models outbound game is an activity that is effective to train the physical, psychological, social, emotional, and interpersonal competencies in students in elementary school.

Interpersonal Competence, Buhrmester, at al. cited by Dayakisni and Hudaniah (2009: 136) states that interpersonal competence is an ability to establish and maintain a relationship in the long term. Mc. Devitt and Ormrod (2009: 554) states that interpersonal competence assist children in developing positive relationships with peers and became one of the determinants of a child can be accepted or rejected in a social environment.

Aspects of interpersonal competence by Buhrmester, at al. cited by Dayakisni and Hudaniah (2009: 136-137) consists of: (1) The ability to take the initiative (initiative). The initiative is an attempt to initiate some form of interaction with other people or with the larger social environment, (2) ability to be assertive (negative assertion) the ability and willingness of a person to express feelings clearly and expressly retain the right, (3) ability to being open (self-disclosure). Self-disclosure is the ability to open up, convey personal information to others, (4) ability to provide emotional support (emotional support). Emotional support is an expression of feeling which showed attention, sympathy and respect for others, (5) the ability to resolve conflicts (conflict management). Conflict management is a way or strategy to resolve conflict with others that occur when performing interpersonal relationships.

Characteristics of Elementary School Students, Izzaty, at al. (2008: 104) states that, during the past school age or elementary school, children are ripe and ready to go to school. Elementary school is divided into two phases, namely: the low grade of elementary school which takes place between the ages 6/7 years up to 9/10 years, and a high grade elementary school which takes place between the ages 9/10 years.

According to Hurlock that ditutip by Hidayatullah (2013: 11-13) characteristics of children aged six to twelve years, children are at childhood. In the childhood, children are at a critical period, a period of creative, age play and age groups. Childhood is a critical period, since the childhood form habits to achieve success, not success, or very successful. Childhood is generally more active is also called creative period, which is a time in life where retang be determined whether the child will be a conformist or a creator who orisional. Childhood referred to as the age of play. This is not because there is more time to play than in other periods, but because of the extent or amount of interest and activity play. Childhood referred by age group, because the children will be interested in activities with friends and wanted to be part of a group that expects children to conform to the patterns of behavior, values and interests of its members.

Outbound Game Model to Improve Interpersonal Competence, playing is one of the basic needs for children. Playing is an activity that helps children achieve full development, physical, intellectual, social, moral and emotional. By playing, children adapt themselves with others and find full self-expression (Ismail, 2009: 21). The game as a fun method of educating children, has a purpose: (1) developing self-concept, (2) developing creativity, (3) develop communication, (4) developing the physical aspects and motor, (5) developing the social aspect, (6) develop aspects of emotion or personality, (7) develop aspects of cognition, (8) hone skills sensing, and (9) to develop sports skills and dancing (Ismail, 2009: 117-137).

Outbound is a training program in the open that is based on the principles of experiential learning presented in the form of games, simulations, discussions and adventure as delivery methods. In the outbound program, participants are actively involved in all activities, and directly get feedback that can be used as self-development in the upcoming period (Ancok, 2007: 41). The expected behavior outbound components are: (1) creative thinking (creative thinking), (2) have good interpersonal relationships, (3) communicate effectively, (4) to motivate themselves and others, (5) have the ability to manage themselves which consists of the development of an effective life (Ancok, 2007: 43-44).

Game models are used to improve interpersonal competence in elementary schools in this study consisted of 10 (ten) kinds of models of the game team, which consists of: (1) Relay Ball Game is a model with a ball game flow through parts of the pipeline are berestafet, (2) Pipe Balance Game is a model of balance transfer ball game by using a pipe simultaneously, (3) Relay Color Game is a relay coloringsketch image, (4) Relay Box Game is relay moving box, (5) Water Poured Game is a model of a game move water using ropes simultaneously, (6) a game of Fabric Volleyball Game is moving the ball with a cloth in pairs, (7) Water Relay Game is a game model that move water using glass attached to a limb, (8) Hitt Ball in the Air is a model game to climb, jump and hit the ball suspended on a rope in a tree, (9) Stab Balloon Game is model of a game that pierced balloon suspended in the tree simultaneously, and (10) Unravel Yarn Tangel Game is a model that unravel hand-crossing become straight without removing handrails or rope.

METHODS

Model Development, model development in this research used the research methods and development. Sugiyono (2010: 407) states that research methods and development is a research method used to produce and test the effectiveness of the product.

Procedure Development, this study used research and development approach that developed by Borg and Gall were modified into seven steps: (1) preliminary studies and data collection, (2) planning research, (3) the initial product development, (4) validation and revision of product early, (5) a limited scale trial and revision, (6) wide-scale trial and revision, (7) develop the final product.

Products Trials, after the validation phase involving 2 expert and 3 practitioners, resulting initial product that is ready to be tested. Initial product trials conducted at 2 elementary schools to get the input of practitioners in order to produce the final product in the form of outbound game models. **Trial Design**, product trials conducted in two stages: (1) a limited scale trial game models outbound products, (2) wide-scale trial product outbound game models. After the final product was produced, implemented test the effectiveness of outbound game models for improving interpersonal competence of students in elementary schools. **Subject Trial**, limited scale trial subjects used students from 2 schools, namely SDN Sambiroto 01 by the number 37 students and 37 students of SDN Sambiroto 02. Wide scale trial used students from five schools, by the number 34 students of SDN Sendang Mulyo 01, 33 students of SDN Sendang Mulyo 02, 42 students of SDN Sendang Mulyo 04, 24 students of SDI Tunas Harapan, and 74 students of SDI Al-Azhar 14. Effectiveness of products trial used 38 students of SDN Meteseh.

Data Types, the data generated in this research and development were qualitative and quantitative data. Qualitative data derived from: (1) the results of preliminary studies for teachers to know the problems of interpersonal competence development of students in elementary school, and (2) the initial draft of the validation outbound game models. Quantitative data obtained from: (1) limited scale trial results, (2) wide-scale trials, and (3) testing the effectiveness of outbound game models.

Data Collection Instrument, the instruments used in data collection in this research and development were the questionnaire, psychological scale, and the observation guidelines. The questionnaire were used to validate of outbound game models. The scale of psychological tests used to determine the effect of product to improve interpersonal competence of students in elementary schools. Observation guide used to determine the effectiveness of outbound game model for improving interpersonal competence of students in elementary schools.

Data Analysis Techniques, the data analysis technique used to test the feasibility, quality and acceptability of a product produced in this study consisted of: (1) data analysis observation guide tested using quantitative descriptive analysis techniques with a percentage, (2) psychological scale data analysis tested by using quantitative descriptive analysis techniques with percentage, and (3) analysis of the effectiveness of test data derived from observation and psychological test results correlated with Pearson product moment correlation with level of 5% correlation to determine whether there is any relationship between the two and also to validate the observation guide.

RESULTS AND DISCUSSION

Results, results of a preliminary study on penjasorkes (physical, sport, and health education) teachers in Semarang gained some issues findings that: (1) in every class there are students who are experiencing problems of interpersonal competence with peers. They are students who are ignored or avoided by peers, and feel uncomfortable in a family environment or school, and (2) students who ignored peers have the characteristics of shyness and lack of confidence, and students who avoided peers have the characteristic properties would not caving, arrogant, aggressive, less able to control the emotions, like conflict and disrupt or harm peers. Some findings of the issue, prompting the authors to develop a model of outbound games are expected to tackle the problems of interpersonal competence in elementary school students.

Development Results, prior tested to the field, both trials limited scale or large-scale trials, the initial draft of the first outbound game model is validated by two people matter experts. Results of the validation of 2 materials experts to draft the initial model of outbound game shows that the initial draft outbound game still needs to be revised. Based on expert input material, the author of the initial draft of the revised models outbound game.

Early product validation process followed by a second stage involving three teachers as practitioners in the field. Results are expected no longer to issue outbound conceptual model of the game, but also includes technical and operational in the field. In the second validation of the initial product, the input of experts and practitioners of material conveyed through evaluation sheets that have been validated.

Revision of the initial product outbound second game models made after receiving input from experts and practitioners material, has four fundamental changes, namely: (1) some of the equipment used in the game tend to be added, removed or replaced with other equipment, (2) to make it more interesting and challenging, some models of the difficulty level of the game made it easier or more difficult, and (3) technical game made simpler so that students become more active and to concentrate in the game.

Limited scale trial of the product models outbound game held on December 6 to March 13, 2014 in 2 schools, namely SDN Sambiroto 01 and SDN Sambiroto 02 to assess models outbound game. The instrument used to assess on a limited scale trial of this form of assessment sheets that have been validated by 2 experts. Assessment results from 3 practitioners on a limited scale trials are presented in Table 1.

Tabel 1. Assessment Outbound Games Model to Improve Interpersonal Competence On Limited Scale Trial.

NO.	GAME	SDN Sambiroto 01	SDN Sambiroto 02
1.	Relay Ball Game	3,9	3,9
2.	Pipe Balance Game	3,8	3,8
3.	Relay Color Game	3,7	3,7
4.	Relay Box Game	3,8	3,9
5.	Pouring Water Game	3,9	3,9
6.	Fabrics Volleyball Game	3,8	3,8
7.	Relay Water Game	3,8	3,9
8.	Hit Ball in the Air Game	3,7	3,7
9.	Stab Balloon Game	3,8	3,8
10.	Unravel Yarn Tangle Game	3,8	3,7
Mean		3,8	3,8

Table 1. Shows that the test results on a limited scale model of outbound game at 2 elementary schools has reached 3.8 or better stated criteria. This means that models outbound game to improve interpersonal competence can be implemented with wide-scale trial.

Wide-scale trial of the product models outbound game held on March 27, 2014 until 17 April 2014 at 5 schools, namely: SDN Sendangmulyo 01, SDN Sendangmulyo 02, SDN Sendangmulyo 04, SDI Tunas Harapan and SDI Al Azhar 14, to assess the model outbound game. Results of the assessment of the 3 practitioners are presented in Table 2.

Tabel 2. Assessment Outbound Games Model to Improve Interpersonal Competence On Wide Scale Trial.

NO	GAME	SDN Sendang Mulyo 01	SDN Sendang Mulyo 02	SDN Sendang Mulyo 04	SDI Tunas Harapan	SDI Al Azhar 14
1.	Relay Ball Game	4,0	4,0	4,0	4,0	4,0

2.	Pipe BalanceGame	3,9	3,9	3,9	3,9	3,9
3.	Relay ColorGame	3,8	3,8	3,8	3,8	3,8
4.	Relay BoxGame	3,9	3,9	3,9	3,9	3,9
5.	Pouring Water Game	4,0	4,0	4,0	4,0	4,0
6.	FabricsVolleyballGame	3,9	3,9	3,9	3,9	3,9
7.	Relay WaterGame	3,9	3,9	3,9	3,9	3,9
8.	Hit Ball in the AirGame	3,8	3,8	3,8	3,8	3,8
9.	Stab Balloon Game	3,9	3,9	3,9	3,9	3,9
10.	Unravel Yarn Tangle Game	3,9	3,9	3,9	3,9	3,9
Mean		3,9	3,9	3,9	3,9	3,9

Table 2. Shows that the results of testing large-scale models outbound games in 5 elementary school has reached 3.9 or better stated criteria. The results were achieved on large-scale trials better than the test results on a limited scale. Improved test results caba wide scale could mean that outbound game model to improve interpersonal competence of elementary school students in the more experienced improvement.

After going through the initial stages of product validation, testing a limited scale, large-scale trials, resulting in a final product. The next step is testing the effectiveness of the product models outbound game which was held on April 17 until May 17, 2014 were carried out on 38 students of SDN Meteseh Semarang. The results of psychological tests and test the effectiveness are presented in Table 3 Table 4 below:

Tabel 3. Psychological Test Results In Cycle I and Cycle II.

NO	Classification Of Psychological Tests	CYCLE I		CYCLE II		CHANGES	
		Σ	%	Σ	%	Σ	%
1.	Very High	8	21	10	26	+ 2	+5
2.	High	12	32	15	39	+3	+8
3.	Medium	16	42	13	34	-3	-8
4.	Low	2	5	0	0	-2	-5
5	Very Low	0	0	0	0	0	0

Table 3. Shows there has been a change in the number of students who have a classification of the results of psychological tests of high, medium and low. In the first cycle the number of students who have a higher classification of the results of psychological tests of 20 people (53%), while 16 people (42%), and low 2 people (5%). In the second cycle the number of students who have a higher classification of the results of psychological tests of 25 people (66%), and was 13 (34%). So the number of students who have a higher classification of the results of psychological tests increased 5 people (13%), were reduced 3 people (8%), and low reduced by 2 people (5%).

To determine the magnitude of the changes that occurred between the first cycle and the second cycle, there should be comparative test results on the effectiveness of the first cycle and second cycle. The comparison test of the effectiveness of the first cycle and the second cycle are presented in Table 4.

Tabel 4. Effectiveness Test Results In Cycle I and Cycle II

NO	ASPECTS	CYCLE I		CYCLE II		CHANGES	
		Σ	%	Σ	%	Σ	%
1.	Initiative	3,8	76	4,1	82	+0,3	+6
2.	Negative Assertion	3,6	72	4,0	80	+0,4	+8
3.	Self Disclosure	3,7	74	4,1	82	+0,4	+8
4.	Emotional Support	4,0	80	4,2	84	+0,2	+4
5	Conflict Management	3,9	78	4,2	84	+0,3	+6

Table 4. Shows there has been a change in the ability of students in all aspects measured from the first cycle to the second cycle. Ability aspects of student initiative to grow 6 (16%), being negative aspects assertion of students increased 8 (21%), self-disclosure aspect of being assertive students grew 8 (21%), emotional aspects of student support increased 4 (11%), and aspects of the conflict student management increased 6 (13%).

Discussion of Final Product, the results showed that in order to achieve improved classification ability of students in all aspects of the measure requires repetition models outbound game. Changes in behavior are achieved by students will require repetition process models outbound game from the first cycle to the second cycle.

The result of the effectiveness of outbound gaming model at the first meeting were included in the classification and has not reached the minimum completeness criteria. Before conducting outbound game, students need information on techniques and implementation strategies outbound game model. At the beginning of the game perform outbound models, the student movement has not mapu implement outbound game effectively and efficiently. After going through a couple of times to repeat the movement of the game, students can be skilled in conducting outbound game models, and achieve a minimum completeness criteria with a good classification in the results of the model test the effectiveness of outbound game. From the test results of the effectiveness of outbound game model shown in Table 3, there is a significant change from the first cycle to the second cycle in all aspects measured. This proves that students are increasingly liked and more skilled do various activities outbound game model.

The results of psychological tests also showed an increase in the number of students who have a high classification results of psychological tests and a reduction in the number of students who have a classification of the results of psychological tests medium and low. This shows that students are increasingly able to establish interpersonal competence in with peers.

Product moment correlation results indicate that there is a significant relationship between the instrument observation and psychological tests. This shows that students who have the ability initiative, negative assertion, self-disclosure emotional support high conflict management, meaning it has the ability to establish and maintain long-term relationships with peers, while students who have the ability initiative, negative assertion, self disclosure emotional support conflict management low, it means that he has not had the ability to establish and maintain long-term relationships with peers.

CONCLUSION AND SUGGESTION

Conclusion, based on the results of research and development can be concluded that: (1) has produced ten outbound game models that can be used to develop aspects of the initiative, negative assertion, self-disclosure, emotional support, and conflict management students in elementary school, and (2) has produced ten outbound game models for improving interpersonal competence of students in elementary schools.

Suggestions, based on the conclusions outlined above, the authors take the discourse some suggestions as follows: (1) for implementation in schools, outbound game models can be modified in the code of conduct and equipment used in the game, and (2) the teacher can use this outbound game models as an alternative material in penjasorkes (physical, sport, and health education) learning and other subjects.

REFERENCES

- Ancok, D. 2007. *Outbound Management Training, Aplikasi Ilmu Perilaku dalam Pengembangan Sumber Daya Manusia*. Cetakan Keempat. Yogyakarta: UII Press.
- Borg, W. R. dan Gall, M. G. 2003. *Education Research, an Intruduction (3th Edition)*. USA: Pearson Education Inc.
- Dayakisni, T. dan Hudaniah. 2009. *Psikologi Sosial. (Cetakan Keempat)*. Malang: Penerbitan Universitas Muhammadiyah Malang.
- Foubert, J.D. dan Grainger, L.U. 2006. *Effects on Involvement in Clubs and Organization on Phychosocial Development of First Year and Senior College Student*. NASPA Journal. Volume 43 Nomor 1.
- Golson, H. L. 2006. *The Competencies and Leardership*. Retrieved. April, 28. 2007. From: [http:// www. Management Psychology. Com. /Articles/I-Competencies. Html](http://www.ManagementPsychology.Com./Articles/I-Competencies.Html).
- Hidayatullah, M.F. 2013. *Aktivitas Gerak pada Masa Kanak-kanak*. Cetakan Pertama. Solo: Cakra Wijaya Press.
- Ismail, A. 2009. *Education Games, Panduan Praktis Permainan yang Menjadikan Anak Anda Cerdas, Kreatif, dan Saleh*. Yogyakarta: Pro-U Media.
- Izzaty, R.E., at.al. 2008. *Perkembangan Peserta Didik*. Yogyakarta: UNY Press.
- Mc. Devitt, T. and J.E. Ormrod. 2009. *Child Development and Education (4th Edition)*. London, England : Pearson Education International.
- Mpofu, Elias, Thomas dan Can. 2004. *Social Competence in Zimbabwean Multicultural Schools: Effect of Ethnic and Gender Differences*. International Journal of Phychology, 39, 3.
- Saidah, N. 2005. *Membangun Kemampuan Bersosialisasi pada Anak*. Majalah Ummi. No.7/XVII November 2005.
- Santrock , J.W. 2012. *Life Spain Development: Perkembangan Masa Hidup. Edisi 13, Jilid 1 (Terjemahan Widyasinta, B.)*. Jakarta: Erlangga.



EFFECT OF GOAL SETTING ON SWIMMING ATHLETE ACHIEVEMENT

Sungkowo

Sport Coaching Education Program, Sport Science Faculty, State University of Semarang

sungkowo80@yahoo.co.id

Abstract

The Swimmer in face of exercise and race, only if athletes are not motivated, especially if there is no clear goal setting. Goal setting is ongoing can cause mental athletes be decreased, even quit the sport practiced. Goal setting is a mechanism to identify what we want to accomplish or achieve. Basically, goal setting is a series of activities that we will do in achievement.

One of the psychological training is goal setting. goal setting is one effective technique to motivate athletes to reach the goal. In improving the athlete's performance there is some form of goal setting objectives and intervention model in a sport that can be used as the reference standard against which the performance of swimmer.

Key words : Goal setting, swim achievement

INTRODUCTION

Exercise is something in terms of various dimensions. Sports other than the physical dimensions of sport also studied psychic dimension. Psychic or mental dimension in physical activity and exercise are the most important part in the appearance of a sportsman. Some psychological state that occurs in sportsmen is very complex. The complexity of the human body in the face of the response and pressure is something that often happens in during training and during the race. In respect of it all it is clear that psychological symptoms will affect the performance and achievements of the athletes. In this connection the influence of emotional disorders need to be considered, because of emotional disturbances can affect the "psychological stability" or psychic balance as a whole, and this is a great result against pencapaian athlete's performance. In doing sporting activities, especially in order to achieve high performance, required proper functioning of certain psychological aspects; for example, to achieve high performance in outdoor sports, the athlete should be able to focus properly, confident, calm, has a target (goal setting clear I), high motivated.

Often a team or athlete does not train with really - really or less motivation to practice because there is no purpose or goal (goal setting) is clear as to what the team or athlete that practice. It is often caused by the coaches themselves were not clearly explained to the athlete's sense of purpose given exercise, where athletes will be taken and what is expected at the end of the exercise. therefore, set goals and objectives is essential

To evaluate athlete performance both in terms of personnel and the appearance of a peak maturity in psychological practice that need to be implemented, one of which is goal setting. goal setting is one effective technique to motivate athletes to striking destination. Achievement of objectives should be based on preparation and mature processes are carried out.

ISSUES, On the above issues speakers emphasized several issues including:

1. What is the definition of goal setting in sport?
2. The form of goal setting goal in the sport?

3. Model of intervention in goal setting?

OBJECTIVES, Writer prepare this paper with the aim of:

1. Knowing how much influence the goal setting a swimmer in the face of an exercise program and swimming races.
2. Keeping the task and the fundamental role of a coach to be able to build the confidence of an athlete with a well that in the end the main purpose sports performance can be achieved.

BENEFITS, The benefits to be achieved in this paper is

1. In order for the trainers, teachers and those who are engaged in it through the understanding of the function and role assignments can improve the ability to educate or teach to their students.
2. Being able to develop the potential of self-learners, develop creativity and encourage the discovery of innovative science and technology, so that the swimmer is able to compete on an international level adjacent achievements.

DISCUSSION

1. Goal setting in sport

Goal setting is the foundation for success daflam mental skills training program. According to Hacker (2004), Apruebo (2005: 263) emphasizes that goal setting is the goal or purpose is the achievement of a certain standard capability in the form of task at a specific time limit. Goal setting is a mechanism to identify what we want to accomplish or achieve. Basically, goal setting is a series of activities that we will do in achievement.

Goal setting is a mechanism to identify what we want to accomplish or achieve. Basically, goal setting is a series of activities that we will do in achievement. In the world of sports, goal setting is an important part and have a direct impact on the achievement of the athletes. In experimental studies, the application of proven goal setting can improve performance. According to Locke (1990), goal setting have any effect in improving performance in four ways, namely:

- a. Goal setting the focus on attention
- b. Mobilize efforts are proportional in each task and purpose
- c. Increase persistence on purpose
- d. Goal setting have indirect impact on the individual to establish and develop a strategy to achieve the target.

Main principle of Goal Setting, According to Locke (1990), In the decisive goal setting, there are four main principles, namely:

- a. Difficulty: difficult goals that will improve performance compared with the simple goal
- b. The specificity: specific Goal will be more effective than a subjective goal or no goal
- c. Acceptance: the goal will be more effective if it is established or made by athletes
- d. Feedback. : Goal will not be effective if it is not given feedback.

Every athlete has their own reasons in determining the target behavior, but sometimes it does not reach the target behavior or target for various reasons. Weinberg and Gould (1995) explicitly pointed out that the main reason is because it did not achieve its goals in the set targets are not clear and measurable so it is difficult to evaluate the various obstacles that hinder the achievement of the target. (Monty P.Satiadarma. 2000. Fundamentals of Sport Psychology. Jakarta. Pustaka Sinar Harapan.) Using the technique of making the target will direct the mind of an athlete to reach the appropriate target and not think of anything else that is not related to the target. There are several requirements for goal setting techniques is functioning optimally, namely:

- a. The target should be specific.

- b. Target should be measurable.
- c. Target is relatively difficult to be better than the target that is too easy.
- d. The short-term target would be useful to achieve long-term targets.
- e. Target the target performance will be better than target focus on results.
- f. Target should be written and always supervised.
- g. Target must get agreement from athletes and coaches. Seventh guidelines must be met to ensure the success of the technique This goal setting. If the athlete focus on the target, it will be relatively overcome anxiety because athletes will concentrate on targets to be achieved.

2. Forms goal goal setting exercise

In improving the athlete's performance there is some form of goals that can be used as the reference standard against which barpengaruh performance of athletes. Rushall (2008: 3.2) are 1) Purpose career, 2) relatively long-term objective, 3) Purpose performance, 4) The purpose of improved performance, 5) Interest Activities, 6) secondary objective. Furthermore describe the hierarchy of these objectives as follows:

1) Career Goals

Athlete set a career goal is the end result involvement in the sport. The goal in tetapkan if the athlete's own and can not be changed, why it can not be changed because when athletes can not achieve the goals that have been determined, the possibility of athletes will stop or move profession or performance when it decreases.

2) Long-term goals relative

With these objectives the coach can set goals can be more than one in every session of the match, but the minimum can describe the achievement of the objectives at each stage. This goal was set by the athlete and has a small potential is influenced by a trainer. The disadvantage if this goal is not achieved then the athlete is less motivated to participate or stop athletes from sports that they do.

3) The purpose of the performance

Performance goal is results-oriented or performance based on all of the planning exercise and game schedules. Performance objectives indicate some standard performance or results achieved at a certain time, such as breaking the record in the championship, improved techniques, improved physical condition.

4) Purpose Improved Performance

Performance improvement goals is to function as an indicator of the achievement of improved performance in practice, as is usually given date, day, specifically for the purpose of evaluation.

5) Interest Activities

On this purpose athlete focused attention on what should be done in a single performance. Goal setting activity is a factor that can be achieved by specific performance. In setting this goal athlete must have a good commitment, in order to remain focused on the goals that must dicapainya.

6) Purpose Medium

To set this goal a few activities that must be performed in the middle of goal setting procedures in the formation of pre-competition program and the main competition. The purpose athlete does not rely on specific standards, for example the ability of the process or the result, but rather focus on the ability of oneself to achieve their best.

7) Target should be written and always supervised.

Target must get agreement from athletes and coaches. Seventh guidelines must be met to ensure the success of the technique This goal setting. If the athlete focus on the target, it will be relatively overcome anxiety, because athletes will concentrate on targets to be achieved.

3. Intervention Model In Goal Setting

Mental skills exercises one of which is goal setting, goal setting techniques should be integrated into some models of intervention in sport. There are 7 (seven) phase model that should be applied to athletes (Burton, 2001) are:

- a. Setting goals
- b. Identifying obstacles
- c. Securing a commitment
- d. Developing an action plan
- e. Gaining feedback on goal Attainment
- f. Evaluating goal Attainment
- g. Reinforcing goal attainment

The seventh intent is to set goals, identify problems, to ensure commitment, develop implementation plans, improve feedback on the achievement of goals, evaluate achievement of objectives and provide reinforcement to the goal has been reached. According to the Danish and Nellen (1997), goal setting is a basic technique used to develop models of interventions and strategies to achieve the goal. The intervention model is:

- a. Setting goals
- b. Making your goal reachable
- c. Making a goal ladder
- d. Roadblocks to reaching goals
- e. Overcoming roadblocks
- f. Rebounds
- g. Rewards

Madsud models of these interventions is to set goals, set goals to be easily achieved, gradually setting goals, creating obstacles to achieve goals, overcome obstacles and rewards.

CONCLUSIONS AND SUGGESTIONS

1. CONCLUSION

From the discussion above, the writer can conclude, among others:

- A. Athletes must have their own reasons for determining goal setting, but sometimes it does not reach the target behavior or target for various reasons, because it does not set targets in clear and measurable so it is difficult to evaluate the various obstacles that hinder the achievement of objectives.
- B. That (a) the athlete must have goal setting, (b) Setting the goal of exercise should be trained continuously and (b) his ambition to win further enhanced..
- C. The primary role of a coach to be able to build goal setting a good athlete that ultimately the main purpose sports performance can be achieved.

2. SUGGESTIONS

Discussing about goal setting in sport as well as its control there are some suggestions that can be highlighted in this paper include:

- A. In understanding the goal setting in sport, it is expected of each individual / athlete capable of and understand about goal setting in sport as well as its control. In essence, each individual should be able to understand goal setting in sport, namely the family of educators and policy makers interested in it as a developer container education to become more widespread in perkembangan education, especially the development of sports psychology in physical education and sports coaching.
- B. Goal setting in the sport as well as its control can not be separated from the identity of an athlete because of interplay in improving and developing the athlete's performance.

REFERENCES

Frans Nurseto. (2009) Psikologi Olahraga (Kunci Sukses Mencapai Prestasi).Bandung: Remaja Rosdakarya.

<https://siswasehat.wordpress.com/2013/08/24/bab-vi-goal-setting-dan-pencapaian-prestasi>

Komarudin. (2013) Psikologi Olahraga (Latihan Mental Dalam Olahraga Kompetitif). Bandung: Remaja Rosdakarya.

Weinberg and Gould. (2007). Foundations of Sport and Exercise Phychology. Human Kinetics.



EFFECT OF MOTIVATION, PUSH UP, HANDSTAND ON FLOOR EXERCISE GYMNASTICS

Ranu Baskora Aji Putra

Sport Science Faculty , State University of Semarang

r.aji.unnes@gmail.com

Abstract

The aim of this study was to determine the characteristics determination of arm strength (push-ups , handstand on walled) and motivation on the floor exercise for gymnastics skills at student Sampel used were 75 students perform physical tests sleeves and gymnastic skills tests on the floor exercise as much as 11 basic movements gymnastics floor (roll , balance , handspring , etc.) . After applying the regression analysis model , shows that the best model is obtained only with 28.4% of determination influence of arm strength and motivation to the gymnastics floor exercise skills in students , while 71.6 % of other factors that affect the outside research .

Keywords : motivation , arm strength, Gymnastics skills Floor exercise

INTRODUCTION

Artistic gymnastics is one part of the sport of gymnastics. Gymnastics floor exercise is one of the number. This exercise includes a wide variety of levels of movement difficulty mild to movement high degree of difficulty. His movement is interesting to learn and study. Before learning the skills required floor exercises safely preparations. Preparations good equipment to support the safety of students. Also required physical preparation such as strength and psychology such as mental preparation, motivation and cognitive preparation as an understanding of motion to be able to effectively accelerate study the movements. Lack of requisite power to each movement skills that will lead to a decrease in the level of safety and the students also have to be confident in seeing the potential in the study of motion. (Linda Jean. 1985: 4)

In gymnastics floor exercise, hands is one of the support in addition to the legs and other body parts such as elbows, arms and head. Forms of training are examples of handstand. Students must have enough strength, explosive power and muscular endurance to get the correct movement patterns. To gain an advantage in learning the motion exercises students should use the muscle contraction eccentric and concentric base effectively (Linda: 1985).

Exercises using the muscles that tighten to overcome the resistance generated by the load. The heavier the load, the greater the resistance. Therefore, muscle strength can be defined as a person's ability to exert every effort to overcome a prisoner. Fox and Bower (1998: 159) writes that some of muscle contraction in the weight-bearing is a form of exercise to increase muscle strength is isometric exercise and isotonic exercise, which is linked to working time. Isotonic contraction is a contraction in the weight of the muscle length changes of the long form to form retracts repeatedly. Isometric contraction is a contraction in the load bearing length of the muscle fixed. The resistance of maximal isometric muscle to contract is for two minutes and will reduce muscle strength endurance drastically on average at 38 seconds, while the resistance isotonic muscle to contract reduce on average half its power after 89 seconds so the exhaustion three times slower than the isometric contraction. But both are very effective influence on muscle

strength.(David.H Clarke .1975: 42).For example, isometric exercises on the arm and shoulder, the weight of the body for a long time using the hand support is handstand on walled. Examples of isotonic exercise arm and shoulder in this study is a push up in determined time. Push up is a form of anaerobic exercise with body weight. on display 90^0 by bending at the elbow, the chest below and straighten the elbow to raise the body. Push up through tests can show strength, power and endurance of the arm and shoulder. (Zhaeunzetlin, 2012).

The achievement of increased ability gymnastics floor is also influenced by students' motivation. The students have more high motivation it will be easier to learn something. Motivation is the driving force to do something, the motivation factor is influenced from within and from outside oneself. The Intrinsic motivation is the desire of the person to do something for the effort itself. Whereas extrinsic motivation is to improve achievement given encouragement by others such as passion, praise and advise teachers, parents, and others who are loved. (John W. Santrock.2007: 476). Actually Gymnastic skill set of movement exploration on floor exercise in mat with a wide movement in the form of a round motion, balance, spring, repulsion and so on. Movements in floor exercise is divided into a variety of basic movements that will be developed into further movement higher difficulty. In doing the necessary physical support components in the study of motion such as strength, balance, flexibility, explosive power, agility, reaction and motor coordination as well as supporting the affective component is no less important are motivation, discipline, responsibility and other attitudes.

As an educator, every time I see the achievement of the results of the study skills necessary for various floor exercises once conducted research that could predict from the beginning with the physical ability, and motivation to learn skills in accordance with the motion on floor exercise. Observing and predicting the actions of others is an important skill for trainers, educators, judges and athletes in the domain of sports, especially gymnastics (Thomas Heinen, Phia.Vinken&Velentzas, 2012).

In the course gymnastics in physical education department of health and recreation one of which contains material on the gymnastics floor exercise. As such they teach gymnastics floor exercise is one of the conditions that should be controlled by both the skills and theory. But every year some students have problems mastering basic skills of gymnastics floor, it is according to the predictions of the authors, due to differences in physical characteristics and motivation to learn are diverse. Background of this study, the researcher has the objective to investigate and determine the characteristic of arm strength (push-ups, handstand on walled) and motivation on the floor exercise gymnastics skills for students

METHOD

In the study, there are several variables to be tested is the independent variable in the form of motivation, strength characteristics and a long time handstand, push-up, while the dependent variable in the form of series movement on the floor exercise. It shows the total value of a series of motion gymnastics skills on the floor exercise. To find the influence of the characteristics of the arm muscle strength, motivation towards the floor exercise gymnastics skills, researchers conducted research approaches such as multiple linear regression analysis.

Research subjects

The population in this study is the first semester students who obtain teaching gymnastics material, while the sample amounted to 75 people. Opinions according to Roscoe (1975) in the book Rully, Poppy (2014: 102) that for multiple regression analysis sample used should be 10 x greater than the number of variables in case.

Data collection and instruments

Researcher in obtaining data using a physical ability test engineering arm, in the form of push-ups for 60 seconds and long handstand. Motivation to learn gymnastics level data using questionnaires with proven validity and reliability (0,586>0,444) is significance at level 5% and value of the basic skills of gymnastics floor gymnastics taken during the exam.

Data processing

Researcher using SPSS version 21 for processing data regression. Analysis regresi have data requirements that must be fulfilled before pass analysis, that Normality Test, Test Homogeneity / heteroskedastisitas, multikoliner free test, autocorrelation test. Data normality assumption is intended to determine the data have normal distribution or not. Normality Test used this research is the method of Kolmogorov Smirnov. Shown in table 1 statistical value of the predictor variable 0.068 <0.200 (at the level of alpha sig. 5%) is normal categorical data.

Table 1. Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Unstandardized Predicted Value	.068	75	.200*	.988	75	.698

*. This is a lower bound of the true significance, a. Lilliefors Significance Correction

Requirements homogeneity using levene test aims to determine each variable data in this study is similar data in the variant . Seen in table 2 shows that the value levene 0037 < 0848 (at the level of alpha sig . 5 %) is homogeneous categorical data .

Table 2. Test of Homogeneity of VariancesUnstandardizedPredicted Value

Levene Statistic	df1	df2	Sig.
.037	1	73	.848

Terms Auto correlation using Durbin Watson know whether the entire data on the dependent variable (Y) or the value of exercise in the study was not correlated while multikoliner free test requirements colinearity diagnostic test to determine whether the independent variable (x) are not interconnected . Here are the results of test data in this study .

Table . 3 Nilai Durbin-Watson

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.533 ^a	.284	.254	2.197	1.759

a. Predictors: (Constant), pushup, handstand, motivasi

b. Dependent Variable: nilai

In table 3 above shows durbin - Watson statistic value lies between the value table 1759 Durbin Watson with $n = 70$, $\alpha 5\%$, 1.70 with a value of 2 , indicating that the entire data value (y) in this study are independent .

Tabel .4 Nilai Vif uji colinearity pada variable bebas

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	21.462	1.585		13.540	.000		
1 handstand	.026	.013	.214	2.002	.049	.879	1.137
motivasi	.402	.138	.312	2.909	.005	.879	1.138
pushup	.083	.030	.275	2.732	.008	.994	1.006

Vif use values in Table 4 are all under item 10 of this shows that the entire data on the variable (x) is Handstand , motivation , and push- ups are not interconnected or free multikolinier

DISCUSSION

A total of 75 students who became the object of this research have variable values can be described in table 5 below :

Table 5 .Descriptive Statistics

	N	Minimum	Maximum	Mean	Std.
Value floor exercise	75	21	33	29.53	2.543
Handstand	75	10	100	63.21	20.845
Motivation	75	3.00	11.00	7.9467	1.97206
Pushup	75	20	58	39.00	8.466
Valid N (listwise)	75				

This value is taken the value of the floor exercise gymnastics skills based on the movement in a sequence of 11 movements that floor exercise gymnastic front roll , roll back, meroda , handstand roll , khayang , candles style , neckkip , Kopstand , handspring , round off , back handspring . Variable obtained by measuring handstand was handstand on the wall in seconds the average student can do a handstand for 63 seconds , the motivation variable was measured using a questionnaire , while variables are measured based on the count push-ups in one minute with the average student was able to perform 39 times. Such data can be created regression through the requirements of normality test , homogeneity, free autocorrelation and multikolinier was as follows.

Table 6. Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Push up, handstand, motivation ^b	.	Enter

a. Dependent Variable: nilai, b. All requested variables entered.

Table 6 shows all the variables can be inserted into this analysis using SPSS 21 . While connectedness obtained R value of 0.533 including medium category . That results could be described in Table 7 shows that Rsquare 0,284 means that 28.4 % variable value basic gymnastic skills could indeed be explained by the variable push- ups , long handstand and motivation to learn . The remaining 72.6 % were caused by other factors . Estimated standard error of 2,197 is smaller than the standard deviation of the value of basic gymnastic skills of 2,543 shows in the regression model can value as a predictor variable .

Table 7 . Model Hubungan Regresi Antar Variabel

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.533 ^a	.284	.254	2.197

While the Anova / F test is used to see if there are differences in effect on all variables , obtained f count 9,391 and 0,00 with significance level is much smaller than 0.05 , it can be shown in Table 8. This means that the variables of motivation , push ups , and long handstand equally affect the value ability of the floor exercise gymnastics

Table 8. ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	135.975	3	45.325	9.391	.000 ^b
Residual	342.692	71	4.827		
Total	478.667	74			

Ak. Dependent Variable: nilai

b. Predictors: (Constant), pushup, handstand, motivasi

After passing the test , normality , homogeneity , free test multikolinier , auto correlation test and ANOVA test follows the pattern of the relationship between the variables in the form of regression

Tabel 9. Coefisien Regresi Linier

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	21.462	1.585		13.540	.000
Handstand	.026	.013	.214	2.002	.049
Motivation	.402	.138	.312	2.909	.005
Pushup	.083	.030	.275	2.732	.008

Dependent Variable: nilai

Table 9 above shows t test between variable against the value and the columns of significance table can be seen whether the results of the calculation give a significant or insignificant to the requirements of significant value received is less than 0,05 so that it can be deduced thus overall a very significant variable influencing each other. The relationship equation regresi research variables shown

$$Y = 21,462 + 0,402 X_1 + 0,026 X_2 + 0,083 X_3 + E$$

Y = Value gymnastics skills (value maximal 33)

X₁ = motivation

X₂ = long handstand

X₃ = number pushup

E = standar error

After over half a semester, students learn basic gymnastics floor for sixteen (16) meetings, researchers get a pattern of relationships between learning motivation, long handstand, push-ups and a number of artistic gymnastics skills. In accordance with the opinion of Handstand is one of the most important basic components in gymnastics skills because a lot of movement requires the ability handstand as a base mastery. (Debby Mitchell, Barbara Davis, Raim Lopez 2002: 109). These patterns form the linear regression line together. When viewed from the regression equation $Y = 21.462 + 0.402 X_1 + 0.026 X_2 + 0.083 X_3$. Floor gymnastics skills 100% (y max = 33) controlled by the student then determining items 28,4% is a contribution of motivation to learn and components arm strength while the remaining 65% (21.462) of the constants and 6,6% (value 2.197) is standar error. Another factor that has not been studied, among others, students limb strength, weight, height, motor coordination, long exercise and so on.

CONCLUSION AND SUGGESTION

In accordance with the purpose of research is to predict the floor exercise gymnastics skills against a variety of independent variables that push ups, handstand and motivation to learn.

According to data and research results can be summarized as follows :

1. The power of such long arms and a handstand pushup , motivation also jointly affect floor exercise gymnastics skills with determination 28.4 % (R square value)
2. Contribution of item motivation to learn as much as 40 % to 28,4% determine the basic skills of gymnastics floor
3. Donations long item handstand determine as much as 2.6 % to 28,4% determine the basic skills of gymnastics floor
4. Donations item push up as much as 8.3 % to 28,4% determine the basic skills of gymnastics floor.

Based on the above results the researcher suggest to the success of teaching basic skills of gymnastics floor , can be supported by strengthening the power of the arm (long handstand and push up) and increase the motivation to learn . Researchers also suggest similar research regarding the strength , motivation and skills of gymnastics floor exercise for other variables that have not been studied

REFERENCES

Ali Baroroh.2013. Analisis Multivariat dan Time series dengan SPSS 21, Jakarta .PT elex media komputindo.

- Bompa, O. Todor. *Theory and Methodology of Training Second Edition*. Dubuque, Iowa : Kendall – Hunt Publishing Company.1990.
- Blimkie Cameron; Oded Bar.1996.*Trainability of Muscle Strength, Power and Endurance during Childhood* .IOC, Blackwell Science.
- David.Hclarkedan joseph Royce, 1975, Exercise physiology, New Jersey, Prentice hall inc
- Debby Mitchell,Barbara Davis,Raim Lopez 2002, Teaching Fundamental Gymnastics Skills, Human Kinetics, SBN0736001247, 9780736001243
- Fox, E.L. Mathew, DK, The Physiology Basis of Education and Athletics Philadelphia, Ssanders College Publishing.1981.
- Fox,EL. Bowers,RW. Foss,ML.1988.The Physiology Basis of Education and Athletics,Philadelphia, Sanders College Publishing.
- Fleck, S.J. Kraemer, W. J.1993.Strength Training for Young Athletes. Champaign, IL: Human Kinetics,
- G. Gregory Haff,Charles Dumk.2012, Fitnessgram and Activitygram Test Administration Manual, The Cooper intitutel-Updated 4th Edition.
- Heinen Thomas, Phia.MVinken, KonstaninosVelentzat, 2012,Judging Performance In Gymnastics: A Matter Of Motor Or Visual Experience, *Science of Gymnastics Journal* Vol. 4 Issue 1: 63 - 72
- Harsono. 1988. *Coaching Dan Aspek-AspekPsikologisDalam Coaching*. C.V. TambakKusuma.
- Linda jean Carpenter,1985,Gymnastic For Girl and Women, New york, Parker Publishing company
- RullyIndrawan,Popy Yuniawati.2014.MetodologiPenelitian, Bandung,PTRefikaAditama.
- Singgih santoso.2014. SPSS 22 form Essential to ExpertSkill.Jakarta. PT Elex Media Computindo.
- Santrock, J.W. 2007.*PsikologiPendidikan (edisikedua)*. (Penerj. Tri Wibowo B.S).Jakarta: Kencana.
- Zhaeunzetlin. 2012.Push-Up Progression Workout for a Stronger Core: A Twelve Push-Up Journey , ISBN: 1619841843, Price World Publishing , 2012



THE SOCIO ECONOMIC ADVANTAGES ON THE 18TH NATIONAL SPORT GAME 2012 IN RIAU, INDONESIA

Taufiq Hidayah

Semarang State University, Indonesia

fikhidayah@gmail.com

Abstract

Although literature on sport tourism has existed and sport tourism is acknowledged as one of the fastest emerging sectors that continues to develop, only few authors have examined or discussed sport tourism development and future trends in Indonesia. This paper aims to introduce and strengthen national sport games in Indonesia with multi-sport events as the event that might both attract tourists and support tourism development in Indonesia. It is a fact that sport tourism event is being realized as triggering commercial activities providing socio economic benefits to host community. The study provides perception and insights with an awareness of sport tourism development during the national sport game 2012 in Riau, Indonesia. The study introduce communities with an awareness of the diversity of sport tourism events as a leisure activity and introduce the sport tourism development within a sport context and tourism context. This research involves a mixed methods approach, combining quantitative and qualitative research techniques. Questionnaire survey on the field and on-site observations were used to provide evidences of sport tourism event in Riau, Indonesia. Likert scales were used in the questionnaire to generate numerical indicators of the level of importance that respondents attached to their responses. The study confirmed that sport tourism events, development, trends and opportunities have been neglected but rapidly increased in the growing market in Indonesia. Therefore, future significant liaison amongst the agencies responsible for sport and tourism policies is urgently required to meet the need of strategic plan and development of sport tourism in Indonesia.

Key words: Socio Economic Advantages, National Sport Game Event.

INTRODUCTION

The globalization of sport tourism has fundamentally changed the competitive conditions in the sport tourism events. This has influenced sport industry strategies issues to overlook in both the strategic management of the sport tourism events. Sport and tourism are now among the developed world's most sought-after leisure experience and are highly valued and regarded due to the fact that tourism is a trillion dollar industry and sport is a multi-billion dollar industry and has become a dominant force in the lives of millions of people globally (Ritchie and Adair, 2002; Kurtzman and Zauhar, 2005). However, it is not the same case in Indonesia where sport tourism is not yet regarded as an industry. Further, sport and tourism in Indonesia do not appear to be integrated yet and operational agendas tend to be separated either focused on sport or tourism with no integration of the two. This paper develops a theoretical framework to understand how sport and tourism are integrated into one package for sport tourism attraction in the host region. For the study purposes, the 18th National Sport Game Event 2012 in Riau, Indonesia is taken as a case study to introduce the event that can develop both sport and tourism in ways that brings spectators, visitors, players, event managers and officials to pool in the host region. The sport game event 2012 in Riau has created socio economic advantages before, during and after the event for both local communities and regional development. This preliminary research on sport tourism in Indonesia is aimed to:

1. Introduce and raise awareness on the national sport games in Indonesia with multi-sports event that might develop both sport and tourism to attract people to the host region.
2. Draw attention of sport event stakeholders to realize and understand the integration of sport and tourism as triggering commercial activities providing socio economic advantages to host region.
3. Identify socio-economic advantages of sport event that might give contribution to host community and regional development within the area.
4. Examine the perceptions of the sport event stakeholders with respect to socio economic advantages leveraging potential with regard to hosting sport tourism.

The research objectives were based on the assumption that sport tourism events render positive change to the host community through benefits rather than losing out on any advantages. The survey on sport tourism stakeholders' perceptions determined the views and ideas regarding sport tourism events becomes a critical tool for sport tourism development in Indonesia for the future of sport tourism events.

METHOD

Questionnaire survey on the field and on-site observations were used to provide evidences of the 18th National Sport Games Event in Riau, Indonesia. Figure 1 present the study sites of the research that is essentially a case study of Riau event. The attributes of this area will be described above. The name 'Riau' is etymologically derived from the word 'Rio' (Portuguese) which means 'River'. For example, Rio de Janeiro means River of January. There is a river in Bintan Island called the Rio then the Rio was turned into the word 'Riau'. Dutch people write the word with 'Riouw' which is now known as Riouw for Riau. Riau Province consists of 12 regencies and cities namely: 1) Kuantan Singingi; 2) Indragiri Hulu; 3) Indragiri Hilir; 4) Pelalawan; 5) Siak; 6) Kampar; 7) Rokan Hulu; 8) Bengkalis; 9) Rokan Hilir; 10) Pekanbaru; 11) Dumai and 12) Meranti Islands. The area covers 107.932.71 km² consisting the land (80.11%) and the water (19.89%). The event was initially regarded as the instrument to foster the national unity but in its process the event now is not only heroic but also as a strategy to demonstrate a wide range of sport tourism game activities. Consequently, sport events strategies in Indonesia have nowadays been changed. Sport tourism events are considered to enhance game competitions and strengthen international relations.

For the study purposes, the questionnaires are purposively delivered to visitors including spectators, local community, sport participants, government officials and local community members. The samples for this study consisted of sport participants (10 respondents), managers/officials (10 respondents), spectators (non residents) (10 respondents), government personals (10 respondents) and the local residents (10 respondents). They were selected during the event using purposive sampling who were perceived as had a good knowledge and understanding of the 18th National Sport Game in Riau 2012. The assumption of the study was that the Riau 2012 event was perceived as has made socio economic advantages to local economy and community. Some of the respondents also were the residents in Riau area. The data were collected through questionnaire delivered on the venue during the event. 50 questionnaires were delivered and all were returned with sufficient information required for the study.

RESULTS AND DISCUSSION

The following is the respondents' perception on the importance of the 18th Sport Game Event 2012 in Riau Indonesia taken from the survey using questionnaire (Figure 1).

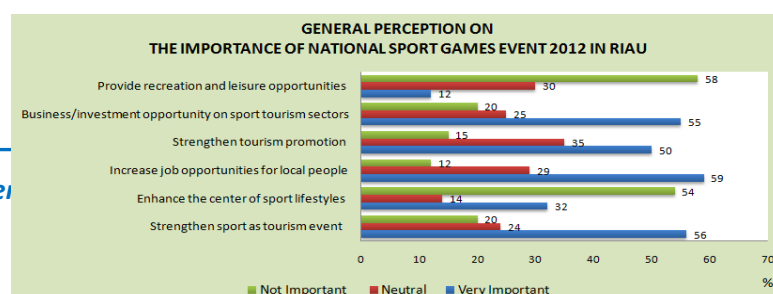


Figure 1: General Perceptions

There are four main important reasons for supporting the sport tourism event namely job opportunity creation (59%), sport and tourism event enhancement (56%), business and investment opportunities (55%) and tourism promotion (50%). This shows that there have been good perspectives of the event stakeholders that can be used for developing and maintaining sport tourism event in the future. On the contrary the event is not perceived as important for recreation and leisure (58%) and sport lifestyle (54%). The result indicates that sport tourism event infrastructure and facilities for the event in the future should be developed in future. The advantages of the event have been valued positive such as job opportunities for the host communities and business investment opportunities for the prospective investors.

Socio economic impacts

Obviously, the socio economic impacts of sport tourism can be described as both positive and negative. It can be regarded as the impacts that a sport tourism event can have on a community. As mentioned earlier, sport tourism events can lead to the improvement of local economy, but if the event is not well planned, it can obstruct the community development a whole. Thus, the sport tourism event organizer should take potential impacts into account. The study identified challenges that might encourage sport tourism event managers to support the evaluation and documentation of the social impacts of the events. These challenges are associated with socio economic impacts. Table 1 shows the economic impacts that associated with positive impacts such as supporting tourism activities (58%) and develop local economy (48%). The social impacts are linked to negative factors such as increased crowded at and surrounding venue (76%), increased traffic on the venue (56%), parking difficulties (52%) and increased noise and air pollution (40%). It is also worth of note that there is a high percentage of the disagreement on increased environmental awareness (68%) as a result of the event.

Table 1: Socio economic impacts of the 18th National Sport Game Event Riau 2012

Socio economic impacts	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	%	%	%	%	%
As important part of tourism activity	56	38	5	1	0
Parking difficulty	52	13	30	3	0
Develop local economy	48	40	12	0	0
Increase traffic on the venue	56	20	20	4	0
Increase noise and air pollution	40	16	30	14	0
Increase crowded at and surrounding venue	76	12	8	4	0
Increase environmental awareness	0	0	4	28	68

The result implies that respondents were highly concerned of the environment that has been damaged during the 18th National Sport Game Events 2012. It is a challenge for sport tourism event organizer in Indonesia to not only provides a rewarding experience for participants and spectators by ensuring the socio economic benefits but also a safe sport tourism event environment. The result also indicates that while local economy was being reached within the host area, it increased crowding at and surrounding venue.

Small-medium business opportunities

The 18th National Sport Game Event 2012 has significantly increased income of the host communities and the region. The event has made contribution in terms of positive impacts to small medium businesses during the event. The results of field observations at the 18th National Sport Game Event 2012 in Riau recorded important notes on local-based small medium business opportunities for the local community members. The researcher as an official team member observed the practices of the business on the field such as restaurant, souvenir shops, home industry handicraft, accommodation, food services, printing marketing tools for Riau tourism, employment, entertainment, tourist attractions, catering, services and sport equipment and ticket sales (on site observation, August 2012). The rental vehicles businesses were required to operate and serve contingent mobilization that have benefited the rental car owners and the drivers who always get additional tips from the users. High occupancy rates of the hotels and high demand for related services such as laundry and food and beverages existed. Sport tourism has obviously triggered extra expenditure such as spending on goods and services by spectators, sport participants, business operators, officials and local residents at a the venue of the destination. The National Sport Games Events strategy is expected to be developed by Indonesian government both sport and tourism sectors. It is hoped that hosting more frequent sport tourism events in Indonesia is a key component of national sport tourism development strategy in the future. Communities are encouraged not only in making sports as a need, but also play roles on the sport in promoting the host destination. The implementation of National Sport Game Event 2012 in fact is potential to be the community development tools to increase employment and business opportunities for young entrepreneurs in rural and urban areas in and surrounding Riau Province.

Recommendation for the next sport tourism events

Figure 2: General Perceptions

Attitudes towards and perceptions of sport tourism events during the National Sport Games Event 2002 in Riau, Indonesia were explored through an open-ended question on the recommendation for the next sport tourism event. The results shows 4 main recommendations proposed by the respondents namely encouraging the provision training facilities, marketing and promotion of sport tourism (31 respondents), strengthening integration of sport and tourism at national and regional government level (29 respondents), establishing better management to identify needs of the sport tourism event industries (27 respondents), maximizing the linkages between sport and tourism sectors (27 respondents). The results imply that there is a good understanding of the need for the cooperation and collaboration between the government bodies and the voluntary sectors to enhance the operational system of sport tourism events in Indonesia. This is imperative to produce important and strategic issues if the two sectors are involved. Furthermore, the challenges can be encountered when sport tourism event organizers and the host community meet and discuss on how to incorporate these possible challenges when planning the event so that participants, spectators and the host community can have positive experiences during the event. The recommendation refers to the need for good integration between sport and tourism through national network of sport tourism events facilities with qualified staff and event managers

training, event marketing and operational management leading to professional management supported by both government and private sectors.

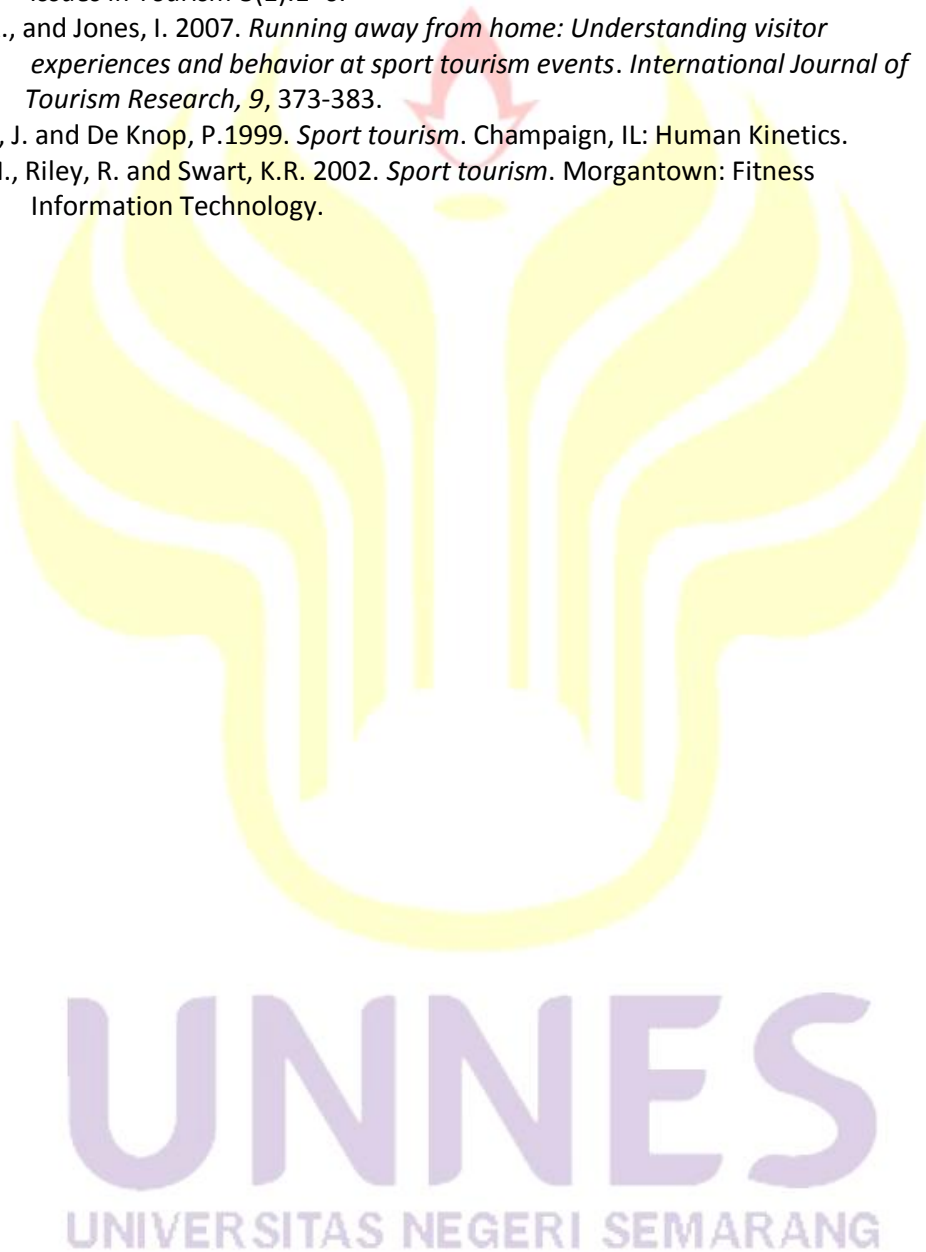
CONCLUSION AND SUGGESTION

The socio economic advantage of the 18th National Sport Games Event 2012 in Riau is regarded as sport tourism event that has created and developed the national sport and tourism in Indonesia. The socio economic advantages of the events indicate good practices contributing significantly to Riau economy and the tourism industry. The socio economic advantages Riau event involved the host community of a city as well as the entire social fabric of the community. The results provide valuable information on how city residents, spectators, sport participations, sport officials and managers and other stakeholders that can help sport tourism event organizers and managers to improve their operations in a more professional manner for the future sport tourism events in Indonesia which generating benefits and contributions for the local host community. The challenge for sport tourism professionals is to develop sport tourism events more effectively as a socio economic development strategy. The focus of the development should therefore be on the sport tourism events which can be used as a socio economic development strategy for Indonesia in the future. Hosting regular and frequent sport tourism events in Indonesia as part of such a strategy can make contribution to the long term development and sustainability of sport tourism events for the country. The events also provide an opportunity for academic researchers in sport and tourism to engage and focus on the socio economic impacts of the events on the host destination.

REFERENCES

- Andriotis, K. 2005. *Community groups' perceptions of and preferences for tourism development: evidence from Crete*, Journal of Hospitality & Tourism Research, 29 (1), 67-90.
- Council of Europe .1980. European Sport for All Charter, Strasbourg.
- Davidson, T.L. (2005). What are Travel and Tourism: Are They Really an Industry?, in Theobald, William, F., *Global Tourism*, 3rd Eds, London. Elsevier, Butterworth Heinemann.
- Gibson, H., and Fairley, S. 2011. Sport Tourism. In P. Pedersen, J. Parks, J. Quarterman, & L. Thibault (Eds.), *Contemporary Sport Management: 4th Edition* (pp. 226-246). Champaign, IL: Human Kinetics.
- Gratton, C., and Taylor, P. 2002, *Economic of Sport and Recreation*, Spon Press, London and New York.
- Herstein, R., and Jaffe, E.D., 2008, *Sport hospitality as a business strategy*, Journal of Business Strategy, 29 : 6, 36-43.
- Hidayah, T.2011. *Sport Industry*, Unpublished Course Notes, Post Graduate of Sport Science Study Program, Semarang State University, Indonesia.
- International Association for Impact Assessment. 2003. *Social impacts assessment*. Fargo, North Dakota.
- Junod, T. 2006. Sports events as tools of public policies: Is it the right event for the right region? In *Proceedings of the Valencia Summit 2006, Major Sport Events as Opportunity for Development: The International Promotion of the City*. Spain: Valencia Summit, 102–111.
- Kurtzman, J. and Zauhar, J. 2005. *Sport tourism consumer motivation*. Journal of Sport Tourism 10(1):21–31.

- Litchfield, N. (1988). *Economics in urban conservation*, New York: Cambridge University Press.
- Mathieson, A. and Wall, G. 1982. *Tourism: Economic, physical and social impacts*, Harlow, UK: Longman.
- Ritchie, J.R.B. and Adair, D. 2002. *The growing recognition of sport tourism*. *Current Issues in Tourism* 5(1):1–6.
- Shipway, R., and Jones, I. 2007. *Running away from home: Understanding visitor experiences and behavior at sport tourism events*. *International Journal of Tourism Research*, 9, 373-383.
- Standeven, J. and De Knop, P. 1999. *Sport tourism*. Champaign, IL: Human Kinetics.
- Turco, D.M., Riley, R. and Swart, K.R. 2002. *Sport tourism*. Morgantown: Fitness Information Technology.



MOTIVES AND LEVEL OF PHYSICAL ACTIVITY AMONG MALAYSIAN UNIVERSITY STAFF

Azlan Ahmad Kamal¹, Mohd. Radzani², Mawarni Mohamed³

^{1,2,3}Faculty of Education, Universiti Teknologi MARA
Kampus Seksyen 17, Shah Alam 40200 Selangor, MALAYSIA

azlankamal@gmail.com

Abstract

Among the ten major causes of death in Malaysia, the diseases of the circulatory and respiratory systems are ranked among the top three (Ministry of Health Virtual Library, 2014). Lack of exercise, unhealthy diet and being overweight are usually associated with the common origin of the diseases. Researches have shown that regular physical activity improves physiological and psychological health (Kilpatrick, Hebert & Bartholomew, 2005) and that physical activity is integral part of life since it may help to avoid illnesses. However, in order to involve in physical activity, different people may have different motives. This study investigated the motives and level of participation in physical activity among staffs in a local university in Malaysia. A survey questionnaire based on the "Exercise Motivation Inventory" (EMI-2) by Markland & Ingledew, (1997) and the "International Physical Activity Questionnaire" (IPAQ 2005), which was later, edited were used to meet the needs of the study. Findings showed that local university staffs were more motivated to do moderate physical activity in daily life. Their motives for physical activity involvement were due to appearance and social factors. Correlation analysis showed that there was a significant relationship between physical activity and body weight among the university staff and there was no significant relationship between participation motives with physical activity.

Keywords: motive, physical activity, BMI

INTRODUCTION

Previous researches have proven that regular physical activity improves physiological and psychological health and that physical activity is integral part of life since it may help to avoid illnesses.(Kilpatrick, Hebert & Bartholomew, 2005). However there are always reasons for not doing physical activities. For instance, evidence from the log books on the use of sports facilities in a local university from present research showed the lack of use of sports facilities, which indicated insufficient time for physical activity involvement. These findings can prompt further investigations on the level of physical activity among the staff. and can help to increase knowledge about healthy lifestyles. According to Noor Aini (2004), knowledge in diet and exercise patterns affect the daily lives of staff of public servants. Thus, the aim of this research is to identify the levels of physical activity involvement by staff in a local university in Malaysia. It is also to identify the motives for physical activity involvement. This research is important because a healthy lifestyle adopted by staff has an impact on the quality of work produced by staff and thus impact the performance of the department. Furthermore, their lifestyle practiced now will affect their health in the future. Participation in physical activity has also been proven to be beneficial in terms of psychology such as increasing self-confidence, feelings of well-being and intellectual function and reduce the level of anxiety.

Therefore, this study is to analyze the motives for physical activity involvement and time used doing nothing, like relaxing or watching TV, among staff in the University. According to (McCullagh , 2005), motivation can be defined as the intensity and direction of the effort. This

means, the directions or the motives used for physical activity involvement also refers to what the staff want to achieve and how intense they want to do it. Intensity refers to the amount of the efforts they used, can enhance motivation, can encourage learning, performance, pleasure and perseverance in sport among other benefits.

METHOD

Using the Exercise Motivation Inventory (EMI-2) questionnaire, researchers wanted to see the difference of physical activity consisting of high-level, medium level and low level involvement. The differences in participation patterns are classified into Appearance Physical motive, Social Motive, Challenge motive, Competition and Fitness motive, and Health Motive. This research was conducted at a local university in Malaysia. It is a campus that houses a total of 18,000 staff (professional and administrative). They consist of academic and non-academic staff. Researchers obtained this number from the Office of Administration and Human Resources. Out of 18,000 staff, a total of 400 people answered the questions through emails. Thus, they are used as respondents. The respondents consisted of men and women aged between 18 years to 60 years. Researchers have been using the internal email in local university for distributing questionnaires to every employee in this university. Physical Activity Questionnaire (IPAQ) instrument was used to collect data for this research.

Researchers are also using the Ainsworth et al. Compendium (Med Sci. Sports Med 2000) to obtain average MET scores for each type of activity. For example; all of the included and the average MET value for walking were invented. The same procedure was carried out to moderate intensity activity and intensity of extreme activities. These values continue to be used for data analysis for IPAQ: Running = 3.3 Mets, Mets Simple PA 4.0 and PA 8.0 Energy Mets. Using these values, the four ongoing marks are defined: Walking (minutes / week) = 3.3 minutes * walk * go days, Medium (minutes / week) = 4.0 * simple * medium intensity activity minutes a day, High-energy (minutes / week) = 8.0 * strong intensity outdoor activities minutes * intensity day. Total physical activity (minutes / week) = total + Medium + powered MET minutes Walking / week scores. MET and Value Calculation Formula of MET-minutes / week.

Descriptive analysis using SPSS version 19.0 was used to analyze the mean, frequency and percentage of the demographic characteristics of the staff of local university. To determine an overall score of physical activity, every answer will be analyzed by counting Metabolic Equivalent Task (MET) -min per week. All responses were summed to get the statistics. Likert Scale analysis was used to determine the level of physical activity in all the 42 items, with the lowest score is one (1) and the highest score is five (5).

Kruskal Wallis analysis was used to identify the differences of motives for staff involvement in physical activity according to their mass weight. Spearman correlation analysis was conducted to determine if there is a relationship between the several motives for involvement with physical activity among staff.

RESULTS AND DISCUSSION

The study involved a total of 400 staff with diverse demographic backgrounds such as gender, race, age, marital status, positions, employment and income.

Table 1. Demographic Profiles of staff

Demographic	Frequency	Percent
<i>Sex</i>		
Male	176	44.0%
Female	224	56.0%
<i>Race</i>		

Malay	377	94.3%
Chinese	4	1.0%
India	4	1.0%
Others	15	3.8%
<i>Age</i>		
Between 21 – 30 years	82	20.5%
Between 31 – 40 years	149	37.3%
Between 41 – 50 years	81	20.3%
More than 50 years	88	22.0%
<i>Status</i>		
Married	330	82.5%
Single	63	15.8%
Others	7	1.8%
<i>Position</i>		
Permanent	369	92.3%
Temporary	12	3.0%
Contract	19	4.8%
<i>Occupation</i>		
Professional/lecturer /director	222	55.5%
Arrangement /Administration	178	44.5%
<i>Salary</i>		
Below RM2000	39	9.8%
RM2001 – RM3000	76	19.0%
RM3001 – RM4000	69	17.3%
RM4001 – RM5000	53	13.3%
RM 5001– RM6000	35	8.8%
RM 6001 above	128	32.0%

Analysis 1

Kruskal Wallis analysis was used to identify the differences of motives for staff involvement in physical activity according to their mass weight.

Table 2. Differences of Motives and BMI

Motive for participation	BMI	N	Min ranking	Chi Square	Df	Sig.
Appearance	Less weight	14	166.36	5.343	3	0.148
	Normal	143	188.17			
	Extra weight	179	214.00			
	Obesity	64	197.77			
Health	Less weight	14	211.57	7.455	3	0.059
	Normal	143	180.76			
	Extra weight	179	207.20			
	Obesity	64	223.45			
Social	Less weight	14	219.39	3.506	3	0.320
	Normal	143	209.49			
	Extra weight	179	199.58			

Fitness	Obesity	64	178.85	3.759	3	0.289
	Less weight	14	214.71			
	Normal	143	211.68			
	Extra weight	179	197.97			
Challenge	Obesity	64	179.49	3.225	3	0.358
	Less weight	14	201.79			
	Normal	143	207.92			
	Extra weight	179	202.74			
	Obesity	64	177.38			

Results shown in Table 2 indicated that there were no significant differences between motives for staff involvement in physical activity by mass weight with sig = 0.148(Appearance), sig = 0.059(Health), sig = 0.320(Social), sig = Fitness), sig = 0.358(Challenge). All the significant level are high then $p > 0.05$. This indicates that motives for physical activity involvement among staff were not determined by their weight.

Analysis 2

Spearman correlation analysis was conducted to determine if there is a relationship between the several motives for involvement with physical activity among staff.

Table 3. Relationship between Motives and Physical Activity

Correlation	Physical activity		Interpretation
	r	Sig.	
Appearance	0.016	0.750	-
Health	0.000	0.997	-
Social	0.111	0.026	Very weak
Fitness	0.084	0.094	-
Challenge	0.093	0.063	-

Results in Table 3 showed that there is no significant relationship between participation motive of Appearance with physical activity among staff with $r = 0.016$ and sig = 0.750 ($p > 0.05$). There was no significant relationship between participation motive of the health aspect with physical activity among staff with $r = 0.000$ and sig = 0.997 ($p > 0.05$). There were also no significant relationships between Fitness and Challenge aspects for motives in physical involvement with $r = 0.084$, sig = 0.094 and $r = 0.093$ and sig = 0.063 respectively. Finally, there is a correlation between motive for involvement in social aspect with physical activity among staff with $r = 0.111$ and sig = 0.026 ($p < 0.05$). However, the strength of the relationship is very weak.

The findings showed that local university staff does more moderate physical activity in daily life. As for motives for involvement, there is a difference in motives for staff involvement in physical activity by gender, age, job, jobs, and income but in this study however there is no difference in motives for staff involvement in physical activity and weight status based on BMI. In other words, even if they are considered as overweight, physical activity involvement is not the determinant to reduce weight.

Similarly, there are no significant relationships between several motives and physical activity involvement as well. These include appearance, health and fitness, and challenge although there was a weak relationship with social factor for physical activity. This means, keeping their body in shape and for fitness purpose are not as important as being with friends while engaging in physical activity among the staff. Participating in physical activity may establish new friends that share a common interest and help to develop a support network.

CONCLUSION AND SUGGESTION

The findings showed that the University staff performs moderate physical activities in their daily lives. This corresponds to their motives for fitness matters as health ($M=3.76$) is the highest factor for the choice as compared to challenge ($M = 2.64$) being the lowest. They also agreed that appearance and social play important motives for physical activity participation.

The differences of motives for staff involvement in physical activity according to their mass weight.

Kruskal Wallis analysis was used to identify the differences of motives for staff involvement in physical activity according to their mass weight. Results shown in Table 2 indicated that there were no significant differences between motives for staff involvement in physical activity by mass weight with $\text{sig} = 0.148$ (Appearance), $\text{sig} = 0.059$ (Health), $\text{sig} = 0.320$ (Social), $\text{sig} = \text{Fitness}$, $\text{sig} = 0.358$ (Challenge). All the significant level are higher then $p>0.05$.

The relationship between motives and involvement in physical activity among staff

Spearman correlation analysis was conducted to determine the relationship between the motives of involvement with physical activity among staff. The results showed that there was no significant relationship between participation motive of pleasing I terms of appearance factor for physical activity among staff with $r = 0.016$ and $\text{sig} = 0.750$ ($p> 0.05$). There was no significant relationship between participation motive of the health aspects of physical activity among staff with the $r = 0.000$ and $\text{sig} = 0.997$ ($p> 0.05$). Robinson et al. (1993) states that there is no relationship at all between the stationary behavior and physical activity and it is also seen from some scholars who say that, more students are limited to the conduct does not move, the more likely that they will engage in physical activity. Epstein et al (2005) observe that the target does not move downward behavior is an effective strategy for increasing physical activity.

Through descriptive findings in this study, most of the staff expressed a high activity type. This shows that university staff practicing physical activity in their daily lives. They take a few minutes a week to make time for physical activity with friends especially. Staff is more concerned with the health aspects of physical activity in daily life. They also list a number of motives for their physical activities. Among those apart from the health factor for participation they believe that the challenge did not increase their motivation to do physical activity. Other motives than the appearance, social and fitness have a moderately high level of involvement. This indicated that staff agrees that these motives affect their participation in physical activities as they give some benefits. In short, based on the discussion, it is clear that the motives for involvement have always been a priority to civil servants to engage in physical activity. Factors of health, appearance, social and challenges are among the catalysts to obtain optimum self-satisfaction.

The researchers hope that the results of this study can serve as a guide and reference to the university in order to implement healthy lifestyles among staff. Directly to rectify and bring university staff towards a lifestyle that is effective in increasing knowledge about physical activities. Findings from this research can make room for other researchers to examine physical activity among university staff as they are meaningful, especially to the lecturers or administration in the future.

The research findings will also help the university management to organize health-related programs and policies that include active staff involvement. Programs and activities that are suitable, interesting and tailored to the needs of the staff may encourage more involvement thus increase individual's physical activity. It is important as physical activity may increase productivity from healthy well-being of the employees.

REFERENCES

- Fletcher, G. F., Blair, S. N., J. B., C. C., B. C., S. E., et al. (1992). Benefits and Recommendations for Physical Activity Programs for All Americans A Statement for Health Professionals by the Committee on Exercise and Cardiac Rehabilitation of the Council on Clinical Cardiology, American Heart Association. 86(1), 340-344.
- Ingledeu, D. K., & D. M. (2008, October). The role of motives in exercise participation. *Psychology & Health*, 807-828.
- Lai, E. R. (2011, April). Motivation: A Literature Review.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and Contemporary Educational Psychology, 54-67.
- Straatmann, V. S., dos Santos, L. A., A. P., & Veiga, G. V. (2014). Cardiorespiratory fitness and physical activity level in adolescents.
- The Committee of The Sports Commission Hong Kong. (2006). Hong Kong, China: Know Your Physical Activity Level and Cultural Service Department :Physical Fitness Association of Hong Kong.
- Mosby's Medical Dictionary. (2009). Retrieved from <http://medical-dictionary.thefreedictionary.com/anaerobic+exercise>
- Australian Bureau of Statistics. (2011). Retrieved from Australian Health Survey: <http://www.abs.gov.au/websitedbs/d3310114.nsf/home/australian+health+survey>
- Ministry of Health Virtual Library . (2014, June). Retrieved from Health Fact 2014: http://vlib.moh.gov.my/cms/documentstorage/com.tms.cms.document.Document_e09a422a-a0188549-12dd6600-ee712d49/HEALTH%20FACTS%202014.pdf
- Ingledeu , D. K., & E. F. (2007, April). Personality and riskier sexual behaviour:Motivational mediators. 22(3), 291–315.
- IPAQ. (2005). Guidelines for Data Processing and Analysis of the International Physical Activity Questionnaire
- M. G., Cengizhan , P. A., & M. Ö. (2015). The Determination of Physical Activity Levels of Trainers in Kastamonu, Turkey . 1, 25-28.
- McCullagh , P. (2005). Sport and Exercise Psychology Lecture. Cal State University EAsT Bay. 10/27.
- Norhidayah.Tinjauan Perkaitan Di Antara Komposisi Tubuh Badan Dan Paras Glukosa Dalam Darah Dengan Kekerapan Senaman Mengikut Kategori Umur Dan Jantina. Tesis Universiti Teknologi Malaysia,2011
- Paluska, S. A., & Schwenk, T. L. (2000, March). Physical activity and mental health: current concepts. *sport medicine*, 167-180.
- Riner, W. F., & Sellhorst, S. H. (2012). Physical ctivity and exercise in children with chronic health conditions.
- Ryan, R. M., & Deci , E. L. (2000, January). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. 55, 68-78.
- Ryan, R. M., & Deci, E. L. (2000). intrinsic and Extrinsic motivations: classic definition and new direction, 54-67.
- Teixeira, P. J., Carraça, E. V., Markland, D., Silva, M. N., & Ryan, R. M. (2012). Exercise, physical activity, and self-determination theory: A systematic review. *Behavioral Nutrition and Physical Activity*, 9(78).
- V. M., & T. S. (2002, May). Who takes health risks? A probe into eight personality types. *Personality and Individual Differences*, 32(7), 1185–1197.
- Vander Ploeg , K. A., Maximova, K., McGavock, J., & Davis, W. (2014). Do school-based physical activity interventions increase or reduce . 80-87.

Vandewater, E. A., Shim, M.-s., & Caplovitz, A. G. (n.d.). Linking obesity and activity level with children's television and video game use. *Journal of Adolescence*, 71-85.

W. R., & G. D. (2003). *Foundations of Sport and Exercise Psychology:human kinetics*.

Webbe, D. J., & A. M. (2009). Student participation in sporting activities. 41, 1183-1190 .



ANALYSIS OF COACHING BEHAVIOUR AMONG FULL-TIME COACHES IN MALAYSIA

Sock-Wei Tor¹, Lian-Yee Kok²

^{1,2}Department of Sports Studies, Faculty of Educational Studies, University Putra Malaysia

¹torswei@gmail.com

Abstract

Coaches' behavior both during and outside training and competition have a major impact on their athletes. Coaches perform many functions that help athletes achieve good performance and a number of instruments have been utilised to identify and assess these functions or behaviour. In Malaysia, there is limited information regarding coaching behavior therefore this study was conducted to analyze the coaching behavior among the full-time coaches in Malaysia using the Coaching Behavior Scale for Sport (CBS-S). A total of 1087 athletes from the Sports Schools, gymnastic clubs, hockey and soccer league players were recruited and asked to respond to the CBS-S based on the coaching behaviours displayed by their full-time coaches. The CBS-S examined coaching behaviours across seven dimensions including physical conditioning, technical skills, competition strategies, mental preparation, goal setting, personal rapport, and negative personal rapport. Comparisons were also made between the coaches from the two sports schools, between athletes who were still in school and those who were not, and between athletes from individual and team sports. Analysed together, the athletes rated their coaches technical coaching behavior the highest (M= 5.36, SD= .96), followed by mental preparation (M= 5.18, SD= 1.10), physical conditioning (M=5.08, SD= .91), goal setting (M= 5.08, SD= 1.10), personal rapport (M= 4.98, SD= .86), competition strategies (M= 4.96, SD= .89) and negative personal rapport (M= 2.96, SD= 1.49). Independent *t*-tests indicated that athletes from the two sports schools found their coaches significantly different in three behaviours which were physical conditioning ($p = 0.006$), personal rapport ($p = 0.004$), and negative personal rapport ($p = 0.002$), while there was no significant differences in behaviour involved with technical skills, mental preparation, goal setting and competition strategies. Athletes who were in school and those who were not did not rate their coaches differently in any coaching behaviour, and there were also no difference between behaviours shown by coaches from individual and team sports. The findings from this study supported the CBS-S as a practical and effective instrument for giving feedback to coaches from most sports regarding their coaching behavior. Data from the CBS-S indicate that athletes training under full-time coaches in Malaysia are generally satisfied with the coaching behaviour of their coaches.

Keywords: coaching behaviour

MOTIVATIONAL FACTORS IN PHYSICAL ACTIVITY AND RECREATIONAL SPORTS PARTICIPATION OF STUDENTS IN MALAYSIA

Chun Cheng Chuan¹, Aminuddin Yusof², Chee Chen Soon³, Maria Chong Abdullah⁴

¹Faculty of Educational Studies, University Putra Malaysia

¹ccchun1976@yahoo.com

Abstract

The purpose of this study was to investigate the motivational factors that influence the participation of high school students in recreational sports using Self Determination Theory (Deci&Ryan, 1985) and Theory of Planned Behavior (Ajzen, 1991). Instruments of the study were adapted from Pelletier et al. (1995) and Cunningham and Kwon (2003) and used to measure the factors for participation of recreational sports among high school students in Malaysia. A total of 1196 high school students from the age of 13 to 16 were selected as subjects using cluster random sampling procedure. Analyses of data include descriptive statistic, Pearson Product-Moment's correlation and multiple regression "stepwise". The results of the study indicated that there is a significant relationship between intrinsic motivation, extrinsic motivation, attitude and subjective norms with behavioral intention to participate in recreational sports activities. This study proposed intervention measures to increase the participation of high school students in recreational sports in Malaysia.

Keywords: intrinsic motivation, extrinsic motivation, behavioral intention, attitude, subjective norms, school students

UNNES
UNIVERSITAS NEGERI SEMARANG

SPORT AS A VEHICLE FOR CULTURAL MAINTENANCE AND ADAPTATION TO MULTICULTURAL ENVIRONMENTS FOR INTERNATIONAL STUDENTS IN UNIVERSITI PUTRA MALAYSIA

Noraseela Binti Mohd Khalid¹, Aminuddin Yusof²

^{1,2}Universiti Putra Malaysia

¹shanikita@gmail.com, ²draminuddin@hotmail.com

Abstract

The aim of the study is to identify sport participation, socialization and cultural factors influencing foreign students in Universiti Putra Malaysia. The research consisted of 199 subjects where they were asked to provide information on sport participation the previous three months. The descriptive research consists of a survey using questionnaire as the main research instrument. A descriptive statistics from frequency to mean value were used to analyze the respondents' demographic and sport participation factors. There were 27 types of sports chosen by the respondents for most preferred sport and results showed that football was the most popular sport. Motivation is chosen as the most reasons for sport participation. Results shown mean values of cultural adaptation are higher than cultural maintenance to multicultural environment. The Independent sample t-test was applied for inferential statistical analysis in this research. Results from t-test for frequency of weekly sport participation in term of gender differences were significant with the ($p=0.001$) while t-test on cultural maintenance and adaptation in terms of gender differences is not significant ($p=0.52$ & $p=0.77$). Research revealed sport participation among international students in Universiti Putra Malaysia is lower than the moderate rate, while the mean value of cultural adaptation are shown higher than for cultural maintenance to multicultural environment. Suggestion and implication of the study was also included for future references.

Keywords: sport participation, cultural maintenance, cultural adaptation

UNNES
UNIVERSITAS NEGERI SEMARANG

CHALLENGES AND OPPORTUNITIES OF WOMEN IN SPORT LEADERSHIP IN MALAYSIA

Miriam P. Aman

University Putra Malaysia

Abstract

The issues of the underrepresentation of women in sport leadership is a phenomenon that every sport woman advocate wanted to put foot forward in breaking the challenges and achieving opportunities and full potentials. Despite several studies that have shown formal guarantees of equality, the overall rate of development for women particularly those from the poorest and marginalized regions of the world have been slow mostly, women in higher leadership positions are still underrepresented. Adopting the perspective of role congruity theory, this qualitative study proposes to provide a greater understanding of the challenges and opportunities of women in sport leadership from the perspective of women in leadership positions in national government sports organizations in Malaysia, if any, that the proposed prejudices toward women leaders that takes two forms: (a) perceiving women as possessing less leadership ability than men and (b) evaluating behavior that fulfils the prescriptions of a leader role more negatively when it is enacted by a woman compared with a man plays in the challenges and opportunities of women in sport leadership. This study yields relevant information in the challenges and opportunities of women in sport leadership and further inform policy makers to develop policies and laws that will strengthen a culture where women have equal opportunities, equal access, and equal support in sport and sport-related activities at all levels and in all capacities, as decision-makers, administrators, managers, coaches, officials and participants.

Keywords: Women, Sport Leadership.



ATTITUDE TOWARDS PHYSICAL ACTIVITY AND DEGREE OF ACCEPTABILITY OF PHYSICAL EDUCATION AMONG MADRASAH TEACHERS

Hendely Adlawan

Mindanao State University, Marawi City, Philippines, Dina Arquiola.
SNACF, Marawi City

Abstract

The purpose of this study was to determine the attitude towards physical activity in relation to the degree of acceptability of physical education among Madrasah teachers (Modarisen) within five (5) Madaris (Madrasah school) in Marawi City, Lanao del Sur, Autonomous Region of Muslim Mindanao (ARMM), Philippines. Also, it tried to investigate if the respondents' age, gender, and highest educational attainment influence the main variables.

A descriptive-correlational type of research was used. There were two hundred ninety (290) Modarisen employed in this research. Total sampling was utilized. The research instrument used is a questionnaire for the profile, the 18-statement physical activity attitude questionnaire, and the 15-statement degree of acceptability of physical education questionnaire. For the treatment of the descriptive data, descriptive statistics in the form of frequency and percentage distribution was used, and to test the significant relationship, Pearson Product Moment Correlation of Coefficient or Pearson r was utilized.

Results are disclosed that out of 290 respondents, 32.41% both belonged to age range of 19-30 and 31-40, with 19 year-old as the youngest and 70 year-old as the oldest; majority (63.79%) were female respondents; majority (73.45%) attained Koliah (College) – Arabic Education; and few (25.50%) Modarisen obtained Western Education: 63 respondents (21.72%) finished bachelor's degree, 7 respondents (0.24) finished certificate or diploma, and 4 respondents (0.14%) finished master's degree; majority (54.14%) revealed a positive attitude towards physical activity; majority (60.34%) had a high degree of acceptability of physical education as part of Madrasah curriculum.

Also, result of the study showed no correlation between attitude towards physical activity and profile of age, gender, and highest educational attainment; only Arabic Education as the highest educational attainment revealed a very highly significant correlation with the degree of acceptability of physical education ($p=0.000$); and attitude towards physical activity and degree of acceptability of physical education disclosed a very highly significant relationship ($p=0.000$).

Keywords: Attitude, Physical Activity, Degree of Acceptability, Physical Education, Madrasah

INTRODUCTION

Physical education is an integral part of an educational system designed to promote total development of man. It is often thought of as the entirety of all aspects of a person- physically, socially, emotionally, mentally and morally as an outcome of a wholesome, organized program focuses on the physical activity. Seaton (1992) averred that a physical education when planned and taught properly is education through the physical. That is the activity serves as a medium through which a total learning experience takes place. Physical education focuses on the teaching of skills, the acquisition of knowledge and the development of attitudes through movement. Because of cultural practices, other may refrain from engaging themselves to physical activities, hence it develop negative attitude to physical education and less acceptance to it. Thus, this study tried to

investigate the attitude towards physical activity and their degree of acceptability of physical education among Madrasah teachers.

RESEARCH METHODOLOGY

This study used a descriptive-correlational type of research. It was conducted among two hundred ninety (290) male and female Madrasah teachers in all levels: elementary, secondary and college, from five (5) Madaris (Madrasah school) in Marawi City, Lanao del Sur, Autonomous Region of Muslim Mindanao (ARMM), Philippines. The breakdown is as follows: 47 from Jamiatu Marawi Al-Islamia, 83 from Jamiatu Muslim Mindanao, 43 from Ma'ahad Kamilo Islamia, 78 from Ma'ahad Kuwait Jamiat Zonobil, and 39 from Jamiatul Wak Al-Islamia. Total sampling was utilized. The research instrument used is a questionnaire for the profile of age, gender, and highest educational attainment both in Arabic and Western education. Then, the 18-statement physical activity attitude questionnaire developed by Corbin, et al. (2000) was utilized. It has a corresponding choices and its equivalent point value of strongly agree as 5, agree as 4, undecided as 3, disagree as 2, and strongly disagree scored as 1. Scores obtained from 17-31 signifies strongly negative, 32-46 means negative, 47-61 connotes average, 62-76 implies positive, and 77-91 indicates strongly positive attitude towards physical activity. Likewise, the 15-statement degree of acceptability of physical education questionnaire was employed. It has a choices of strongly agree, agree, undecided, disagree, and strongly disagree. All positive statements are scored as 5-4-3-2-1, while negative statements are scored as 1-2-3-4-5. All scores obtained are described as very low degree of acceptability (13-25), low degree of acceptability (26-38), average degree of acceptability (39-51), high degree of acceptability (52-64), and very high degree of acceptability (65-77). For the treatment of the descriptive data, descriptive statistics in the form of frequency and percentage distribution was used, and to test the significant relationship, Pearson Product Moment Correlation of Coefficient or Pearson r was utilized.

FINDINGS AND DISCUSSION

Table 1. Distribution of the Respondents' Age

Age Range	Frequency	Percent
19-30	94	32.41
31-40	94	32.41
41-59	82	25.28
60-70	2	0.69

Table 1 illustrates 94 Madrasah teachers or 32.41% both belonged to age range of 19-30 and 31-40, with 19 year-old as the youngest and 70 year-old as the oldest. Then 82 respondents or 25.28% belonged to age range 41-59, and 2 respondents or 0.69% belonged to age range 60-70. Results verify that there is a greater number of young Madrasah teachers and in the period of early adulthood in their teaching profession. Also, a very minimal distribution of retiree respondents is shown. Finally, findings connote that in Madaris, age limit in teaching is not much strictly impose. As long as a person is capable and qualified to teach in Arabic education, he/she can still be accepted in Madrasah school.

Table 2. Distribution of the Respondents' Gender

Gender	Frequency	Percent
Male	105	36.21
Female	185	63.79

As shown in Table 2, majority (63.79%) of the respondents were female, while male had a minimal percentage (36.21%). This result implies that female Madrasah teachers dominate male teachers. As per observation, in teaching profession, men are outnumbered by women both in Arabic Education and Western Education.

Table 3. Distribution of the Respondents' Highest Educational Attainment in Arabic Education

Arabic Educational Attainment	Frequency	Percent
Idadih (Elementary)	18	6.21
Thanawih (High School)	23	7.93
Koliah (College)	213	73.45
Diblom (Diploma)	34	11.72
Dirasat Oliah (Masteral)	0	0.00
Doctora (Doctoral)	2	0.69

Table 3 reveals that majority (73.45%) attained Koliah (College), while other educational attainment got a minimal distribution: Diblom (11.72%), Thanawih (7.93%), Idadih (6.21), Doctora (2), and none attained Dirasat Oliah (Masteral). The former result implies that Arabic Education is similar with Western Education wherein teaching profession should be handled by at least a four-year degree holder such as in the field of education, psychology and other fields. The later results (Diblom and Doctora) signify that individuals always seek professional upliftment to enhance teaching skills and knowledge, increase wages and hold administrative position. Unlike in Western Education, Idadih and Thanawih graduates in Arabic Education are allowed to handle classes fit to their educational qualification.

Table 4. Distribution of the Respondents' Highest Educational Attainment in Western Education

Western Education	Frequency	Percent
Bachelor's Degree	63	21.72
Certificate/Diploma	7	2.41
Masteral Degree	4	1.38
Total	74	25.51

Table 4 indicates that out of 290 respondents, there were 74 Modarisen or 25.51% finished Western Education in which 63 teachers attained bachelor's degree, 7 teachers received certificate/diploma, and 4 master's holder as their highest educational attainment. Results imply that aside from Arabic Education, Muslim Maranaos adopted the Philippine Educational system learning based on Western education, probably to become competitive enough and for employment assurance. Furthermore, findings connote that respondents were both educated in both Arabic and Western Education.

Table 5. Distribution of the Respondents' Attitude towards Physical Activity

Attitude Score Range	Qualitative Description	Frequency	Percent
17-31	Strongly Negative	3	1.03
32-46	Negative	7	2.41
47-61	Average	64	22.07
62-76	Positive	157	54.14
77-91	Strongly Positive	59	20.35

Frequency distribution of the respondents' attitude towards physical activity revealed a positive attitude (54.14%); while other results have minimal distribution: average attitude (22.07%), strongly positive attitude (20.35%), and least results for negative attitude (2.41%) and strongly negative attitude towards physical activity (1.03%). A positive attitude towards physical activity among Madrasah teachers signifies participation which gives significant, healthful and helpful contributions to life. Bucher (1971) averred that the individual develops skills and attitude towards physical education if they experienced joy and satisfaction from participation in the activities. Cratty (1981) also expressed that exposure to physical activities during school days would most likely to develop a wholesome attitude towards physical education activities. Contrary to the results above, later findings indicate a negative attitude towards physical activity. This is due to the fact that in Maranao culture, some individuals especially women refrain from engaging physical activity because they do away with exposure of themselves especially to the opposite sex.

Table 6. Distribution of the Respondents' Degree of Acceptability of Physical Education

Degree of Acceptability Score Range	Qualitative Description	Frequency	Percent
13-25	Very Low Degree of Acceptability	0	0.00
26-38	Low Degree of Acceptability	6	2.08
39-51	Average Degree of Acceptability	48	16.55
52-64	High Degree of Acceptability	175	60.34
65-77	Very High Degree of Acceptability	61	21.03

The degree of acceptability of physical education as part of Arabic Education curriculum is categorized into very high, high, average, low and very low. Chronologically, results are reflected as follows: majority (60.34%) had a high degree of acceptability of physical education, very high degree of acceptability had 21.03%, average degree of acceptability had 16.55%, low degree had 2.08% and very low had zero percent. The former results indicate that Madrasah teachers are aware regarding the importance, influence, and benefits of physical education inclusion in the curriculum. Andin (1988) emphasized that physical education as part of educational system strives to help or facilitate the development of the potentialities of the individual so that he can attain total fitness to enable him to enjoy the "good life". Opposite to the above discussions, low degree of acceptability of physical education signifies Maranao cultural practices that limit women to physical education.

Table 7. Correlation between Profile and Attitude towards Physical Activity

Profile	Attitude towards Physical Activity		
	r-value	p-value	Relationship
Age	-0.069	0.254	Not significant
Gender	-0.066	0.262	Not significant
Highest Educational Attainment			
Arabic Education	-0.069	0.245	Not Significant
Western Education	-0.064	0.584	Not Significant

The results in Table 7 showed no correlation between attitude towards physical activity and profile of age, gender, and highest educational attainment. Findings signify that regardless of age, male or female, attain a high or low level of education, their attitude towards physical education is the same.

Table 8. Correlation between Profile and Degree of Acceptability of Physical Education

Profile	Degree of Acceptability		
	r-value	p-value	Relationship
Age	-0.077	0.206	Not significant
Gender	-0.074	0.219	Not significant
Highest Educational Attainment			
Arabic Education	-0.234	0.000	Very Highly Significant
Western Education	-0.064	0.588	Not Significant

Table (8) shows Arabic Education as the highest educational attainment revealed a very highly significant correlation with the degree of acceptability of physical education ($p=0.000$). Furthermore, an inverse correlation appeared ($r= -0.234$) which means that those who attain the highest Arabic education (Doctora) have a high degree of acceptance of physical education. Other profile of age, gender and western education reveal no correlation.

Table 9. Correlation between Attitude towards Physical Activity and Degree of Acceptability of Physical Education

Attitude towards Physical Activity	Degree of Acceptability of Physical Education		
	r-value	p-value	Relationship
	0.375	0.000	Very highly significant

The findings in Table 9 disclosed a very highly significant relationship ($p=0.000$) between attitude towards physical activity and degree of acceptability of physical education. This implies that good attitude towards physical activity connotes higher degree of acceptability of physical education. Gill (1986) affirmed that those who hold the most positive attitude in physical activities would be expected to participate and most likely to develop attitude of acceptance than those with negative attitude. Knapp and Hagman (1968) also stressed that if an individual is impressed with the value and worthwhileness of physical education, attitude of acceptance, appreciation and interest will develop. Such attitude may lead one toward participating physical activities.

CONCLUSION

Through the result findings of this study, conclusions were drawn: a high percentage both belonged to age range of 19-30 and 31-40, with 19 year-old as the youngest and 70 year-old as the oldest; majority were female respondents; majority attained Koliah (College) – Arabic Education; and few Modarisen obtained Western Education; majority revealed a positive attitude towards physical activity; majority had a high degree of acceptability of physical education as part of Madrasah curriculum.

Also, results conclude that regardless of young or old, male or female, and attain Arabic or Western education, their attitude towards physical activity is the same. Contrary to the later results, Arabic Education as the highest educational attainment revealed a very highly significant correlation with the degree of acceptability of physical education. This signifies that those who attain the highest Arabic education have a very high degree of acceptability of physical education. Finally, attitude towards physical activity and degree of acceptability of physical education disclosed a very highly significant relationship which connotes that good attitude towards physical activity implies a higher degree of acceptability of physical education.

REFERENCES

- [1] Andin, Carmen T. (1988). **Teaching Physical Education in Philippine Schools**. Quezon City: Rex Printing Company, Inc.
- [2] Bucher, Charles (1971). **Administration Dimension of Health and Health and Physical Education Including Athletics**. New York:MacMillan.
- [3] Cratty, Bryant J. (1981). **Social Psychology in Athletics**. Englewood Cliffs,NJ: Prentice-Hall, Inc.
- [4] Gill, Dianne (1986). **Psychological Dynamics of Sports**. University of Iowa Champaign:Human Kinetics Publisher, Inc.
- [5] Knapp, Clyde Guy and HAGman Leonard (1968). **Teaching Physical Education in Secondary Schools**. New York:McGraw-Hill.
- [6] Seaton, Don Cash, et al. (1992). **Physical Education Handbook**. 8th ed. New Jersey:Prentice Hall, Inc.



COACHING BEHAVIOR IN RELATION TO SPORTS PERFORMANCE AND ATHLETES' SATISFACTION AMONG COLLEGE VARSITY ATHLETES

Nenita P. Samong

Mindanao State University

nenita_samong@yahoo.com

Abstract

This study ascertained a significant relationship between coaching behavior, and sports performance and athletes' satisfaction among 188 varsity athletes and 20 coaches in various institutions in Cagayan de Oro City. Also, it tried to investigate whether the athletes' and coaches' age, gender, years of playing/coaching experience, type of sports played/coached, highest level of competition participated, coach trainings attended, and coach educational attainment impinged the relationship of the main variables. A total sampling technique was employed in this study. Tools used are purely questionnaires that measure the respondents' profile, coaching behavior, sports performance, and athletes' satisfaction.

Results revealed a highly significant correlation between coaching behavior and athletes' satisfaction. This connotes that good coaching behavior will result to a highly satisfaction of athletes. Probably the over-all support from their respective coaches, institutions, teammates and parents may contribute also. Besides, type of coaching behavior and sports played showed a significant relationship. Meaning, coaches in team sports have better coaching performance than individual and dual events. Likewise, gender had a significant correlation with sports performance and athletes' satisfaction which signify that male perform better and are satisfied than female athletes. Also, years of playing experience and sports performance had a significant correlation which means athletes played longer years perform better than less experience players. Finally, those athletes competed nationally were highly satisfied.

Keywords: Sport Performance, Athlete.

INTRODUCTION

The success and failure in a certain performance be in competition or in training relies much on the coach ability to handle an athlete or group of athletes. His motivations, clear instructions, proper guidance, his ability to discipline a player or team members are the few key factors in reaping good performance. Besides, a coach who posses fully competent is fully committed to attain success in every endeavor he does. A coach is somebody who trains sports players and athletes. He is also considered as a trainer, teacher, instructor or tutor. The coach become more as a profession working with a sports team (Duxbury, 2004). Likewise, a coach is also known to be a person shouting out instructions from his bench, calling the attention of his players through his body language, or merely setting down and trying to observe the performance of his athlete.

Moreover, the coach is the most important person in determining the quality and success of an athlete's sport experience. He/she is considered as a vehicle of athlete's successful performance. A coach evaluates the climate of the individual performance at the highest peak of the game or even during performance training, thus a coach influences the performance and its satisfaction level and should possess good coaching behaviors (Williams, et. al, 2003).

On the other hand, team performance upliftment is the usual gauge of a good coach. Winning is the most evaluative tool to measure success and failure of a coach achievements which is

the most dreamed of a coach or perhaps to the team itself. It always brings honor and prestige to a coach whenever the team wins in a competition.

This study aimed to find out if coaching behavior influence team performance and athletes satisfaction among selected college varsity athletes in Cagayan de Oro City, Mindanao Philippines for this second semester, academic year 2013-2014.

Coaches play an important role to its success so in this context athletes' perception of their coaches' leadership style and behavior were measured through its team performance. The interest of this study was to determine if coaches' behavior could be linked to both team performance and athletes' satisfaction.

METHODOLOGY

Research Design

In determining the relationships between coaching behavior, sport performance and athletes' satisfaction among varsity athletes of colleges and universities in Cagayan de Oro City, a descriptive-correlational type of research was used.

In this study, the independent variable was coaching behavior; the dependent variables were sports performance and athletes' satisfaction.

The study attempted to determine the influence of extraneous variables of the athletes' and coaches' age, gender, years of playing experience/coaching experience, type of sports played/coached, highest level of competition attended, coaches' trainings attended, and coaches educational attainment would affect the other variables.

Population

The population of this study are the athletes and coaches of different colleges and universities participating in the 2013-2014 COSAA meet in Cagayan de Oro City. It consisted of male and female coaches as well athletes who participated in the different events during the athletic meet.

Samples and Sampling Procedures

The samples for this study were the male and female athletes and coaches who participated in the 2013-2014 COSAA Meet in Cagayan de Oro City with a total of 118 athletes and 20 coaches. Total sampling technique was used.

Instrumentation

To measure athletes' satisfaction, a self-made questionnaire was used. It comprised of fifteen (15) statements where the scores for all statements were added and the total score was classified into three (3) levels of satisfaction, namely: Highly satisfied, Slightly satisfied, and Dissatisfied. High score signified high level of satisfaction, and the low scores connoted dissatisfaction. The construction of the self-made questionnaire was based on readings, experience, interviews, and observations. To check the validity and reliability, it was pilot-tested among eighty-three (83) Varsity Athletes of the Mindanao State University, Marawi City during academic year 2013-2014 who participated in the Mindanao State University System Athletic Association Meet last December, 2013.

In gathering the data for the sport performance of the respondents, the coaches were asked to answer the over-all rank of his or her team during the 2013-2014 COSAA meet . Said coaches were asked to complete the questionnaire on the personal profile that included the following: coaches' age; gender; years of coaching experience; type of sports being coached by the respective coaches; highest level of competition attended; trainings attended; educational attainment and over-all rank of the team.

Coaching Behavior Questionnaire developed by Williams et al. (2003) was used to determine the coaches' behavior. It comprises of 20 items with positive and negative statements having

choices of always, often, seldom, and never. To score, point value of 4 for always, 3 for often, 2 for seldom, 1 for never for positive statements, while 1 point for always, 2 for often, 3 for seldom, and 4 for never for negative statements. Results obtained from the questionnaire would classify the coaches' behavior into the following categories: Very Good, Good, Satisfactory, Poor and Very Poor.

The athletes were asked to answer the questionnaire on the demographic profile that included the following: age, gender, years of playing experience, type of sports, and highest level of competition.

Statistical Treatment

IBM SPSS Statistics 20 was used in analyzing the data for this study. The descriptive statistics in the form of frequency and percentage distribution was used to assess the demographic profile of the respondents. To assess the significant relationship between the variables, Pearson Product Moment Correlation of Coefficient or Pearson r and Chi-Square were employed.

SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter dealt with summary, findings, conclusions, and recommendations of the study.

Summary

This study ascertained a significant relationship between coaching behavior, and sports performance and athletes' satisfaction among 188 varsity athletes and 20 coaches in various institutions in Cagayan de Oro City. Also, it tried to investigate whether the athletes' and coaches' age, gender, years of playing/coaching experience, type of sports played/coached, highest level of competition attended, coach trainings attended, and coach educational attainment impinged the relationship of the main variables. A total sampling technique was employed in this study. Tools used are purely questionnaires that measure the respondents' profile, coaching behavior, sports performance, and athletes' satisfaction. And for the statistical descriptive statistics in the form of mean, frequency and percentage distribution was used, and for the correlation, Chi-square and Pearson Product Moment Correlation of Coefficient or Pearson r were utilized.

Findings

Based on the study, the following are the findings revealed that among athletes' respondents most are belonged to 18 years old (19.5%), majority were males (77.1%), had 5 years of playing experience (46.6%), majority played team events (92.4), and played local competition (82.2) as the highest game attended. Among coach respondents, most of them belonged to ages 25, 26, 33, and 45 years old, majority were male coaches (85.0%), had two (2) years of coaching experience (20.0%), coached team events (55.0%), considered both local and national coach (45.0%), attended camp and clinics in various events, and majority were coaches with masters degree holder (60.0%).

Also, results revealed a highly significant correlation between coaching behavior and athletes' satisfaction ($p=0.000$). This connotes that good coaching behavior will result to a highly satisfaction of athletes. Probably the over-all support from their respective coaches, institutions, teammates and parents may contribute also. Besides, coaching behavior and type of sports played ($p=0.023$) showed a significant relationship. Meaning, coaches in team sports have better coaching performance than individual and dual events. Likewise, gender had a significant correlation with sports performance ($p=0.000$) and athletes' satisfaction ($p=0.027$) which signify that male performs better and are satisfied than female athletes. Also, years of playing experience ($p=0.024$) and sports performance had a significant correlation which means athletes played longer years perform better than less experience players. Finally, those athletes competed nationally ($p=0.043$) were highly satisfied.

Conclusions

With the given findings, the following conclusions are drawn: that the moderating variable of type of sports had a significant correlation with coaching; that gender and years of playing experience showed a significant relationship with sports performance; that gender and highest level of competition attended and athletes' satisfaction revealed a significant correlation; that coaching behavior and athletes' satisfaction confirmed a highly significant relationship, thus reject null hypotheses postulated regarding the aforementioned variables correlated, but accept the null hypotheses for other variables having no correlation. Findings to those variables correlated having significant relationships imply that good coaching behavior highly satisfies athletes, male athletes who played longer years show good performance, and those who played higher level of competition are highly satisfied with the supports given to the athletes.

Recommendations

Based on the findings and conclusions of the study the following recommendations are drawn:

There is a need to encourage more women to coach and ensure equal opportunity for women coaches. Likewise, there is a need to have women coaches to coach women teams. There is much need for women coaches not just in the region but for the country as a whole.

Establish standards for coaching so that it will emphasize positive and appropriate coaching behavior to ensure positive development of athletes and enhanced performance. Regular monitoring evaluation of coaches and their

coaching behaviors are necessary to ensure that athletes are handled by coaches whose behaviors on and off the court are worthy of role models for the athletes.

Encourage coaches to possess good coaching behavior toward their athletes either individual/dual or team events in order that athletes be satisfied with their coaching style or ways and other support rendered to athletes, and in return athletes may show also good-quality performance in their upcoming competitions.

Sports administrators should provided varsity programs such as trainings among athletes, coaches or trainers to enhance team events but motivate also dual and individual events so as to develop coaches' behavior.

Both male and female athletes and other sports enthusiasts are encourage to sincerely do good in trainings and unceasingly join various sports competitions either local, national or international competitions in order to have good performance. Also institutions should fully support the needs of every athlete.

Further studies should be conducted using bigger and wide in scope, and with varied population.

The College of SPEAR should offer courses or training program for coaches that will enhance or develop their coaching ability. Develop a continuing coaching education program that will enhance not only knowledge and competencies of coaches to ensure skills and performance of athletes but also right attitude in helping young athletes become champions in sport and in life.

BIBLIOGAPHY

- Apruebo, Roxel A. (2005). Sports Psychology. Manila: UST Publishing House
- Bird, Anne Marie and Bernette K. Cripe (1986). Psychology and Sport Behavior. St. Louis: TimesMirror. Mosby College Publishing.
- Cox, Richard H. (2002). Spot Psychology. Concepts and Applications. 5th ed. Boston: McGraw-Hill Higher Education.

- Mack, Gay and David Casstevens (2001). *Mind Gym: An Athlete's Guide to Inne Excellence*. Chicago: McGraw-hill Companies.
- Schmidt (1988). "Contemporary Issues in Special Education" New York:McGraw Hill
- Williams, J.M., L.J.Kenow, G.J.Jerome, T. Rogers, T.A. Sartian, & G. Darland (2003). "Factor Structure of the Coaching Behavior Questionnaire and Its Relationship to Athlete Variables" *The Spot Psychologist*, 2003, 17, 16-34, Illinois, Human Kinetics Publishers, Inc
- Webster Comprehensive Dictionary . Encyclopedic Edition. USA: Funk &Wagnalls Publishing Company, Inc., 1996.
- Microsoft® Encarta® 2009. © 1993-2008 Microsoft Corporation. All rights reservedhttp://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6W6K-4B7Y16M-2&_user=10&_
- Nazarudin et al. (2009). "Coaching Leadership Styles and Athletes Satisfaction Among MalaysianUniversity Basketball Team". www.eurojournals.com/rjis_9xpdf Retrieved: Samong Residence, May 23, 2013.
- Chelladurai, Packianathan and Catherine C. Quatman (2005). "Leadership and Motivation in Sports, <http://coaching.usolympic/team.com/coaching.kpub.nsf/v/3March05>.
- Curtner-Smith, M., S. Wallace, & M.Q. Wang, 1999. " Relationship of Coach and Player Behavior during Practice to team Performance in High School Girls' Basketball". *Journal of Sport Behavior*, Vol 22, 1999. <http://www.questia.com/googleScholar.qst;jsessionid=LL4J1J11QYDSXW3crcC9ZL9144CZxDjPyV7MWpvy0hNV16Cy7tMQ!786634028!921627548?docId=5002319189>.
- Stewart, Michael J., and Donald J. Bengier (2001). " An Analysis of Volleyball Coaches' Coaching Behavior in a Summer Volleyball Team Camp". *Physical Educator Article*, March 22, 2001.<http://www.highbeam.com/doc/1G1-76547963.html>
- More, K.G., T. McGarry, T. Patrick, D. & Franks, D. (1996). "A Computer-assisted Analysis of Verbal Coaching Behavior in Soccer". *Journal of Sport Behavior*, December 1, 1996.
- Millard, L. (1996). " Differences in Coaching Behaviors of Male and FemaleHigh School Soccer Coaches". *Jornal of Sport Behavior*, vol 19, Issue 1, January 1996. <http://web.ebschohost.com/ehost/delivery?vid=10&hid=14&sid=79c6>.
- Boardley, I.D., M. Kavussanu& C. Ring (2008). " Athletes' Perceptions of coaching Effectiveness and Athlete-Related Outcomes in Rugby Union: An Investigation Based on the Coaching efficiay Model". *The Spot Psychologist*, 2008, 22, 269- 287,copyright 2008 Human Kinetics.



DEVELOPMENT OF STATIC AND DYNAMIC BALANCE AT THE AGE OF 7 TO 12 YEARS OLD IN TERMS OF GENDER (CROSS-SECTIONAL STUDY OF THE DEVELOPMENT OF STATIC AND DYNAMIC BALANCE IN THE ELEMENTARY SCHOOL STUDENTS IN THE DEMAK REGENCY)

Dhias Fajar Widya Permana

Sport Science Department, Sports Faculty, State Semarang University

dhiaspermana17@gmail.com

Abstract

Background of this static balance research and dynamic is to investigate the development of static and dynamic balance in older children ages 7 to 12 years in Demak regency. The purpose of this study was to determine the importance of the development of static and dynamic balance in young men and the humiliation of women aged 7-12 years in Demak regency. The method was used by the researchers in examine this research is by methods development Cross-sectional study (*study the development cross-sectional study of balance*). The initial phase is to collect student data Elementary School (SD) according to the sampling technique used, in whole school elementary school as Demak regency. The data are the names of students who will perform tests of static balance and dynamic balance. In the second stage, after the data has been collected the students perform a static balance test using the *tes stroke stand* and for dynamic balance test using the *floor pattern*. The third phase was after the measurement of static balance and dynamic balance is complete, it can be presented in tables and graphs, according to the data of each measurement and the balance and then compared the development of static and dynamic balance per-ages 7 s/d 12 years so also gender. The next age is to compare the development of static balance and dynamic balance between kids boys and girls ages 7 s/d 12 years.

Keywords: Development, balance, cross-sectional study.

INTRODUCTION

Physical education is an integral part of the education system as a whole so that physical education has considerable significance in developing human representative in its preparation towards human beings. National Education Standards Agency (2006) states that: Physical Education Sports and Health is an integral part of the overall education, aims to develop aspects of physical fitness, motor skills, critical thinking skills, social skills, reasoning, emotional stability, moral action, aspects of pattern healthy life and a clean environment through the introduction of physical activity, sport and health are planned systematically selected in order to achieve national education goals. The learning process that takes place in physical education involves elements of physical, mental, intellectual, emotional and social. Teaching physical education can not be presented in the form of theoretical or lessons in the classroom, but prefers physical activity as a medium to achieve the expected goals. By this it appears one element in which these elements are essential to their daily lives and educational support that is the element of balance.

Physical education in Indonesia has a goal to harmony between body weight and mental development, and is an attempt to make the Indonesian people healthy physically and spiritually, is given to all types of school. The scope of Physical Education materials based National Education

Standards Agency (2006) for elementary schools, include: "(1) games and sports, (2) development activities, (3) gymnastic activities, (4) rhythmic activity, (5) water activity, (6) education outside the classroom, (7) health. Of the seven aspects are summarized in standards and basic competencies contained in Competency-Based Curriculum. While the implementation of the seventh scope of the physical education materials, adapted to the conditions of each region and education units (schools). Physical education has the goal to be achieved through a variety of factors, one of which is the performance of motion, because the nature of physical education is education by using sport as a tool so that the performance of motion in physical education should receive serious attention. With the serious attention it will generate a motion performance that is good and true, and not in spite of the confidence will be the performance in person. Starting from human growth over time will change the motor or the performance of the motion starts with less good to be good in movement balance.

Basically the balance will emerge a variety of benefits, the balance of benefits will facilitate the performance of motion in sports as well as in everyday life, so that when the balance is good then it will be good also movements in the performance of motion in one sport. The balance will be different in each human being, because of the difference between the sexes. Gender is what distinguishes each person has a different balance, while gender is male and female. And there will be a change or a difference in the balance of a person with their age difference. Based on the background mentioned above, the researchers intend to conduct research on the differences in the balance of the child so the authors are interested to know the development of static balance and dynamic balance of children aged 7-12 years in boys and girls in Demak.

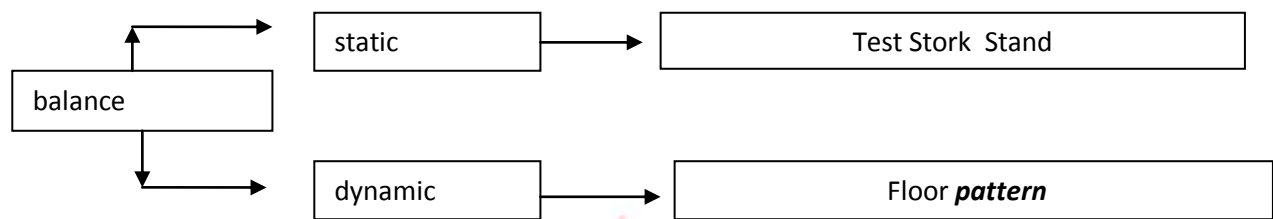
METHOD

This research is the development of (developmental research) by using short cross (cross-sectional studies). describe the development of the balance of big boys aged 7-10 years. According Suharsimi Arikunto (2009: 241). I development research is part of a descriptive study, which is a descriptive study was not intended to test a specific hypothesis, but describe what it is about something variable, symptoms or circumstances. Suharsimi Arikunto, (2009: 234). By using this method a new subject in the next-yahun would appear to be replaced with another subject of an age stratified. Thus in one time had several groups of children with different age.

Group 1 (0; 1) X.1
 Group 2 (1; 1) X.2
 Group 3 (2; 1) X.3
 Group 4 (3; 1) X.4
 Group 5 (4; 1) X.5
 6 groups (5; 1) X.6
 A short cross pattern method (cross-sectional studies)
 Source: Suharsimi Arikunto (2009: 242)

Sugiyono, (2009) everything any shape defined by the researchers to be studied in order to obtain information about it, then drawn conclusions. In this study, the research can be identified as follows:

- a) Variable-free The independent variable is gender
- b) Variable bound The dependent variable is the development of static balance and dynamic balance of children aged 7-12 years



The data in this study was obtained through the method tests the age group. The study sample was obtained from secondary data contained in each of the schools where the sample school. Collecting data here using secondary data from the name and age of the child, while the primary data, researchers will measure the static balance in children aged 7-12 years old boys and girls using stork test stand (stand on one leg) and to measure balance dynamic in children aged 7-12 years men and women using the modified test pattern Floor test (running in a straight line)

RESULTS AND DISCUSSION

Balance or equilibrium is the ability to maintain our neuromuscular system in a static condition, or the neuromuscular control in an efficient position or attitude while we move (Barrow and McGee: 1979). According to Oxendine (1968), the balance is "Ease in maintaining and controlling body position" or easy to control and defend the position of the body. So there are two balance: a. Static balance (static balance) in static balance, the motion is usually very small, such as standing on a narrow basis or balance beam, railroads, do a handstand b. Dynamic equilibrium (dynamic balance), the ability of people to move from one point to another by maintaining a balance (equilibrium), such as dancing, exercise horse or parallel bars.

1. The development of the balance of the boys - men between the ages of 7 - 12 years in the area of Demak. Balance development in boys - men between the ages of 7 - 12 years in the area of Demak in terms of static and dynamic balance showed an increase in the development of the balance. The balance of 7 year olds dengan 8 years on boys in terms of static and dynamic balance showed an increased balance, at age 8 to 9 years samapai increase in static and dynamic balance boys - men showed better improvement than the previous age children. Then children aged 9 to 10 years have increased the development of static and dynamic balance with improvement not so great. Whereas in children aged 10 to 12 years of age increased with the increase in development well. At every age children increased development of balance.

2. The development of balance in girls between the ages of 7 -12 years in the area of Demak. Balance development in girls between the ages of - 12 years in the area of Demak. The balance of girls at the age of 7 years will increase, whereas in children aged 8 years old girl experienced a slight increase compared to the balance of the age of 7 years. At the age of 9 years girls also increased balance is so good, age 10 girls good balance and an increase in the percentage. At the age of 11 to 12 year-old girls increase is not too good of a previous age. So that the conclusions of balance in children ages 7 to 12 year-old girls increased.

3. The difference in the development of a balance between boys and girls at the age of 7 to 12 years in the district Demak. Balance development differences between boys and girls at the age of 7 to 12 years in the district Demak. At the age of 7 girls and boys have differences in the development of both static and dynamic balance, better boys than girls. At the age of 8 years of development of the balance of boys and girls also experience the difference, seen in the percentage of boys - boys better than girls. Age 9 years showed a better balance of boys than girls in terms of static and dynamic balance. At the age of 10 years of development of the balance of the child there is a difference. Where the difference is better boys than girls seen on the percentage of the balance of the development of the child. While the percentage of children aged 11 years showed better balance development in boys who showed a good percentage than girls. Children aged 12 years skew better balance development in boys than

girls, in terms of percentage in Demak district. Thus be concluded tad better static and dynamic balance in terms of gender based on age of each group. Can be seen from the percentage growth in the balance of Demak, showed that boys - men from the age of 7 years until the age of 12 years is better than girls in Demak district

Discussion contains explanation supported with references, Balance is the ability to maintain our neuromuscular system in a static condition, or the neuromuscular control in an efficient position or attitude while we move (Barrow and McGee: 1979). According to Oxendine (1968), the balance is "Ease in maintaining and controlling body position" or easy to control and defend the position of the body. So there are two balance: a) Balance Static (static balance) in static balance, the motion is usually very small, eg standing on a narrow basis or balance beam, railroads, do a handstand b) Balance Dynamic (dynamic balance), the ability of people to move from one point to another by maintaining a balance (equilibrium), such as dancing, exercise horse or parallel bars.

Balance is the body's ability to position, in various movements, they are all movements that are affected by a variety of factors. maintain influenced by sight, touch, and stimulation vertibular (David L, Gallahue, 1985) Vision or vision plays an important role, in all movement of young children. Cratly and Nartin, 1969, found female children aged 6 years and under are not able to maintain balance by standing on one leg, with eyes closed. But from the age of 7 years they can do it, and the more you get older the better balance (David L, Gallhue, 1985). With open eyes of children possible focus on one point, in maintaining. Eye view also allows the child to visually monitor the gestures, during static and dynamic balance. Static balance, is the body's ability to maintain balance in a fixed position (De Oreo, 1980) stated in the results of his research that there is a marked difference between the ability to maintain the balance of boys and girls, compared to other tasks motion capabilities. Dynamic balance has various terms that will facilitate the study of balance, the notion of dynamic balance is the ability to maintain balance at the time motion from one position to another position direction.

The term "balance" and "equilibrium" is often used in the same sense. Balance can be included as a process in which "the body's equilibrium" controlled for specific purposes (Kreighbaum & Barthels, 1985). Balance is defined as the ability to control the body and the center of gravity relative to the "based support" is described as "family adjustment" necessary in order to maintain the posture and movement. Family This adjustment has three objectives: 1) to support the head and body against gravity and strength / power from the outside, 2) to keep the "center of the body mass" / CBM (the center of mass of the body) in accordance with the above alignment and balance "based support ", and 3) to stabilize the body where members of the body to move or switch (Ghez, 1991).

David and Gallahue (1985), states that the balance is the body's ability to maintain a position in a variety of movement, which is influenced by several factors, namely sight, touch, and vestibular stimulation

According to (Suhartono, 2005) postural balance is the body's ability to maintain the body's center of mass with the limits of stability is determined by basic buffer. The body's center of mass is the point where the amount of force exerted is zero. In normal people, the body's center of mass in front of the 2nd sacral vertebra or to be 55-57% of a person's height above the ground. Limitation of stability is a place on a space in which the body can support without changing the position of the base buffer. Balance involves various movements in each segment of the body with the support by the system I and field fulcrum. The ability to balance the body mass fulcrum field will make people able to move effectively and efficiently. Classification of postural balance can be classified into two classifications, namely (Suhartono, 2005) 1) static balance. Static balance is a condition in which a

person can maintain his balance at a certain position for a certain period. For example in children who imitate sculpture. 2) dynamic balance. Dynamic balance is the balance of the body during movement or while standing on a moving platform (dynamic standing) that would place it in an unstable condition, and in these circumstances the need for increased postural balance control. Eg balance while walking, riding on a boat, or run on the treadmill.

The balance is a complex interaction of integration / interaction of sensory systems (vestibular, visual and somatosensory including proprioceptor) and musculoskeletal (muscles, joints, and other soft jar) modified / regulated in the brain (motor control, sensory, basal ganglia, cerebellum, association area) in response to changes in internal and external conditions. Influenced also by other factors such as, age, motivation, cognition, environment, fatigue, the effects of drugs and previous experience.

The balance is the main cause that often result in an elderly easily fall. The balance is a motor response resulting from various factors, including sensory inputs and muscle strength. The balance can also be considered as appearance depending on the activity or exercise is ongoing. Research shows that the balance continued to decline with age, which is not only as a result of decreased muscle strength or due to illness. The balance of the decline can be remedied with a variety of balance exercises.

Postural balance mechanism according Suhartono (2005: 23) postural balance mechanism requires the cooperation and interaction of the three components, namely: 1) Peripheral Sensory System The main sensory systems associated with postural balance includes visual system, vestibular and proprioceptive (Suhartono,). Visual disturbances that can increase the risk of falling, such as cataract (Hazzard,). Seniors generally experience changes in eye structure. One of them is atrophy and hyalinization on the ciliary muscle which can accommodation. This can increase the threshold batasvisual so as to break the afferent impulses that can then be lowered visual seniors, and will ultimately affect their postural balance. There was also a change in the field of vision, decreased visual acuity, visual contrast sensitivity due to reduced perception of contours and distances. Decrease in visual acuity caused by cataracts, degeneration makuler, and peripheral vision disappears. This visual receptors provide information about the orientation and position of the eyes of the body or head to the surrounding environmental conditions. Balance disorders appears more clearly again if the afferent impulses to the visual dispensed, for example, when the eyes are closed, it looks ayuanan body (sway) becomes superfluous. 2) effector system The main task of the effector system is to maintain the center of gravity of the body / Center Of Gravitation (COG). Where duties include sitting, standing, or walking. In a standing position motor response (effector) maintain or sustain an attitude and balance, which is called muscle synergies (Guccione).

Movement is done by a group of joints and muscles from both sides of the body, then the normal effector component must exist in order to perform normal movements of postural balance. Effector component required is LGS (range of motion), strength and endurance (endurance) muscle group feet, ankles, knees, hips, back, neck, and eyes. Disorders of the effector component will affect the ability to control the posture that will happen postural balance disorders.

CONCLUSION AND SUGGESTION

Based on the results of research and discussion that has been described in previous chapters that can be drawn some conclusions as follows: 1. Balance Childhood Development 7- 12 Years a) Development of Static Balance Boys Age 7-12 Years Static balance the development of male child at the age of seven years already looks good static balance, in terms of graphics and field results can be explained that children aged seven years have increased balance will be better later age, in children aged eight years there was an increase in the balance static from the graph of children aged seven, can be seen in the graph increase in children aged eight years. Based on the results obtained from

abak age of eight years has increased the static equilibrium or decreased due to daily activities and a variety of other factors. At the age of nine boys will undergo static equilibrium which tends to be a little slow or there was a slight increase in static. Static balance ten years old boys will also experience balance a little slow in age eleven static equilibrium boys slightly increased from previous years by the researchers in the field. At the age of twelve boys - boys will be better static balance of the previous age, so from the age of seven to twelve years of static balance increased slowly and quickly, then each age level has a different balance, but always increasing.

At this age most good big kid. b) Development of Dynamic Balance Boys Age 7-12 Years Dynamic balance of seven-year olds tend to be less well, based on the field of children aged seven still little trouble in dynamic balance, while at the age of eight Dynamic balance will rise better than the age of seven years, but it does not look good improvement, so at the age of seven to eight years Dynamic boys - men are not too good. The age of nine boys will be the same as girls just a little better hamya boys - men, this is because women are more rapid in its development. The age of ten and eleven years old boy - a little boy will be the same as the girls balance dynamic. At the age of twelve dynamic will both of women and the percentage increase in graphics Dynamic balance. c) Development of Static Balance Girls Age 7-12 Years Static balance daughter at the age of seven years is slightly better than boys - men the same age, from the results of the field a lot of girls aged seven easily perform a given test and getting a good record time. The age of eight and nine years will have a tendency Static balance is better than the previous age, because at this age girls are more quickly, and affect the. At the age of ten girls getting better static with daily activities that help children able Static balance test well, the age of eleven and twelve years old girls are more likely to have a better balance of boys and nicer. d) Dynamic Balance Girls Age 7-12 Years Based on the existing chart of seven-year-old daughter has a tendency Dynamic slightly less good, the next age is the age of eight girls there will be little change in the balance of which is increased or better dynamic balance, from the age of seven and eight years will look a little an increase in the graph later at the age of nine and ten year-old girls approached as good as boys. Age of eleven and twelve-year-old girls will be more likely to be less good dynamic balance boys. In the graph can be described that girls at the age of eleven and twelve dynamic has decreased.e) Balance Difference Static Age 7-12 Years Children Large Of Gender. Static balance based graphics boys and girls express the difference between static balance boys and girls starting from the age of seven years up to the age of nine, better boys than girls static balance so that when the child study men tend to get better in time balance test. At the age of ten to eleven years old girl has Static as good as the boys, until the age of twelve girls dominate Static balance of the previous age. But there is still much in comparison with the balance of boys of boys d) differences Balance Dynamic Large Kids Age 7-12 Years Of Gender Dynamic equilibrium based graphics boys and girls express the difference between the balance Dynamic boys and girls starting from the age of seven years up to the age of nine, better boys than girls static balance so that when the child study men tend to get better in time balance test. At the age of ten to eleven years old girl has Static as good as the boys, until the age of twelve girls dominate Static balance of the previous age. But there is still much in comparison with the balance of boys

ACKNOWLEDGMENT

Dedication, This resolved properly due to the help and given to the author so I need to say a big thank you to: Allah SWT, Hendro my father and my mother Sulastri thanks very much provide guidance and education to date in order to be a useful human writer, Yudhiastri Indra's brother and his family first, my second brother and his family who always give a boost to be bettered, Enggar Ayu Kusuma who always took the time to wait to become a better writer

REFERENCES

- Didin Budiman.(2010). *Bahan Ajar M.K. Psikologi Anak dalam PENJAS*. http://file.upi.edu/Direktori/FPOK/JUR. PEND. OLAHRAGA/197409072001121-DIDIN_BUDIMAN/psikologi_anak_dlm_penjas/Karakteristik_Siswa_Sekolah_Dasar.pdf, diunduh 10 juni 2012
- Drowatzky, John N. 1981. *Motor Learning Principles and Practices*. Minnesota: Burgess Publishing Company.
- Elham Cahyantor. (2011). *Perkembangan Fisik Dan Motorik Anak Besar*. <http://mbenxxcaem.blogspot.com/2011/09/perkembangan-fisik-dan-motorik-anak.html>, diunduh 10 juni 2012
- Endang R. S., Panggung S., dan B. Suhartini. (2007). *Diklat Pengembangan Motorik*. UNY. Yogyakarta.
- Fahmi Hidayatullah. (2012). *Perkembangan Fisik Dan Motorik Anak Besar*. <http://studysport.blogspot.com/2012/03/normal-0-false-false-false-en-us-x-none.html>, diunduh 10 juni 2012
- Gallahue, David L. Dan Jhonson C. Ozmun. (1998). *Understanding Motor development; infant, children, adolescence, adults 4th edition*. New York: Mc Graw-Hill Companies, Inc
- Haywood, Kathleen M. (1986). *Life span motor development*. Illinois: Human Kinetic Publisher Inc
- I Nyoman Sudarmada. (2010). *Perkembangan Persentase Lemak Tubuh, Ukuran Antrophometri, Dan Kemampuan Loncat Tegak Pada Anak Usia 6-12 Tahun Ditinjau Dari Jenis Kelamin Dan Ketinggian Wilayah Tempat Tinggalmaja rosdak Di BALI*. Tesis. Fakultas Ilmu Keolahragaan. Pasca sarjana IOR. UNS. Surakarta.
- Isaac, Stephen., Michael, William B. 1984. *Handbook in Research and Evaluation*. San diego: Edits Publishers
- Johnson, Barry L dan Nelson, Jack K. (1986). *Practical Measurments for evaluation in physical education*. Macmillan publishing company. New York
- Kirkendall, D.R., Gruber, J.J., dan Johnson, R.E., 1980. *Measurement and Evaluation for Physical Education*. Dubuque, Iowa: Wm. C. Brown Company Publishers.
- Magill, Ricahrd A. (1993) *Motor Learning: Concepts and Applications (4th Ed.)*. WMC. Brown. Dubuque. IA.
- Mulyono B. Atmojo. (2008). *Tes dan pengukuran pendidikan jasmani/ olahraga*. Surakarta: UNS press.
- Morrow, James R., Allen W. Jackson, James G. Disch dan Dale P. Mood. (2005). *Measurement And Evalution In Human Performance Third Edition*. Auckland: Human Kinetics.
- Sajoto. (1995). *Perkembangan Dan Pembinaan Kondisi Fisik Dalam Olahraga*. Jakarta: dahara price.
- Sasmunuwiyati Mar'at. (2006). *Psikologi Perkembangan*. Remaja rosdakarya. Bandung
- Schmidt, Richard A. 1991. *Motor Learning and Performance: From Principle into Practice*. Human Kinetics. Champaign, IL.
- Schmidt, Richard A. 1988. *Motor Learning and Control: A Behavioral Emphasis*. Champaign, Illinois: Human Kinetics Publisher, Inc.
- Singer, Robert N, 1980. *Motor Learning and Human Performance*. New York: Me Millan Publishing Company, Inc.
- Sudjana. 1996. *Metode Statistika Edisi VI*. Bandung: PT Tarsito.
- Sudjarwo dan Sugiyanto. (1993). *Pengembangan dan Belajar gerak*. Jakarta. Depdikbud.
- Sugiyono. (2009). *Metode penelitian kuantitatif kualitatif dan R&D*. Bandung: Alfabeta.
- Suharsimi Arikunto. (2009). *Manajemen penelitian*: Jakarta. Rineka Cipta
- Tim penyusun Tesis program pascasarjana UNS. (2011). *Panduan Penulisan Tesis*. Surakarta: UNS
- Verducci frank M. (1980). *Measurment concepts in Physical education*. Cv Mosby Company. London

- Morrow, James R., Allen W. Jackson, James G. Disch dan Dale P. Mood. (2005). *Measurement And Evalution In Human Performance Third Edition*. Auckland: Human Kinetics.
- Sajoto. (1995). *Perkembangan Dan Pembinaan Kondisi Fisik Dalam Olahraga*. Jakarta: dahara price.
- Sasmunuwiati Mar'at. (2006). *Psikologi Perkembangan*. Remaja rosdakarya. Bandung
- Schmidt, Richard A. 1991. *Motor Learning and Performance: From Principle into Practice*. Human Kinetics. Champaign, IL.



THE EFFECT OF COORDINATION EXERCISE ON THE POWER ABILITY OF SPRINTER

Rumini

Sport Science Faculty, Semarang State University

rumini_fikunnes@yahoo.co.id

Abstract

The purpose of this research is to know the effects of coordination exercise in the ability of power in sprinter students. The population of the research of 32 male student athletes aged 14-16 years. Sample technique a total of consisting of one group of his experiments $n = 16$) and control groups ($n = 16$). Statistical differences group experiment determined by the measurement of early (pre test) and measurement (post test) ($P < 0,5$), while the difference signifikan group experimentation and the control group on measuring post a test ($p < 0.5$). Sprinter in muscle power make them jump through vertical (VJ) .The experiment was trainer groups contrasted the results in increased quite a significant. ($p < 0.5$) (37,1 – 40,7). While the control group who in non trainer contrasted the results(29.90 – 32.17). The results of research of a group in his experiments (exercise produce power which better in of appeals that trainer sprinter non-kontras.untuk increase in power, coordination exercise contrast of (run the post) can be in latihkan to exercise the physical condition of technique and improve step in sprinting.

Key words: coordination, contrast training, power

INTRODUCTION

Become fast runners (sprinter) is the grace that created by god in the only one god, because of a sprinter having a knack brought since birth. Because of that, a sprinter have as much as 85 % of that natural ability and when it will undergo additional training and the ability to 15 %. Thus looking for a sprinter there must be another kind of scientific tests that of course it can be seen as a kid by analyzing a kind of muscle fibers white carried have been since birth. But because the congenital factors not easily seen, and takes charge of the expensive to determine the patency way laboratory then traveled by coach is by doing rutin exercise, Then follows the race in over time in every year, and will be known whether talented runners who trained .

Although sprinter having talent congenital, but the type of exercise, exercise, age of the environment of infrastructures and coach who handles exercise will also affect on the ability of athletes. Achievement. The form of physical exercise , engineering and mental is a form of exercise that s wired up in accordance with phase annual exercise .Biomotor physical exercise such power resistant (endurance) , speed , the power of, flexibility and coordination is obligatory exercise performed by a sprinter. Although there are other types of exercise as endurance speed, agility, reaction, power and others, but main biomotor is domination of the exercises speed

Coordination exercise is one of the exercise of which by coach important given to increase the speed for seprang sprinter. The purpose of the exercise of coordination for sprinter is to get the movement of being elastic, fast and reactive for sprinter Sprinter having a step slow speed, then speed obtained also reduced. To produce a short and quick, quick step sprinter requires and long. Types of exercise coordination is a type of exercise that has the purpose to improve the techniques of running, i.e. to improve the step, and improve the position of togok so accustomed to straight,

motion control with precision in order to reach one specific physical tasks. Through a mix of motion of two or more joints, which are interconnected to each other can produce a motion that is effective and efficient

Power for a sprinter are the instruments which is crucial for sprinter test , because sprinter with the ability power which good, will be able to do the ability of a rapid reaction and power the position of a footstep powerful to get swing a strong step, long and fast .Therefore important to do research relating to the power power for a sprinter that is concerned with the types of exercise coordination to produce the records of a better achievement .

METHOD

This study using the design of experiment .The population in this study using athletes sprinter male students aged 14 -16 year. The technique of using purposive sample.A total of 32 people were divided into two groups experimen $n= 16$, in contrast, the coordination, and control ($n= 16$, non contrast. A test power use vertical jump .Exercises are performed for 6 weeks, group experimentation and control an exercise group selama1 hours (coordination contrasted do run the post) non contrasted use of jump rope (hope rope) .2 way anava analysis using (group).

RESULT AND DISCUSSION

There is an effect that significant coordination between exercises contrasted and non contrasted against the increasing power limb muscles on sprinter , with the outcome of f count (37,1 – 40, 7) > F tabel (29,90 – 32,17). The results of the study can be seen in table 1.

Table 1. The results of the pre tests and post test a exercise contrast coordination and non contrast to the increase in muscle power sprinter in students .

Excercise	Vertical Jump		Diference
	Pre Test	Post Test	
Koordinasi Kontras (HP)	37.98	39.82	+1.84
Koordinasi Kontras (LP)	37.26	39.47	+2.21
Koordinasi Non Kontras (HP)	33.87	34.11	+ 0.24
Koordinasi Non Kontras (LP)	28.17	29.43	+ 1.26
Means	37.10	40.70	+ 3.60

Discussion

The result of F count = 37.10 – 40.70 > F tabel (29,90 – 32,17). This means F count > of F table. With the coordination exercise test contrast given the hurdling workouts better than exercises coordination in non contrast give exercise skipping jump. This happened because the exercise of coordination which given exercise with run goal besides improve endurance, speed can also increase power limb muscles.Because of the motions rotation motion run on goal that requires stepping feet wide, the frequency of the foot and the swift muscle hence power will automatically trained. Coordination is the ability to perform a movement with multiple levels the lurch quickly and efficient and full of the accuracy (Rusli Lutan, etc, 2000: 77).

Components biomotor coordination is necessary in every branch of the sport , for basic elements motion basic techniques in sport involving the branch of synchronization of some ability , where this capacity into a series of motion being conformable, harmonious, and simultaneous that

motion done seem flexible and easily. Hence coordination necessarily associated with biomotor other, especially agility and dexterity. (Manfred Letzelter (2002: 204).

Exercise coordination required by sprinter to get a balanced movement, lithe and graceful in motion run to increase the frequency and length of a stride. Long step is the distance traveled in one step run. Long steps determined by the distance take off, suspended in the air, and the distance the landing of the foot. Long step is the distance traveled in one step run. Long steps determined by the distance take off, suspended in the air, and the distance the landing of the foot. Distance suspended in the air determined by escape velocity, angles off, altitude off, and air resistance. (Harald Muller dan Wolfgang Ritzdorf, (2007: 22).

Every length of a stride runner is the result of a sum three distance, namely: (a) the distance repulsion feet, which is horizontal distance between the legs who resists with point weight runner, (b) the distance suspended in the air, namely that horizontal distance reached by runner with the transfer of the point of weight during their stay in the air, and (c) the distance landing, namely that horizontal distance reached by runner between the point of weight with legs that landed. Length of a stride determined by their distance take off, suspended in the air, and the distance landing feet. The distance suspended in the air determined by escape velocity, angles off, the height of off, and air resistance. Thus, movement run the post is movement leading in the movement of run sprints, where at the speed of sprints need encouragement repulsion strong feet. By the exercise of contrasting use exercise run the post, the power of limb muscles shall be stronger to perform a movement run sprints.

Mann, R. and J. Herman, 2005: 13), Stated that thrust limbs and feet were analysed in can start turning with a built in starting block. If turning feet start pressing upon block, its impulse could be passed into a dynamometer. The power of impulses and the length and also the direction of a timing of any encouragement feet. In figure can be seen in a vertical shaft, impulses strength included in a unit of kilo pond, and a horizontal shaft show chronology levels power. Thus, and power needed for movement at the time of exercise start so that movement can dilatihkan contrast to sprinter.

CONCLUSION

Based on the analysis we can conclude that train power limb muscles for a sprinter it is very important, for by having power a limb that strong, will get motion step a constant and power to paddling a useful step forward. Through the exercise coordination contrasted with run the post can increase power limb muscles significantly.

REFERENCES

- David E. 2011. *The Effect of Assisted and Resisted Sprint Training on Acceleration and Velocity in Division Female Athletes*. Journal of Strength & Conditioning Research, Volume 21. Issue 4, 2011.
- Ebben, WP, Davies, JA, and Clewien, RW. 2009. *The Effect of Resisted Training on Speed and Strength Performance*. Journal Strength Conditioning. Vol 23.
- Harald, Muller: Wolfgang, Ritzdorf. 2000. *Pedoman Mengajar Atletik Level I*. RDC Jakarta.
- Manfred, Letselter. 2001. *Training Grundlagen*. Rowohlt Taschenbuch Verlag, GmbH, Reinbeck: Hamburg.
- Mann, R. And J. Herman. 2005. *Kinematic Analysis of Olympic Sprint Performance*. International Journal of Sport Biomechanics.

INSTRUMENT DEVELOPMENT FOR TALENT SCOUTING FENCING ATHLETE ACHIEVEMENT TOWARDS 2024

Nuruddin Priya Budi Santoso

Sports Education Post Graduate Program Semarang State University

Nuruddin_priyo@yahoo.co.id

Abstract

This aims study (1) to determine the indicators that can be used in the development of sports talent scouting instrument toward the achievement of fencing athlete 2022, (2) to determine the validity and reliability of the instrument talent scouting the sport of fencing to the achievements of 2022, (3) to determine the effectiveness of the instrument fencing sport talent scouting achievements towards 2022.

This study is a research approach to research and development, the steps are as follows: (1) review the criteria of good tests, (2) analyze sport to be tested, (3) preview literature, (4) select test items, (5) Establish procedures, (6) peer review, (7) pilot study, (8) determine validity reliability Objectivity, (9) develop norms, (10) construct a test manual.

From the results of theoretical analysis, the instrument can be choosen sport fencing talent scouting, includes: (1) test coordination / throwing a tennis ball catch, (2) arm muscle power test / throw a basketball, (3) test the leg muscle power / jump upright, (4) test the agility / running back and forth, (5) test the speed / run 40 m, (6) the reaction time test, (7) kinestetict perception test, (8) flexibility test, (9) test accuracy, (10) multi-stage test.

Key words: Talent Scouting Instruments Fencing

INTRODUCTION

Basically this paper aims to address the problems that arise in sport coaching fencing in Indonesia. Those problems include: To promote, breeding, talent scouting and training system. Talent scouting is an important component in preparing athletes long term (10 years). In need of talent guiding the provision of an instrument that has certain requirement.

The question is:

1. What indicators can be used in developing the talent scouting instrument sport fencing to the achievements of athletes in 2022.
2. How do I get the validity and reliability of the instrument sport fencing talent scouting athletes achievements towards 2022
3. How is the effectiveness of talent scouting instrument fencing sport athlete towards achievement in 2022.

In line with these objectives, the following will be analyzed theoretically related to the above problems. May be useful.

DISCUSSION

1. The preparation procedure Instruments

Preparation procedures and instrument measurement by James Morrow. et al. includes the steps : review criteria of good tes, analyzesport to be tested, preview literature, select test items,

establish procedures, peer review, pilot study, determine validity reliability objectivity, develop norms, construct test manual (2011 : 284-286).

1.1. Review Criterion of Good Test

To get an idea of the true state of the field data collection, should use the fine instrument. An instrument said to be good if it can provide accurate data. Beside, the instrument must meet these criteria: validity, reliability, objectivity, discrimination, practicable.

1) The validity

There are two main questions posed most of the instruments / gauges in this case is a test, how the validity and objectivity. Both of these questions to make be sure that the instruments / gauges to be used can actually measure what it should be measured. The understanding of validity is a measure that state lack the purpose instruments / measuring instruments that meet the requirement of making the test. The validity of the test indicate the degree of conformance test with attribute that were Measured. Validity describe the ability to measure what is to be Measured (Kirkendall, 1987).

The types of validity :

- a. The logic of validity :
Often called the face or content validity. An instrument has content validity to the extent that it measure the capacity of the instrument in accordance with the conclusion to be drawn. The logic of validity is determined by testing the capacity to measure and determine whether it is in fact an instrument to measure the capacity in question.
- b. Concurrent of validity:
Is a measure of the correlation test on some specific criteria. To determine the concurrent validity by: expert judgment, subyektive rating, tournament standing, pre-set criteria.
- c. Predictive Validity:
Validity is determined by using a criterion of measurement. Validity describe / shows the value of a measurement to predict performance on other measure (criteria).
- d. Construct validity (conception):
Validation is based on scientific method. The first thought that a test to measure some properties of both a theory developed to explain two things is that reinforce or reject a theory. Conception of validity is determined by the assessment rate, the extent to which theory and statistical support concepts that have been drafted.

Factors that affect the validity of: (1) the criteria selected (expert judgment, the position in the tournament, a predetermined criteria), (2) the characteristic of the individual being tested (age, gender, skill level and experience), (3) reliability, (4) objectivity, (5) extension of the test.

2) Reliability

Definition: a reliable measuring instrument can be said if the measure has high reliability, or can be trusted if it is stable gauge, gauge means it is stable, reliable and predictable. It is said appropriate if the gauge if the measurement is repeated on the same object produces relatively similar results.

Types of reliability :

Reliability of measurement of physical performance can be searched through and intraklas interklas correlation. There are two types of reliability concerning the calculation of the coefficient of reliability measurement tools.

a) Reliability of stability:

Reliability can be considered stable if the score generated by the individual relative same of one day to the next. If the scores remain stable, it can be said the scores are reliable.

Factors causing the low stability scores: (1) The person who tested the different test, (2) measurement instrument is operated or implemented was different, (3) The person performing the measurement of change.

b) Reliability of internal consistency:

Coefficient of internal consistency can be used to estimate the reliability of the measurement. The advantage of this coefficient is that all data collected in a one day. Internal consistency associated with a consistent scoring by individual who were tested during a measurement or an experiment conducted multiple experiments to always shown consistency. To obtain internal consistency reliability of assessment should apply at least two trials of one test a days. Correlation between the scores of those experiments are internal consistency reliability.

How to get the coefficient of internal consistency: (1) test-retes on the same day, (2) method halved, (3) method of Kuder-Richardson

3) Objectivity

Sense of objectivity is the inter-tester reliability. Reliability tests showed similar results-retes measurement of the same object and subject. While objectivity showed similarity results provided by two or more tester on the same object. Objectivity means that there is no subjective element of private testers that affect test results.

To obtain a high objectivity, need to be cultivated:

1. Measurement procedure should be formulated in words that are easily to understood.
2. Measurement procedure is done by a tester easily cultivated and testy.
3. Use of mechanical measuring device, if possible.
4. Choose an experienced tester.
5. Tester should be scientist.

4) Discriminity

Questions in exam or test are administered to students in order to distinguish between those who truly practice with those who did not practice, between those who truly learn with those who do not learn. A good test should be able to distinguish the ability of students according to their level of skill and intelligence. The test is too difficulty so that students can not work properly or is it a good test, because such tests did not have the ability to distinguish between those who are capable of ugly, pretty, good and excellent.

5) Practicability

Besides the criteria and reliability of the test is the most important of the other criteria, but a number of considerations that are practical and can affect to consider as well.

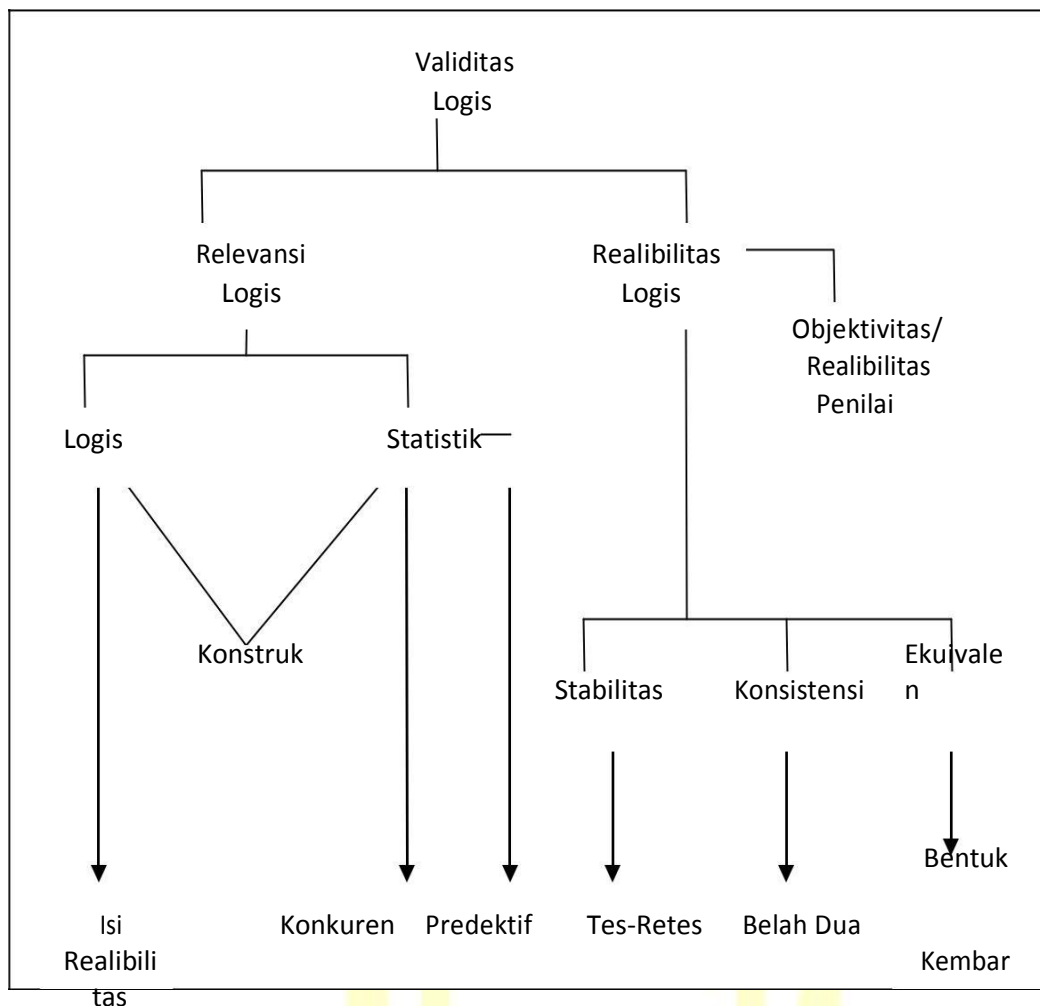


Fig. 1. The relationship between relevance and reliability of the validity

Consideration include:

1. Save time and cost.
2. Easy of administration, including: (a) easy to implementation, (b) carried out with specific demand or instructions are clear and complete, (c) easy examination, (d) equipped with assessment guideline.
3. Easy of interpretation (equipped with the norm)

1.2. Analyze the sport

Basic techniques of fencing are all form of images or elements that exist in sport fencing. The elements are: the salute, the guard / on guard, step, advance, retreat, the lunge, footwork, Parry, the disengagement. Faidillah Umar (1996: 50-61).

1.3. Review the literature

In preparing the instrument need to pay attention to the sport of fencing-related components. These components include:

- 1) The components of physical ability (speed, strength, endurance, agility, flexibility, reaction time, power, coordination, precision and sense of motion).
- 2) Parts for motor ability
 - a) The basic motion

Stability of motion (bending, stretching, twisting, swinging, rotating body, landing, stopping, dodging etc.).

Locomotor movement (walk, run, jump, fly, glide, leap, climb, etc.).

Motion of manipulative (throwing, catching, kicking, volley, trap , attack, bounce, toss, rolling, etc.).
 - b) The ability of the general motion

Traffic general motion is similar to the basic motor skills, because in this phase the child doing the same movement. The difference is in motion is more complicated and is approached with sport skills are applied to a variety of activities "lead-up" for an individual sport, doubles and group.
 - c) The ability of a special motion

Movement with the ability of the general movement, but more emphasis on form and accuracy skills in the implementation of the "lead-up game" continues, and sport.
- 3) Component of the basic techniques

Component of the basic techniques in swordplay is all the techniques of motion is in swordplay. To find out the dominant elements in it, needs to be done prior to the observation of event on going swordplay.
- 4) Analysis of basic motor skills, motor ability and physical abilities in fencing sport.

Skill motor ability	Motor ability	Physical ability
The Guard	On guard	strength, endurance
Advance (forwork step)	run walk	Speed strength, endurance
Retreat (back step)	run walk	Speed strength, endurance
The lunge/attac	puncture whip	agility, coordination reaction time
Footwork	run walk	Speed strength, endurance
Parry	Parry	agility, speed coordination
The disengagement	Disengage	agility, speed,

(compound)		coordination

5) Understanding Sports Talent

Singgih (1989:251) argues sporting talent is a person's potential to excel in certain sports activities, because in him there are traits that can be developed and precondition in the success. According to Singer (1980:60) there are some characteristics of the athletes that have the potential to performance and achievement level include: (a) factors of biological structure, (b) social factor, (c) physiological factor, (d) psychological factor, (e) factor of physical fitness, (f) factor of skills, (g) sharpness factor of the five senses are stimulated appropriately, (h) gender factor, (i) the age factor.

Meanwhile, according to Imam Suryadi (1998:13) the characteristics of potential athletes are as follow: (a) has the advantage of quality from birth, (b) have physical and mental health, disability is not expected to posture according to the sport of interest, (c) has the function of organs such as strength, speed, flexibility, endurance, coordination, agility, power, (d) have the ability a good basic motion, (e) has high intelligence, (f) has the innate characteristics, which can support the achievement of excellent performance, such as high competitive nature, the ability of hard, tough, brave, and high spirit, (g) has a penchant exercise.

In the determination of a cadre of outstanding altet to know about the special characteristic possessed. Thus the nature, habit and character of each candidate's personality is a complete athlete detected. Seed search conducted by a team consisting of physical education staff, coache, sport psychologist, sociologist and anthropologist. So that mean the search of seed, among other, through approaches: (a) the observation , (b) questionnaire and interview, (c) measurement of the physical ability test (Imam Suyudi. 1998:13).

The approach taken where possible to get complete data on the individual.

6) Talent Identification Overview

The main objective is to identify talent scouting and selecting candidate for potential athlete, have a kind of sport that correspond to the potential and interest in and estimate the chance for success in the coaching program, so as to achieve the expected performance in certain sport.

Harre (1982:24) argue that the purpose of identifying talent is to predict a high degree of possibility of whether the prospective athlete will be able to complete the junior training program to be successful in a choosen sport, so he can properly measure exactly, do the next training phase.

The earlier a child shows the suitability of training and ability to learn, the more successful he is in solving the junior training program. This will cause it to have more time to practice before reaching the age of peak performance and will have a positive influence on his training ended.

Therefore. can be said that the determination of talent is a process of determining the abilities (pre-condition) of achievement, in which the child should have the ability to achieve high level of achievement and should use technique appropriate diagnos.

7) Method of Identifying Talent

Bloomefield, Ackland and Elliot (1994:268) argues that the identification of talent can be done in a simple and sophisticated. Basketball coach recruit a player with a simple way because the player has a high body poster or swimming coaches to observe the way children stand with respect to the foot shape. for example. Based on the experience of these elements affect the achievement later in life. Conversely, identification of talent in sophisticated way, is more

oriented toward science and sport medicine with a comprehensive test material used to recruit prospective athlete.

Bompa (1990:334) argue that there are two methods for identifying talent potential athletes. namely: (1) natural selection, and (2) the scientific selection.

Natural selection is the normal approach, and it's a natural development in a particular sport. This selection assum that athlet follow a specific sport as a result of local influence, such as school tradition, expectation of parent, or peer. Thus the achievement of evolution by natural selection is determined athlete who depend on several factor. Therefore, the approach to natural selection is often slow.

Scientific selection is a method used to select candidate for athlete who have the potential to be developed. This selection requires less time to achieve high performance when compared to the method of natural selection. For sport that require high or weight requirement, such as basketball, volleyball, football, throwing number and so forth need to consider scientific selection. Similarly, sport that require speed, reaction time, coordination, and power, such as sprinting, judo, and the number jump and so forth. Through a scientific approach to selection, such qualities will be detected. With scientific testing, the candidate scientifically gifted athlete who are selected or directed at a particular sport.

8) Talent Identification Criteria

High performance sport require specific biological profile to understand the characteristic of the capabilitie and characteristic of a strong psychological. Optimal workout require optimal criteria for identifying talent. Bompa (1990:335) suggest some of the main criteria in identifying talent, namely (1) health, (2) the quality of biometric, and (3) descent, (4) sport facilities and climate, and (5) the availability of expert.

Harre (1982:26) argue that the purpose of screening and selection phase is to find a large number of children of school-related factor of major achievement. Determination of the main achievement of these factor is very important for further development. These factor are indicator of the level specific achievement and level of certain tendencies. The ultimate goal is to determine the factor of this achievement can be known with certainty without too much work and can be obtained the necessary information. This principle factors are (1)height and weight, (2) running speed, (3) durability, (4) coordination, (5) the ability of the game and (6) skill in sport.

a. Height and Weight Loss

Athlete's height and weight are important factors for achieving high performance. For example, for certain sports require some factor specific height and size.

Harre (1982:26) argue that (1) children who have a high body before adolescence usually also have a high weight in adulthood, and (2) the child is either one or both parents height is often higher than average average adult.

b. Running speed

Harre (1990:26) said that the sprinter in Germany are those who have the ability to run the fastest in childhood. Individual running speed is also an indicator of speed in other sport activity. Because the force-velocity is required in almost all sport and sprinting ability is required in most sport, the kids can run very well be selected in early life.

c. Durability

Long-distance running ability reflect the degree to which the child has good durability. Run 800 meters or 1500 can be used to assess the durability of the individual in hurdling, middle distance skiing and long distance.

d. Coordination

Young athlete who specialize in sport that emphasize the technical aspect such as in gymnastic, rhythmic gymnastic, and diving, it is necessary first and foremost to have the ability to learn the movement.

The ability to study the activity of a particular movement quickly or a number of training unit or replicate an individual need to learn the activity that is the ability to learn movement. Coordination abilities of other, especially the ability to control movement, also have an influence on the capacity of the motion. Obtain a special manifestation of this capacity during exercise performed to meet the motor activity in the sport.

e. Ability in the game

The ability to quickly analyze the situation in the game by anticipating and responding to development in the right way considered a major achievement factor. Harre (1982: 26) suggest that children who have the ability in the game usually also have the ability in sport, like wrestling, judo, boxing and other.

f. Versatility in a wide range of sport

Harre (1982: 26) suggest that children who excel in sports usually have a capacity above average in school and in sport clubs.

Anwar Pasau (1986:74-75) proposed assessment criteria for the selection of talented athletes. namely: (a) biological aspect (motorcycle fundamental skill, the function of the organs of the body, posture and body structure, (b) psychological aspects (intellectual / IQ, motivation, personality, work innervation), (c) age (age cronological, psycological age), (d) descent, (e) aspect of the environment.

Criteria for identification of talent, including test standard and optimal models, tailored to each sport. Dragan in Bompa (1990: 339) identifies the criteria for sport, Fencing includes: (1) reaction time, (2) coordination, (3) tactical intelligence, (4) resistance to fatigue and stress, (5) and anaerobic capacity high aerobic

1.4. Select or construct test items

In selecting the test items should observe the following:

- 1) Item must represent the overall test / actual reality game (actual game skill)
- 2) Item must be simple to understand and easy to implement
- 3) Items must be inexpensive, practical, easily administered, easily prepared and be the best instrument to use.

C. Conclusion

Base on the above theoretical studies, the instrument can be assembled talent scouting the sport of fencing as follows: (1) test coordination / throwing a tennis ball catch, (2) arm muscle power test / throw a basketball, (3) test the leg muscle power / jump upright, (4) test the agility / running back and forth, (5) test the speed / run 40 m, (6) test the reaction time, (7) kinestetict perception test, (8) flexibility test, (9) test accuracy, (10) multistagefitness test.

REFERENCES

- Bompa, T.O. 2009, *Theory and Metodology of Training The Key to Athletic Performance*. Dubuque: Kendal/Hunt Publishing.
- Deputi V Bidang Peningkatan Prestasi dan IPTEK Olahraga. 2006. *Referensi Olahraga Prestasi*. Jakarta: Kementrian Negara Pemuda dan Olahraga RI.
- Farida Y.T. 1989. *Evaluasi Program*. Jakarta: Departemen Pendidikan dan Kebudayaan, Direktorat Jendral Pendidikan Tinggi, Proyek Pengembangan Lembaga Pendidikan Tenaga Kependidikan.
- Faidillah Kurniawan. 1996. *Mengenal Cabang Olahraga Klasik Anggar*.
- Harsuki. 2002. *Perkembangan Olahraga Terkini. Kajian Para Pakar*. Jakarta: PT. Raja Grafindo Persada.
- Kemenegpora. 1998. *Pedoman Pemanduan bakat Olahraga*. Jakarta: Kantor Menteri Negara Pemuda dan Olahraga.
- Kemenegpora. 2007. *Undang-Undang Republik Indonesia No.3 Tahun 2005 tentang Sistem Keolahragaan Nasional*. Jakarta: Kantor Menteri Negara Pemuda dan Olahraga.
- Kemenegpora. 2008. *Pedoman Antropometri dan Kapasitas Fisik Olahragawan*. Jakarta: Kantor Menteri Negara Pemuda dan Olahraga.
- Kirkendall, Don, R., Joseph J. Gruber, dan Robert E. Johnson. 1980. *Measurement and Evaluation for Physical Educators*. Dubuque, Iowa: Wm. C. Brown Company.
- KONI. 1998. *Proyek Garuda Emas: Rencana Induk Pengembangan Olahraga Prestasi di Indonesia*. Jakarta.
- KONI. 2000. *Pemanduan dan Pembinaan Bakat Usia Dini. Proyek Garuda Emas*. Jawa Tengah.
- Morrow, J.R.,... (et al.). 2011. *Measurement and evaluation in human performance*. 4th ed. Champaign. USA. Human Kinetics.
- Muslim, M. 2003. *Pengukuran dan Evaluasi Pelaksanaan Program-Program Pelatihan Cabang Olahraga*, Harsuki, H. *Perkembangan Olahraga Terkini Kajian Para Pakar*. Jakarta: PT. Rajagrafindo Persada.
- Mutohir, T. C., 2007. *Sport Development Index: Konsep, Metodologi dan Aplikasi*. Jakarta: PT. Indeks.
- Saifudin Aswar. 2000:69. *Validitas dan Reliabilitas*. Bandung: ITB Press.
- Sudjana. 2005. *Metode Statistika*. Bandung: PT. Tarsito.
- Suharisini Arikunto. 2000:72. *Manajemen Penelitian*. Jakarta: Dirjen Dikti P2LPTK
- Undang-Undang No.3 2005. *Undang-Undang Sistem Keolahragaan Nasional*. Yogyakarta: Pustaka Yustisia



THE EFFICIENCY OF SIDE KICK TECHNIQUE IN “PENCAK SILAT TANDING” CATEGORY (A BIOMECHANICAL ANALYSIS)

Awan Hariono

Yogyakarta State University

awan.dibha@gmail.com

Abstract

Tendangan Pencak Silat Tanding category is specifically used in Pencak Silat is an effort performed by using both defensive or offensive legs in order to obtain point or score as many as possible in a single game. This point achieved easily with supreme power and unobstructed. Moreover, it required the mastery of outstanding motor skills technique as the basic requirement. In essence, it should be done effectively and efficiently. One example of Tendangan which is often used in Pencak Silat Tanding category is Tendangan Depan. Tendangan Depan is perform by using the front path where the body position facing the target. On the execution, the impact with the target could be reach by the base of the toes or the instep. In order to achieve the Tendangan Depan perfectly, coach and Pesilat need to fully understand the Tendangan steps based on science and technology. Ultimately, from perspective of Biomechanics, there are three stages, namely: 1) Tahap Sikap Pasang; 2) Implementation; 3) the final stance which are backward and Sikap Pasang.

Keywords: biomechanical analysis, kick technique, pencak silat

UNNES
UNIVERSITAS NEGERI SEMARANG

**THE SOCIAL CAPITAL OF KONI COMMUNITY:
STUDY TOWARDS THE INSTITUTIONAL POTENTIAL OF KONI IN THE SPORTS ORGANIZATION AND
DEVELOPMENT TO SUPPORT THE IMPLEMENTATION OF LAW NUMBER 3/2005 ABOUT THE
NATIONAL SPORT SYSTEM IN CENTRAL JAVA**

Tri Rustiadi

Semarang State University

roestiadi@yahoo.co.id

Abstract

This study aims to analyze the social capital of KONI in regency/city level in Central Java which potentially support the implementation of the policy in Article 40 of the Law number 3/2005 about the National Sport System, to analyze the relevant strategy to empower the social energy of KONI, and to design the most appropriate model of KONI as the alternative to solve the problem of Article 40 implementation. The procedure used in this research is based on qualitative approach and the idea of learning from people. This procedure is a tool to understand the reality which moves the social capital of the KONI society. The result describes that the action of KONI society is in the aspect of social capital. KONI as the social capital is a need for the development of the productive cooperation in the society. The existence of the Article 40 might influence the characteristics of KONI as the social capital. The model of KONI as an organization in sport should be built in five potential elements: (1) democracy as an ideology, (2) freedom as a purpose, (3) empowerment as a function, (4) social justice as policy, and (5) discretion as a method.

Keywords: social capital, implementation of policy, KONI

INTRODUCTION

This study concerns in the social energy of the institution of the National Sport Committee of Indonesia (KONI). KONI could be seen as the social capital which is potential in organizing, developing, and implementing the execution of National Sport System Law. The current study about sport development has mainstreamed in the level of regulating the organization of sport. The problem raised in the society is mainly about the implementation deviation of the regulation in terms of empowering society. These studies, however, could not solve the core of the problems.

There are 35 KONIs in the level of regency/city in Central Java, 47 Sport Branch Organizations, and 8 Functional Sport Organization Boards. The board of the national sport committee is regulated by the Article 40 of the National Sport System Law. The article 40 states that the board of the national sport committee, sport committee of province level, and sport committee of regency level shall be independent from structural office or public figure.

In empirical level, there are several things inappropriate with the implementation of the article 40. In the beginning of the implementation of article 40, there are 11 governors and vice governors who became the chairman of KONI in several provinces in Indonesia. It because the sport development in Indonesia still depends on the government budget. The existence of governor or mayor as the board of KONI will ease the budgeting through the government.

The other reason why the implementation of the article 40 is not maximum is that there is an opinion that the article 40 is discriminative. Thus, this article has ever been judicially reviewed

through the Constitution Court. The Constitution Court, however, rejected the judicial review of the article since the application had no significant reason. The Court believed that the article 40 does not contradict the articles of the Basic Laws 1945, especially article 28C (2), 28D (1), and 28I (2) as mentioned by the application. The essence of the article 40 does not contain any violation nor discrimination. The article 40 is useful to prevent the abuse of administration function. The rejection of the judicial review makes the Constitution Court to consult with the Ministry of Youth and Sport to make a mechanism for the implementation of article 40. Thus, any public officer is forbidden to lead KONI in all over Indonesia.

The Law No 3/2005 about the National Sport System has status as a legal instrument of national development in the field of sports, the legal basis for all aspects of sports activities, the legal basis for security, protection, and legal assurance, the legal basis for all legislation and government policy as well as the legal basis for the existence of institutions mandated to be recognized or established, both government and non-government.

Furthermore, in the explanation of the article 40, it is stated that being independent in this provision is free from the influence and intervention of any party to maintain neutrality and to guarantee the professionalism of sports management. The structural position in this provision is a position that shows the duties, responsibilities, powers, and privileges of a civil servants and the military in order to lead the organizational units of government, among others, echelon in the department or non-departmental government agencies. The public office in this provision is a position that is obtained through a process of direct election by the people or through elections in the House of Representatives of the Republic of Indonesia, among others, the President / Vice President and the members of the cabinet, the governor / deputy governor, regent / vice regent , mayor / deputy mayor, members of Parliament, legislators, justices, members of the judicial commission, the National Police, and the Armed Forces Commander. Nevertheless, the law makes pros and cons argument coming from the sport community. Ones believe that the decision of the Court would be extremely detrimental to athletes and national sport. Besides, there are still some chairman of KONI provincial and regency/city held by public officials because of budgeting policy.

Within the framework of the interests of future development based on regional autonomy, the management model of such sport field is no longer functional. At this point there is a systematic and conceptual effort to build a new model that is based on justice, shared prosperity, emancipation, participation, and avoiding conflict.

KONI can be seen as social capital because KONI was built as the result of a process that occurs in the community and have some basic elements, namely (1) the existence of social networks (involvement of the members of the group), (2) the existence of shared values, (3) the existence of shared norms, (4) the existence of friendship or social solidarity (social cohesion), (5) the existence of coordination and cooperation, and (6) the existence of a common goal or mutual benefit. With these characteristics, KONI as social capital is a necessity for the creation of productive cooperation in a community, group, or an association.

Putnam defines social capital as networks, values, and beliefs that exist among the members of the community, whose function is to facilitate coordination and cooperation for mutual benefit (trust, norms, and networks' that facilitate cooperation for mutual benefit) (Putnam , 1993: 167).

In the point of view of Putnam, social capital is associated with a set of horizontal associations in the community. It consists of social networks and norms that associated with them which then give effect to the productivity of the community. Because social capital is a set of horizontal associations consisting of trust, norms, and networks that can facilitate cooperation for

mutual benefit, then the function of social capital is to facilitate coordination and cooperation for mutual benefit for members of the association (Putnam, 1993: 171). Towards the framework of Putnam, Tay Keong Tan elaborates three important indicators of social capital, namely: (1) channels of information within a community, (2) the structure of authority, and (3) boundary conditions. Information channel serves as an exchange network of ideas, aspirations and feelings among individual members of the community, while the authority structure serves to maintain order and stability, as well as a means of monitoring the activities of the members (Tan, 2001: 65-67).

This study investigates the quality of the elements of the social capital that exist in KONI. Changes in the characteristics of social capital in the KONI are expected to affect the performance of the result. However, the positive attitude shown by KONI regency towards the article 40 of Law No. 3/2005 gave an optimism that the performance KONI is still able to be maintained. Researcher assessed whether changes in management as the implications of Article 40 will make KONI carry out the task and produce optimum performance or not. KONI performance indicators can be seen through the effectiveness of the implementation of the program of work and sporting achievements achieved as a result of coaching.

METHOD

This study used a qualitative approach. According to the procedure of qualitative research, the approach towards the research problems used Verstehen approach and interpretative understanding approach. Through the Verstehen approach, we tried to understand the problems in the field of 'what' and 'how' reality KONI is, as well as to determine how the implementation of Law No. 3 of 2005 from the point of view of "insiders" (fonemic) or emic understanding. This requires researcher to enter the world of conceptual "KONI members" in order to understand the trust, social networks, values, norms and authority structures that exist in the KONI community. This is easily done by researcher because researcher has become part of the KONI community during the last eight years. Through the interpretative understanding approach, we tried to understand the reality of KONI through the perspective of "outsiders" (fonetic) or understanding through etic interpretation. Through this etic interpretation, the particulars 'why' and 'when' of reality in the KONI community members showed positive or reverse negative externalities in the implementation Law No. 3 of 2005.

The qualitative data collected in this study as well as its level of measurement consists of: (1) Trust, both among groups and among members of the KONI community. The quality of the trust is measured by the solidity of the trust built up; (2) Social Network, namely networking and communication intensity between KONI as a community with relevant government institutions, civil society, and or among KONI members. The quality of social network is measured by the intensity of the communication conducted; (3) Shared Values, namely an agreement which is raised in the community regarding KONI ideal values. The quality of shared values is measured by the value orientation that is developed in the KONI community, as well as the difficulties and or the necessity to build an ideal commitment; (4) Shared Norms, is a standard action of KONI community such as: ethical code and the code of conduct, both written and unwritten. The quality of shared norms are measured by the condition whether the written rules and unwritten customs that exist in the community is functioned or not; and (5) Structure of the Authority, is the resolution of conflicts in

the community when there is a conflict KONI both internal and external conflict with the wider community. The quality of authority structure is measured by the objectivity and rationality decisions taken.

This research was conducted at the KONI Regency / City in Central Java. In Central Java province there are Coordinating Board (Bakorlin) which consists of three Bakorlin (Bakorlin 1, 2 and 3) and within each Bakorlin there are 12 or 11 KONIs regency / city. The determination of the sample is done with purposive sampling technique where for each Bakorlin taken 2-3 KONI that represent each Bakorlin.

This study data collection is done through the incorporation of 4 techniques as well, namely: (1) in-depth interview, (2) Focus Group Discussion (FGD), (3) involved observation, and (4) semi-involved observation. The analysis model will be carried out following the 'interactive model' as stated by Matthew B. Miles and A. Michael Huberman (Miles, 1992), which requires researcher to engage in three cycles of activity, namely: data reduction, data presentation and conclusion or verification as something that intertwine both performed at the time before, during and after the field data collection.

RESULTS AND DISCUSSION

The KONI reality examined from various viewpoints. In terms of organizational board structure, the results of the documentation of KONI in seven regencies / cities representing every Bakorlin in Central Java showed that generally KONI Regency / City does not involve structural as well as public officials in the management of the core, there is only one KONI, Surakarta, which is involving one public officials of the legislative bodies, who became deputy chairman II.

In terms of funding, in 2013, KONI District / City win funding an average of 6 billion. Budget amounts ranging from IDR 450,000,000, - up to 16.5 billion. The average number increased from the previous year, and some events got a budget increase quite dramatically from 3.5 billion in 2012 to 16.5 billion in 2013. Only the Kudus KONI budget decreased from 7.5 billion to 4.7 billion. The sources fund budget on all KONI District / City budget comes from District / City. No funds from the other sources.

All KONI District / City target more medals in 2013 in Banyumas Porprov of Porprov medals in 2009 in Surakarta, Central Java. One is the KONI Banyumas that targets 110 gold before obtaining 67 gold. On average there are 33 branch managers are there in the KONI regencies / cities.

KONI majority of District / City has not had cooperation activities with other agencies. But there KONI who have formed a partnership, such as the Kudus KONI formed a partnership with PT . Djarum Kudus to provide scholarships for athletes and coaching support for the 45 clubs in the Kudus badminton. KONI Banyumas General Sudirman in collaboration with the University in the use of sports facilities and outstanding athlete admissions line and the 3 SMA Purwokerto in the open class sport. KONI Kebumen while working with the management Dikpora Sports Stadium (GOR).

In general, KONI District / Municipality carry out promotional activities in the form of healthy, fitness gym , and a series kegiatan National Sports Day involving society at large . In addition, KONI also promotes its activities through the mass media. Rembang KONI just stating that there is no promotional activity. Flagship activity of KONI Regency / City lies in outstanding athlete development program. KONI majority held Pelatda or coaching athletes in various sports. KONI

another open gym class in collaboration with schools to foster the seeds of such outstanding athletes who do KONI Wonogiri, Kebumen and Banyumas . While KONI Rembang requires some extracurricular sports be in school.

Identification of Social Capital Unsures and Its Role

Trust

In terms of elements of trust (the bond of trust) , the researcher found the following reality. In general, the entire decision-making in KONI Regency / City through consultation and agreement with the related fields. Chairman of the Sports Committee in deciding something is always done with the agreement of management / KONI members. Kudus KONI only 90 % said that the decision was taken by consensus and the rest decided chairman. At all district / city , generally dispose KONI chairman duties in accordance with the organizational structure , except on Kudus KONI where 40 % of the tasks were taken over by the chairman as chairman have enough time . Each disposition has always followed the board with satisfactory results and reported to the chairman.

In each District / City, KONI always facilitate any aspirations of sports administrators. In general, the organization of KONI not get sponsorship from a local company / national, except in the Kudus , Kudus KONI always gets sponsor support from PT. Djarum Kudus. At KONI has formed a partnership with other agencies, cooperating agencies are satisfied with KONI.

Each free sport activities proposed funding required to KONI, and then KONI will select and decide funding these activities. Budget aid flows to those sports is not done uniformly, but according to the priorities and needs of the sport. KONI which distributes funds evenly KONI only Pekalongan with each branch pegged at 20 million dollars. Generally KONI reported use of budget funds to local governments. There are reported to the field of Public Welfare, there are to the Regency, the Office of Youth and Sport, and the office of region income and assets. In addition, the use of the funds is also reported to members of the Sports Committee meeting forum members.

Social Network

Judging from the intensity of networking and communication between KONI as a community with relevant government institutions, civil society , and between members or KONI . KONI majority have not made a visit to the relevant agencies on a regular basis . Several visits but only to be incident and Diaspora . In general, KONI has not had a relationship with a firm supporter of sports activities , unless the Kudus KONI has established relationships with PR and PR Breadfruit Djarum . All of the KONI to these hearings with board sports. While time is varied , there is a once every quarter , there were 2 months , and there is no organization of any sports event . Yet all of the KONI hold public hearings . KONI is already doing with the public hearings are KONI Wonogiri , Rembang and Surakarta . In general , KONI accommodate public complaints about sports issues . Only a few KONI stating no complaints from the community that need to be followed , such as KONI Rembang , Pekalongan , Banyumas and Kudus .

Generally KONI does not depend on relations with the leadership of the company to obtain funding support outstanding athlete development . However KONI Surakarta stated otherwise , the KONI is very dependent on the relationship . KONI has built most of the sports communication forum

in which the public and interested parties to exchange ideas . KONI KONI is not done is Pekalongan , Solo, and Surakarta . Most of the KONI not avail the facility of social networking in cyberspace (the internet) to implement the communication with the community and forum members . KONI who already use the Internet is Banyumas and Pekalongan . Average KONI has not been able to move companies and donors to fund the development of outstanding athletes . Donors are able to move KONI KONI only Kudus has established relationships with PR and PR Breadfruit Djarum . KONI has not been able to move the majority of companies and donors to provide assistance exercise equipment at central coaching athletes. KONI is already generating aid KONI sports equipment is Kudus , Surakarta , and Kebumen .

Shared Values

Agreement in the community that is built on the KONI ideal values can be seen in the following phenomena. All of the KONI always better to report the use of funds from the budget and links to members and local government. The general public has not been able to access the financial statements KONI. Some KONI said that it is because there is no mechanism of financial reporting through the media. Only financial statements submitted to the government and members. All of the KONI convey that most (75% -80%) board and an active member in the forum organized communication even KONI Surakarta said that 100% officials and members are always present in the KONI forum. KONI majority said that about 20% -40% passive functions and members of the coaching outstanding athlete, except KONI Surakarta who claim 100% active managers in coaching excellent athletes.

Shared Norms

Standard KONI community action , and or the members of KONI , such as : etic code and code of conduct , both written and unwritten can be seen as follows . All of the KONI has adhered to a code of ethics that all officers and members in the form of AD / ART . KONI majority stern action against all forms of violation of code of conduct as specified in the AD / ART . KONI Pekalongan , Banyumas , and Rembang has not cracked down on code violations if any . All of the KONI claims no structural or public officials who are in management, except KONI Surakarta involving the legislative elements of the management. All of the KONI stated that when the period of stewardship has been completed , KONI immediately implement management reorganization . KONI regular board meeting held in the span of a week, once a month , or 3 months.

Most KONI has never held sports seminars. Only KONI Wonogiri and the Kudus (2011) which have ever organized it. KONI has never held a majority of sports workshop, just KONI Wonogiri (2013) and Banyumas (2012) menyelenggarakannya ever . KONI has never held a majority of social service . Only the Kudus KONI ever host them . KONI majority channeling incentives for athletes who excel in the range of USD 150.000 , - to Rp 1.000.000 , - . KONI that does not provide incentives are KONI Kebumen and Pekalongan . KONI sports administrators always helps when organizing sports events , except KONI Kebumen stating pengcab not help in organizing sports events .

Authority Structure

Quality is measured by the authority structure of objectivity and rationality of decisions. All of the KONI feel fully responsible when the regency get minimal achievements in sports championships. All of the KONI set regulations so that local athletes have more opportunity to compete at the provincial level representing district / city. Most KONI restrict or even ban to bring in athletes from outside the district / city to represent the district / city in Porprov. The KONIs which do not limit them are Kudus, Banyumas and Pekalongan. All said that the Chairman of KONI KONI is able to overcome any problems that occur among members of KONI.

CONCLUSION AND RECOMMENDATION

The conclusions that can be obtained is that people KONI Regency / City Central Java has limited ability of social capital to overcome the problems experienced by KONI. This is not primarily because of weak social capital they have (although for some parts is weak), but rather due to the nature organisasi experienced. That is, the deficiency experienced by the people of Central Java KONI is part dissolved in elements of social organization, network systems, value systems and so on. Social capital embodied in the form of cooperation (agencies, employers, society at large), social and cultural values, as well as the leadership has not been able to overcome the problem of the welfare of the citizens of KONI, the athletes because winding the structural constraints they experience.

Relevant strategies used in efforts to utilize social energy KONI City District in Central Java region can be an exit strategy, namely: (1) build trust as the basis of cooperation intra-community and inter-community; (2) strengthening institutional cooperation in the community in KONI organization; (3) improvement of the mechanism of aspiration and handling of information in the process of sports; (4) the development of structures of authority and leadership role KONI towards emancipatory; (5) the development of communication strategies; (6) integration of strategic alliance partners into the program in sports; (7) a direct approach to the target group and approach from various aspects. While the strategy into include: (1) create a climate strengthen, and protect; (2) the appropriate development program for the community KONI; (3) The strategy of development of mutual cooperation; (4) Technical-professional development strategies; (5) conflict resolution strategies; and (6) cultural adaptation strategy.

Suggestions can be submitted in this research are: (1) social capital in the communities KONI districts / cities need to be developed further, so it would be able to carry out activities and in addressing the problems faced by KONI. The need for community empowerment program for KONI, the need for trainings that is comprehensive, the need for a program that is comprehensive / not partial, implementation is more Botom-Up, necessary removal of prejudices unproductive among members of KONI, need pendayagunakan potential KONI organization for the benefit of themselves to the fullest. Institutional role in community empowerment KONI is very important to enhance the role of community KONI. (2) Strategy community empowerment can be through the development of social communication, networking, trust, strategic partner alliances to integrate into programs KONI program, direct approach to the target group. In an effort to leverage social energy KONI Regency /

City in Central Java region needs to take into account the socio-cultural strengthening, building confidence, and a strong network.

Furthermore, it needs to be disseminated to the public related to the development of organizational models koni KONI which is developed basic fennel five main elements of potential support empowerment KONI as the main amplifier for the sporting community that includes elements of democracy as ideology, liberation as the goal, as a function of empowerment, social justice as policy the agenda, as well as a discretionary method.

DAFTAR PUSTAKA

- A.nn L. Owen. Julio Videras. 2009. "Reconsidering social capital: a latent class approach" *Journal Internasional Empirical Economics*. Volume 37, Issue 3, pp. 555-582.
- Basah, Sjachran 1986 *Tiga Tulisan Tentang Hukum*, Bandung : Armico.
- C.P. Barros and F.M.P Alves. 2003. " Human capital Theory and Social capital Theori on Sports Management". *International Advancer in Economic Research*.: pp. 218 -226.
- Chau-kiu Cheung. 2013. "Public Policies that Help Foster Social Inclusion". *Jurnal Internasional Social Indicators Research*. Volume 112, Issue 1. pp. 47-68.
- Darmodihardjo, Darji dan Sidharta. 1996 *Pokok-Pokok Filsafat Hukum, Apa dan Bagaimana Filsafat Hukum Indonesia* Jakarta : Gramedia Pustaka Utama.
- Dimi Jottier. Bruno Heyndels. 2012. "Does social capital increase political accountability? An empirical test for Flemish municipalities". *Jurnal Internasional* . Volume 150, Issue 3-4, pp. 731-744.
- Dirjen Olahraga Depdiknas, 2003. *Olahraga, Kebijakan dan Politis*: Sebuah Analisis. Jakarta: Proyek Pengembangan dan Keserasian Kebijakan Olahraga Dirjen Dikti Depdiknas.
- Edward L. Glaeser. 2001. " The Formation of Social capital". *Canadian Journal of Policy Research*. pp. 1 – 20.
- Fukuyama, Francis 1999; *Social Capital and Civil Society, Paper, Prepared for Delivery at the IMF Conference on Second Generation Reforms*, The Institute of Public Policy George Mason University <http://www.imf.org/external/pubsft/seminar/1999/reforms/fukuyama.htm>, disadur 18 mei 2004.
- _____. 1996; *Trust: The Social Virtues and The Creation of Prosperity*, Harmondsworth: Penguin Books.
- Guba E.G. dan Y.S. Lincoln, , 1994 *Competing Paradigms in Qualitative Research*, dalam N.K. Denzin dan Y.S. Lincoln; *Handbook of Qualitative Research*, London : Sage.
- Houlihan, Barrie. 1997. *Sport, Policy and Politics*. London: Routlegde.
- Harian Birawa (Surabaya), 18 April 2010, *Menpora Tak Permasalahkan Pejabat Publik Pimpin KONI*.

- James Skinner. 2008. "Develeopment through Sport". *Jurnal Sport Management* . Review, Elsevier. Pp. 1 – 30.
- Jawa Pos (Surabaya), 6 Juni 2010, *Pekerjaan Rumah KONI Jatim*.
- Joel Sobel. 2002. "Can We Trust Social capital". *Jurnal of Economic Literatur*. Vol. XL, pp. 139 – 154.
- Kathy Arthursen, Fran Baum and Anna Ziersch. 2014. "Exploring Social Capital: as Concept and Practice in Australian Public Health Policies and Programs". *Australian Journal of Public Administration*. Vol. 73, No. 1 pp. 79-87.
- Kemenegpora R I., 2005. *Undang-undang Nomor 3 tahun 2005 tentang Sistem Keolahragaan Nasional*. Jakarta:Biro Humas dan Biro Hukum.
- _____. 2005. *Peraturan Pemerintah Republik Indonesia Nomor 16 tahun 2007 tentang Penyelenggaraan Olahraga*. Jakarta:Biro Humas dan Biro Hukum.
- Matthew Tonts. 2005. "Competitive Sport and Cosial capital in Rural Australia". *Journal of Rural Studies* 21. pp. 137 – 149.
- Moleong, Lexy, J. 1996; *Metode Penelitian Kualitatif*, Bandung: PT. Rosda Karya.
- Narayan, D. L. Pritchett; 1997; *Cents and Sociability: Household Income and Social Capital in Rural Tanzania*, Washington, DC: World Bank.
- Patricia Illingworth. "Ethics and social capital for global well-being". *Journal International Review of Economics*.Volume 59, Issue 4. December, 2012, pp. 389-407.
- Rahardjo, Satjipto. 1991. *Ilmu Hukum*, Bandung: Citra Adya Bakti,
- _____. 1980 *Hukum Dan Masyarakat*, Bandung: Angkasa.
- Robert. Putnam D. 2000. *Bowling Alone: The Collapse and Revival of American Community*, New York : Simon and Schuster.
- Soeroso, R. 2004 *Pengantar Ilmu Hukum*, Jakarta : Sinar Grafika.
- Soekanto, Soerjono dan Mustafa Abdullah 1989 *Sosiologi Hukum Dalam Masyarakat*, Jakarta : Rajawali Pers.
- _____. 1985. *Efektivikasi Hukum Dan Peranan Sanksi*, Remadja Karya, Bandung.
- _____. 1989 *Kegunaan Sosiologi Hukum Bagi Kalangan Hukum*. Bandung: Citra Aditya Bakti.
- Syakra, Rusydi, 2003. *Modal Sosial : Konsep dan Aplikasi*, Jurnal Masyarakat dan Budaya, Vol : V/No.1/2003, Pusat Penelitian Kemasyarakatan dan Kebudayaan Lembaga Ilmu Pengetahuan Indonesia (PMB-LIPI).
- Tan ,Tay Keong, 2001, "*Modal Sosial dan Lembaga-Lembaga Legislatif*", Dalam Panduan Parlemen Indonesia, Jakarta : Yayasan Api.
- Top Skor, 29 Mei 2010, *Musorprov (Musyawarah Olahraga Povinsi) Riau yang berlangsung 28 – 29 Agustus lalu di Pekanbaru telah memutuskan untuk memilih kembali Rusli Zaenal Sebagai ketua Umum KONI Provinsi Riau periode 2009-2013*.

Vaus, D. 2001; *Research Design in Social Research*, London: Sage.

Wignjosoebroto, Soetandyo. 2002 *Hukum: Paradigma, Metode, dan Dinamika Masalahnya*, Jakarta: ELSAM.

Winter, Ian ; 2000; *Towards a Theorised Understanding of Family Life and Social Capital*, Working Paper, Australian Institute of Family Studies, <http://www.aifs.org.au/institute/pubs/wp21.pdf>., disadur 25 mei 2004.



AN APPLICATION OF PUSH AND PULL THEORY IN SPORT TOURISM: A STUDY OF SPORT TOURISTS VISITING LANGKAWI, MALAYSIA

Nurul Shahida Hamdan¹, Aminnuddin Yusof², Patmavathy Alagappan³

^{1,2,3}Department of Sport Studies, Faculty of Educational Studies, Universiti Putra Malaysia, Serdang 43400, Selangor Darul Ehsan, Malaysia

¹nurulshahidahamdan@gmail.com, ²draminuddin@hotmail.com

Abstract

This study uses the theory of push and pull travel motivation to investigate the motive and perception of sport tourists visiting Langkawi as a sport tourists destination. The Leisure Motivation Scale instrument developed by Beard and Ragheb (1983) was used to measure the tourists' motives of visiting Langkawi, whereas the semantic differential scale instrument developed by Attle (1996) was used to measure the perception of tourists toward the destination image (attributes) of Langkawi as a sport tourism destination. A convenience sample of 248 respondents participated in this study. The respondents were then branched into two separate categories namely domestic and international sports tourists with the majority being domestic sports tourists (74.6 %). Data were analyzed using descriptive statistic, t-test and logistic regression. In the study, it was shown that sports tourists aging between 22 to 28 years were more interested in sports tourism and were shown to lose interest at the age of 28 to 33 years. In addition, significant differences on the push and pull factors were evident in domestic and international sport tourists. Conclusively, the information obtained from this study can be used by sports tourism industry to implement market segmentation by targeting right type of tourists visiting to Langkawi.

Keywords: motives, tourist, langkawi

UNNES
UNIVERSITAS NEGERI SEMARANG

MESSAGE THERAPY FOR INFANT IN DEPRESSED MOTHER

Wisnu Mahardika

Tunas Pembangunan University

wisnu.mahardika@gmail.com

Abstract

Infant was born from depressed mother due to low social-economic status. The infants experiencing it were given infant massage therapy to maintain the saliva with lower cortisol level and reduced stress level. Massage was suggested as one of effective method to induce sleep. Massage therapy infant showed the larger improvement in emotion, socialization and had temperament reassuring the decrease of catecholamine hormone stress (urinary norepinephrine, adrenaline, cortisol).

A. INTRODUCTION

Touch or kinesthetic contact, also called massage therapy, facilitates healthy growth and development of premature infant. Ottenbacher et. al (1987) could conduct a meta-analysis on studies on infant stimulation. They estimated that 72 percent of infants getting stimulating touch showed larger weight and development than control group, but no infant received standard stimulating touch-supplemented treatment.

In one of meta-analysis study, several reputed positive effects were among others, 48 percents premature infants (Field et al., 1986) were bigger and had weight gain per day (although such the groups were different on the average calorie intake). In addition, awakened adult and infant massaged are more active, seem to be more mature, oriented, motor activity, and various behaviors (Brazelton, 1973). In inadequate treatment from infants in control group receiving no supplement stimulating touch provided hospital cost saving for children (Field, et al, 1986). Scafidi et al., (1990) stated that the stimulated infants were 21% bigger than weight/per day, indicating good performance and showing more mature sleep quality (i.e. uncertain sleeping, considered as immature sleeping condition). This finding is very interesting as sleeping is uncertain, as reported to be related inversely to IQ score obtained 12 years later (Sigman & Parmelee, 1989).

The mechanism resulting in stimulating relationship has undetermined weight, but likely giving explanation related to the finding that stimulation in turn will improve the activity of releasing food absorption hormone. For stimulation facilitates the food absorption to release such hormones as insulin and glucose (Uvnas-Moberg, Widstorm, Marchini & Winberg, 1987). Therefore, the insulin level is higher in premature infant after the stimulating touch. It not only improves the activities related to parasympathetic condition in which the heart beat is lower and the attention is larger (Porges, 1985), but vagus nerve is also known facilitating the release of food absorption hormone in gastrointestinal tract (Uvnas-Moberg et al, 1987).

Nevertheless, massage therapy has documented high risk warranty in infant, even newborn born from high-risk mother, such as depressed mother. Some studies have documented that infant affected less positively the depressed mother (Cohn, Matias, Tronick, Connell & Lyons-Rut, 1986; Field, 1984); and recently, contributed to delayed growth and low performance in assessment development that has been reported in infant with depressed mother (Field, 1992). Massaging infant can improve growth and affect them, not like premature infant (Field et al, 1986).

Massaging infant in certain period of time will exert the following effects (Field et al., 1986; Scafidi et al., 1990): (a) larger weight; (b) more organized sleeping or awakening behavior; (c)

reduced fussiness of infant and more positive effect; and (d) lower level of cortisol and norepinephrine.

B. DISCUSSION

This paper will study the massage therapy for infant in depressed mother.

1. Procedure

Infant massage therapy is administered for 15 minutes; midway massage is carried out two days per week for 6 weeks. Infant is put on supine position on comfortable plaited mat in a quiet area. Therapist applies a little amount of infant oil on palms and put his palm on infant breast. Then, therapy is applied to six following areas of infant body:

- 1) Face: stroke with flat fingers on two sides of face and forehead; (b) stroke circularly above temples and jaw join, and (c) stroke flatly and gently on nose, cheek, jaw, and chin.
- 2) Breast: (a) stroke both breasts with flat finger, from middle to outward; (b) stroke crossly from the center of breast and above shoulder and (c) stroke both breasts concurrently with flat hand on breast toward shoulder.
- 3) Abdomen: (a) massager hand is on infant's hand with rotating movement from the higher to lower areas, and (b) clockwise circular movement of hand.
- 4) Foot: (a) stroke from thigh to foot; (b) press and rotate with squashing movement from foot to hip; (c) cares like squeezing milk toward heart from foot to hip and (d) stroke toward heart from foot to hip.
- 5) Arm: (a) stroke from shoulder to hand; (b) squashing and rotating with squashing movement from hand to shoulder; (c) stroke like squeezing milk toward heart from hand to shoulder and (d) stroke toward heart from hand to shoulder.
- 6) Reversed (the infant is put on prone position): (a) therapist hands are on infant hand with rotating movement upward to the buttock with hand contoured flatly from back; (b) on hand from lateral to hand backside; (c) tip of finger with circular movement, from head downward up to buttock beside spinal muscle (rubbing spine indirectly); (d) stroke above two backsides concurrently from middle to side; (e) and rub shoulder muscle using the tip of index finger; (f) rub the neck using the tip of finger; (g) stroke along the back side, and (h) stroke from head to foot.

2. The direct effect of treatment (during and after getting treatment in the first session and in the end of period)

Sleeping and awakening behavior. To determine the direct effect of sleeping and awakening behavioral therapy, the infant is observed by the author for 15 minutes after massaging in the first days and the end of period.

Sleeping criteria are as follows: (a) sleeping quietly, infant's eyes are still closed, and no other motor activity responding to surprising thing, mouth rhythm or a little movement of lower limb, (b) sleeping with closed eye of infants, no motor activity, (c) sleeping with closed eye of infants, although they can open eyes quickly, quick movement of eye can be recognized through closing eye lid, and motor activity likely or unlikely exists; (d) the infant's drowsy eye will open and close, but it is boring, seems to be droopy, minimum motor activity; (e) informing that the infant is relatively inactive, despite occasional movement of body parts, eyes open widely and brightly and shiningly; (f) infants' active eye in awakening condition always opens and motor activity exists; (g) crying infant, infant's eye can open or close and this motor activity presents as a result of anxiety. In addition to be sign, the following behaviors are also reported: (a) single body movement, (b) some extremity movement, (c) body movement, (d) rotating head, (e) grimace, (f) surprising, (g) mouth, (h) smiling, and (i) fisting hand.

3. Long-Term Treatment (Then In The First Day/The Last Day)

Weight formula and data intake. Consumption formula volume at day is recorded everyday by baby sitter. Mother also records the number of milk bottle at night. In addition, infant has been weighed everyday immediately before breakfast.

This scale provided six factors, what occurs in this sample is as same as that in normative sample (Rowe & Plomin, 1977): emotional, activity, socialization, sincerity, persistence, and food adaptation.

4. CONCLUSION

Regarding the direct effect of measures taken during and after trial session, it includes sleeping or awakening behavior and sputum cortisol, including weight, nutrition intake, temperament level, biochemistry, and urinary (catecholamine and cortisol) variables.

Infant massage therapy exists in different area of massaging session. Infant massaging therapy takes longer time and reduces drowsy time and in quiet sleeping condition. In addition, there is a decreased cortisol level and reduced crying baby and constant cortisol level. While infant massage takes time during awakening in the morning, massage therapy will make the baby sleeping more effectively.

Several long-term differences are recorded for the massage of infant's whole body as the resistance to make the infant not changing. The infant massage therapy can: (a) raise weight, despite no change occurring in intake formula; (b) improving the temperament dimension including emotion, socialization, and sincerity, and (c) catecholamine experiencing reduced cortisol level and increased serotonin level.

REFERENCES

- Brazelton, T.B. (1973). Neonatal Behavior Assessment Scale. London: Spastics International Medical Publications.
- Cohn, J.F., Matias, R., Tronick, E.Z., Connell, D., & Lyons-Ruth, K. (1986). Face-to-face interactions of depressed mothers and their infants. In E.Z. Tronick & T. Field (Eds.), *Maternal depression and infant disturbance*. San Francisco: Jossey-Bass.
- Field, T. (1984). Early interactions between infants and their postpartum depressed mothers. *Infant Behavior and Development*, 7, 511-522.
- Field, T. (1992). Infants of depressed mothers. *Development and Psychopathology*, 4, 49-66.
- Field, T., & Schanberg, S. (1990). Massage enhances growth in preterm neonates. In T. Field & T.B. Brazelton (Eds.), *Advances in touch*. Skillman, NJ: Johnson & Johnson.
- Field, T., Schanberg, S.M., Scafidi, F., Bauer, C.R., Vega-Lahr, N., Garcia, R., Nystrom, J., & Kuhn, C.M. (1986). Tactile/kinesthetic stimulation effects on preterm neonates. *Pediatrics*, 77, 654-658.
- Ottensmeyer, K.J., Muller, L., Brandt, D., Heintzelman, A., Hojem, P., & Sharpe, P. (1987). The effectiveness of tactile stimulation as a form of early intervention: A quantitative evaluation. *Journal of Developmental and Behavioral Pediatrics*, 8, 68-76.
- Porges, S.W. (1985, April). Method and Apparatus for evaluating rhythmic oscillations in

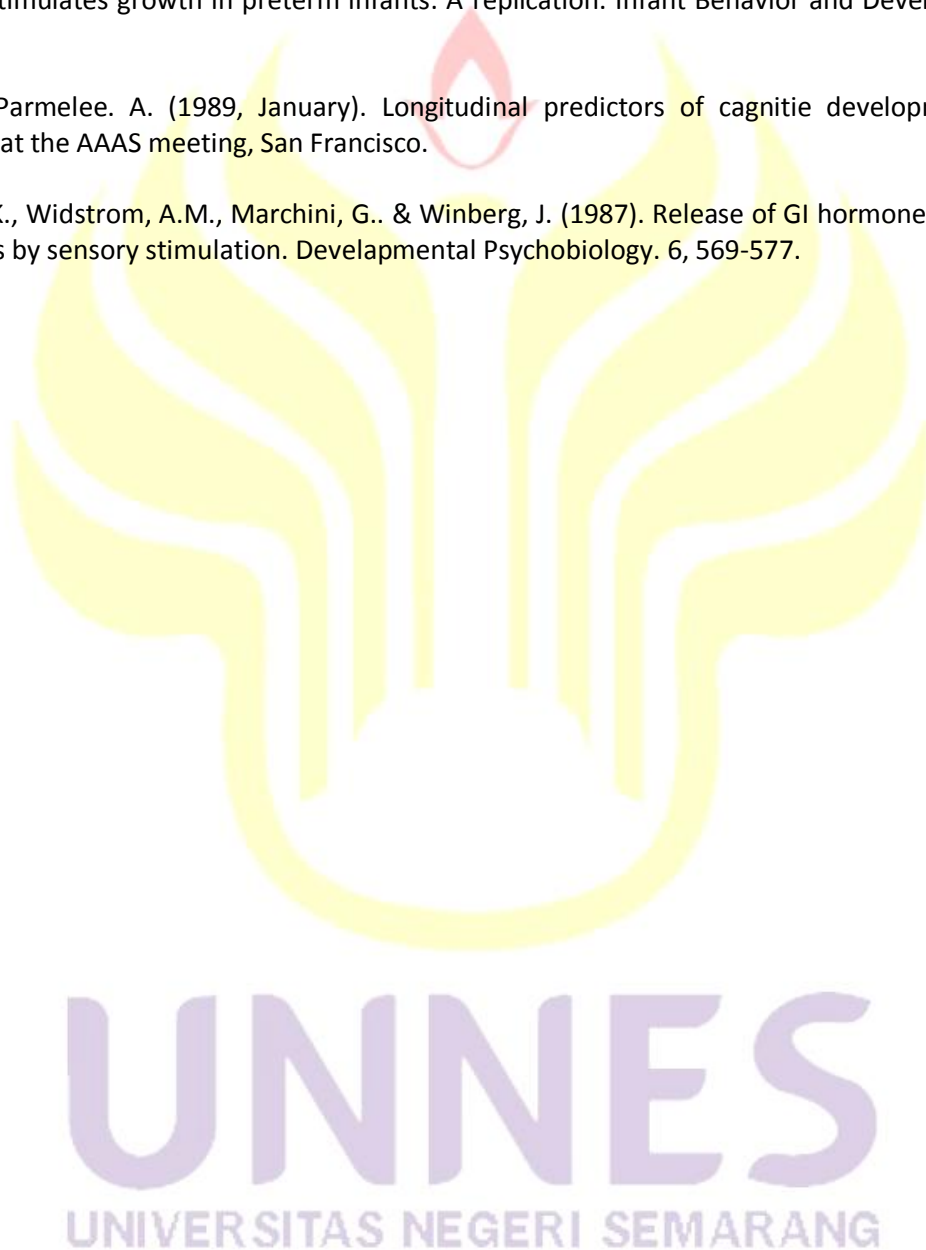
aperiodic physiological response systems. (United States Patent No. 45 10,944).

Rowe, D.C., & Plomin, R. (1977). Temperament in early childhood. *Journal of Personality Assessment*, 41,150-156.

Scafidi, F., Field, T., Schanberg, S., Bauer, C., Tucci, K., Roberts, J., Morrow, C., & Kuhn, C.M. (1990). Massage stimulates growth in preterm infants: A replication. *Infant Behavior and Development*. 13, 167-188.

Sigman, M., & Parmelee, A. (1989, January). Longitudinal predictors of cognitive development. Paper presented at the AAAS meeting, San Francisco.

Uvnas-Moberg, K., Widstrom, A.M., Marchini, G., & Winberg, J. (1987). Release of GI hormones in mothers and infants by sensory stimulation. *Developmental Psychobiology*. 6, 569-577.



THE EFFECT OF AEROBIC DANCE AND NUTRITION ON METABOLIC STATE, INFLAMMATORY STATE AND CLINICAL APPEARANCE IN OVERWEIGHT

Bashir Ma Ab Lakhal

Doctoral Program of Medical & Health Science Diponegoro University

ABSTRACT

Globally, the growth in overweight and obesity rates among adults is a major public health concern. It is a known risk factor for numerous health problems, including hypertension, high cholesterol, diabetes, cardiovascular diseases and cancer. Obesity is associated with higher risks of chronic illnesses, it is linked to significant additional health care costs. More than half (52%) of the adult population in European Union are overweight or obese (Coggi et al, 2012). The prevalence of overweight and obesity among the poor in Indonesia is increasing. The major risk factors for obesity among poor women living in urban slum areas were to low level of physical activity, excessive carbohydrate intake and subjects couldn't buy healthy food because high price (Purwaningrum D et al, 2012).

Obesity is caused by complex factors include genetic and environmental factors including food consumption, socio-cultural, physical activity or exercise, and metabolic. Consumption of vegetables, fruits and other high-fiber foods in Indonesia is still low. That the majority (93.6%) of Indonesian population eating less vegetables and fruit, increased incidence of obesity is also significantly affected by the increase in the propensity to consume fast food high in fat, almost half (48.2%) of the Indonesian population less physical activity. High-energy food intake without balanced with enough physical activity will boost energy savings in the form of fat in adipose tissue in the body (Humayrah, 2009).

Unfortunately, globally there are more than 60 % of adults physical inactivity, unhealthy diet and life style. The World Health Organization listed physical inactivity as one of 10 powerful risk factors for premature death, so the prevalence of physical inactivity and poor diet are the major causes of an epidemic of overweight (Kruk J, 2009).

Indonesian Police are undergoing a double nutritional problems, where the problem of infectious diseases and malnutrition that has not been resolved, with an increase in non-communicable diseases such as obesity, 2013 that as many as 18.34% of police are obese (Belakang L, 2014). In Central Java alone, the prevalence of overweight which includes obesity 17% (11.5% in men and 21.7% women). in 2006-2010, reached 10%-21%. Forty eight point one percent of the Police in Semarang had normal nutritional status (Adhi D. H, 2012).

Exercise has major beneficial effects on most chronic diseases. These benefits are not limited to preventing or limiting the progression of disease, but include improving physical fitness, muscular strength and the quality of life. This is particularly important for people to prevent diabetes and many other disease, as regular physical activity can increase the potential for independent living (Cavill N et al, 2006). I choose Indonesia to do my study, because it is a serious health problem and there are many risk factors related to the risk of overweight, one of the risk factor physical inactivity and lack of nutrition.

Keywords: Aerobic dance, nutrition, metabolism syndrome

EFFECTS OF THE PERCEIVED SELF-EFFICACY WALKING EXERCISE PROGRAM ON BODY COMPOSITION IN ELDERLY

Chairat Choosakul¹, Benjaporn Keawkumtai²

¹Department Of Health And Sport Science, Faculty Of Education, Mahasarakham University, Thailand

²Medical Laboratory Department, Faculty of Medicine, Mahasarakham University, Thailand

chairat@msu.ac.th

Abstract

The purpose of this study was to study and compare the effects of the perceived self-efficacy walking exercise program on body composition in elderly. Thirty three elderly volunteers at Mahasarakham Province, Thailand, aged 60-69 years old, were selected and randomly assigned in equal numbers into experimental and control groups (Seventeen each). The experimental group treated the perceived self-efficacy walking exercise program and conventional nursing care the while those in the control group treated conventional nursing care for consecutive 24 weeks. Subjects from both groups were measured their body composition parameters by body composition analyzer (Bioelectrical Impedance Analysis: BIA) , during pre-test and post-test (after 12 and 24 weeks). The data was analyzed by descriptive statistics, one way analysis of variance, one way analysis of variance with repeated measure and multiple comparison by using Scheffe ' method. The results were found that after 24th week of training, in experimental group, fat mass, percent of body fat increased and muscle mass increased with significantly ($p < .05$). There were no significant differences in body mass index. Also, after 24th week of training, between the experimental group and control group were no significant differences in all body composition parameters. This research represented the potentially perceived self-efficacy walking exercise program. Therefore, this program should be encouraged among the elderly their exercise continuously and appropriately.

Keywords: perceived self-efficacy, walking exercise, body composition, elderly

UNNES
UNIVERSITAS NEGERI SEMARANG

A SYSTEMATIC REVIEW TO EXAMINE THE PERCEIVED BARRIERS TO EXERCISE IN INDIVIDUALS WITH TYPE 2 DIABETES AND PRE-DIABETES

Kang Heon Jin¹, Stephen Francis Burns², C. K. John Wang³

^{1,2,3}Nanyang Technological University, Singapore

nie15kang2798@e.ntu.edu.sg

Abstract

Background Over 350 million people have type 2 diabetes (T2D) globally and this number is expected to increase by >50 % by 2035. Moreover, >300 million individuals worldwide have pre-diabetes. One third of individuals with T2D are sedentary and only a third exercise regularly. One reason for the low prevalence of regular exercise in individuals with T2D might be that they face or perceive challenges specific to their condition such as hypoglycaemia, foot pain, and co-morbidities. **Purpose** The objective of the present study is to perform a systematic review to examine perceived exercise barriers in individuals with T2D or pre-diabetes. **Design** A comprehensive search of four databases (MEDLINE, PsycINFO, SPORTDiscus, and CINAHL) was made from 2001-2014. Research articles were filtered by the following criteria: written in English; published academic articles; involved barriers to physical activity or exercise among individuals with T2D or pre-diabetes. **Results** A total of 23 studies with 11,193 individuals met the inclusion criteria. Of these, 17 studies used a cross-sectional design and 6 studies adopted a longitudinal design. Lack of motivation (n=15) and lack of free time (n=12) were the most frequently reported reasons for not engaging in exercise. Unfavourable weather conditions (n=10), fear of hypoglycaemia (n=3) and health problems from co-morbidities (n=4) were other reported barriers to exercise for this population. **Conclusion** Although individuals with T2D and pre-diabetes reported some specific barriers for not undertaking regular exercise the major barriers faced are similar to those reported previously in studies with the general population. It needs to be determined if similar motivational strategies can be employed to increase exercise engagement in individuals with T2D as normal populations.

Key words: perceived exercise barriers, type 2 diabetes, systematic review

UNNES
UNIVERSITAS NEGERI SEMARANG

EFFECT OF RED FRUIT OIL ON RAT'S MALONDIALDEHYDE LEVEL AT MAXIMAL PHYSICAL ACTIVITY

Fajar Apollo Sinaga

Department of Sports Science, Faculty of Sports Sciences, State University of Medan,
Indonesia

sinaga_fajar@yahoo.com

Abstract

The cells continuously produce free radicals and reactive oxygen species (ROS) as a part of metabolic processes. These free radicals are neutralized by an antioxidant defense system. Maximal physical activity can produce an imbalance between ROS and antioxidants and thus caused oxidative stress, which is possibly related to fatigue and tissue injury. Red fruit oil contains high betacarotene and tocopherol. This study investigated the effect of red fruit oil on malondialdehyde level in maximal physical activity. This study used pretest-posttest control group design. Twenty four rats were divided into 4 groups. The control group (I) was administered with 1.5 ml distilled water, intervention groups (II), (III) and (IV) were administered with different doses of Red Fruit Oil (0.5 ml, 1.0 ml, and 1.5 ml/day, respectively). All groups were trained to swim for 4 weeks and then were forced to swim without a load until being exhausted. The malondialdehyde (MDA) and time of swimming to exhaustion were measured. Analysis showed that MDA level obtained was decreasing significantly ($P < 0.05$) and time of swimming was increasing significantly ($P < 0.05$) in the intervention groups. The results conclude that red fruit oil can obviously to reduce MDA level VCO and increase endurance and delay fatigue induced by maximal physical activity in rat.

Key words: red fruit oil, malondialdehyde, maximal physical activity

INTRODUCTION

Strenuous physical activity can lead to oxidative stress occurs due to the production of free radicals exceeds the amount of antioxidants in the body [1-2]. Under conditions of oxidative stress, free radicals cause lipid peroxidation of cell membranes [3]. Malondialdehyde (MDA) is one of the results of lipid peroxidation [4-6], so that the MDA is a common indicator used to determine the amount of free radicals and indirectly assess body antioxidant capacity.

Some studies claim that oxidative stress may result in a decrease in the amount of antioxidants [7], decreased immunity [8], sport anemia [9], damage to the muscle tissue [10] which is thought to be involved in the process of fatigue, causing muscle pain [11], changes in the value of hematocrit, erythrocytes and leukocytes [12], decreased hemoglobin levels and morphological changes in the cells of erythrocytes [13], which in turn can affect performance.

In the body there is a mechanism of antioxidant or anti-free radicals are endogenous. Free radicals are formed will be neutralized by the antioxidant defense system elaboration of the enzymes and a number of non-anti-oxidant enzymes [14]. The results of the study reported that the administration of antioxidants derived from natural or synthetic sources from outside the body is

required to neutralize the free radicals formed during physical activity, especially strenuous physical activity [15-18].

One of the known natural sources of antioxidants is red fruit (*Pandanus conoideus* Lam) contained in Papua. Red fruit contains beneficial nutrients or active compounds in high levels, such as beta carotene, tocopherol, as well as fatty acids [19-20]. In many research activities tocopherol and beta carotene as an antioxidant believed to be its ability to prevent chronic diseases such as cardiovascular disease, atherosclerosis, and cancer. In addition, the Papuan people believe that red fruit can improve physical performance, but it still needs to be proven scientifically.

The specialty of the red fruit that contains high antioxidant makes researchers feel interested and need to examine the antioxidant effects of red fruit oil at maximum physical activity.

The purpose of this study was to determine the antioxidant effect of red fruit oil to the MDA at maximum physical activity. The results are expected to contribute to the development of science and technology, especially as a basis for further research and development phytopharmaca for the improvement of public health, especially for the health of athletes. The results could be applied to athletes during training programs or during the competition so as to support program development, especially the development in the field of sports achievement and health. In terms of the development of science and technology, this research is a form of contribution to disciplines other than sports disciplines to support the athlete's performance.

METHOD

Animals, This research used mature male rats (*Rattus norvegicus* Sprague Dawley) with average body weight of 200 – 250 g. The rats were allowed to adapt to the laboratory housing for 14 days before the experiment began. The rats were given pellet food and tap water in ad libitum manner. Light and dark cycle, temperature and humidity were kept in natural range condition.

Treatment , The rats were randomly divided in to four groups and each group was consist of six rats. The MDA level was measure before treatment. The first group was given distilled water. The second, third and fourth groups were given red fruit oil with the volume of 0,5 mL/day, 1.0 mL/day and 1.5 mL/day, respectively. The red fruit oil was given orally using the gavage spuit. All rats were trained to swim for one month. During the first week, the swimming time was 15 min every day; during the following three weeks, the swimming time was respectively 25, 30 and 35 min. After training, the rats were forced to swim in a chamber without any exit. The rats MDA level and the length of swimming time as endurance indicator were then measured.

Statistical analysis, All collected data were in average $\pm$ SD manner for the rat in each group. The data normality was tested using Kolmogorov-Smirnov test. Data homogeneity was tested using Levene test. The normal and homogenous data were then analyzed using t-paired and one way anova with $\alpha = 0.05$ in SPSS version 17.0 program to determine the difference among groups.

RESULT AND DISCUSSION

Result, This research used 24 mature and male rats (*Rattus norvegicus* Sprague Dawley) with average body weight of 200 – 250 g. The rats were divided in to four groups (I, II, III and IV). Each group was consisted of six rats. P0 is the control group and was given 1.5 mL of distilled water while the I, II and III groups were the treatments groups and were given red fruit oil with the volume of 0.5

mL, 1.0 mL and 1.5 mL per day, respectively. The average level of MDA before and after treatment in each group is given in Figure 1.

The MDA level averaged level before treatment 1.25, 1.23, 1.20 and 1.21 nmol/ml respectively. The MDA level averaged level after treatment 14.22, 1.20, 1.18 and 1.09 nmol/ml respectively. The normality and homogenous tests showed that the data were normally and homogenously distributed ($p>0.05$). The result of statistic analysis using anova test showed that there was no difference in MDA level among groups before treatment ($p>0.05$). The t-paired test result showed that the MDA level was significantly increasing in control group while it is significantly decreasing in treatment groups ($p<0.05$). The anova test result also showed that there was no significant difference of the MDA level among the treatment groups (P1, P2 and P3) ($p>0.05$).

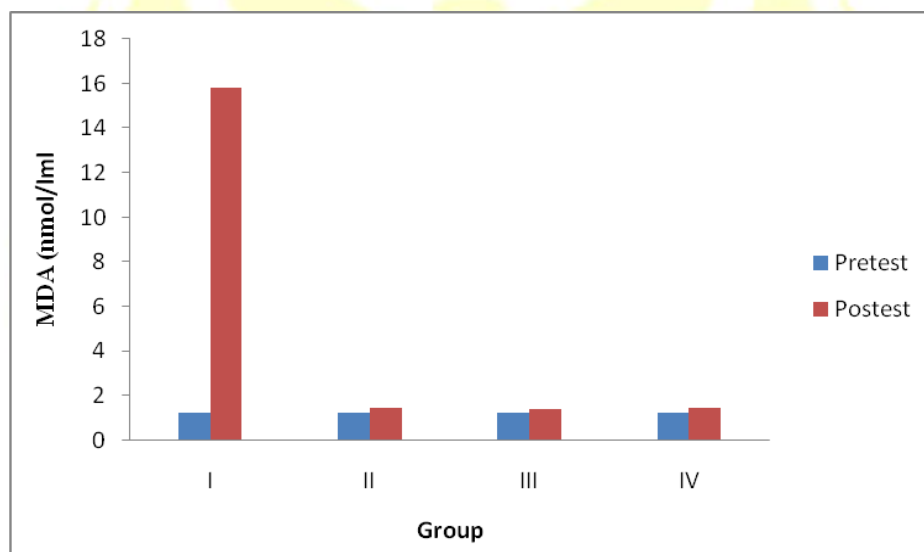


Fig.1. The Malondialdehyde level in blood of each group before and after treatment. Data were given in average $\pm$ SD manner of 6 animals in each group. I, Control Group; II, 0.5ml/day of red fruit oil, III, 1.0ml/day of red fruit oil; IV, 1.5ml/day red fruit oil. Statistical analysis was done by ANOVA test

The parameter that can be measured to indicate the endurance is the exercise time. All rats in four groups were trained and then were forced to swim to determine their endurance. The effect of red fruit consumption on the swimming time is given on figure 2.

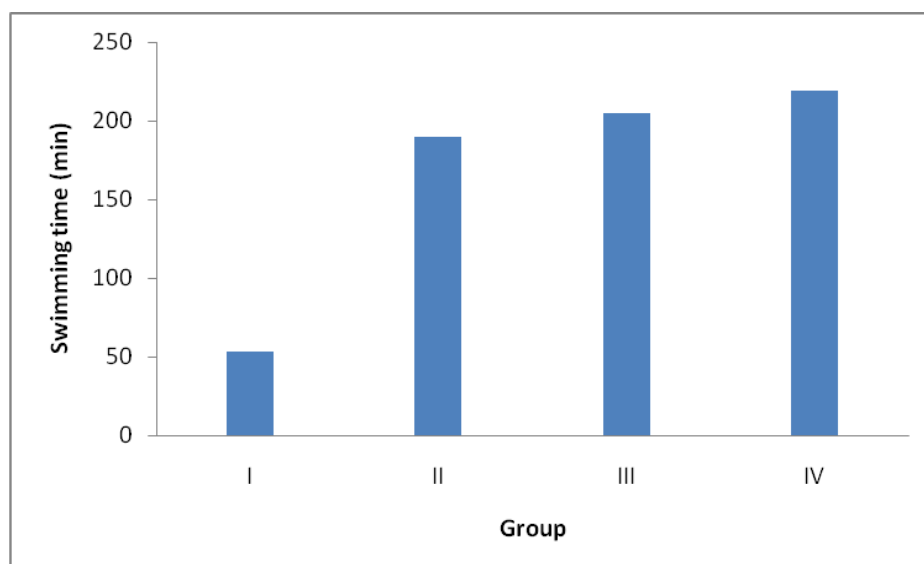


Fig 2. Effects of red fruit oil on swimming time to exhaustion in rat. Data were given in average $\pm$ SD manner of 6 animals in each group. I, Control Group; II, 0,5ml/day of red fruit oil, III, 1,0ml/day of red fruit oil; IV, 1,5ml/day red fruit oil. Statistical analysis was done by ANOVA test. Anova test result showed the significantly increasing swimming time in treatment groups compare to control group ($p < 0.05$). As can be seen in Figure 2, higher dose of red fruit oil resulted in longer swimming time among treatment groups ($p < 0.05$).

DISCUSSION

The effect of Red Fruit Oil on the Malondialdehyde level, Malondialdehyde (MDA) is a main product in lipidperoxidation of cells and the MDA content in tissue is a common indicator reflected in the number of free radicals [21]. During strenuous exercise or high-intensity endurance exercise, the generation of oxygen free radicals increased heavily, while the MDA is one of the main products of lipid peroxidation induced by the free radicals. Therefore, determining the MDA content in tissue can evaluate the degree of lipid peroxidation and indirectly assessed the body's antioxidant capacity [4-6].

The result showed the increasing level of MDA in control group after treatment. The increasing level of MDA in control group was due to the high free radicals production in maximal physical activity condition. The higher level of MDA compare to the level of defending cellular antioxidant will generate the oxidative stress condition. As mentioned above, the MDA is one of the oxidized lipids formed by free radical during maximal physical and high intensity endurance exercises [4-6].

Statistically, the MDA levels in all treatment groups were remaining low after treatment compared with the control group. This result was due to the antioxidants in red fruit oil that bind to the free radicals. Red fruit contains beneficial nutrients or active compounds in high levels, such as beta carotene, tocopherol, as well as fatty acids [19-20]. Results of research conducted by Rohman et al [22] reported that red fruit has antioxidant activity that can be used as free radical scavengers. Results of research conducted by Sandhiutami reported administration of red fruit oil for 10 days can increase levels of tocopherol [23].

The effect of red fruit oil on rat endurance, The result of this study showed that red fruit oil was able to elevate the rat endurance. This last evident was indicated by the longer swimming time in all treatment groups compare to the control group. Statistic analysis showed that higher red fruit oil dose resulted in longer swimming time. Several theories are supporting this result, namely the high antioxidant content in red fruit oil. Antioxidants in red fruit oil were considered to prevent lipid oxidation in cellular membrane especially in erythrocyte cells. Several researches showed that physical activities were able to induced the formation of oxidized lipid and generate the oxidative stress condition. Oxidized lipid are able to cause erythrocyte cell damage and thus caused the "sport anemia" [9], and muscle tissues damage [10] The damage of muscle and blood cells were considered to be involved in exhaustion processes or the disability to generate energy and therefore decrease the endurance. Several researches about the effect of antioxidant on the endurance have been conducted Ozaslan et al reported that vitamin C was able to increase endurance in rat model [24]. Bing and Wang reported that Ginkgo biloba extract was able to increase the activities of antioxidant enzymes in rat liver tissues, reduce the level of oxidized lipid generated by free radicals and increase endurance and healing processes after maximal physical activities [25]. Similar result was also reported by Miao et al using corn peptide [26].

CONCLUSION AND SUGGESTION

Conclusion

1. Red fruit oil supplementation was significantly decreasing the rat MDA level in maximal physical activity condition.
2. Red fruit oil supplementation was significantly increasing the rat endurance in maximal physical activity condition.

Suggestion

This research will be better when done measuring antioxidant status as measured levels of concentration betacaroten, tocopherol, glutathione peroxidase, superoxide dismutase and catalase.

ACKNOWLEDGMENT

The writer thank to Directorate for higher education, The National Education Ministry of Republic Indonesia for for Research Grant of Hibah Fundamental for financial support.

REFERENCES

- [1] Daniel, R.M., Stelian, S., Dragomir, C. (2010), The effect of acute physical exercise on the antioxidant status of the skeletal and cardiac muscle in the Wistar rat. *Romanian Biotechnological Letters*. Vol. 15, No. 3, Supplement, p 56-61.
- [2] Urso, M.L., Clarkson, P.M. (2003), Oxidative stress, exercise, and antioxidant supplementation. *Toxicology* 189(1-2):41-54
- [3] Evans, W. J. (2000), Vitamin E, vitamin C, and exercise. *Am J Clin Nutr*, 72, 647S-52S.
- [4] Wang, L., Zhang, H.L., Zhou, Y.J., Ma, R., Lv, J.Q., Li, X.L., Chen, L.J. and Yao, Z. (2008). The decapeptide CMS001 enhances swimming endurance in mice. *Peptides*, 29: 1176-1182.
- [5] Lyle, N., Gomes, A., Sur, T., Munshi, S., Paul, S., Chatterjee S. and Bhattacharyya, D. (2009). The role of antioxidant properties of Nardostachys jatamansi in alleviation of the symptoms of the chronic fatigue syndrome. *Behavioural Brain Res.*, 202: 285-290.

- [6] Souza, C.F., Fernandes, L.C. and Cyrino, E.S. (2006). Production of reactive oxygen species during the aerobic and anaerobic exercise. *Rev Bras Cineantropom. Desempenho Hum*, Vol.8, 2006. pp. 102-109.
- [7] Thirumalai, T., Viviyan T. S., Elumalai,E.K., David, E. (2011). Intense and exhaustive exercise induce oxidative stress in skeletal muscle, *Asian Pacific Journal of Tropical Disease* 63-66
- [8] Nieman, D.C., Henson,D.A., Austin,M.D., Brown,V.A. (2005). The immune response to a 30-minute walk. *Med Sci Sports Exerc.* 37:57-62
- [9] Senturk, U. K., Gunduz, F., Kuru, O., Aktekin, M. R., Kipmen, D., Yalcin, O., Bor-Kucukatay, M., Yesilkaya, A. & Baskurt, O. K. (2001), Exercise-induced oxidative stress affects erythrocytes in sedentary rats but not latihan fisiktrained rats. *J Appl Physiol*, 91, 1999-2001.
- [10] Vina J, Gomez-Cabrera MC, Lloret A, Marquez R, Minana JB, Pallardo FV (2000). Free radicals in exhaustive physical exercise: mechanism of production and protection by antioxidants. *IUBMB Life*, 50: 271–7.
- [11] Dekkers, J.C., Van Doornen, L.J., Kemper, H.C. (1996). The role of antioxidant vitamins and enzymes in the prevention of exercise-induced muscle damage. *Sports Med* 21: 213–238.
- [12] Senturk, U. K., Gunduz, F., Kuru, O., Kocer, G., Ozkaya, Y. G., Yesilkaya, A., Bor Kucukatay, M., Uyuklu, M., Yalcin, O. & Baskurt, O. K. (2004), Effect of oxidant vitamin treatment on the time course of hematological and hemorheological alteration after an exhausting exercise episode in human subject. *J Appl Physiol*, 98, 1272-79.
- [13] Senturk, U. K., Gunduz, F., Kuru, O., Kocer, G., Ozkaya, Y. G., Yesilkaya, A., Bor Kucukatay, M., Uyuklu, M., Yalcin, O. & Baskurt, O. K. (2005), Exerciseinduced oxidative stress leads hemolysis in sedentary but not trained humans. *J Appl Physiol*, 99, 1434-41.
- [14] Christopher, P.I., Wenke, J.C., Nofal,T., Armstrong, R.B. (2004), Adaptation to lengthening contraction-induced injury in mouse muscle. *J.Appl.Physiol* 97:1067-76.
- [15] Ostojic, S.M., Stojanovic, M.D., Djordjevic, B., Jourkesh, M., Vasiljevic, N. (2008). The Effect of a 4-Week Coffeberry Supplementation on Antioxidant Status, Endurance, and Anaerobic Performance in College Athletes. *Research in Sports Medicine*, 16: 281-294
- [16] Gupta, C., Gupta, P.H and Singh, B. (2009) Effect of Vitamin Supplementation on Exercise Induced Oxidative Stress in Trained Elite Indian Cyclists. *Am. J. Biomed. Sci.* 1(2), 166-170
- [17] Bentley, D.J., Dank,S., Coupland,R., Midgley,A., Spence,I., (2012), Acute Antioksidant Supplementation Improves Endurance Performance in Trained Athletes, *Research in Sports Medicine*, 20: 1-12.
- [18] Kalpana, K., Kusuma, D.L., Lal, P.R., Khanna, G.L. (2012). Effect of Spirulina on Antioxidant Status and Exercise-Induced Oxidative Stress of Indian Athletes in Comparison to a Commercial Antioxidant. *Asia Journal of Exercise & Sports Science*. Vol 9 (No.2); 36-48
- [19] Budi I.M., Red Fruit. Jakarta: Penebar Swadaya; 2005.
- [20] Alamsyah, A. N. (2005). *Perpaduan sang penakluk penyakit VCO + buah merah*. Agromedia Pustaka: Jakarta, hal: 2-45
- [21] Liang Y, Fang JQ, Wang CX, Ma GZ (2008). Effects of transcutaneous electric acupoint stimulation on plasma SOD and MDA in rats with sports fatigue. *Zhen Ci Yan Jiu*, 33: 120-123.
- [22] Rohman, A., Riyanto, S., Yuniarti, N., Saputra, W.R., Utami, R. and Mulatsih, W. 2010a. Antioxidant activity, total phenolic, and total flavonoid of extracts and fractions of red fruit (*Pandanus conoideus* Lam). *International Food Research Journal* 17: 97-106.
- [23] Sandhiutami,NMD., Ngatijan., Kristin,E. (2012). Quantitative assay for tocoferol of Buah Merah (*Pandanus conoideus* LAM) oil in rat's blood given maximum phisical activities

- [24] Ozaslan, M., Aytekin,T., Kilic,I.H., Bozkurt,A.L., Guldur,E., Cenggiz,B. (2004). The effect of vitamin C supplementation on leucocyte counts and Exercise performance. *Journal of Exercise Physiology online*. Vol.7 (2),pp 101-105
- [25] Bing, Y and Zhaobao, W. (2010). Effects of Ginkgo Biloba Extract on Free Radicalmetabolism Of Liver In Mice During Endurance Exercise. *Afr J Tradit Complement Altern Med*. 7(4):291-295
- [26] Miao, F., Yu,W., Wang,Y., Meijuan Wang, M., Liu, X and Li, F.(2010). Effects of corn peptides on exercise tolerance, free radical metabolism in liver and serum glutamic-pyruvic transaminase activity of mice. *African Journal of Pharmacy and Pharmacology* Vol. 4(4), pp. 178-183



THE EFFECT OF ROSELLA TEA (HIBISCUS SABDARIFFA) PREVENTION OF BLOOD PRESSURE INCREASE (STUDY IN RATS THAT WERE GIVEN ALCOHOL)

Sugiharto¹, Sugiarto²

^{1,2}Department of Sports Sciences, Faculty of Sports Sciences, Semarang State University, Central Java, Indonesia

¹sugihartoikorsmg@yahoo.co.id

Abstract

The aim of the research is to examine the differences in blood pressure of mice that were given alcohol, before and after giving Roselle tea for three different doses. Rosella is one source of exogenous antioxidants that are expected to prevent a decline in production of NO, NO function decline, increased SOD and prevent the increase in blood pressure by preventing free radical superoxide reacts with NO to form peroxynitrite and prevent the oxidation of LDL. The study design is pre-post test control group design. The research variables are giving rosella and alcohol (independent variables), and blood pressure (the dependent variable). Materials research include; Wistar rats male, aged 1 month, minimum weight of 100 grams as much as 30 individuals, divided into 5 groups. Dried Rosella (Calix) that is converted into steeping Rosella tea 0.75 g, 1.5 g and 3 g, absolute alcohol (100%), rat food type II BR. Research tools include; animal cage made of plastic with the size 18 x 24 x 25 cm, 1 cc syringe, cannula syringe, animal scales and sphygmomanometer for rats. The data were analyzed using ANOVA and SPSS for windows. Research result; 1) there are significant differences between the mean systolic and diastolic in the treatment group, 2) the average of the highest systolic blood in alcohol treatment group is 232.1667 mmHg, the control group and 0.75 grams of alcohol + roselle with a mean 172.3333 mmHg and 176.0000 mmHg, in the alcohol group + rosella 1.5 g with a mean of 134.6667 mmHg and the lowest is in the group of alcohol + Rosella 3 g with a mean 117.1667 mmHg, and 3) the average high of 184.8333 mmHg diastolic in the alcohol group, the control group and the group of alcohol + rosella 0.75g with a mean 93.5000 mmHg and 96.0000 mmHg, and the lowest average is alcohol group + rosella 3g and alcohol group + rosella 1.5 g with a mean of 67.0000 mmHg and 74, 16 667 mmHg. Conclusion, rosella drinks can be used as a health drink because it was proven able to prevent the rise in blood pressure.

Keywords: rosella, blood pressure, antioxidants

INTRODUCTION

The decline in production and bioavailability of NO homeostasis will cause interference on the cardiovascular system. This decrease will have an impact on the increase in blood pressure. SOD as an antioxidant in the body is unable to compensate for the amount of free radicals generated from the metabolism of alcohol, therefore antioxidants from outside of the body is needed. Rosella is one source of exogenous antioxidants that are expected to prevent a decline in NO production, NO function decline, increased SOD and prevent the increase in blood pressure by preventing free radical superoxide reacts with NO to form peroxynitrite and prevent the oxidation of LDL. This needs to be proven and explained of how these mechanisms could occur. Hence, this research needs to be conducted to answer the research questions: Is there any differences in blood pressure of rats that were given alcohol, before and after given Roselle tea? The purpose of the study is to assess differences in blood pressure of rats that were given alcohol, before and after given Roselle tea for

three different doses. The benefits of the research are to understand the influence of exogenous antioxidants in Rosella to prevent the increase in blood pressure due to alcohol consumption and to add information and to increase public confidence.

Factors that may cause relaxation of the blood vessels called as Endothelial Derived Relaxing Factor (EDRF) which is nitric oxide / nitrogen oxide (NO) or NO donor compound. Nitrogen oxide is a colorless gas, is quite soluble in water (up to 2 mM at a temperature of 20°C). Such as O₂, NO is more soluble in organic solvents. NO could diffuse into and between cells. NO has one unpaired electron, therefore NO is a paramagnetic molecules and free radicals (Barbato and Tzeng, 2004). In the tissue, NO has a very short half-life (approximately 3-4 seconds). NO can react with oxygen and superoxide. The reaction with superoxide led to the formulation of peroxynitrite compound (ONOO-) which further can decompose and form a highly reactive OH- radicals. (Pacher et al., 2006). The role of NO in the pathophysiology of vascular disease is in endothelial dysfunction, although there are other factors that also affect the occurrence of endothelial dysfunction. Endothelial dysfunction can be defined as an imbalance between relaxation factors and constricting endothelial, between procoagulant and anticoagulant mediators, or between substances that inhibit and promote growth (Rosdiana, 2008). NO function as a relaxation factor can be disrupted because of the free radical superoxide. Even though NO itself is free radicals, but the effect will be dangerous if it is reacts with superoxide to form compounds peroxynitrite. Peroxynitrite is an oxidant that can decompose to form hydroxyl radical and nitrogen dioxide. Both of these free radicals can cause dysfunction in the cardiovascular system (Pacher et al., 2006).

Hypertension is the increase in systolic blood pressure or diastolic or both and is divided into two main types, namely essential hypertension (primary or idiopathic) and secondary hypertension (Frizzel and Joan in Sunarti, 2007). Classification of blood pressure levels according to Chobanian in Sunarti (2007), as shown in the following table.

Tabel 1. Blood Pressure Classification.

Categories	Blood Pressure	
	Systolic (mmHg)	Diastolic (mmHg)
Normal	< 120	< 80
Prehypertension	120 – 139	80 – 89
Hypertention Level 1	140 – 159	90 – 99
Hypertention Level 2	≥ 160	≥100

(Chobanian in Sunarti, 2007).

Essential hypertension is characterized by endothelial dysfunction which is a vascular endothelial homeostasis nature of disorder, including adjustment disorder dependent endothelial vascular tone (Austin et al. In Sunarti, 2007). Endothelial regulate vascular tone through the balance of vasodilator and vasoconstrictor (Widiansky in Sunarti, 2007). According to Sherwood (2005) and Klabunke (2008) the role of NO are: a direct vasodilator, causing relaxation of smooth muscle arterioles which means the maintenance of tissue blood flow and arterial pressure; indirect vasodilator by inhibiting vasoconstrictor (angiotensin II).

In experiment's mice that created to get hypertension spontaneously, increased activity of NO synthase but not effective, possibly because the inactivation of NO by superoxide anion. Mice

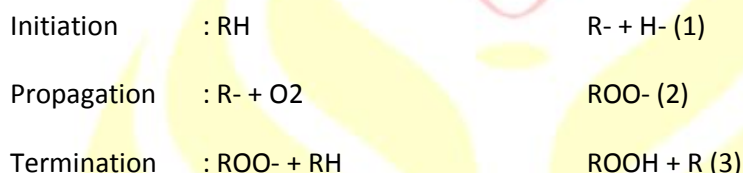
were infused with NG-nitro-L-arginine methyl ester (L-NAME), an inhibitor of NO, continuously for 5 days, will show decreased blood flow renal medulla. Decreased blood flow causes the renal medulla is sodium retention resulting in hypertension. Decreased blood flow renal medulla can return to normal when the administration of L-NAME stopped. These results suggest that NO plays an important role in the renal medulla, which is to maintain fluid and electrolyte homeostasis and blood pressure control (Rosdiana, 2008).

Effect of long-term alcohol consumption can decrease Nitric Oxide Synthase (NOS); it is associated with arteriolar responses that were unclear mechanism of occurrence. Consuming alcohol in a long time contributes to the pathogenesis of several cardiovascular diseases, including systemic hypertension, cardiomyopathy, arrhythmia, hemorrhagic and non-hemorrhagic stroke. An increase in free radicals that come from the alcohol metabolism can directly damage the endothelium, it give effect on the synthesis / secretion of NO and or scavenger NO, thus disrupting the function of the reactivity of the blood vessels (Sun and Mayhan, 2001).

The mechanisms that contribute to endothelial damage due to chronic alcohol consumption and impact on NO synthesis, is not known with certainty. Some possible mechanisms are: **1)** Alcohol cause abnormalities form in the endothelium of blood vessels, which have a direct impact on the dysfunction of the endothelium, thereby reducing the synthesis and secretion of NO. Studies in rabbits stated that, giving ethanol intravenous infusion reduce production of NO (Kopp, 2006). **2)** Alcohol possibly stimulates lipid peroxides through the formation of free radicals and weakening antioxidant system, caused oxidative stress. The increase in free radical formation can undermine the effectiveness of endotelum in synthesize NO and NO scavenger that have an impact on the reactivity of the blood vessels (Kopp, 2006). Shaish et al. (1997) found that chronic alcohol consumption increases the production of lipid peroxidation and decrease the activity of SOD (superoxide dismutase) in mice microsomes. **3)** Damage sintesis NO on chronic alcohol consumption might be associated with metabolic mechanisms of alcohol. Oxidative metabolism of alcohol will be formed acetildehyde. Acetildehyde and metabolism acetildehyde probably toxic to the endothelium and induce changes in the synthesis of NO (Kopp, 2006). **4)** Several studies have shown that activation of eNOS not only stimulates the secretion of NO, but may also stimulate the production of superoxide anion that is detrimental to the function (Kopp, 2006). The imbalance of NO and oxygen radical production can occur in chronic alcohol consumption, so could form peroxynitrite which is toxic to the cardiovascular system.

Antioxidants are compounds that have a molecular structure that can provide electrons freely to free radical molecules without being disturbed at all and can break the chain reaction of free radicals. According to the origin of the antioxidant, an antioxidant consisting of; 1) antioxidant made by the body itself in the form of enzymes include superoxide dismutase (SOD), glutathione peroxidase and catalase, 2) a natural antioxidant which can be obtained from plants or animals those are are tocopherols, vitamin C, beta-carotene, flavonoids and phenolic compounds, and 3) synthetic antioxidants, which are made of chemicals those are Butylated Hroxylanisole (BHA). On the basis of antioxidant function, it can be divided into four; a) primary antioxidant, works to prevent the formation of new free radicals. For the example is enzyme superoxide dismutase (SOD). b) a secondary antioxidant, a compound that serves to capture free radicals and prevent a chain reaction so that there is no greater damage. Examples of secondary antioxidants that are popular are flavonoids, vitamin E, vitamin C, and beta-carotene derived from plants, c) tertiary antioxidant, a compound that repair cells and tissues which are damaged by free radical attack. The examples are sulfoksidan methionine reductase enzyme can repair DNA in the cell nucleus. d) oxygen scavenger, oxygen binding function so it does not support the oxidation reaction, such as vitamin C. (Kumalaningsih, 2007).

Mechanism of action of antioxidants in general is to inhibit the oxidation of fat. Oxidation of fat consists of three main stages, namely initiation, propagation, and termination. At the stage of initiation, fatty acid radical is formatted, which is a fatty acid derivative compounds that are unstable and highly reactive result from the loss of one hydrogen atom (reaction 1). The next stage, namely propagation, fatty acid radical reacts with oxygen to form peroxy radicals (reaction 2). Further peroxy radicals will attack the fatty acids produces hidrokperoksida and new fatty acid radical (reaction 3). Hydroperoxide formed is unstable and will be degraded further produce carbonyl compounds short chain such as aldehydes and ketones that are responsible for the flavor of fatty foods.



(Kumalaningsih, 2007).

According to Maryani and Kristiana, 2008, Rosella tea function as an antioxidant, anti-inflammatory, anticancer, hipolipidemia, hepatoprotective, antihypertensive, anti-bacterial, improve stamina. The content of the chemical in Rosella flower petals are: anthocyanins (gossipetin and hibiscin) 2%, vitamin C 0.004 to 0.005%, protein 6.7 to 7.9%, citric acid and malic acid 13%. The content of Fatty acid linoleic 14.4%, palmitin 35.2% , miristin 2.1%, stearic 3.4%, oleic 34%. DEP.KES.RI in Kustyawati, 2008), explains that every 100 grams of dried Rosella petals is containing 1,145 g protein, 2.61 g fat, 12 g fiber, 1,263 g of calcium, 273.2 mg of phosphorus, 8.98 mg iron , 0.029 mg carotene, 0.117 mg thiamine, 3.765 mg niacin, 0.277 mg riboflavin and vitamin C 244.4 mg. The amino acid content in the form of: arginine, lysine, cysteine, histidine, isoleucine, leucine, methionine, phenylalanine, threonine, tryptophan, tyrosine, valine, aspartic acid, glutamic acid, alanine, glycine, praline, serine. Whereas Galina, 2008, mentions three main active ingredients in the Rosella are in the form of: delphinidin, (delphinidin chloride), is a part of the group of anthocyanins, cyanidin, (cyanidine, cyanidol), is a part of anthocyanins group, esculetin, (cichorigenin), freshly prepared as antioxidant.

Based on the above sources Rosella components that have antioxidant capabilities that can prevent the oxidation of lipoproteins as well as a free radical scavenger superoxide so as to prevent endothelial dysfunction that can cause cardiovascular disorder is anthocyanins, vitamin C, beta-carotene, vitamin E. The antioxidant activity at calyx away higher than the cat's whiskers plant and flower knob (Nurfadidah, 2005).

METHODS

This type of research is true experimental research design with pre-post test control group design. The research variables include the provision of roselle tea and alcohol, called the independent variable and blood pressure is called as dependent variable. Outside the controlled variable; the type, age, weight, food and beverage of the experimental animals, doses of alcohol, doses of Rosella and outside variable that can not be controlled; Alcohol absorption and Rosella absorption. The research materials, namely; Wistar male mice, aged 1 month, minimum weight of 100 grams as much as 30 individuals, Calix Rosella 0.75 grams, 1.5 grams and 3 grams of dry Calix brewed in water 200 cc boiling water (90 ° C) for 5 -10 minutes, absolute alcohol (100%) dose of 3 g /

kg body weight (BW) / day and feed types BR II. Research tools include; animal cage size 18 x 24 x 25 cm, 1 cc syringe, cannula syringe, animal weighing, and measuring blood pressure (sphygmomanometer) for mice. Research stages; a) grouping of the experimental animals into 5 groups, b) environmental adaptation on days 1-6, c) measurement of blood pressure on days 7, d) treatment of experimental animals at days 8-36 and e) measurement of blood pressure on the day 37th. The statistical analysis used in the form of analysis of variance (ANOVA). This analysis is used to examine overall differences in mean change of blood pressure between the control group and the treatment group. The program used was SPSS for windows.

RESULTS AND DISCUSSION

Research Data

Here are presented the results of Blood Pressure Research according to sample group in the chart 1 below.

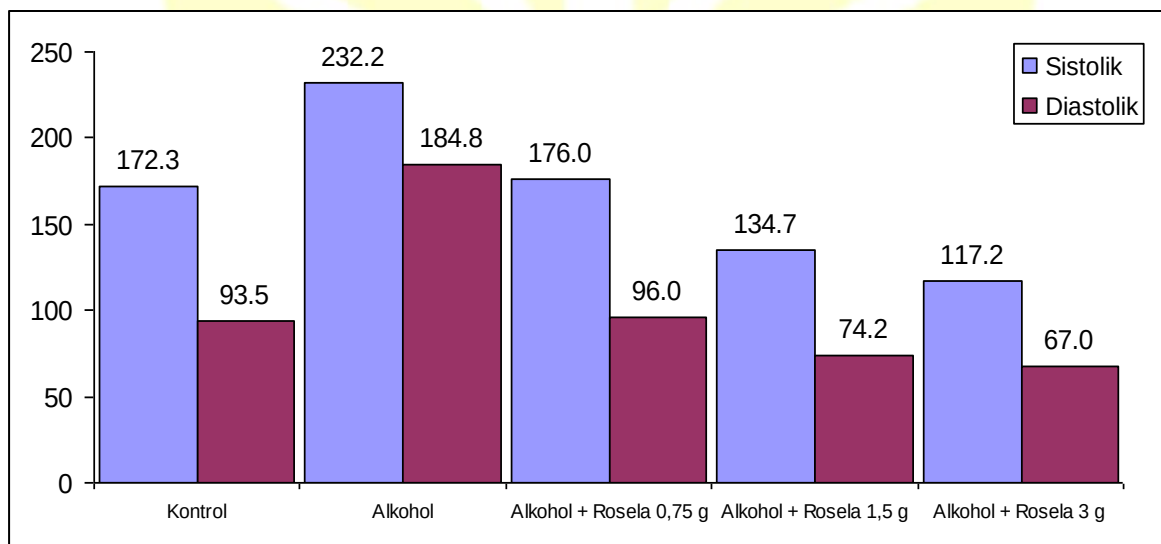


Fig 1. Comparison of Blood Pressure between groups, (Source: Research 2010).

Normality Test Data

Results of data normality test before hypothesis testing using Anova can be seen from the results of Kolmogorov-Smirnov test, as listed in Table 2 below.

Table 2. Results of Kolmogorov Smirnov Test.

–		Systolic	Diastolic
N		30	30
Normal Parameters ^{a,b}	Mean	166.4667	103.1000

	Std. Deviation	40.8181	43.5172
Most Extreme	Absolute	.161	.292
Differences	Positive	.161	.292
	Negative	-.117	-.172
Kolmogorov-Smirnov Z		.881	1.598
Asymp. Sig. (2-tailed)		.419	.012

a0 Test distribution is Normal b Calculated from the data (Source: Research 2010)

b0 From the above test results, obtained p value for each of the data of systolic and diastolic respectively 0.419 and 0.012. Both exceed the 0.01 error, which means that the data are normally distributed. Thus, the parametric statistical analysis can be continued in this study.

Homogeneity test

Homogeneity of variance test can be seen from the Levene statistic, as listed in Table 3 below.

Table 3. Test Results Homogeneity.

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
Systolic	.203	4	25	.934
Diastolic	1.431	4	25	.253

(Source: Research 2010).

From the statistical calculations above, the homogeneity test results obtained p value for the data of systolic and diastolic of 0.934 and 0.253. Both p value > 0.01, which means that the data has the same variance or homogeneous.

Test Anova

Results of hypothesis testing using ANOVA test can be seen in Table 4, Table 5, Table 6 and Table 6 below.

Table 4. Description of Data.

Descriptives						
Pressure	Sample Group	N	Mean	SD	Min.	Max.
Systolic	Control	6	172.3333	8.06639	156.00	177.00
	Alcohol	6	232.1667	6.82398	223.00	241.00
	Alcohol + Rosella 0,75 gr	6	176.0000	5.40370	166.00	181.00
	Alcohol + Rosella 1,5 gr	6	134.6667	4.92612	130.00	141.00
	Alcohol + Rosella 3 gr	6	117.1667	6.17792	110.00	125.00
Total		30	166.4667	40.81813	110.00	241.00
Diastolic	Control	6	93.5000	8.11788	85.00	104.00
	Alcohol	6	184.8333	7.80812	172.00	195.00
	Alcohol + Rosella 0,75 gr	6	96.0000	3.34664	91.00	100.00
	Alcohol + Rosella 1,5 gr	6	74.1667	7.93515	64.00	83.00
	Alcohol + Rosella 3 gr	6	67.0000	5.17687	62.00	74.00
Total		30	103.1000	43.51722	62.00	195.00

(Source: Research 2010).

Table 5. ANOVA.

_Sum of squares		Df	Mean square	F	Sig.	
Systolic	Between groups	47301.133	4	11825.283	290.881	.000
	Within groups	1016.333	25	40.653		
	Total	48317.467	29			
Diastolic	Between groups	53779.553	4	13444.883	295.060	.000
	Within groups	1139.167	25	45.567		
	Total	54918.700	29			

(Source: Research 2010).

Based on the ANOVA test results in Table 5 above, the value of p value of 0.000 for the data systolic and diastolic data with $p = 0.000$, both < 0.01 , which means that the hypothesis is accepted, meaning that there are differences between the mean systolic and diastolic significant of the five groups treatment. To know further difference can be seen from the results of post hoc test that is using Duncan test.

Post Hoc Tests

Homogeneity test results, using Duncan test can be seen in Table 6 and Table 7 below.

Table 6. Test Result of Duncan Data Systolic.

Duncan^a

Group	N	Subset for alpha = .01			
		1	2	3	4
Alcohol + Rosela 3 gr	6	117.1667			
Alcohol + Rosela 1.5 gr	6		134.6667		
Control	6			172.3333	
Alcohol + Rosela 0.75 gr	6			176.0000	
Alcohol	6				232.1667
Sig.		1.000	1.000	.329	1.000

Means for groups in homogeneous subsets are displayed.

a0Uses Harmonic Mean Sample Size = 6.000, (Source: Research 2010).

It can be seen from Table 6 above, the highest average systolic is in the group which reached 232.1667 alcohol treatment, followed by the control group and alcohol + 0.75 gr of roselle with the average of 172.3333 and 176.0000, then in groups of alcohol + rosela 1 , 5 gr with a mean of 134.6667 and the lowest in the group of alcohol + Rosella 3 gr with the average of 117.1667.

Tabel 7. Test Result of Duncan Data Diastolic.

Duncan^a

Group	N	Subset for alpha = .01		
		1	2	3
Alcohol + Rosela 3 gr	6	67.0000		

Alcohol + Rosela 1.5 gr	6	74.1667		
Control	6		93.5000	
Alcohol + Rosela 0.75 gr	6		96.0000	
Alcohol	6			184.8333
Sig.		.078	.527	1.000

Means for groups in homogeneous subsets are displayed.

a0 Uses Harmonic Mean Sample Size = 6.000, (Source: Research 2010).

Duncan test results in table 7, the highest average diastolic reached 184.8333 in the alcohol group, followed by the control group and the group of alcohol + rosela 0.75 g with a mean 93,500 and 96,000 and the lowest average is the alcohol + 3 g rosella and group alcohol + rosella 1.5 g with a mean of 67.0000 and 74.16667.

According to the description data presented above, it appears that the systolic pressure in the control group had a mean of 172.3333 mm Hg, the lowest is 156,00 mmHg and the highest is 177.00 mmHg. In the group of mice that were given alcohol treatment, the mean value of systolic pressure reached 232.1667 mmHg, the lowest is 223,00 mmHg and the highest is 241,00 mmHg. In both of the groups, there is a significant difference of mean systolic pressure; alcohol group had a mean systolic blood pressure that was higher than the control group. For group of alcohol + 0,75 gr Rosella has a mean systolic pressure of 176.0000 mmHg systolic pressure, alcohol + 1,5 gr Rosella group had a mean systolic pressure of 134.6667 mm Hg and alcohol + 3 gr Rosella group had a mean systolic pressure gr 117.1667 mmHg. This result explains that giving alcohol accompanied by giving Roselle of those three doses in this study provide different effects on mean systolic pressure, which is a group of alcohol + 3 gr Rosella result on lower mean systolic pressure than other groups. The higher dose of Rosella that is given to groups of mice that were given alcohol, then the mean systolic pressure is also getting lower.

This research also presents data description of diastolic pressure in the fifth research group. The control group had a diastolic mean of 93.5000 mmHg, the mean diastolic pressure for alcohol group is 184.8333 mmHg. There are significant differences on both of the groups, that is the alcohol group had a higher mean pressure compared to the mean diastolic pressure of the control group. In the other groups, which is group of alcohol + 0.75 gr Rosella has a mean diastolic pressure 96.0000 mmHg, group alcohol + 1.5 g Rosella with pressure 74.1667 mmHg, while the alcohol + 3 gr Rosella has mean diastolic pressure of 67.0000 mmHg. Giving Rosella doses in groups of mice that were given alcohol, giving effect in decreasing diastolic; the higher the dose of Rosella is given, then the diastolic pressure will decrease and approach a normal diastolic pressure.

Differences in mean of systolic and diastolic pressure in the study group mentioned above, shown that there is influence of alcohol and Rosella consumption to blood pressure effect. The results of this research is consistent with those expressed by Sun and Mayhan, 2001, that long term consumption of alcohol contribute to the pathogenesis of cardiovascular diseases, including systemic hypertension. Another effect from consuming alcohol which ultimately resulted in an increase in blood pressure is alcohol may stimulate lipid peroxidation by forming free radicals and

weakens the antioxidant system, and cause oxidative stress which may impact on vascular reactivity. This is also reinforced by Kopp, 2006, which found that chronic alcohol consumption can lead to the production of NO and unbalanced oxygen radicals, thus forming a very toxic peroxynitrite to the cardiovascular system.

Another explanation that supports this research is that alcohol consumption can increase the Low Density Lipoprotein (LDL) and trigger the formation of superoxide free radicals (Shaish et al., 1997). Ros (1999) also mentions that an increase in LDL is one of the factors in forming atherosclerosis. Oxidized LDL can increase the activity of lipooxygenase which can increase inflammation and oxidation of LDL. Furthermore, it is also said that angiotensin II as vasoconstrictor factors also contribute to the hypertension. This possibly becoming the cause, how alcohol consumption affects the function of the cardiovascular system and contributes in increasing blood pressure, both systolic and diastolic.

Based on the results of data analysis in this study, can be explained that there are significant differences between the mean systolic and diastolic of the five treatment groups of the study, which means that there is the influence of alcohol consumption and Rosella dose of 0.75 grams, 1.5 grams dose and a dose of 3 grams for the changes in mice's blood pressure. Changes in blood pressure in this study is the change in systolic and diastolic pressures that were initially high or hypertension due to alcohol consumption, the blood pressure become lower or close to normal blood pressure. Giving Rosella 3 gr treatment provides blood pressure-lowering effects, both systolic and diastolic which is greater than Rosella dose of 0.75 g and 1.5 g.

Changes in blood pressure is significantly difference seen from Rosella doses given, which means that the Rosella brings effect on the cardiovascular system and blood vessels. Giving Rosella regularly can increase the body's antioxidant reserves and also as an antihypertensive. (Maryani and Kristiana, 2008). Nurfadidah, 2005 mentioned that the Rosella has antioxidants ability to prevent the oxidation of lipoproteins as well as a free radical scavenger superoxide so it could prevent endothelial dysfunction that may cause cardiovascular disorders. The antioxidants is anthocyanins, vitamin C, beta-carotene, vitamin E. The antioxidant activity of the calyx is much higher compare to the cat's whiskers plants and flowers knob.

CONCLUSION AND SUGGESTION

Conclusions: 1) there are significant differences between the mean systolic and diastolic of the treatment group, 2) the highest systolic mean on the alcohol treatment group is 232.1667 mmHg, the control group and alcohol + 0.75 grams Rosella with the average of 172.3333 mmHg and 176.000 mmHg, on the alcohol group + 1.5 gr Rosella with a mean of 134.6667 mmHg and the lowest in the group of alcohol + 3 gr Rosella with a mean 117.1667 mmHg, and 3) the highest diastolic mean is 184.8333 mmHg in the alcohol group, the control group and the alcohol group + 0.75 g rosella with a mean of 93.5000 mmHg and 96.0000 mmHg, also the lowest mean is the alcohol group + 3 g rosella and alcohol group + 1.5 g rosella with a mean of 67.0000 mmHg and 74.16667 mmHg.

Suggestions: 1) alcohol scientifically proven trigger a rise in blood pressure (systolic and diastolic), so it is recommended to the society not to consume alcohol, 2) Rosella drinks can be used as a health drink because it has been proved could prevent the rise in blood pressure, and 3) to enhance research, further research on how large absorption of rosella drink by the body could affect on the activation of the cellular level, need to be conducted.

REFERENCES

- Barbato, J.E., Tzeng, E., 2004. Nitric oxide and arterial disease, *Journal of Vascular Surgery*, (40): 187-193.
- Chen, C.C., Hsu J.D., Wang, S.F., Chiang, H.C., Yang, M.Y., Kao, E.S., Ho, Y.C., Wang, C.J., 2003. Hibiscus sabdariffa extract inhibits the development of atherosclerosis in cholesterol-fed rabbits, *Journal Agric Food Chem*, (18): 5472-7.
- Dodgen, C.E., Shea, W.M., 2000. *Substance Use Disorder*, Elsevier Science, USA.
- Galina, S.K., 2008. *Medicinal Plants-Hibiscus*, Rosella, <http://www.truestarhealth.com>.
- Guyton, A.C., Hall, J.E., 2006. *Textbook of Medical Physiology*, W.B. Saunders Company, Philadelphia.
- Hayek, T., Fuhrman, B., Vaya, J., Rosenblat, M., Belinky, P., Coleman, R., Elis, A., Aviram, M., 1997. Reduced Progression of Atherosclerosis in Apolipoprotein E-Deficient Mice Following Consumption of Red Wine, or Its Polyphenols Quercetin or Catechin, Is Associated With Reduced Susceptibility of LDL to Oxidation and Aggregation, *Arteriosclerosis, Thrombosis, and Vascular Biology*, (17): 2744-2752.
- Hornig, B., 2001. Comparative Effect of ACE Inhibitor and Angiotensin II Type 1 Receptor Antagonism on Bioavailability of Nitric Oxide in Patients with Coronary Artery Disease, *Circulation*. (103): 799.
- Klabunke, R.E., 2007. *Cardiovascular Physiology Concepts*, <http://www.cvphysiology.com>.
- Koop, D.R. 2006. Alcohol Metabolism's Damaging Effects on the Cell. *Alcohol Research & Health* (29): 274-280.
- Kumalaningsih, S., 2007. *Antioksidan, Sumber dan Manfaatnya*, <http://www.azrl.com>.
- Kustyawati, M.R., Ramli, S., 2008. *Pemanfaatan Hasil Tanaman Hias Rosella sebagai Bahan Minuman*, <http://lemlit.unila.ac.id>.
- Kusumawati, D., 2005. *Bersahabat dengan Hewan Coba*, Gajah Mada University Press, Yogyakarta.
- Maryani, H., Kristiana, L., 2008. *Khasiat dan Manfaat Rosela*, PT. Agromedia Pustaka, Jakarta.
- Musta'ina, S., 2008. *Pemberian Antioksidan dalam Sari Buah Merah sebagai Upaya Preventif dan Kuratif terhadap Disfungsi Endotel Sistem Pembuluh Darah Mancit*, <http://www.adln/lib.unair.ac.id>.
- Narwanto, M.I., 2008. *Pengaruh Pemberian Etanol secara kronik terhadap jumlah sel piramidal di CA1 dan CA3 Hipokampus dan memory kerja spasial pada tikus remaja*, thesis, program pasca sarjana Universitas Gadjah Mada, Yogyakarta.

- Pacher, P., Beckman, J.S., Liaudet, L., 2007. *Nitric Oxide and Peroxynitrite in Health and Disease*, *AJP*. (87): 315-424.
- Rosdiana, N. dan Soewoto, H., 2008. *Peranan Nitrogen Oksida Dalam Patofisiologi Penyakit Vaskular*, Bagian Biokimia Fakultas Kedokteran Universitas Indonesia.
- Ross, R., 1999. Atherosclerosis an Inflammatory Disease, *NEJM* (340): 115-126.
- Shaish, A., Pape, M., Rea, T., Srivastava, R.A.K., Latour, M.A., Hopkins, D., Schonfeld, G., 1997. *Increase Plasma Levels of Cholesterol Diet-Induced Atherogenic Lipoprotein and Aortic Atherosclerosis in Rabbits*, *ATVB*, (17): 1091-1097.
- Sheerwood, L., 2005. *Human Physiology: from Cell to Sistem*, Thomson Publishing Inc.
- Simangunsong, L.B., 2007. *Efek Ekstrak Air Umbi Teki terhadap Hepatitis Alkoholik yang diinduksi oleh etanol pada tikus putih*, Skripsi, UGM, Yogyakarta.
- Sun, H., and Mayhan, W.G., 2001. *Temporal effect of alkohol consumption on reactivit of pial arterioles: role of oxygen radicals*, *Am J Physiol Heart Circ Physiol* (280): H992–H1001.
- Sun, H., Patel, K.P., and Mayhan, W.G. 2001. Tetrahydrobiopterin, a cofaktor for NOS, improves endothelial dysfunction during chronic alkohol consumption, *Am J Physiol Heart Circ Physiol* (281): H1863–H1869.
- Sunarti, 2007. *Interaksi Poliformisme Genetik Metilentetrahidrofolat Reduktase dan Metabolisma Folat pada Hipertensi Esensial*, Program doktor Ilmu Kedokteran dan Kesehatan, UGM, Yogyakarta.
- Tortora, G.J., Derrickson, B., 2006. *Principle of Anatomy and Physiology*, John Wiley & Sons, Inc., USA.
- Wambi-Kiessa and Katusic, Z.S., 1999. Inhibition of Copper/Zinc Superoxide Dismutase impairs NO mediated endotelium-dependent relaxations, *Am J Physiol Heart Circ Physiol* (276): H1043-H1048.
- Wijaya, A., 1997. Oksidasi LDL, Atherosklerosis dan Antioksidan, *Forum Diagnosticum* No (3). 1-15.
- Winarsi, H., 2007. *Antioksidan Alami dan Radikal Bebas*, Kanisius, Yogyakarta.

EFFECTS OF A NOVEL PROTEIN SUPPLEMENT ON DISUSE MUSCLE ATROPHY (STUDY IN BODY WEIGHT AND SOLEUS MUSCLE)

Mohammad Arif Ali

Department of Sports Sciences, Faculty of Sports Sciences, Semarang State University, Central Java
50229, Indonesia

hiarifalikhan@gmail.com

Abstract

Purpose: The purpose of the study was to investigate the effects of a protein supplement containing leucine, β -hydroxy- β -methyl butyrate (HMB), whey protein, casein, glucose, with or without DHEA supplementation on body weight and soleus muscle loss in hindlimb suspension (HS) model. **Methods:** Thirty-two male Sprague-Dawley (SD) rats (280-330g) were randomly assigned into 4 groups: control (C), HS, HS + protein supplementation (HSP), HS + protein supplementation + DHEA (HSPD). Protein supplement (10 ml/kg body wt containing 300 mg/kg body wt of leucine, 400 mg/kg of HMB, 400 mg/kg of whey protein, 200 mg/kg of casein, 600 mg/kg of glucose with or without 75 mg/kg of DHEA) was administered by oral gavage two times a day during hindlimb unloading, at 09:00 in the morning and at 17:00 in the afternoon. Body weight was measured two times at baseline and at the end of experiment. After 14 days of HS, soleus skeletal muscle was removed and weighed. **Results:** HS significantly decreased body weight as well as soleus weight in all treatment groups compared with control ($P < .01$), no significant difference was found among HS, HSP and HSPD. **Conclusion:** The designed protein supplement could not prevent decreased in body weight and disuse-caused muscle atrophy in soleus muscle. Inclusion of DHEA into the protein supplement has no additional effect on reversing soleus muscle atrophy caused by muscle disuse.

Keywords: disuse atrophy, protein supplement, muscle mass

INTRODUCTION

Expressed between 40-50% of the body, skeletal muscle considered as the largest organ system of vertebrates. It is involved in many different functions such as postural control, movement, storing and moving substances within the body as the implication of the most important sites that control of metabolism (Baldwin, Haddad, Pandorf, Roy, & Edgerton, 2013; Fanzani, Conraads, Penna, & Martinet, 2012; Sandri, 2010). The unique of skeletal muscle is that its properties (structural, metabolic and contractile) are sensitive to the various demands, particularly the lower limb muscles which bear the brunt of opposing gravity and carrying out movement activities of varying intensity and duration (Baldwin et al., 2013).

Decreased physical activity causes disuse muscle atrophy. A sedentary lifestyle such as people with seated jobs, elderly and individual whom engage in medical conditions that restrict the movement can lead to lose of muscle mass and develop atrophy. Disuse muscle atrophy has significant adverse functional consequences and it is independently from diseases cause muscle

atrophy. Poor quality of life, implying exercise intolerance and inability to manage daily activity are the cost of muscle wasting (Fanzani, Conraads, Penna, & Martinet, 2012).

Skeletal muscle atrophy is defined as a decrease in muscle mass and involves the shrinkage of myofibers due to a net loss of proteins, organelles and cytoplasm. Further, the initiating physiological event leading to atrophy seems to be the loss of muscle tension and it occurs when protein degradation exceeds protein synthesis (Fanzani, Conraads, Penna, & Martinet, 2012; Jackman & Kandarian, 2004; Sandri, 2013).

The term “disuse” is used loosely to refer collectively to reductions in neuromuscular activity (Kandarian & Stevenson, 2002). After stimulation in which skeletal muscle no longer bears weight or contracts with tension, molecules involved with disuse atrophy such as initiating triggers, signaling protein and affected targets, carry out the process of muscle protein loss (Jackman & Kandarian, 2004). However, unloading induced atrophy is a relatively uncomplicated form of muscle loss, dependent almost solely on the loss of mechanical input, whereas in disease states associated with inflammation (cancer cachexia, AIDS, burns, sepsis, and uremia), there is a pro-catabolic hormonal and cytokine environment (Phillips et al., 2009).

There are many evidences that (fasted losses–fed gains) particularly maintaining dietary protein intake is required to attenuate muscle loss during a period of disuse. Specific supplementation with food sources high in dietary protein and/or specific protein and/or the use of essential amino acids supplements can be applied to compensate for anabolic resistance due to disuse and, as such, to augment postprandial rates of muscle protein synthesis (Wall & van Loon, 2013).

Briefly, the administration of branched-chain amino acid has observed partly but significantly against the hindlimb suspension-induced decrease in cross sectional area (Maki et al., 2012). Further, amino acids, such as leucine has a direct action on stimulation of protein synthesis with activation of insulin and cellular activation (Sowers, 2009). Additionally, both in human and animal studies have confirmed that leucine and β -hydroxy- β -methylbutyrate (HMB) alone or combine with carbohydrate significantly increased muscle protein cause maintain in muscle weight (Crozier, Kimball, Emmert, Anthony, & Jefferson, 2005; Fujita et al., 2007; Kobayashi, Kato, Hirabayashi, Murakami, & Suzuki, 2006; Wilkinson et al., 2013). Other agents which can maintain muscle weight by stimulate muscle protein synthesis are whey protein and casein but whey protein more rapid to be digested than casein in response increasing postprandial net protein synthesis (Antonione et al., 2008; Koopman et al., 2009; Magne et al., 2013). Further, treatment with dehydroepiandrosterone (DHEA) also comparable in muscle weight (Choe, An, Koo, & Jeon, 2011; Sato, Iemitsu, Aizawa, & Ajsaka, 2008; Villareal, Holloszy, & Dennis, 2006).

Many studies documented that protein and DHEA supplementations have beneficial effects on muscle homeostasis. However, very few studies focused on the effects of such supplements on body weight and solves muscle weight in hindlimb suspension cause muscle atrophy as unloading skeletal muscle model. Therefore, the purpose of this study was to investigate the effects of a protein supplement containing leucine, β -hydroxy- β -methyl butyrate (HMB), whey protein, casein, glucose, with or without DHEA supplementation on body weight and solves muscle weight during disuse muscle atrophy caused by hindlimb suspension.

METHODS

Design, Material and Procedure, thirty-two male Sprague-Dawley (SD) rats (280-330 g), rats were listed, weighed and randomly assigned based on their body weight into 4 groups of experiment: Control (C), Hindlimb Suspension (HS), Hindlimb Suspension + Supplementation (HSP), and Hindlimb Suspension + Supplementation + DHEA (HSPD). Rats received supplementation

according to their group, two times a day for 14 days during experiment, at 09:00 in the morning and at 17:00 in the afternoon, oral gavage was performed. Animals were housed one per cage, in a controlled environment under a 12-h light/dark cycle, maintained at 20 °C – 24 °C with 50% - 70% humidity and were provided ad libitum food (rat chow, PMI Nutrition International, Brentwood Mo., USA) and water (Fig. 1). All experimental procedures were carried out with approval by the Institutional Animal Use and Care Committee of University of Taipei.

The procedure of hindlimb suspension described by Morey-Holton and Globus was adopted in this study with some modifications (Morey-Holton & Globus, 2002). In brief, rat was restrained by rodent restrainer, anesthetize was not performed; cleaned up the tail from the dead and dirty skin with alcohol swabs, allowed to dry; the tail was wrapped with traction tape as the first layer right at the pole of tail just above the hair line, gently pressed so that was sticky but consider that blood circulate normally; the first aid tape was attached to the traction tape as conjugation between hanger and the tail, it was wrapped several times with small pieces of first aid tape to made a firm bandage of traction tape and first aid tape, it prevents the rat from peeling off; a line was drawn as a marker at the bottom of the traction tape to monitor if the tape shifted.

Rat was allowed to move on an x-y axis and rotate 360°, it was allowing rat to access all areas of the cage. The unloading device was located at the top of the cage, rides along two parallel sides of the cage. The body of the rat made an angle about 45° from the cage floor, thus the back feet (toe nails) did not touch the floor. The angle was checked daily, and adjusted if necessary. At the sides of the cage, there was an adjustment to increase or decrease the height of unloading device. Rat was able to reach food and water after the adjustments were made. Large binder clips were placed to the hanger bar to restrict the movement of the unloading device, it preventing rat from pushing against the sides of the cage with their hindlimbs. Sani-chips was placed under the cage to absorb the urine and feces, it changed as needed but not less than twice per week.

The body weight was measured two times at baseline and at the end of experiment. Rats were fasted ± 12 hours but free access for water, then at the fourteenth days of hindlimb suspension, soleus muscle was removed under anesthesia of chloral hydrate injection (350 mg/kg body wt), and weighed. The experiments were performed twice, during part of the light cycle (between 08:00 to 12:00).

UNNES
UNIVERSITAS NEGERI SEMARANG

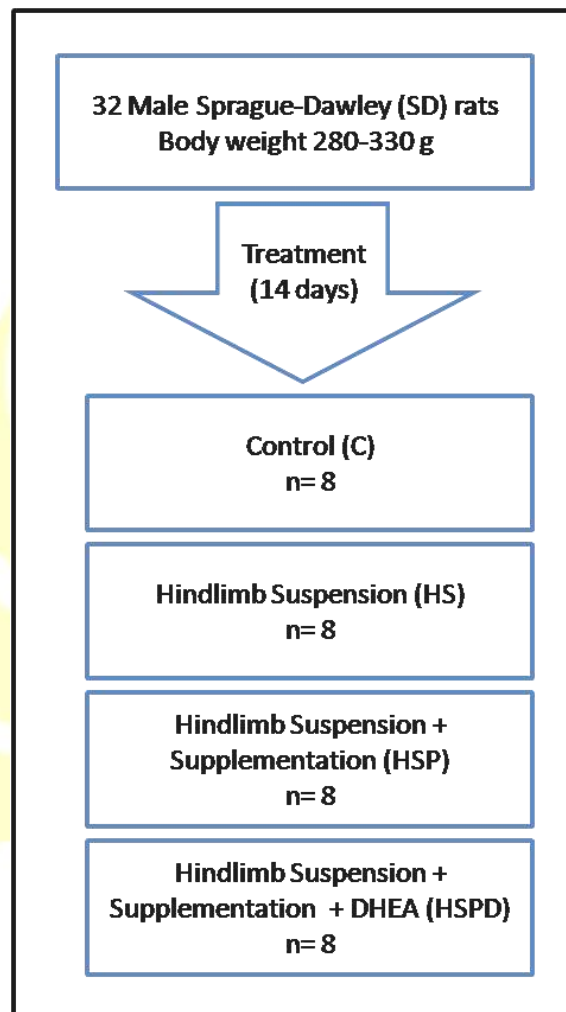


Fig. 1. Design of experiment.

Supplement, protein supplement was dissolved in ddH₂O (10 ml/kg body wt of solution, containing 300 mg/kg body wt of leucine, 400 mg/kg of HMB, 400 mg/kg of whey protein, 200 mg/kg of casein, 600 mg/kg of glucose with or without 75 mg/kg of DHEA). C and HS group had received placebo solution (water containing 5% EtOH) (Fig. 1).

Data analysis, data of body weight, food intake and muscle weight were collected. All experimental data were expressed as means $\pm$ standard errors of the mean (SEMs). To determine whether there was an effect of hindlimb suspension and/or an effect of supplementation with or without DHEA administration, one-way analysis of variance (ANOVA) was used. As ANOVA analysis achieved significant difference, the Fisher's protected least significant difference (LSD) test was used as post hoc-test. A level of $P < .05$ was considered for the significance of all tests.

RESULTS AND DISCUSSION

Food intake, in the first three day of hindlimb suspension, there was found a decline on the food intake in HS; HSP and HSPD as $P < .01$ compared with C group. Further, the most decreased on

food intake was observed in HSPD compared with C, and HSPD food intake was also significantly less than HS group ($P < .02$). However, at the sixth-ninth-twelfth days, there were not differences on food intake among groups except HSPD rats ate less than C at the ninth days as $P < .03$ (Fig. 2).

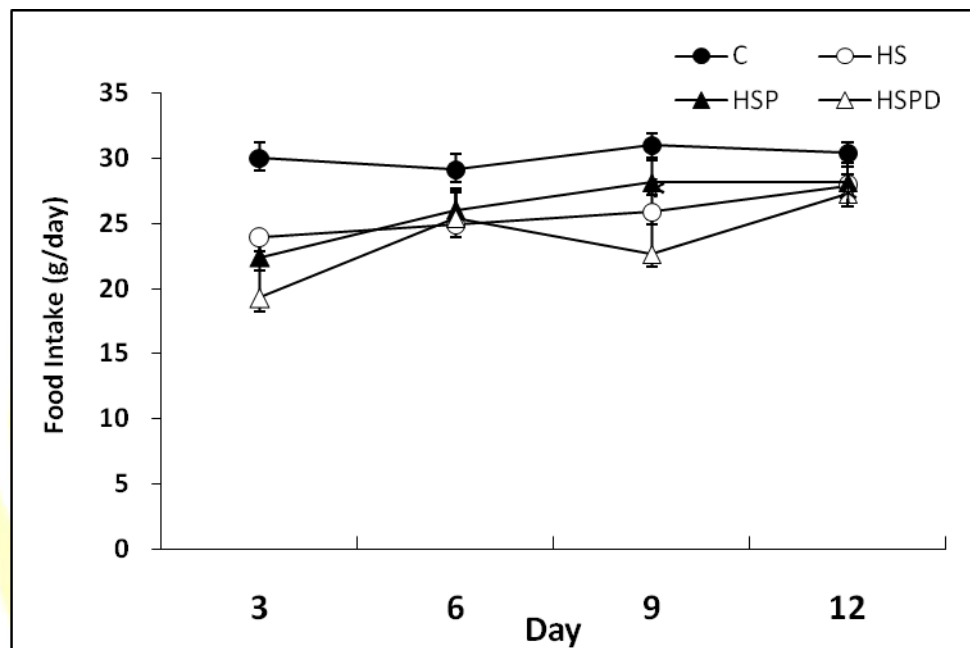


Fig. 2. Food intake during experimental days was measured once every three days. Values are means $\pm$ SE. Free control (C) represented by closed circle, hindlimb suspension (HS) represented by opened circle, hindlimb suspension + supplementation (HSP) represented by opened triangle and hindlimb suspension + supplementation + DHEA (HSPD) represented by closed triangle.

Body weight, it was comparable with free control group after 14 days of hindlimb suspension ($P < .01$). It strongly suggests that HS suppress the gain of body weight. However, there were not different among HS, HSP and HSPD groups (Fig. 3).

UNNES
UNIVERSITAS NEGERI SEMARANG

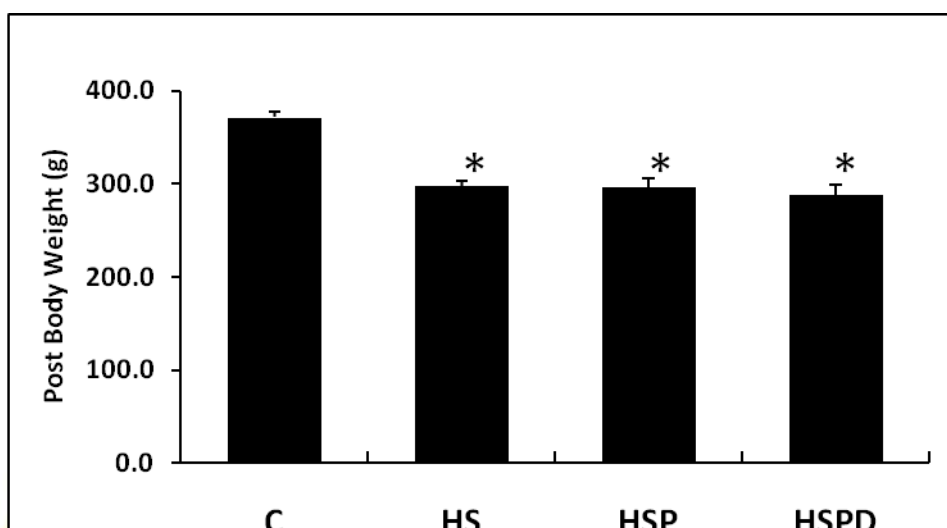


Fig. 3. Body weight after 14 days of HS measured in gram. Values are means $\pm$ SE. *asterisk $P < .05$ compared with C group.

Soleus muscle, after a 14-days hindlimb suspension, we observed a dramatic muscle mass loss in soleus. Overall, 14 days of hindlimb suspension produces a decreased in soleus muscle mass in all groups compared with free control ($P < .01$) (Fig. 4). Our findings are consistent with several previous studies that long-term disuse results in the decrease in muscle mass primarily in type I (slow oxidative fiber-dark red fiber, such as soleus) and IIa muscle fibers (fast oxidative glycolytic fibers-red fiber, such as plantaris and red gastrocnemius) (Bodine, 2013; Siu, Pistilli, Alway, & Parco, 2005).

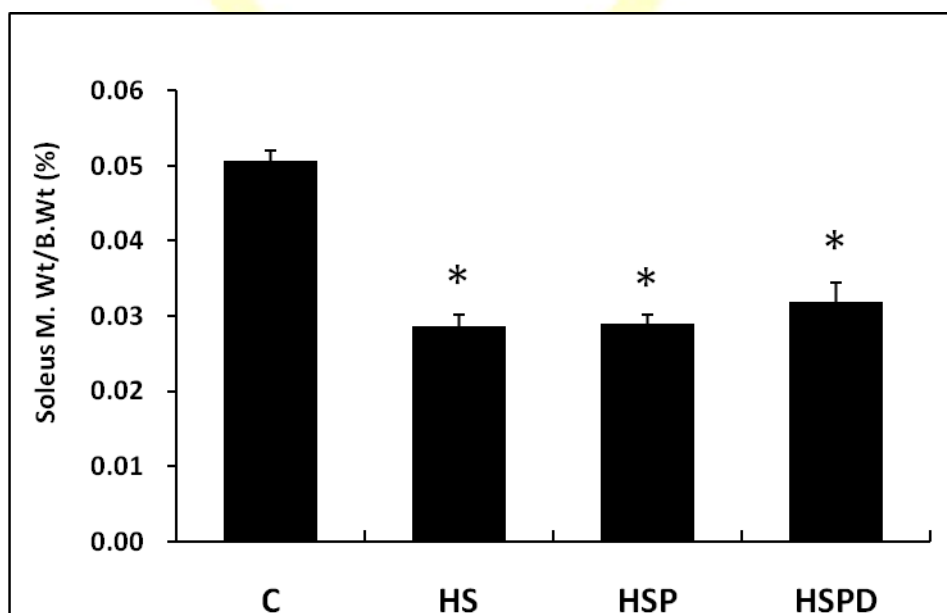


Fig. 4. Response of skeletal muscle to hindlimb suspension. Soleus muscle weight after 14 days of HS/body weight (%). Values are means $\pm$ SE. *asterisk $P < .05$ compared with C group. Rats had no hindlimb suspension treatment (C) and received placebo supplementation (water contains 5% EtOH); rats had HS treatment (HS) and received placebo supplementation; rats had HS treatment (HSP) and received experimental supplementation (300 mg/kg body wt of leucine, 400 mg/kg of HMB, 400 mg/kg of whey protein, 200 mg/kg of casein, 600 mg/kg of glucose without 75 mg/kg of DHEA); rats had HS treatment (HSPD) and received experimental supplementation + DHEA.

The reason why atrophy has occurred responsively in soleus from suspended limbs could be due to the rapid decline in continuous contractility in these muscles for maintaining regular daily activities (e.g. maintaining posture and walking), soleus muscle also help motion action called plantar flexion, additionally, soleus muscle is categorized in slow twitch muscle fiber type which have good endurance capacity. The muscle mass can be determined by the net balance between protein synthesis and protein degradation in the skeletal muscle, thus developing practical strategies to positively manipulate muscle protein metabolism could be critical to spare muscle mass during disuse. Nutrition as a treatment to against muscle loss has been documented (Wall & van Loon, 2013).

CONCLUSION AND SUGGESTION

The designed protein supplement could not prevent decreased in body weight and disuse-caused muscle atrophy in soleus muscle. Inclusion of DHEA into the protein supplement has no additional effect on reversing soleus muscle atrophy caused by muscle disuse. Suggestions for the further studies that may should consider more about the supplement and the time of hindlimb suspension treatments.

ACKNOWLEDGMENT

It is dedicated to my beloved mother Chulasoh and my father Ali Ibrohim. My sincere gratitude to Professor Chia-Hua Kuo and Professor Yi-Hung Liao, and thank you so much to the best partner from Taiwan Yu-Shiuan Chen "Best Friend Forever".

REFERENCES

- Antonione, R., Caliendo, E., Zorat, F., Guarnieri, G., Heer, M., & Biolo, G. (2008). Whey protein ingestion enhances postprandial anabolism during short-term bed rest in young men. *Journal of Nutrition*, 138, 2212–2216.
- Baldwin, K. M., Haddad, F., Pandorf, C. E., Roy, R. R., & Edgerton, V. R. (2013). Alterations in muscle mass and contractile phenotype in response to unloading models: role of transcriptional/pretranslational mechanisms. *Frontiers in Physiology*, 4(10), 284.
- Bodine, S. C. (2013). Disuse-induced muscle wasting. *International Journal of Biochemistry and Cell Biology*, 45(10), 2200-2208.

- Choe, M. A., An, G. J., Koo, B. S., & Jeon, S. (2011). Effect of dhea on recovery of muscle atrophy induced by parkinson's disease. *Journal of Korean Academy of Nursing*, 41(6), 834–842.
- Crozier, S. J., Kimball, S. R., Emmert, S. W., Anthony, J. C., & Jefferson, L. S. (2005). Biochemical and molecular actions of nutrients oral leucine administration stimulates protein synthesis in rat skeletal muscle. *Journal of Nutrition*, 135(12), 376–382.
- Fanzani, A., Conraads, V. M., Penna, F., & Martinet, W. (2012). Molecular and cellular mechanisms of skeletal muscle atrophy: an update. *Journal of Cachexia, Sarcopenia and Muscle*, 3(3), 163–179.
- Fujita, S., Dreyer, H. C., Drummond, M. J., Glynn, E. L., Cadenas, J. G., et al. (2007). Nutrient signalling in the regulation of human muscle protein synthesis. *Journal of Physiology*, 582(Pt 2), 813–823.
- Jackman, R. W., & Kandarian, S. C. (2004). The molecular basis of skeletal muscle atrophy. *American Journal of Physiology. Cell Physiology*, 287(4), C834–C843.
- Kandarian, S. C., & Stevenson, E. J. (2002). Molecular events in skeletal muscle during disuse atrophy. *Exercise and Sport Sciences Reviews*, 30(3), 111–116.
- Kobayashi, H., Kato, H., Hirabayashi, Y., Murakami, H., & Suzuki, H. (2006). Modulations of muscle protein metabolism by branched-chain amino acids in normal and muscle-atrophying rats. *Journal of Nutrition*, 3, 234S–236S.
- Koopman, R., Crombach, N., Gijsen, A. P., Fauquant, J., Kies, A. K., & Lemosquet, S. (2009). Ingestion of a protein hydrolysate is accompanied by an accelerated in vivo digestion and absorption rate when compared with its intact protein. *American journal of clinical nutrition*, (2), 106–115.
- Magne, H., Savary-Auzeloux, I., Migné, C., Peyron, M.-A., Combaret, L., et al. (2013). Unilateral hindlimb casting induced a delayed generalized muscle atrophy during rehabilitation that is prevented by a whey or a high protein diet but not a free leucine-enriched diet. *Plos One*, 8(8), e70130.
- Maki, T., Yamamoto, D., Nakanishi, S., Iida, K., Iguchi, G., et al. (2012). Branched-chain amino acids reduce hindlimb suspension-induced muscle atrophy and protein levels of atrogin-1 and murf1 in rats. *Nutrition Research*, 32(9), 676–683.
- Morey-Holton, E. R., & Globus, R. K. (2002). Hindlimb unloading rodent model: technical aspects. *Journal of Applied Physiology*, 92(4), 1367–1377.
- Phillips, S. M., Glover, E. I., & Rennie, M. J. (2009). Alterations of protein turnover underlying disuse atrophy in human skeletal muscle. *Journal of Applied Physiology*, 107, 645–654.

- Sandri, M. (2010). Autophagy in skeletal muscle. *Federation of European Biochemical Societies Letters*, 584(7), 1411–1416.
- Sandri, M. (2013). Protein breakdown in muscle wasting: role of autophagy-lysosome and ubiquitin-proteasome. *International Journal of Biochemistry and Cell Biology*, 45(10), 2121–2129.
- Sato, K., Iemitsu, M., Aizawa, K., & Ajioka, R. (2008). Testosterone and dhea activate the glucose metabolism-related signaling pathway in skeletal muscle. *American Journal of Physiology. Endocrinology and Metabolism*, 294, 961–968.
- Siu, P. M., Pistilli, E. E., Alway, S. E., & Parco, M. (2005). Apoptotic responses to hindlimb suspension in gastrocnemius muscles from young adult and aged rats. *American Journal of Physiology. Regulatory, Integrative and Comparative Physiology*, 289, R1015–1026.
- Sowers, B. S. (2009). A primer on branched chain amino acids. *Huntington College of Health Sciences*, 5, 1–6.
- Villareal, D. T., Holloszy, J. O., & Dennis, T. (2006). Dhea enhances effects of weight training on muscle mass and strength in elderly women and men. *American Journal of Physiology. Endocrinology and Metabolism*, 291, 1003–1008.
- Wall, B. T., & van Loon, L. J. C. (2013). Nutritional strategies to attenuate muscle disuse atrophy. *Nutrition Reviews*, 71(4), 195–208.
- Wilkinson, D. J., Hossain, T., Hill, D. S., Phillips, B. E., Crossland, H., et al. (2013). Effects of leucine and its metabolite β -hydroxy- β -methylbutyrate on human skeletal muscle protein metabolism. *Journal of Physiology*, 591(Pt 11), 2911–2923.



PERCEIVED BODY IMAGE AND LIFESTYLE BEHAVIORS AMONG FEMALE STUDENTS WITH WEIGHT DILEMMAS

Marwa Abd Malek¹, Sharifah Muzlia Syed Mustafa², Mawarni Mohamed³

^{1,2,3}Faculty of Education, Universiti Teknologi MARA
Kampus Seksyen 17, Shah Alam 40200 Selangor, MALAYSIA

muzlia@salam.uitm.edu.my

Abstract

Weight problem among female adolescents can become a problem since obese girls are subjected to stereotypes and size prejudices, contributing to negative body image and low self-esteem. The factors causing obesity among female teenagers need to be determined in order to come out with effective prevention and intervention programs in schools. This study investigated the perception of factors contributing to weight problems among 35 purposively selected school students with weight problems. All students were females ranging from 13 to 16 years old. The students responded to a questionnaire asking about their eating habits, physical activities and social support in relation to lifestyle habits. It was found that the teenagers practiced several unhealthy eating and physical activity habits. Parents and peers also influence the teenagers to practice unhealthy lifestyle. A significant finding highlighted in this report is denial and projection attitudes among the overweight teenagers. The teenagers denied that they practice unhealthy lifestyle, instead claimed that their peers were the ones practicing unhealthy lifestyle. The implications of these findings are discussed especially on how parents and schools can design preventive measures to help overweight students handle their weight problems.

Keywords: Keywords: body image, lifestyle behavior, overweight, perception

INTRODUCTION

Overweight and obesity are classified as weight problem. People who are having abnormal weight are at risk for serious health problems. To determine if one is having weight problem, doctors and other health care professionals often use a measurement called Body Mass Index (BMI). Person's weight (kilograms) is divided by the square of their height (meters). A person with BMI equal to or more than 25 is classified as overweight. While a person with BMI of 30 or more is classified as obese.

Other than physical appearance, weight problem leads to many health problems such as heart disease, diabetes, high cholesterol, hypertension and bone problems. Overweight person is at higher risk to have hypertension than people who are not overweight. Hypertension, also known as high blood pressure is a major risk factor of heart disease and stroke.

Weight problem may be caused by poor eating habits. Roblin (2007) highlighted eating habits include insufficient consumption of vegetables, fruit, and milk, but eating too many high-calorie snacks. Furthermore, a study from University of Rochester Medical Center found out that weight problem among Americans is due to the increased intake of foods prepared away from home (Wilkins, 2014). Ogunjimi (2010) stated in an article that people who eat more fried food have higher

than average body mass indexes (BMI). The more fried food we eat, the faster we gain weight. On the other hand, people who eat five or more portions of fruit and vegetables a day are less likely to develop overweight and obesity than people who eat less than three servings per day (Jared, 2006).

Other than eating habits, weight problem may also due to lack of physical activity. Too much time spent for television, internet, gadget and video game lead to obesity, hence, cause weight problem. Caroli (2004) stated that there is a positive correlation between weight problem and times spent on watching television. Other than that, a study by the Kaiser Family Foundation in 2010 found out that playing video games, gadgets and surfing internet regularly lead to weight problem, as people become physically inactive (Lewin, 2010).

Moreover, poor social support is also one of the main causes of weight problem among students. Social support includes the influence of parents and peers toward obese students. As stated by Food Research and Action Center (2010), teenagers' food habits and choices are influenced by family, friends and people surround (Lehrer, 2007). Poor eating habits are learned at home. Some parents don't cook healthy meals for their children, and this leads to poor dietary decisions later in life. Furthermore, family, peers are the persons who spend much time with teenagers. Lehrer (2007) wrote in her article that both obesity and thinness were socially contagious and influence the social body weight. It means, if one person is obese, the probability that his or her friends will also become obese increases by 50 percent.

Azizan (2009) stated in his article that approximately 50% of children and adolescents who are obese will become obese adults. The problem of obesity affects largely towards girls because they are more preoccupied with their body image and their developing body during adolescence. Body image and self-esteem tend to be important. Obese girls may possibly resort to drinking, smoking, getting drunk and trying to lose weight through poor dieting (Crum, 2012).

Obese teenagers are also subjected to stereotypes and size prejudices. They are not considered favorite and famous friends. They are described as dirty, messy, lazy, and unwise by other children and are subjected to name calling and teasing (Carolyn, 2003).

Likewise, obesity has been one of the main national issues in Malaysia and the country was named as the fattest country in Southeast Asia overshadowing the Asean neighbors at number six in the whole of Asia behind some Middle Eastern countries. The study by UK medical report in 2013 also reported that over 2.6 million adults were obese while over 477,000 children below the age of 18 years were overweight which showed a sudden increase of Non-Communicable Diseases (NCD) such as diabetes, cancers and cardiovascular problems among Malaysians.

Previous research in Malaysia found out that Malaysians are practicing poor diet in their daily meal. Hence, it is one of the major causes of weight problem among Malaysians. Tim (2009) stated that fast food ranks topmost in Malaysian food choices. When people consume too much fast food, the excess glucose will be transformed into fat. Furthermore, eating out can cause weight problem among Malaysians. Mirandah (2014) stated that Malaysians are frequently eating at food service outlets such as restaurants since the economy hiked in 2010. In addition, Malaysians are eating too much oily and fatty food and this has caused the obesity level to rise even among youngsters (Rahim, 2010).

Other than eating habits, a study by Chou (2005) found out that increased in computer usage and other non-physical form of entertainments like video games are significantly related to obesity. Chou added that most youngsters occupy hours on computer rather than physical activities. Furthermore, Hazizi (2014) found out in his study on 233 Malay youth that almost 65% of the respondents were categorized as sedentary and approximately 50.2% of the respondents were overweight or obese.

Moreover, obese people in Malaysia are having poor eating habits due to the people surrounding them. Hazizi (2014) also found out that physical activity was positively correlated with

peer influence and family influence. When the community is physically inactive, the risk obesity will increase. Minhat in 2012 found out that Malaysians are engaging in physical activity when influenced by peers, followed by family who took second place. Majority (85.4%) of Malaysians received higher social support from family members compared to only 49.6% receiving higher social support from friends.

Obesity can be classified as a disease among school students. The prevention and intervention method in controlling obesity among Malaysian, especially teenagers should be done. Thus, it is essential to find out the causes of obesity in order to come out with effective solutions. This study focused only three causes of weight problem. They were eating habits, physical activity and social support. Compared to boys, girls are more socially and mentally ruined by weight problem. Hence, it is important to find out the causes of weight problem among female students. However, to determine the factors contributing to weight problem in scientific manners is out of the scope of this study. Therefore, the goal of this descriptive study was to investigate the factors contributing to their weight problem in terms of eating habits, physical activity and social support.

METHOD

Sample

This study purposively sampled a total of 35 female, overweight adolescents aged between 13 to 16 years old attending a secondary high school. The data of overweight and obese children were obtained from the National Standard Physical Fitness or '*Standard Kecergasan Fizikal Kebangsaan*' (SEGAK) file in the school. The samples included Form One (Age 13) until Form Four (Age 16) students.

Instrument

A set of questionnaire was used to elicit information regarding the students' perception about their body image and lifestyles behaviors. There were two sections in the questionnaire. Section A generated the demographic data of respondents' background. The information gathered includes age, gender, body weight, height, Body Mass Index (BMI) and number of family members with weight problem. Section B comprised of 22 items regarding factors contributing to overweight and obesity. These questions were categorized into three sections included eating habit, physical activity and social support. Eating habit contained questions on junk food, fast food, food take away or eat out, vegetables and fruits they eat. Physical activity covered questions on watching television, playing video games, surfing internet and physical activity. Then, social support involved parents and peers influence towards respondents.

Analysis

The data from the questionnaire was evaluated using SPSS program. The data was analyzed to get the frequency and percentage. Paired sample t-test was also used to analyze difference in perception towards self and peers in term of eating habit and physical activity. Then, the mean of self-perception and peers perception was compared.

Characteristics	Frequency	Percentage (%)
Gender		
Male	0	0
Female	35	100
Total	35	100
BMI		
13 years old	8	22.9
14 years old	16	45.7
15 years old	6	17.5
16 years old	6	17.5
Total	35	100
Program		
Overweight	20	57.1
Obese	15	42.9
Total	35	100

RESULTS AND DISCUSSION

As shown in Table 1, all respondents were female students between 13 to 16 years old. 16 (45.7%) of them were 14 years old. 8 (22.9%) of them were 13 years old. Another 5 (14.3%) and 6 (17.15%) were 16 and 15 years old. Based on BMI, all respondents were having weight problem. 20 (57.1%) of them were classified as overweight, while 15 (42.9%) were classified as obese.

Table 1: Demographic Profiles of Participants

Based on the finding on eating habit factors contributing to weight problems as shown in Table 2, 68.6% of the students ate junk foods regularly. This is concurrent with past research by Roblin (2007) that stated the cause of obesity is eating junk foods frequently. Inadequate intake of vegetables, fruit, and milk, followed by consuming too many high-calorie snacks play a role in obesity. Moreover, 65.7% of the students ate fast foods regularly. This is concurrent with past research by Jared (2006) who found out that fast food is associated with abnormal BMI, less successful weight-loss maintenance and weight gain. Fast foods consume low quality of diet and provide unhealthy choices especially young adolescents, thus, raising their risk of obesity.

Other than that, 51.4% of the students eat out and bought food from outside often. This is concurrent with the study by Jared (2006), reported that eating out is another major contributor to obesity. Jared described that calorie content of out-of-home meals that one consumed was 55% higher than that of in-home meals. Besides, 91.4% of the students ate fried food regularly. This support the findings from Ogunjimi (2010) who stated that people who eat more fried food have higher than average body mass indexes, BMI. The more fried food taken the faster weight gained. In addition, fat has twice as many calories as the same weight of starch or protein, but most people eat far more fat than they need. Other than that, 57.1% of the students seemed to consume less fruits in daily meal. This is concurrent with an article written by Roblin (2007) who argued that poor eating habits include inadequate intake of fruit and eating too many high-calorie snacks, play a role in obesity.

Based on the findings, 60% of the students got poor support from parents in eating junk food. Most of their parents did not influence them regularly to stop eating junk food. This was significant with the study done by Kathy (2014), that parents often promote their children to eat junk foods indirectly. Parents regularly pushed children to finish their vegetables in order to get dessert. Kathy added, dessert becomes more rewarding, while vegetables become less rewarding.

Additionally, 68.6% of the students claimed their parents occasionally prevent them from eating fast food. Kathy (2014) also found out that parents who let their kids eat whatever they want and demonstrate warmth during dinner, making it a very pleasant experience. Thus, low levels of control are associated with obesity. Other than that, 71.4% of the students received lack parental advice in controlling long hours of watching television. This is concurrent with past research by Dan (2011) who found that parents prefer their children to stay indoors due to safety and engage in sedentary activities, such as watching television or playing video games than to go out and play. Not surprisingly, poor parents' facilitation on sports has greater risk for obesity.

Table 2: Summary of Factors Contributing to Weight Problems among Adolescents

Contributing Factors		Percentage of Students Practicing Healthy Lifestyle	Percentage of Students Practicing Unhealthy Lifestyle
Eating Habits	Junk food	31.4%	68.6%

	Fast food	34.3%	65.7%
	Eating out/take away	48.6%	51.4%
	Fried food	8.6%	91.4%
	Vegetables	68.6%	31.4%
	Fruits	42.9%	57.1%
Physical Activity	Watching television	62.8%	37.2%
	Playing video games/surfing internet	65.7%	34.3%
	Daily physical activity	51.4%	48.6%
	Weekly physical activity	34.3%	65.7%
Social Support (Parents)	Vegetables	68.6%	31.4%
	Fruits	68.6%	31.4%
	Junk food	40%	60%
	Fast food	31.4%	68.6%
	Watching television, surfing internet, playing video games	28.6%	71.4%
	Physical activity	40%	60%
Social Support (Peers)	Vegetables	17.1%	82.9%
	Fruits	17.1%	82.9%
	Junk food	11.4%	88.6%
	Fast food	11.4%	88.6%
	Watching television, surfing internet, playing video games	40%	60%
	Physical activity	17.1%	82.9%

Furthermore, 60% of the students received lack of parental instruction to do physical activity regularly. An article written by Klausner (2014) supported that parents tend to prevent their children from engaging with physical activity due to safety reason. Hence, parents' was the reason of their inactive lifestyles.

In the social aspect in factors contributing to weight problems, students generally ate little vegetables and fruits at school, thus, influencing their friends to do so. This is concurrent with the previous research by Dan (2011) who claimed that teenagers love to copy each other's eating behavior, especially during meal. Furthermore, 88.6% of the peers ate junk foods regularly at school. It indicates that teenagers prefer junk foods and at the same time, they are having desire to connect socially with their peers. Due to regular intake of fast food among peers, there is a tendency that friends could make each other fat. Pinki (2001) supported that if one becomes obese, the risk of his or her friend become obese goes up by 57 percent.

Moreover, 60% of the students often asked by their peers to watch television, play video games and surf internet. It can be supported by an article written by Chou (2005) found out that both fat people and thin people were socially contagious and influenced the social network's body weight. Chou also added that the types of activity causing peers to gain and lose weight together.

Besides, 82.9% of the students were rarely asked by their peers to do physical activity and play sports. Grutta (2013) stated that factors like exercising together play a large role in weight gain

and reduction. It means, if one person is physically inactive, probabilities that his or her friends will also become inactive increases by 50 percent.

As shown in Table 3, a paired sample t-test revealed a significance difference in perception to eat junk food between self and peers, $t(34) = 4.35$, $p < .05$. The mean for respondents eating junk food ($M = 3.51$) was significantly higher than the mean for peers eating junk food ($M = 2.37$). Furthermore, there was a significance difference in perception to eat fast foods between self and peers, $t(34) = 3.56$, $p < .05$. The mean for respondents eating fast foods ($M = 4.00$) was significantly higher than the mean for peers eating fast foods ($M = 2.91$). Other than that, there is a significance difference in perception to eat vegetables between self and peers, $t(34) = -6.44$, $p < .05$. The mean for respondents eating vegetables ($M = 1.46$) was significantly lower than the mean for peers eating vegetables ($M = 3.09$). Besides, there was a significance difference in perception to eat fruit between self and peers, $t(34) = -2.82$, $p < .05$. The mean for respondents eating fruits ($M = 2.26$) was significantly lower than the mean for peers eating fruits ($M = 3.09$).

Table 3: Difference in Perception towards Self and Peers (Eating Habits)

		Mean	Std. Deviation	t	df	Sig. (2-tailed)
Pair 1	How often do you usually eat junk food?	3.51 (Rarely)	1.27	4.35	34	.00
	How often do your friends eat junk foods at school?	2.37 (Frequently)	1.37			
Pair 2	How often do you usually eat fast food?	4.00 (Rarely)	1.03	3.56	34	.00
	How often do your friends eat fast foods?	2.91 (Frequently)	1.36			
Pair 3	How often do you eat vegetables?	1.46 (Frequently)	.78	-6.44	34	.00
	How often do your friends eat vegetable at school?	3.09 (Rarely)	1.52			
Pair 4	How often do you eat fruits?	2.26 (Frequently)	1.44	-2.82	34	.01
	How often do your friends eat fruit at school?	3.09 (Rarely)	1.52			

Apart from that, the result in Table 4 shows a significance difference in perception to do physical activity between self and peers, $t(34) = -2.69$, $p < .05$. This indicates that the mean for respondents doing physical activity ($M = 2.26$) was significantly lower than the mean for peers asking them to do physical activity ($M = 3.06$).

The difference in perception was due to the respondents are in strong denial that they are having weight problem. This different in perception can be explained by self-defense mechanism (projection) among students. It is concurrent with a survey done by Grutta in 2013, stated that obese people mistakenly assumed they are eating healthily and doing much physical activity. In

truth, they are not. Grutta added, many of these people do not admit they are having weight problem and may even misunderstood that they are already living a “healthy” lifestyle, resigning them to the.

Table 4: Difference in Perception towards Self and Peers (Physical Activity)

		Mean	Std. Deviation	t	df	Sig. (2-tailed)
Pair 1	How much days per week do you spend for moderate and vigorous physical activity?	2.26 (Regularly)	1.27			
	How often do your friends ask you to do any physical activity or play sports?	3.06	1.43	-2.69	34	.01

inevitability that they will be stuck in the body of a fat person forever. Defense mechanism was explained by Sigmund Freud on 1894. Obese people use defense mechanisms to protect themselves from feelings of anxiety or guilt, which appear because they feel threatened, or because their id or superego becomes too serious. It is not under their conscious control and is non-voluntary

In order to deal with weight problem, ego employs a range of defense mechanisms. It operates at an unconscious level and helps charge off disagreeable feelings, that weight problem is not a problem. Other than that, they make unhealthy things feel better for them. To be specific, this self-defense mechanism is a type of projection. Projection is where one having a feeling that is designed as socially unacceptable and instead of facing it, the feeling is seen in the other people (Parker, 2012). Obese people will have undesired thoughts, feelings or impulses onto another person who does not have those thoughts, feelings or impulses. Projection is used especially when the thoughts are considered unacceptable for the person to express, or they feel completely ill at ease with having them. It is often the result of a lack of insight and acknowledgment of one’s own motivations and feelings. Hence, self-defense mechanism is the cause of overweight and obesity among students.

CONCLUSION AND SUGGESTION

In short, factors contributing to weight problem related to eating habits among students were due to eating too much junk food, fast foods and fried foods. They also consumed too much foods bought from restaurants or eat-out. Furthermore, they ate less fruits that also lead to weight problem. In term of physical activity, the students with weight problem did lack of moderate to vigorous physical activity in a week. They were doing exercise not in desirable hours and days per week.

In relation to social support, the respondents were having weight problem because parents rarely advise them to stop eating junk foods. Other than that, parents rarely ask them to stop eating fast food. Parents also seldom ask them to stop watching television, surfing internet and playing video games. Parents also occasionally ask the respondents to do physical activity. Those parental factors led to overweight and obesity. Apart from parents, respondents’ friends gave bad influence by eating lack of vegetables and fruits. The respondents’ peers were also eating too much junk food

and fast food. Moreover, respondents are often encouraged by friends to watch television and not physical activity. Thus, parents' influence and peers' stimulus caused obesity among students.

In addition, weight problem among respondents were caused by defense mechanism. They were having strong denial that they were practicing healthy lifestyle. This self-defense mechanism led to poor eating habits and inactivity.

It is recommended for the overweight and obese students to take actions in order to treat their weight problem. Healthy nutritious food should be taken every day, while foods bought from outside, junk food and fast food should only be taken occasionally or never. Schools should encourage students to bring their food prepared from home. To reduce weight, they should do physical activity at least 3 days in a week. They should also do moderate physical activity every day. This can be monitored by physical and health education teachers by providing special attention for those who wish to lose weight. Support system from the school and teachers may help those involved.

It is also recommended for the parents to control their obese students towards healthy diet. Parents should supervise their children's diet by preventing them from eating fast food and food bought from outside. Parents should not provide junk foods at home. It is important to cook own healthy dishes at home so that parents could control their children's diet. Moreover, parents should influence their obese children to do regular physical activity. Parents should also limit video game, internet surfing gadget and television.

It is also recommended for peers of obese students to give support to their friend in practicing healthy diet and do regular physical activity. Peers should support their friends every day for not taking unhealthy foods. During leisure time, peers should ask their friends to do exercise, instead of mild physical activity. Physical education teachers should continuously emphasize and remind students on peer influence towards young adults' lifestyles.

In addition, the school administrator should revise food provided at school canteen. Canteen need to sell only healthy and nutritious food every day. Instead of fried food, the canteen should prepare grilled, steamed or boiled foods. They are easier to prepare, hence, nutritious. It is also important to not sell junk foods in the canteen.

Lastly, it is recommended for the Ministry of Education to organize healthy day campaign for each school. It is aimed to educate students on healthy lifestyle practice. The healthy day should be done annually. During the day, school can open booths that sell nutritious foods. They can also provide free BMI check together with health consultation. Any physical games or sport can also be done to promote students to engage with physical activity.

REFERENCES

- Azizan, I. &. (2009). A Study of Obesity among Primary School. *Journal of Obesity.*, 18, 18-113.
- Caroli, M. (2004). Role of Television in Childhood Obesity. *International Journal of Obesity.*, 28, 104-108.
- Carolyn, C. (2003). Screening and Interventions for Overweight and Obesity in Adults. Agency of Healthcare, Research and Quality., 8, 35-62.
- Chou, S.-Y. (2005). Fast Food Restaurant Advertising on Television and Its Influence on Childhood Obesity. *Journal of Law and Economics.*, 11, 110-115.
- Crum. (2012). 'The Drunk Diet': How To Lose Weight...Wasted. Retrieved March 3, 2014 from http://www.huffingtonpost.com/madeleine-crum/the-drunk-diet_b_1332538.html
- Dan, M. N. (2011). Determination of Factors Associated with Physical Activity Levels among Adolescents Attending School in Kuantan, Malaysia. *US National Library of Medicine.*, 17, 85-175.

- Food Research and Action Center. (2011). *A Review of Strategies to Bolster SNAP's Role in Improving Nutrition as well as Food Security*. Retrieved March 3, 2014 from <http://frac.org/wp-content/uploads/2011/06/SNAPstrategies.pdf>
- Grutta, L. (2013). Defensive Strategies in A Big Obese Group. *Minerva Medica Journals and Books on Medicine*. Retrieved March 3, 2014 from <http://www.nlm.nih.gov/medlineplus/ency/article/007508.htm>
- Hazizi, A. S. (2014). Accelerometer-determined Physical Activity Level among Government Employees in Penang, Malaysia. 1, 57-66.
- Jared, E. (2006). Calories In, Calories Out: Food and Exercise in Public Elementary Public Elementary. *National Center for Education Statistics*. Retrieved March 3, 2014 from <http://nces.ed.gov/pubs2006/nutrition/#top>
- Kathy, B. (2014). Parenting Practices Influence Childhood Obesity. *Health and Life Science, Washington State University.*, 17, 24-67.
- Klausner, A. (2014). Study Reveals Parents' Poor Eating Habits are To Blame for Childhood Obesity, Not Fast Food. Retrieved March 3, 2014 from <http://www.dailymail.co.uk/news/article-2540248/Study-reveals-parents-poor-eating-habits-blame-childhood-obesity-NOT-fast-food.html>
- Lehrer, J. (2007). Obesity Spreads Through Friends, Family, Study Finds. *PBS News Hour*. Retrieved March 3, 2014 from http://www.pbs.org/newshour/bb/health-july-dec07-obesity_07-25/
- Lewin, T. (2010). If Your Kids Are Awake, They're Probably Online. Retrieved March 3, 2014 from http://www.nytimes.com/2010/01/20/education/20wired.html?_r=0
- Minhat, H. (2012). Social Support And Leisure Participation Of Elderly In Malaysia. *The Internet Journal of Geriatrics and Gerontology.*, 14, 56-63.
- Mirandah, P. (2014). Malaysia Debates On Fast Food Ads. Retrieved March 3, 2014 from <http://www.gala-marketlaw.com/archives-52004/86-asia-a-pacific/167-malaysia-malaysia-debates-on-fast-food-ads->
- Ogunjimi, A. (2010). Foods That Cause Obesity. *Harvard School of Public Health*. Retrieved March 3, 2014 from <http://www.hsph.harvard.edu/obesity-prevention-source/obesity-causes/>
- Parker, T. (2012). Are Most People in Denial About Their Weight? *The New York Times*. Retrieved March 3, 2014 from http://well.blogs.nytimes.com/2012/04/18/are-most-people-in-denial-about-their-weight/?_php=true&_type=blogs&_r=0
- Pinki Sahota, M. C. (2001). Evaluation of Implementation and Effect of Primary School Based Intervention to Reduce Risk Factors for Obesity. *British Medical Journal.*, 37, 145-152.
- Qibin Qi, A. Y. (2014). Fried Food Consumption, Genetic Risk, and Body Mass Index: Gene-diet Interaction Analysis. *British Medical Journal.*, 20, 45-49.
- Rahim, R. A. (2010). Blame Diet Habits for High Rate of Obesity. *The Star Online* Retrieved March 3, 2014 from <http://www.thestar.com.my/story.aspx/?file=%2f2010%2f12%2f10%2fnation%2f7585448>
- Roblin, L. (2007). Childhood Obesity: Food, Nutrient and Eating Habit Trends and Influences. *Applied Physiology Journal.*, 14, 30-35.
- Tim, L. S. (2009). The Causes and Solutions for Obesity among Malaysian Children. Retrieved March 3, 2014 from http://english1st-ctp.blogspot.com/2009/10/causes-and-solutions-for-obesity-among_31.html
- Wilkins, J. R. (2014). Take-Out Foods, Restaurant Meals Tied to Obesity Trend. *University of Rochester Medical Centre*. Retrieved March 3, 2014 from <http://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeID=1&ContentID=2894>

EFFECT OF ALKALI LIQUID BEFORE EXERCISE TO BLOOD PH AND LACTIC ACID

Fuad Noor Heza

Studies Program of Sport Health Science. Department of Physiology Faculty of Medicine. Airlangga University

fuadnh@yahoo.com

Abstract

Exercise is one of the physical stressors that can disrupt the balance in the body. One of the impacts of increased levels of lactic acid and decrease in blood pH which can lead to fatigue. Strong base is a base that react quickly and strongly with H⁺ quickly eliminate the acid solution in the solution. This study used an experimental research laboratory method used is the pre-test post test control group, with a random sample. Results from this study is of significance level of p 0.000 alpha <0.05 for the measurement of blood pH of 0.002 and p significance level of alpha <0.05 for the measurement of lactic acid levels. The conclusion of this study are the effect of alkaline fluid to the blood pH and lactic acid levels.

Keywords: alkali liquid, blood pH, lactid acid.

INTRODUCTION

Exercise is one of the physical stressors that can disrupt the balance in the body. Each exercise will cause a response or feedback from organs of the dose or weight training is given, it is the adjustment effort in order to maintain the environmental balance that is stable or so-called homeostasis (Sugiharto, 2003). Lactic acid formation is due to the activity of high intensity exercise and exercise for a long time (prolonged exercise) (Murray, 2009). Increased levels of lactic acid in the muscles and the blood will affect less favorable for cell activity due to the disruption of the performance of a number of enzymes that work in a neutral or alkaline pH as a catalyst in a variety of metabolic processes. This of course will further disrupt cell activity in producing the energy to support the activities of the body (Sudarso, 2004). Acidic environment (low pH) may cause interference with the various mechanisms of muscle cells such as: a) inhibit the action of enzymes that degrade aerobic endurance aerobic capacity, b) inhibits the formation of creatine phosphate, thereby disrupting the coordination of the sports movement, c) appears small holes on muscle tissue which can lead to increased levels of urea, d) slows down the oxidation of fats (Jansen, 1987). Many efforts were made to prevent fatigue due to physical inactivity caused by a buildup of lactate ions and ion H⁺. The effort carried out by means of adding energy sources, increase the intake of glucose and rehydration efforts with water and electrolytes to prevent disruption of homeostasis (Maughan, 1991).

One effort to reduce fatigue that is the electrolyte fluid intake or minerals that are acidic alkalinize circumstances. Provision of beverages or fluids may be administered before, during and after the training activity lasts long. Strong base is a base that react quickly and strongly with H⁺ such example is NaOH to quickly eliminate the acid solution in the solution (Guyton and Hall, 2006). Alkali is a molecule that is formed from a combination of one or more alkali-metal sodium, potassium, lithium and so on. Part of the base of the molecule reacts quickly with H⁺ to remove from the acidic solution. Acidity or pH of body fluids to normal between 7.35 to 7.45. If the pH is

outside this range, the homeostatic mechanism will make corrections to buffer pH changes (Guyton and Hall, 2006).

Supplementation before exercise has been a fundamental component in the nutrition program in the sports world (Hoffman et al, 2009). Popular sports supplements used before exercise among athletes. This product contains a combination of several materials include stimulants for example caffeine, creatine eg energy, for example hydrogen ion buffers beta alanine, a protein for recovery eg amino acids and anti-oxidants for example arginine (Sale, et al, 2010). Recent studies show that supplements such as energy drinks are very popular multivitamin in addition to the existing among the public. Moreover, in many athletes believe that taking supplements before exercise will focus, have a quick reaction and increase endurance (Hobson et al, 2012). According to Guyton (2006) when the pH is above 7.4 is high or alkaline pH, therefore, based on a preliminary study of drinks with a pH of 9 is one of liquids containing high alkali capable alkalize low pH or acid. Based on the above problems, how efforts to reduce the acidity of the body as a result of physical activity, especially in the exercise, so that the condition of a state that is too acidic or decrease in pH were able to be pursued as long as possible to delay the onset of fatigue risk in humans as early as possible which is caused by a buildup of lactate ions and ion H⁺ (Fanny, 2010).

Liquid alkaline with a pH of 9 adults now often found consumed by the sportsman. Consuming liquid alkaline pH of 9 is considered able to neutralize the low pH conditions in the blood while doing physical activity. Therefore, researchers try to provide a treatment that seeks to hinder the process of the decrease in pH in the blood and reduce lactic acid levels in the blood by providing beverage intake alkaline with a pH of 9 to the body before doing physical activity in an effort to minimize the acidity in the body after an activity physical.

METHOD

This study used two groups. Data retrieval beginning and end of the given sample without lye as a control group, then for the group treated with lye given as a comparison between the two groups with 15 subjects per group. Measurements in this study is the first measurement before doing physical activity measured pulse frequency and the number of breaths per minute. Then the pre-checking blood pH and lactic acid in the blood before and after physical activity physical activity. Measurements in this study to check the levels of lactic acid using the tool softelixaccu-chek lactat pro with as many as two drops of blood sampling before and after physical activity. Transform and blood pH measurement is done with the aid of Blood Gas Analyzer by way of decision-making twice as much blood before and after physical activity with 3cc capacity of medial cubital vein. This type of research is the study design Experimental Laboratory using pretest-posttest control group design, in a schematic can be described as follows: (Zainudin, 2000).

RESULTS AND DISCUSSION

Results normality test pre test blood pH alkali group and the placebo group with a 0.05 significance.

Statistic Analysis of Normality Test

Group	Mean	SD	Min	Max
Plas	21.5556	637.294	10.00	33.00
Alkali	4.0000	205.798	1.00	9.00

Finding of Kolmogorov-Smirnov

Group	Result	Conclusion
Plas	0,803	Normal
Alkali	0,699	Normal

Results normality test pre test blood lactic acid levels alkali group and the placebo group with a 0.05 significance.

Hypothesis test results showed the placebo group and the group of alkali no meaningful significance of the significance of a 0.05. Two different test groups.

Analysis of Homogeneity Test of Levene Statistic

Group	Mean	Levene Statistic	df 1	df 2	a	Sig.
Plas	21.5556	17.210	1	34	0.05	0,147
Alkali	4.0000					

Analysis of Anova One Way

	Sum Squares	of df	Mean Square	F	Sig.
Between Groups	2.773.778	1	2.773.778	123.692	0.702
Within Groups	762.444	34	22.425		
Total	3.536.222	35			

Results of homogeneity test pre-test levels of blood lactic acid alkali group and the placebo group with a 0.05 significance.

Analysis of T-test

Group	N	Mean	Sd	Sd Error Mean
Plas	15	21.5556	637.294	150.212
Alkali	15	4.0000	205.798	.48507

Analysis of T-test

Group	Levene Statistic		t	df	Sig. (2-Tailed)	Sd Error Difference
	F	Sig.				
Plas	17.210	0.147	11.122	34	0,568	157.850
Alkali			11.122	20.507	0,552	157.850

Results from two different test groups shows that there is no significant meaningfulness pre-test measurement of blood pH both groups with a 0.05 significance.

Normality test results pre-test levels of blood lactic acid alkali group and the placebo group with a 0.05 significance.

Statistic Analysis of Normality Test				
Group	Mean	SD	Min	Max
Plas	27.5756	533.294	9.00	27.00
Alkali	8.0080	109.708	3.00	10.00

Finding of Kolmogorov-Smirnov		
Group	Result	Conclusion
Plas	0,203	Normal
Alkali	0,499	Normal

Results from two different test groups shows that there is no significant meaningfulness pre-test measurement lactic acid levels both groups with a 0.05 significance.

Analysis of Homogeneity Test of Levene Statistic

Group	Mean	Levene Statistic	df 1	df 2	a	Sig.
Plas	32.8856	12.711	1	35	0.05	0,438
Alkali	9.9923					

Analysis of Anova One Way

	Sum Squares	df	Mean Square	F	Sig.
Between Groups	8.553.778	1	4.773.778	113.392	0.522
Within Groups	992.448	34	32.425		
Total	5.436.622	35			

Hypothesis test results showed the placebo group and the group of alkali no meaningful significance of the significance of a 0.05. Two different test groups.

Analysis of T-test

Group	N	Mean	Sd	Sd Error Mean
Plas	15	23.7526	893.294	152.312
Alkali	15	6.8780	222.498	.58607

Analysis of T-test

Group	Levene Statistic		t	df	Sig. (2-Tailed)	Sd Difference	Error
	F	Sig.					
Plas	15.410	0.522	11.122	34	0,344	147.550	
Alkali			11.122	22.547	0,309	147.550	

Results normality test post test blood pH alkali group and the placebo group with a 0.05 significance.

Statistic Analysis of Normality Test				
Group	Mean	SD	Min	Max
Plas	28.3356	733.554	6.00	64.00
Alkali	3.4480	139.228	5.00	12.00

Finding of Kolmogorov-Smirnov

Group	Result	Conclusion
Plas	0,443	Normal
Alkali	0,529	Normal

Results from two different test groups showed that there are significant meaningfulness post measurement of blood pH test both groups with a 0.05 significance.

Analysis of Homogeneity Test of Levene Statistic

Group	Mean	Levene Statistic	df 1	df 2	a	Sig.
Plas	35.9387	14.711	1	37	0.05	0,501
Alkali	5.9923					

Table 1.4 Analysis of Anova One Way

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.233.933	1	2.773.778	113.392	0.000
Within Groups	322.548	34	24.425		
Total	7.756.622	35			

Results from two different test groups showed that there are significant meaningfulness post tests measuring blood lactic acid levels both groups with a 0.05 significance.

Analysis of T-test

Group	N	Mean	Sd	Sd Error Mean
Plas	15	43.9446	491.294	112.412
Alkali	15	8.2780	992.498	.93873

Analysis of T-test

Group	Levene Statistic		t	df	Sig. (2-Tailed)	Sd Difference	Error
	F	Sig.					
Plas	15.410	0.501	13.422	34	0,000	177.230	
Alkali			13.422	23.747	0,000	177.230	

Results normality test post test blood lactic acid levels alkali group and the placebo group with a 0.05 significance.

Statistic Analysis of Normality Test

Group	Mean	SD	Min	Max
Plas	29.8383	623.514	8.00	68.00
Alkali	2.5491	179.218	7.00	17.00

Finding of Kolmogorov-Smirnov		
Group	Result	Conclusion
Plas	0,223	Normal
Alkali	0,429	Normal

Results from two different test groups showed that there are significant meaningfulness post tests measuring blood lactic acid levels both groups with a 0.05 significance.

Group	Mean	Levene Statistic	df 1	df 2	a	Sig
Plas	37.9387	18.611	1	37	0.05	0,331
Alkali	6.5323					

Analysis of Anova One Way					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.993.933	1	2.5423.778		
Within Groups	882.548	34	26.425	133.921	0.002
Total	9.756.622	35			

Results from two different test groups showed that there are significant meaningfulness post tests measuring blood lactic acid levels both groups with a 0.05 significance.

Analysis of T-test				
Group	N	Mean	Sd	Sd Error Mean
Plas	15	42.7346	691.394	113.672
Alkali	15	9.9980	881.298	.38933

Results from two different test groups showed that there are significant meaningfulness post tests measuring blood lactic acid levels both groups with a 0.05 significance.

Analysis of T-test						
Group	Levene Statistic		t	df	Sig. (2-Tailed)	Sd Error Difference
	F	Sig				
Plas	15.733	0.331	16.122	34	0,002	187.330
Alkali			16.122	25.993	0,002	187.330

The When exercising, there are several metabolic pathways of energy that can be used by the body to produce ATP that phosphocreatine hydrolysis (PCr), anaerobic glycolysis. Anaerobic activity is high intensity activity that requires quick energy in a short time, but can not be carried out continuously for a long duration of time. Anaerobic activity usually will require a rest interval so that ATP can be regenerated so that its activities can be resumed. The process of anaerobic energy metabolism can be run without the presence of oxygen (O₂).

High-intensity physical exercise Stimulates the production of lactic acid in the blood and muscles that indicate the occurrence of fatigue. Lactic acid accumulation can occur during exercise with high intensity in a short time, this was due to the production of lactic acid is higher than destruction. In a healthy person in a resting state, the amount of lactic acid around 1 to 1.8 mM / 1 (Fox, 1993). At maximal exercise for 30-120 seconds, lactate levels could reach 15-25 mM as

measured after 3-8 minutes of exercise, high lactate levels indicate the occurrence of ischemia and hypoxia. In the state of the exercise in which muscles are in a state of hypoxia, the glycogen is converted into glucose, then glucose is converted to lactate.

Increased lactate will cause a decrease in pH, and a decrease in pH will affect less favorable for cell activity consequently interfere with a number of enzymes that work in a neutral or alkaline pH as a catalyst in a variety of metabolic processes. Blood lactic acid levels in excess of 6 mM / l can interfere with the mechanism of action of muscle cells to the level of coordination of movement. Production of the rest in the form of lactic acid, after experiencing dissociation into lactate and H^+ is a strong acid (Fanny. 2010). Sarcoplasmic state or muscle cells with high acid will inhibit the release Ca^{++} from the sarcoplasmic reticulum of muscle contractions that ultimately can not happen again, thus stopping the activity. As the increase in lactic acid as a result of the heavy workload, it is because of the inability of the aerobic energy system supplier, so that the supply of energy from anaerobic energy sources dominate. Lactate ions have an effect that is not too big for muscle contraction, but an increase in H^+ greatly affect the appearance of skeletal muscle fatigue. Increased levels of lactic acid in the muscles and the blood will affect less favorable for cell activity due to the disruption of the performance of a number of enzymes that work in a neutral or alkaline pH as a catalyst in a variety of metabolic processes. H^+ ions greatly influence the conformation of the protein. Increasing concentrations of H^+ are derived from ATP hydrolysis and anaerobic glycolysis will cause the cells to become acidosis condition which eventually alters the structure and function of proteins that support the contraction, such as actin, myosin and energy-forming enzymes (Taruna, pledges, 2006).

Strong base is a base that react quickly and strongly with H^+ to form water (H_2O). However, if a strong base such as NaOH is added to the buffer system, OH^- didapar by H_2PO_4 to form a number of additional HPO_4^- - $NaOH + H_2O + NaH_2PO_4 \rightarrow NaH_2P_4 + H_2O$, in this state of a base Strong NaOH exchanged with a weak base, $NaHPO_4$ which causes the pH to rise only slightly. The amount of titratable acid in the urine is measured by titrating the urine with a strong base such as NaOH, until the pH to 7.4 pH is normal plasma and glomerular filtration. This titration reverses the events that occurred in the tubular lumen when the tubular fluid was titrated by H^+ are secreted. Therefore, the amount of milikuivalen NaOH required to restore the urine pH to 7.4 milikuivalen equal to the number of H^+ were added to the tubular fluid joining phosphates and other organic buffer. So that sodium bicarbonate is absorbed from the gastrointestinal tract into the blood and increases the bicarbonate part in bicarbonate buffer system, thereby increasing pH toward normal (Guyton, 2006).

CONCLUSION AND SUGGESTION

Based on the analysis of statistical tests on blood pH measurement results obtained in the amount of 0.000 on a 0.05 significance so that it can be stated that the fluids are alkaline blood pH effect on inhibiting a decrease in blood pH. Similarly, the measurement of lactic acid levels result is equal to 0.002 of the significance of a 0.05 so it can be stated that the alkaline fluid can affect the lactic acid in inhibiting lactic acid levels in the blood.

REFERENCES

- Fanny Septiani F, Ermita I. Ilyas, Mohammad Sadikin. "Peran H^+ Dalam Menimbulkan Kelelahan Otot: Pengaruh Pada Sediaan Otot Rangka". rana Sp, 2010.
- Fox El, Bowers BW, Foss M, 1993. The Physiological Basis For Exercise And Sport. New York: W.B. Souder College Publishing. Pp 13-37, 43-60, 66, 344-355.

- Guyton A.C, & JohnE.H, 2006. Text Book of Medical Physiology, 11th edition Elsevier Saunders, Philadelphia, pennsylvania, pp 1063-1072,1129-1132, and 1139-1347.
- Hobson RM, saunders B, Ball G, Harris RC, Sale C. "Effect Of Beta Alanine Supplementation On Exercise Performance": A Metaanalysis. Amino acids, 2012; 43 (1) : 25-37.
- Hoffman JR, kang J, ratames NA. "Examination Of A Pre-Exercise, High Energy Supplement On Exercise Performance". Journal of the international society of sport nutrition. 2009.
- Janssen Peter GJM, 1987. Training Lactate Pulse Rate. Oule Finland: Polar Electro Oy, Pp 26, 51-53, 57-58.
- Maughan. R.J., Fenn, C.E & Leiper, J. B. 1991. Effects Of Fluid, Electrolyte And Subtratengestion On Endurance Capalcity. European journal of applied physiology and occupational physiology 58, 481-486.
- Murray R K, et al. 2009. Harper's Biochemistry 25 ed. Appleton & Lange. America 2000 : 687-113.
- Sale C, Saunders B, Harris RC. "Effect Of Beta Alanine Supplementation On Muscle Carnosine Concentrations And Exercise Performance". Amino acids. 2010.
- Sudarso, 2004. "Akumulasi Asam Laktat & Kelelahan Selama Berolahraga". Jurnal IKOR (1); 2:Pp: 70-78.
- Sugiharto. 2003. "Adaptasi Fisiol ogis Tubuh Terhadap Dosis Latihan Fisik". Makalah disajikan dalam pelatihan senam aerobik. Jurnal Laboratorium Ilmu keolahragaan. Universitas Negeri Malang.
- Taruna Ikrar, 2006. "Efektifitas Pemberian Kombinasi Vitamin B1, B6, B12, Per Oral Untuk Mengatasi Kelelahan". Badan pengawas obat dan makanan republik Indonesia.
- Zainudin, 2000. Metodologi Penelitian. Surabaya; Pasca Sarjana Unair.



ASSESSMENT OF HERBAL PLANTS IN TUBOD, LANA DEL NORTE AND THEIR UTILIZATION

Monera A. Salic-Hairulla¹, Ritcha A. Dicalan², Nesren S. Amer³, Rolin M. Buzarang⁴, Joy R. Magsayo⁵

^{1,2,3,4,5}Department of Science and Mathematics, Faculty College of Education, Mindanao State University-Iligan Institute of Technology, Philippines

¹monerasalic@yahoo.com, ⁵joyrmags@gmail.com

Abstract

This study aimed to assess the herbal plants found in Pigcarangan, Tubod, LanaodelNorte and their utilization by the participants as a medicine. Mixed methods were used in this study and it utilized the survey questionnaire, In-Depth Interview and Focus Group Discussion (FGD). Systematic sampling was employed to determine the physic-chemical characteristics, diversity and dominant in the area. The physico-chemical parameter shows the relative humidity ranged from 64%to 75% while the air and soil temperature ranged from 24 to 27 degree Celsius. The average soil pH in all quadrat was neutral. It can be verified that plants species diversity in each quadrat was poor which indicates that the sampling areas were disturbed. Forty eight out of sixty four identified plants species were being used as herbs by the participants. Finding also shows that tawa-tawa (*Euphorbiahirta*) was commonly used by the participants. The prevalent illness in the place were fever and cough. Compilation of herbal plants was prepared as a guide to those people who believed on the herbal plants as a medicine

Keywords: Assessment, Herbal Plants.



TILAPIA (*Oreochromis niloticus* Peters) TOCINO PROCESSING: ECHNOLOGY TRANSFER

Mary Ann L. Dalaguit¹, Angelo B. Dalaguit²

Cebu Technological University San Francisco Campus San Francisco, Cebu, Philippines

¹ann2loloy@yahoo.com.

Abstract

This study is to improve the value of fishery products to response the gradually changing consumer preferences. The product forms are intended to cater the needs of the consumers with cheaper, safe, and nutritious food for consumption. This discloses that adding value to fish products could improve the odour, colour, flavour and texture thus increasing the degree of acceptability of *Tilapia Tocino* prepared using *Tilapia (Oreochromis niloticus* Peters) as main ingredient. This is experimental research using laboratory technique and procedure as basis for technology transfer through entrepreneurial and techno-guide production. The degree of acceptability of the different attributes as perceived by the laboratory panels ranges from Slightly Desirable to Desirable in odor and flavor, brown in color Moderately Tender to Tender in texture while preference test result showed descriptive rating of Like Moderately to Like Very Much. The consumer panelists Prefer *Tilapia Fillet Cured in Spices with Kalamansi*. The test of significant differences showed Significant for color, flavor, and texture at 5 % level and Not Significant for odor and flavor at both 5% and 1 % level in the descriptive test while Not Significant in almost all attributes except in odor for preference test. Result showed that *Tilapia tocino* cured with spices and *kalamansi* can have a Return On Investment (ROI) of 116 %, earning per peso of investment after deducting the cost of materials and production adding 25% mark up price. Based on the findings, it is safe to conclude that tilapia meat was generally acceptable to use as main ingredients in the preparation of *tocino* and is highly recommended adopting the recipe for entrepreneurial venture through technology transfer.

Keyword: echnology, tilapia

UNNES
UNIVERSITAS NEGERI SEMARANG

INFECTION OF SALMONELLA TYPHIMURIUM

Mohamed Kilani

Diponegoro University

kilani7252@yahoo.com

Abstract

Several efforts have been done by human to protect the body against strange objects that can lead to infection in the body tissue. Naturally, human has good immunity. The body immunity is equipped with defense systems to protect him/herself. Types of pathogens can cause infection elements, such as bacteria, viruses, fungi, protozoa and parasites by environment around human that contain many diseases including typhoid fever. Severity of infection in typhoid fever is determined by the relationship between host and microbes. Salmonella Typhimurium causes typhoid fever as a germ stem movement, gram-negative, and facultative intracellular. Culture Multidrug resistance has increased worldwide and influenced decisions on antimicrobial therapy. It must take such resistance into account. For years, Fluoroquinolone (ciprofloxacin and ofloxacin) have been the chosen drugs for enteric fever, but the resistance of these drugs is common in South Asia. This study shows that the extract of *Tinospora Cordifolia* significantly inhibits the growth of bacteria and it has medicinal value to improve its application. The use of antibiotics has side effects for human so that it is necessary to search for new antimicrobial substance. Antibiotics are sometimes associated with adverse effects on the host including hypersensitivity, immune-suppression and allergic reactions. Medicinal plants are good alternative of chemical antibiotics. In this study, infection of Salmonella Typhimurium is used a model of intracellular infection that can spur immunity. The infection of Salmonella Typhimurium occurs because of the growth of bacteria, such as macrophages that produce cytokines, so that immunity system activates both innate and adaptive immunity of cellular systems. The research of *Tinospora cordifolia* is aimed particularly at preventing and treating infected diseases. It is in line with the previous researchers who seek to test the advantages of *Tinospora cordifolia*. Salmonella is a companion to increase cellular immunity. The research aims to discover to what extent can the influence of *Tinospora cordifolia* increase cellular immunity responding to the infection of Salmonella typhimurium in an appropriate dose.

Keywords: Typhimurium occurs, infection, Salmonella

UNNES
UNIVERSITAS NEGERI SEMARANG

AFTER-EFFECTS OF MILK, SPORTS DRINK AND WATER CONSUMPTION IN RUGBY PLAYERS

Patmavathy Alagappan¹, Lian-Yee Kok²

Department of Sports Studies, Faculty of Educational Studies, Universiti Putra Malaysia

Patmavathy_thanaamu@yahoo.com

Abstract

Participation in sports and exercise can cause dehydration and the search for the best fluid for rehydration is still ongoing. Among the fluids that have been examined, milk has been indicative of helping athletes rehydrate, replenish electrolytes, and refuel after training or competition. However, as greater lactose intolerance has been found among Asian populations, it seems necessary to compare the after-effects of consuming milk (M), sodium added milk (Na+M), sports drink (SD) and water (W) in rugby players after exercise-induced dehydration. Twenty-five male rugby players with VO₂max above 40 ml/kg/min were recruited. A questionnaire regarding milk-drinking trends (history regarding frequency of consumption) was distributed to all participants after consent was obtained. A randomized crossover counterbalanced design was utilized to compare the after-effects of consuming the four previously mentioned fluids after running on a treadmill intermittently in a hot and humid environment to lose 1.8 ± 0.1% of body mass (BM). Drinking commenced 20 min after the end of exercise and participants drank M, Na+M, SD, or W equivalent to 150% of their BM lost in four equal boluses at 15-min intervals. Urine samples were collected immediately after drinking the 4th bolus (T₀) and every hour during recovery (T₁, T₂, T₃, T₄) to assess fluid balance. At the end of each session, participants were also asked to rate the after-effects (defecation frequency, stomach discomfort/pain, diarrhea, hardness of the stool) experienced. The results indicate that the participants reduced the frequency of milk intake as they matured chronologically. Cumulative urine output was significantly less ($p = 0.0001$) after the consumption of M (817.35 ± 327.16 ml) and Na+M (642.78 ± 316.30 ml) compared to W (1410.04 ± 525.25 ml) and SD (1162.70 ± 378.92 ml). Additionally, participants experienced more stomach pain/discomfort and diarrhea after M (48%) and Na+M (68%) consumption, while the consumption of SD and W did not seem to induce diarrhea. However, all participants remained in net positive fluid balance (euhydrated) throughout the recovery period.

The results suggest that sports drinks may be a more effective post-exercise rehydration drink for Asian athletes as the higher frequency of diarrhea after milk intake may affect the state of fluid balance. Sodium added milk can be considered for use after exercise by athletes accustomed to drinking milk for recovery purposes.

Keywords: sport drink, rugby, dehydration.

CORRELATES OF EARLY SEXUAL ENCOUNTER AMONG THE ADOLESCENTS OF BUUG ZAMBOANGA SIBUGAY

Josephine S. Duyaguit¹, Corazon T. Biong²

^{1,2} Mindanao State University –Buug Campus, Mindanao State University – Iligan Institute of Technology Philippines

¹j.duyaguit@gmail.com, ²corazonbiong05@yahoo.com

Abstract

Teenage pregnancy has been increasing per year and it turns that in every year victims becomes younger. This is a clear picture on the effect of the radical change from traditional to a modern perspective towards “SEX” among young Filipina. This burgeoning dilemma does not only reflect the declining morale among the adolescents nowadays, but as well at stakes the maternal and infant health. This is a mixed research study that started with a descriptive correlational method and then incorporated an FGD (Focus Group Discussion) to substantiate the generated information from the respondent. This was done to determine the relationship between the perception towards adolescent sexuality, environmental factors, physical activity participation and the rate of early sexual encounters among High School students. The questionnaire used to gather the data was modified based from international standardized tool and been retested its reliability using Cronbach’s Alpha (with alpha value = .805). The average age from the respondents were ages 18 and 73% from them, got pregnant. At the significance level of £0.05, findings show that within the major variable mentioned, only 2 specific sub-factors from it: socioeconomic and sexual desire, have significant correlation on the major variable understudy. This study aimed to impart knowledge on responsible adolescent sexuality. An enhancement program was then proposed in order to raise awareness and mainstreaming sex education in the MAPEH curriculum.

Keywords: Early sex, teenage, adolescent’s sexuality perception

INTRODUCTION

Alarmingly, according to the Philippine News Agency (2012), the Philippines has one of the highest teenage pregnancy rates in the Association of Southeast Asians Nation (ASEAN). Government statistics further shows that the number of teenage pregnancies rose to 70 percent over an 11 –year period, from 114,205 in 1999 to 195,662 in 2009.

The gathered evidences of early pregnancies clearly point out that the traditional view of adolescence behavior has changed drastically in the modern times. This change in behavior among the youngsters in the society with their avid explorations on sex is believed to have been influenced by a lot of factors. MSU-Buug, being one of the leading academic learning institutions of the MSU System. It is committed to the intellectual, socio-economic, political and moral development of the people of Sibugay Province and even in the entire Zamboanga Peninsula. Though the university has continued to serve the purpose of its existence, it can never be denied that it is facing tremendous problems and controversies when it comes to moral decency. The present plight among teenagers – experiencing early sexual encounters leading to pregnancies, does not exempt its adolescent students.

With the given scenario, it is indicative that the level of undesirable adolescent sexual behavior is high. Thus, to have clearer understanding and answers on the issues, this study aims to

determine the relationship between the rate of early sexual encounter and the personal variables of the teens, perception towards adolescent sexuality, physical activity participation and environmental factors among adolescents in the MSU-Buug Campus and the nearby high schools in Buug. However, only the female students, whose ages were from twelve (12) years old to eighteen (18) years old, from MSU-Buug Campus were considered as the respondents. Other female respondents came from the two National High Schools, namely: Manlin and Del Monte. Thus, excluded in the study were the adolescents who were under the custody of the Department of Social Welfare and Development (DSWD) and who were not bonafide students of the aforementioned schools. In as much as the study is sensitive and it involved minors, parental consent was served in the data gathering. Respondents, who were 12 to 18 years old, were provided with an informed consent form, which they were asked to sign if they agreed to participate in the study.

More so, the objective of the study is to assess the rate of early sexual encounter and to have gainful knowledge on the many factors that may influence students' sexuality leading to early pregnancies. This study also aimed to impart knowledge on responsible adolescent sexuality. Lastly, an enhancement program was then proposed in order to raise awareness and mainstreaming sex education in the the curriculum.

METHOD

This study utilized both quantitative and qualitative methods of research. Quantitatively, the descriptive-correlational methods of research was used to determine the relationship between the rate of early sexual encounter among the adolescents of Buug High Schools and its correlates such as personal variables of the respondents, perceptions toward adolescent sexuality, physical activity participation and environmental factors employing the Likert scale. Qualitatively, this study also employed Focus Group Discussion (FGD) to substantiate the generated information from the respondents. In as much as the respondents were minors, parental consent was needed in the data gathering, hence, the parents were included in the FGD. Further, the researcher asked the approval to conduct the study from the Institute Ethics Board Committee of this institution.

As to the basis on how the respondents were selected and how the data were gathered, the researcher asked aid from the Barangay Health Workers (BHW) in determining who among the teens engaged early in sex. They had been identified by the school officials and rural health unit workers. Afterwards, the administration of the questionnaires to the respondents to gather sufficient and reliable data to find answers and solutions to the research problems followed.

Moreover, the distributions of the validated questionnaires to the identified respondents were administered personally to their respective residences for ethical consideration and to address some questions or clarifications they may raise. Though, the topic of the study is very sensitive, the researcher didn't have a hard time in gathering the data because of the presence of the Barangay Health Workers during the administering of questionnaires. Aside from that, the researcher somehow has the authority to conduct the study as she is with the Office of Student Affairs.

As to the selection of the respondents to participate on the focused group discussion (FGD) both for the students and the parents, the researcher had given all the respondents who participated on the self-made questionnaire to be part in the focused group discussion (FGD) but only few confirmed their participation. Some reasons that were being laid down on the part of the students were: the community would know that they started engaging lovemaking at an early age for those who are not pregnant and the availability also of their time was being considered as well. As to the parents, some had not tender their participation because of time constraints.

The respondents were purposively selected and the result of the study were based on their responses on the questionnaires and the Focused Group Discussion (FGD) participated by seven (7)

student and seven (7) parents. The actual respondents totaled 100 from the two (2) national high schools of Buug and MSU-Buug Campus.

RESULTS AND DISCUSSION

The findings showed that the average age of the respondents were 18 years old and a couple of them were 14 years old to 17 years old. The parents' monthly income of the respondents weighted more on 5,000 below thus, belonging to low income group. More than half (59 or 59%) of the parent's respondents were earning Php 5,000.00 and below each month, 24 or 24% were earning Php 5001 – Php 10, 000 and about 7 or 7% of the total respondents had parents whose monthly income were Php 10,001 – Php 15,000 and Php 20,001 and above respectively. This denotes that majority of the parents of the respondents are earning meager monthly income. Based on the categorization by the National Statistical Coordination Board (2007), the income of the parents of the respondents signifies that they belong to families who are at a poverty line. The result of this study implies concurrence to Wirkus (2009). It can be gleamed from her study that girls who belong to the poor families are likely to engage early in sexual activity and more likely to become pregnant, not simply because of the lack of money but because of the attitudes and values that come with a low socioeconomic status leading to poor decision making.

In view of the students focused group discussion (FGD), most of the respondents belonged to a poor family and only one admitted that poverty was one of the reasons why she engaged early sexual encounter. In contrast, most of the parents who were included in the focused group discussion (FGD) had income falling between 15,001 – 20,000 and most of them acknowledged that poverty was one of the causes why teens today participate in sexual activity. As cited by Parent No. 2, "In my case, my daughter engages early in such acts because she always blamed us for not loving, caring and providing her with what she wants. As I analyzed the situation, she's right! Indeed, I haven't given the things she wanted due to lack of money. So, I believe financial problem also can be reason."

Alarmingly, out of 100 respondents, 73 of them got pregnant and 27 of them did not. Consequently, students' focused group discussion (FGD) revealed that engaging early in sex had been considered as an advantage on the part of the respondents, that's why the rate of early initiation in sex in the country continues to rise because of distorted values that having a baby and engaging in sex is now acceptable in the society. This phenomenon is indeed very alarming. Yet, this focused group discussion (FGD) had clearly supported that the rate of pregnancy among the respondents was high because most of the respondents who engaged in sex got pregnant, because for them getting pregnant is an advantage and an achievement as well. However, among the parents who participated on the focused group discussion (FGD) only one parent agreed that having a baby was an advantage but others considered it as "okay" in a sense that their daughter developed the sense of maturity and became responsible when it comes to decision making in life. Contrarily, another parent opposed to such position since not all teenage mothers developed the sense of maturity and responsible parenthood; it's really up to the attitude of the teen.

As to the rate of early sexual encounter, more than half (54%) of the respondents were 18 years old. The 39 (39%) were between 16 to 17 years of age, while 14 to 15 years old got 7 (7%) and there were none (0) who encountered sex whose age were between 12 and 13 years old. It can be concluded based on the result presented above that majority of the respondents were still young and many of them were still minors. It simply means the rate is moderate with a 54%. With the young adolescents and even minor who were into sexual activity, it was so alarming since the results of the present study prove what had been reported in the Philippine Daily Enquirer by Singson (2008). The newspaper posted that in the Philippines 26% of the Filipino youth nationwide from ages 15 to 25 admitted having premarital sex experiences. Moreover, such phenomenon resulted to

teenage pregnancy rate in country that ranked 70% and now the highest among ASEAN's six major economists' (Philippine News Agency, 2012).

The end result of the students' focused group discussion (FGD), can also substantiate this result in as much as the rate of the early sexual encounter (ESE) is high because most of the respondents engaged in early sexual encounter (ESE) at ages 16 to 18. Most of them believed that once one is in a relationship it is really expected that initiation of sex is normal and will definitely follow later on. As cited by Student No. 2, "Yes it's alright to engage on love making because we are now in the new generation."

On the other hand, the rate of early sexual encounter (ESE) gradually increases as reported because most of the parents as identified during the focused group discussion (FGD) that teens today are super hot and gave much attention to their love affair. Thus, it resulted to early sexual encounter.

As for their relationship between personal factor and the rate of early sexual encounter, it suggested that it had a low correlation, and thus, no significant relationship and did not affect the rate of early sexual encounter of the adolescents as well. Moreover, parents' monthly income, year level, importance of religion and devotion to religion has low correlation. They do not contribute much to the rate of early sexual encounter because not all teens coming from the poor families engage in sexual activities at an early age. As a matter of fact, 41% of the respondents participated in sexual activities whose parents' family income did not belong to the poverty line. On the findings presented, the parents' monthly income had a relationship (low correlation) between the early sexual encounter (ESE) and this can be substantiated with the students' focused group discussion (FGD). Further, only one student confessed that poverty could be a factor in early sex involvement especially if the partner could provide the things the adolescents' need which their parents could not. Also, on the parents' focused group discussion (FGD), they described that most of the youngsters today whether rich or poor are materialistic. In the same way, forty two per cent dispute that poverty was the reason why teens engaged early in love making. This can be reinforced by the different statements of Parents No. 5, 6, and 4, where lack of money was not the root cause of such immoral acts. Even though parents are good providers and have plenty of money still adolescents participate in the risky behavior like early sexual encounter (ESE). Furthermore, if the sexual desire "uwag" arises, nothing will be impossible. Reasons could be that adolescents of the 21st century do not take into consideration the status of their parents when it comes to engaging into sexual activity.

However, the respondents' relationship between the level of their sexuality and the rate of early sexual encounter showed no significance at all but it had a very high correlation to sexual desire (libido). It means that those respondents who had early sexual encounter had a high level of sexual desire (libido).

Furthermore, sexual desire is highly correlated against the rate of early sexual encounter (ESE) which can be attributed to the average age of the respondents which was 18 years old and as such the probability of having sexual urge cannot be neglected. It could be noted that the respondents' perception towards sexuality belongs to the moderate level and have highly rated on "the desire to make love". Moreover, the focused group discussion (FGD) with the students agreed with the results and accepted that teen's sexual desire could not be controlled especially if they were in love. On the part of the parents, they revealed that adolescent's sexual desires were described as "super hot" and alarmingly most of the female teens of today are the ones who visit on their boyfriend's house". As a result the higher level the sexual desire is the higher the rate of ESE among adolescents.

On the sexual orientation and background it exhibits moderately correlated compared to sexual desire. Such results can be associated to its level of perception wherein most respondents always had only one sexual partner. Further, the results can be substantiated in the parents' focused

group discussion (FGD) that most teens were not given the right information about sex and the government even lacks information drive about sex education and adolescent sexuality. Although one student claimed that at present, “sexual activity at an early age is already accepted in the society; it is just proper that information about the consequence of doing such acts should be emphasized”.

As to the sexual behavior, it is highly correlated as compared to the rate of early sexual encounter (ESE). The sexual behaviors of the teens were highly different compared to that of the teens from the past. The teens today are comfortable when their boyfriends hug and embrace them and even some of them believe that sex without love is acceptable. From the results it tells that the sexual behavior of adolescents today is moderate in level.

Considering the students’ focused group discussion (FGD), there is a link between the level of respondents’ perception on their sexuality and the rate of early sexual encounter (ESE) but it still does not show any significance at all. Most of the respondents admitted that they engaged in love making out of love not out of lust. It can be noted that out of the seven students more than fifty percent indulged in premarital sex (PMS) or early sexual encounter (ESE) because they were “just in love” and they were just tempted to do such acts.

Taking into account, the parents’ focused group discussion (FGD), it was found out that most of the parents were not in favor of premarital sex (PMS) or early sexual encounter (ESE) because the adolescents’ bodies were not fully developed yet. Obviously they could not afford to raise a child or to have a family of their own. But despite of the reasons that were being laid down, still the increasing phenomena continue since teenagers believe that premarital sex is acceptable as long as two people love each other.

The computed chi-square value for the relationship between the respondents’ physical activity participation and the rate of early sexual encounter suggested that physical activity participation had a very low correlation as to the time or duration of the preferred activity. It means that those who exercised less were more promiscuous and those who exercised more were less promiscuous.

The computed correlation coefficient showed that the rate of early sexual encounter and media (0.294), rate of early sexual encounter and parental guidance (0.636), rate of early sexual encounter and family cohesion (0.958) and rate of early sexual encounter and peer pressure (0.944) were greater than £0.05 level of significance, thus, were not significant. It simply indicates that the respondents’ environmental factor did not affect the rate of early sexual encounter of the respondents.

The focused group discussion (FGD) among the students and parents pin pointed that media barely influenced some adolescents to engage early in sex. Similarly from the parents’ focused group discussion (FGD), it was discussed that the media indeed could influence the teens. Further, as cited by Parent No. 5, media played in influencing the adolescents to do such activity by having witnessed that kissing occurred even during the first moment they’ve seen each other. Looking at the given scenario, youth today have a tendency to follow these because they believed these actions were just fine. Furthermore, the availability also of pornographic (“bold”) cd available in the market can contribute to the impact of the rate of sexual encounter and its influence on the teens.

In addition, family cohesion is highly correlated and does not demonstrate significantly on the rate of early sexual encounter among the respondents simply because talking about sex with adolescents and young adults was still a source of discomfort to educators and parents, although the level of the respondents’ family cohesion was very high.

As to the parents’ focused group discussion (FGD), more than fifty percent of the parents were identified to have close family ties. Moreover, Parent No. 1 believed that if the parents did not show love, care, attention and quality time, their daughters would grow bad. This was confirmed by

Parent No. 7 and corroborated by Parent No. 6, that parents who did not give attention to their teens were most likely to engage in early sexual encounter (ESE) and look for an outlet or someone whom she could find love and attention. As a consequence, teens sought attention from another person whom they could express their love and feel that they were being loved and valued. Sad to note, they would now then find it either from their friends or from their boyfriends. In the contrary, two parents clashed ideas that family cohesion did not matter, it was really up to the teens to participate in such immoral act. As to their level of their closeness, two parents identified that they were close to their daughters but unfortunately they still engaged in PMS and got pregnant. To conclude, adolescents today according to most of the parents could not really control their sexual urge if they feel love. According to Klusaw (2002), teens everywhere are not waiting until they are married to have sex and further emphasized on her research that premarital sex (PMS) or early sexual encounter (ESE) is based on selfishness, not on love.

On the other hand, parental supervision can be associated with the rate of early sexual encounter although the test used didn't show any significance but it rated moderately correlated. As being depicted in the study, the extent of influence on parental guidance is high, therefore teens were being influenced to have such activity because their parents did not know their whereabouts. In the students' focused group discussion (FGD), most of the students admitted that the lack of parental guidance and monitoring made them prone or even vulnerable to any risky behavior such as PMS. According to Cook (2010), unsupervised homes are the most popular venue for sexual debut for the youth. The majority of high school students said and even college students said that the most frequent place they had sex was in their homes (74% of boys and 87% of girls) and more than half said they had sex at home after school – when their parents were not home. The present study agrees with Cook (2010) in a sense that during the focused group discussion (FGD), some parents admitted that some sexual activities were done in the unsupervised homes.

As to the peer pressure, the investigation shows very highly correlated on the rate of early sexual encounter. Moreover, students confessed that they were being pressured by their peers to engage in sexual activity. Likewise, in the parents' focused group discussion (FGD) they had the same point of view regarding some teens being influenced by their peers to participate in such activity. In fact such discussions were supported by Cook (2010) that the top reasons teens give for being sexually active are peer pressure, curiosity and the idea that "everyone does it." Girls also cite pressure from boys as a top reason, and girls who mature earlier and look older are more likely to be sexually active than those who mature later.

The analysis of variance for the significant difference in the average rate of early sexual encounter according to personal factor revealed that the test was significant. This means that there was a significant difference in the rate of early sexual encounter in the different income groupings while the year level and religion showed no significant difference at all. This means that there was a significant difference in the rate of early sexual encounter in the different income groupings. It is evident that the rate of early sexual encounter for the income bracket of 15, 000 to 20,000 is significantly lower compared to the other rates.

In addition, the results agree to Vinluan (2013), that the disturbing poverty situation of households and families where majority of the respondents belong brings difficulties to meet adolescents' need. Poverty, therefore, is closely linked to adolescent health issues. It reinforces the situation of adolescents' vulnerability to health risks like ESE due to lack of access to various services and unsupportive social, political and economic environment. Limited access to correct and meaningful information on sexual and reproductive issues are some of the consequences of poverty faced by the youth. Moreover, some parents or more than fifty percent believed that poverty can be a reason why a teen engages into such activity. This had been supported by Parent No. 2 that a

teenager tended to enter into a relationship if they find that their suitor can provide the material things they want to have.

Moreover, significant difference in the average rate of early sexual encounter is significant in terms of its sexual desire only. The difference reflects that the respondents' level of sexuality in terms of sexual desire alone differs when it comes to their perception against the rate of ESE. This findings signify that when teens fall in love, they become curious and their hormone levels are high. Teens are horny just like adults and many are fully aware that they might not get married. As such some teens think that there were no guarantees in this world that they would never meet again that someone whom they fall in love for the first time, as a consequence some teens willingly give up themselves by means of sexual initiation. This has been elaborated by Sine (2008) that teens have also strong effects of developmental characteristics, such as early puberty and high levels of androgen hormones (i.e., testosterone), which are associated with increased adolescent sexual desire and behavior. Dating, specifically early steady dating provides a context for many adolescent sexual experiences.

CONCLUSION AND SUGGESTION

To wrap it up, based on the findings of the study, poverty therefore is closely linked to adolescent health issues. It reinforces the situation of adolescents' vulnerability to health risks like early sexual encounter not because of the lack of money but because of the attitudes and values that come with a socioeconomic status leading to poor decision making. This can be substantiated with the students focused group discussion (FGD) that poverty could be a factor in early sex involvement especially if the partner could provide the things the adolescents' need. This had been supported by a parent on the focused group discussion (FGD) that teenager tended to enter into a relationship if they find that their suitor can provide the material things they want to have.

The parents were authoritative yet there were instances that they exhibit the behavior of either an autocratic or a permissive parent. Thus, there was no absolute parenting style among these parents, only that the most dominant parenting style among them is being authoritative. Further, the students emphasized in the focused group discussion (FGD) that their parents were strict and they lacked parental guidance. On the other hand, on the focused group discussion (FGD) of the parents, some of them confessed that it was really true that the lack of parental guidance could lead to early sexual activity among teens. As a result, the lack of parental guidance and monitoring indicate that adolescents tend to engage in such acts because their parents did not have any idea who they were with and what activity they were up to.

The degree of togetherness within the family of the respondents were high which means conversation, family bonding and having a good relationship between parent and child had been exercised. However, in the focused group discussion (FGD) of the parents revealed that though they were closed with their children still they find discomfort in talking sex education and ethics about sex. This was confirmed and corroborated by a student in the focused group discussion (FGD) that their parents did not talk nor discuss about sex education. More so, family cohesion doesn't matter much when it comes to the teen's participation on sexual activity.

Finally, the researcher recommends a replication of this study using a larger sample size and including more variables. Likewise an advocacy looking into the welfare of the youth like responsible adolescent sexuality by addressing and providing a long time solution to the increasing initiation of sex at an early age and pregnancy among the youth should be continuously implemented among the stakeholders.

As to the parents, authoritative parenting style should be applied by the parents keeping the balance of love, limits and latitude and should have a frequent and open parental communication with teen on sex related issues by allowing them to be more expressive of their ideas and feelings.

Further, parents should have quality time together and should be aware of teen's friends and their friends' belief system.

Lastly, for the adolescents, they should be educated about the ill-effects of engaging early in sexual activity on the physical, mental, emotional and social aspects and be more careful in choosing their friends. They should choose those who can be considered "good influence".

REFERENCES

- Caring for Your Teenagers. 2003. *American Academy of Pediatrics*. Retrieved from <http://www.healthychildren.org/English/ages-stages/tee/pages/Stages-of-Adolescence.aspx>.
- Choi, A. 2012. The Relationship Between Family Cohesion and Intimacy in Dating Relationship: A Study Based on Attachment and Exchange Theories. *Discovery-SS Journal E-Journal*, 1(1), 91-109. Retrieved from Run Run Shaw Library. Retrieved from <http://hdl.handle.net/2031/6833>
- Cook, J. L., & Cook, G. (Eds.). 2008. *Child Development: Principles and Perspectives*. United States: Prentice Hall Publishers.
- Flores, K. 2008. Why Teen Pregnancies are on the Rise?. Retrieved from CBCP News. Retrieved from <http://www.cbcnews.com/cbcnews>
- Klusaw, K. 2002. Premarital Sex. Retrieved from StudyMode. Retrieved from <http://www.studymode.com/essays/Premarital-Sex-568829.html>
- National Statistical Coordination Board. 2007. Annual Per Capita Poverty Thresholds by Province. 2006 – 2007. [nscb.gov.ph](http://www.nscb.gov.ph). Retrieved from http://www.nscb.gov.ph/poverty/2006-2007/povth_07.asp
- Philippine News Agency. 2012. Teenage Pregnancies in Philippines Rise 70-percent over 10 years – UNFPA. Retrieved from <http://www.interaksyon.com/article/30434/teenage-pregnancies-in-philippines-rise-70-percent-over-10-years---unfpa>
- Sine, R. 2008. Sex Drive: How Do Men and women Composure. Retrieved from Sexual Health Center. Retrieved from <http://www.wedmed.com.sex/features/sex-drive-how-do-men-page2>
- Vinluan, M. 2013. Adolescent and Youth Health Program (AYHP). Department of Health. Retrieved from www.doh.gov.ph/node/338.html
- Wirkus, J. 2009. Teen Pregnancy. Retrieved from Northern Illinois College of Education. Retrieved from <http://www.cedu.niu.edu/shumow/iit/Teenage%20Pregnancy.pdf>



ASSOCIATION BETWEEN SEDENTARY BEHAVIOR AND CARDIO-METABOLIC RISK IN THAI ACTIVE OLDER ADULTS

Purakom, A.¹, Kasiyapat, A.², Nakornkhet, K.³

¹Department of Physical Education and Sport, Faculty of Education and Development Science
Kasetsart University, Kamphaeng-Saen Campus, Thailand.

²Ratchapat Chieng Mai University, Thailand

³Research center of Physical activity for health, Thai Health Promotion Foundation, Thailand

¹feduacrp@ku.ac.th

Abstract

Sedentary behavior has been proposed as an independent cardio-metabolic risk factors and contribute to reduce the lifespan among the older adults. The aim of this study to examine the association between sedentary behavior and cardio-metabolic risk in Thai active older adults. Cross-sectional analyses of older adults ≥ 60 years who Participants living in the 5 region of Thailand. A total of 322 participants were considered for data analysis (122 males and 200 females, Mean 66.4, S.D 5.3). Sedentary behaviors were assessed by using a set of open-end questionnaire of GPAQ₂ consisting TV viewing and leisure time sitting. The cardio-metabolic risk factors measured consisted of body mass index (BMI) , waist circumference, fasting blood sugar, Cholesterol , High density lipoprotein cholesterol (HDL) , Low density lipoprotein cholesterol (LDL) and Triglyceride. The relationships between sedentary behavior and cardio-metabolic risk factors were examined and significant variables were entered into a multivariate regression model. A significant positive association was observed between total sedentary time (mean 425.3, S.D 236.4) and Cholesterol (.53, 95% CI: 0.04-1.02, $p < 0.05$) and LDL (0.68, 95% CI: 0.07-1.36, $p < 0.05$) after adjusting for confounders. Sedentary behavior is associated with an adverse metabolic effect on cholesterol and LDL as both are the powerful strong markers of cardio-metabolic risk in Thai active older adults.

Keywords: sedentary behavior , cardio-metabolic , older adults

INTRODUCTION

The number of individuals 60 years and over will reach to 30 million in Thailand. Those 70 year and older will then be the fastest growing of the population. Current evidence clearly indicate that they will participate in a regular moderate and vigorous physical activity program as the dominant beneficial health-related aspect of movement , particularly, a beneficial effective way to reduce and prevent a number of the functional declines for independent older adults. Nevertheless, older adults often have spent the highest levels of sedentary time on prolong sitting , particularly, TV. viewing time and leisure sitting as well as working on the screen[1-3]. Emerging evidence for the role of sedentary behavior on health, which may be independent of physical activity, finds us at a crossroad with respect to prescribing optimal daily human movement patterns for health[4]. Those sedentary activity meaning are being physically inactive while sitting down or using very little energy or **characterized by an energy expenditure ≤ 1.5 metabolic equivalents and a sitting or reclining posture**[5-6]. Recently evidence also suggest that sedentary contribute to reduce the lifespan and health status. The negative impact of sedentary behaviors has been associated with the development of functional limitation in older adult[7]. Additionally, recent studies have documented deleterious associations of older adults reported television viewing time and overall

sedentary time with central adiposity (larger waist circumference) and with fasting triglyceride levels and markers of insulin resistance (fasting insulin level, 2-hour glucose) that are independent of both central adiposity and exercise time[3,8-11]. Unfortunately, sedentary behavior impact on the cardio-metabolic outcome have not been investigated in Thai older adults sample to date. To address the emerging evidence for the health risk, we examine the associations between sedentary behavior and cardio-metabolic risk in Thai older adults.

METHODS

Sample and design, this study was from 2 January 2013 through April 2014, included a representative sample of non-institutionalized Thailand older adults, 60 year over, selected by stratified random sampling taking into account the number of people by age and gender in 5 region of Thailand (Chaingrai, Uthaithani, Mahasarakam, Phuket and Bangkok). A total of 322 participants were considered for data analysis (122 males and 200 females, Mean 66.6, S.D 5.3). Participants were considered to be independent if they were able to perform all basic and instrumental activities of daily living. All participants were informed of the objectives of the study and gave their informed consent to participate in the study.

Outcome measures

Sedentary behavior, sedentary time was assessed using self-reported which is a set of open-end questionnaire of GPAQ2, consisting TV viewing time , leisure time and sitting time. Total sedentary time was the sum of sedentary minutes per day.

Cardio-metabolic outcome, we investigate glucose metabolism and other cardio-metabolic outcomes including Cholesterol Triglyceride, High density lipoprotein cholesterol (HDL) and Low density lipoprotein cholesterol (LDL). Resting blood pressure was also measured by trained health volunteer or nurses. After a 5-minute seated rest, blood pressure was measured using standard procedures with the arm supported at heart level. In addition, Body mass, height and waist circumference (WC) were measured with standard procedures. Body mass and height was measured by a weight with height machine (Zepper ZT-120 Clinical scale) and WC using a round fiberglass measuring tape. (WTBMI03-China). BMI (kg/m^2) was calculated.

Statistical Analysis, all analyses were performed with IBM SPSS statistics version 20.0. Descriptive statistics were computed separately by sex for all variable. Description statistics (Mean $\pm$ SD.) were calculated for participant characteristics and all outcome measurements. The relationships between sedentary behavior and cardio-metabolic risk factors were examined and significant variables were entered into a multivariate regression model were used for data analysis.

RESULT AND DISCUSSION

Mean (SD) age 60-85 years (66.4 ± 5.4 years), including older adult men (37.9%) and older adult women (62.1%). On average, the sample was a bit overweight (BMI = 23.9 ± 3.6) and WC (83.3 ± 13.4). Mean systolic and diastolic blood pressure, mean heart rate , mean blood sugar , and mean triglyceride were lower for women than men. Mean cholesterol , mean HDL and mean LDL were lower for men than women. Mean sedentary behavior was 426.3 ± 246.5 . Characteristics of the participants summarised in Table 1.

Table 1. Participants' Characteristics , Sedentary behavior and Cardio-metabolic risk.

Characteristic	Total (n=322)	Male (n=122)	Female (n=200)
Age (yr)	66.4(5.4)	67.7(5.8)	65.7(4.5)
Weight (Kg)	60.5(25.5)	65.9(38.9)	57.2(9.5)
Height (cm)	156.4(10.1)	162.1(7.7)	153.0(9.9)
BMI (Kg./m2)	23.9(3.6)	23.6(3.5)	24.0(3.7)
Waist circumference (cm)	83.3(13.4)	85.1(14.5)	82.2(12.6)
Systolic (mmHg)	132.7(17.2)	133.6(16.8)	132.1(11.5)
Diastolic (mmHg)	75.5(10.3)	76.9(11.2)	75.2(9.7)
HR (bpm)	78.5(12.1)	76.0(13.6)	75.2(11.0)
Sedentary Behavior (min/d)	426.3(246.5)	412.6(284.9)	433.0(201.6)
FBS (mg/dl)	107.3(34.4)	109.5(38.9)	106.0(31.3)
Cholesterol (mg/dl)	191(75.8)	194.2(40.0)	203.8(41.7)
Triglyceride (mg/dl)	147.9(12.1)	153.6(89.6)	144.5(66.0)
HDL (mg/dl)	50.5(13.3)	47.9(12.7)	52.1(23.4)
LDL (mg/dl)	121.1(39.1)	117.9(40.0)	123.0(38.9)

Multiple regression analyses were performed to identify the association of sedentary behavior which a new risk factor for health and cardio-metabolic risk factors (Table 2). A significant positive association was observed between total sedentary time (417.2 ± 379.6) and Cholesterol (1.42, 95% CI: 0.18-1.13, $p < .05$), LDL (0.21, 95% CI: 0.46-1.11, $p < .05$), systolic (5.86, 95% CI: 1.66-10.57, $p < .05$) and diastolic (7.40, 95% CI: .39-14.41) after adjusting for age and sex.

Table 2. Multiple regression coefficients of Sedentary time with Cardio-metabolic risk.

	Men		Women		Total	
	Model 1 ^a	Model 2 ^b	Model 1 ^a	Model 2 ^b	Model 1 ^a	Model 2 ^b
BS (mg/dl)	0.93 (-3.76-2.24)	1.77 (-2.09-2.83)	0.61 (-.25-1.51)	0.58 (-2.6-1.49)	1.77 (-2.09-2.83)	1.65 (-2.01-2.74)
Cholesterol (mg/dl)	1.48 (-1.35-4.43)	1.26 (-1.61-1.41)	0.27 (-2.23-1.99)	1.64* (-2.23-2.01)	1.42* (0.18-1.13)	1.40* (0.16-1.02)
Triglyceride (mg/dl)	0.75 (-1.57-1.67)	0.63 (-1.49-1.37)	1.46 (1.80-1.13)	1.39 (1.79-1.05)	1.15 (-1.07-.87)	1.15 (-1.04-.76)
HDL (mg/dl)	-0.80 (-1.12-7.57)	-0.89 (-1.80-6.82)	-1.7* (-1.30-0.50)	-1.2* (-1.08-3.19)	-0.80 (0.15-2.10)	-0.80 (0.13-2.05)
LDL (mg/dl)	1.98 (-1.16-5.13)	1.98 (-1.37-4.29)	1.22 (-1.40-3.21)	1.22 (-1.41-3.25)	0.21* (0.46-1.11)	0.19* (0.56-1.21)
Systolic	6.41 (-0.93-1.76)	6.30 (-1.03-0.65)	5.38 (2.66-1.49)	5.38 (2.49-1.51)	5.86* (1.66-1.57)	5.77* (1.56-1.95)
Diastolic	6.75 (-0.38-1.88)	5.65 (-4.44-0.74)	5.15 (2.05-1.38)	5.15 (2.08-1.38)	7.40* (.39-1.41)	7.71 (.24-1.31)
BMI	0.08 (0.04-0.02)	0.07 (0.05-0.03)	0.18 (0.33-1.43)	0.14 (0.43-1.20)	1.10 (-1.19-1.94)	1.10 (-2.17-1.30)
WC	3.10 (-2.1-8.7)	1.7 (-2.7-7.2)	3.21 (-2.1-7.7)	2.7 (-2.7-7.1)	3.30 (-2.1-8.7)	2.7 (-2.7-8.2)

Note: *Significant at $p < .05$. , WC = waist circumference

- + Model 1 (men and women) adjusted age
- + Model 2 (men and women) adjusted age and education
- + Model 1 (total) adjust age and sex
- + Model 2 (total) adjust age , sex and education

The study demonstrate Thai older adults engage in more sedentary time that associated with cardio-metabolic risk, particularly, cholesterol, LDL and high blood pressure. Regarding to some cardio-metabolic conditions, older adults trend to quite increase in health risk, such as blood sugar, triglyceride and adiposity, due to sedentary behaviour of which have a higher probably of experiencing a cardio-metabolic condition[12]. In this study the odds of reporting cholesterol associated with sedentary time including T.V. viewing and leisure time and sitting time. To now, time in sedentary behaviors is associated with increased cardiovascular mortality and mobility and all-cause metabolic syndrome (MetS) has been shown for television viewing time, overall daily sitting time, and time spent sitting in cars[13]. Also the study reported that metabolic syndrome (MetS) is a cluster of cardiovascular risk factors associated with increased risk of diabetes, cardiovascular disease (CVD), and all-cause mortality.[14] In addition, the study showed that adiposity associated with sedentary time, according to Castin [15] suggested that carrying more body fat associated with longer sedentary time, however, to prevent obesity among older adults should participate at least 30 minutes of moderate-intensity PA in most days of the week[16] and decreases television viewing by 10 hour each week[17]. Recently research reported that breaking up sedentary time is associated with better physical function[15], Triglyceride, , 2-h plasma glucose and waist circumference in older adults[10]. According to this study reported that high blood pressure associated with sedentary time. A strong evidence shown that association was demonstrated between increased sedentary behavior and elevated systolic blood pressure[18]. Therefore, it seem that older adults who engaged in MVPA and spent less daily sedentary time lead to improvement of BP and reduce cardio-metabolic risk.

Some limitations of the present study should be considered. A first limitation was the cross-sectional design that was implemented, that not allow the attribution of causation from associations. A second limitation was the fact that older adults' sedentary behaviour was self-reported and it is possible that participant over- or under-estimated sedentary time. A third limitation was the small number of participants that was sampled that reduce the generalibility of results. However, the participants were recruited from 5 region of Thailand, where a cover area of Thailand might quite reflecting those whole older adults population.

CONCLUSION AND SUGGESTION

In summary, sedentary behavior is associated with an adverse metabolic effect on Cholesterol and LDL as both are the powerful strong markers of cardio-metabolic risk in Thai active older adults. This study provide emerging evidence that Thai older adults who spent more time in sedentary behaviour chancing a high health risk such as diabetes , heart decease and stroke which become to be mobility and mortality with metabolic syndrome. Lowering cardio-metabolic risk can help prevent more serious health problems down the community. These data stress the important of a national physical activity policy and program development by breaking up sedentary time and promote MVPA physical activity for Thai older adults. It may help older adults live a independent longer and healthier life.

ACKNOWLEDGMENT

This authors ware grateful Thai Health Promotion foundation supported our research project and all technical staff involved in data collection procedure .

REFERENCES

1. SPARC. (2005). *Movement = Health*. Wellington: Sport and Recreation. New Zealand.
2. Dunstan DW, Salmon J, Healy GN, et al. (2007). Association of television viewing with fasting and 2-h post challenge plasma glucose levels in adults without diagnosed diabetes. *Diabetes Care*. 30(3):516-522.
3. Santos, D.A. et al. (2012). Sedentary behavior and physical activity are independently related to functional fitness in older adults. *Experimental gerontology*. 47(12): 908-12.
4. Katzmarzyk, PT. (2010). Physical activity, sedentary behavior, and health: paradigm paralysis or paradigm shift? *Diabetes*. 59:2717-2725. (Online). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2963526/>, 15 December, 2014.
5. Ainsworth BE, Haskell WL, Whitt MC, et al. (2000). Compendium of physical activities: an update of activity codes and MET intensities. *Med Sci Sports Exerc*. 32(suppl 9):S498-S504.
6. Pate RR, O'Neill JR, Lobelo F. The Evolving Definition of Sedentary. *Exerc Sport Sci Rev*. 10;36(4):173-8.
7. Davis MG, Fox KR, Stathi A, Trayers T, Thompson J, Cooper AR. (2013). Objectively measured sedentary time and lower extremity function in older adults. *J Aging Phys Act*.
8. Healy GN, Wijndaele K, Dunstan DW, et al. (2008). Objectively measured sedentary time, physical activity, and metabolic risk: the Australian Diabetes, Obesity and Lifestyle Study (AusDiab). *Diabetes Care*. 31(2):369-371.
9. Ford ES, Li C, Zhao G, Pearson WS, Tsai J, Churilla JR. (2010). Sedentary behavior, physical activity, and concentrations of insulin among US adults. *Metabolism*. 2010;59(9):1268-1275.
10. Healy GN, Dunstan DW, Salmon J, et al. (2007). Objectively measured light-intensity physical activity is independently associated with 2-h plasma glucose. *Diabetes Care*. 2007;30(6):1384-1389.
11. Thorp AA, Healy GN, Owen N, et al. (2010). Deleterious associations of sitting time and television viewing time with cardio-metabolic risk biomarkers: AusDiab 2004-2005. *Diabetes Care*. 2010;33(2):327-334.
12. Owen, N. et al (2010). Sedentary Behavior: Emerging Evidence for a New Health Risk. *Mayo Clin Proc*. Dec; 85(12): 1138–1141.
13. Rezende et al. (2014). Sedentary behavior and health outcomes among older adults: a systematic review. *BMC Public Health*. 14:333. (Online). <http://www.biomedcentral.com/1471-2458/14/333>, 10 September, 2014.
14. Ardern, C.I. & Janssen, I. (2007). Metabolic syndrome and its association with morbidity and mortality. *Appl Physiol Nutr Metab*. 2007 Feb;32(1):33-45. (Online). <http://www.ncbi.nlm.nih.gov/pubmed/17332783>, 11 January, 2015
15. Sardinha, L.B., Santos, D.A., Silva, S.A., Baptista, F. and Owen, N. (2014). Breaking – up Sedentary time is associated with physical Function in Older adults. *J Gerontol :Medical Sceience*, 1-6.
16. World Health Organization, *Global recommendations on physical activity for health*, W.H. Organization, Editor 2010, WHO: Switzerland.
17. Hu, F.B., Colditz, G.A, Willettee W.C., and Manson, J.E. (2003). Television watching and other sedentary behaviors in relation to risk of obesity and type 2 diabetes metitus in women, *JAMA*, 289(14):1785-1791.
18. Gennuso, K.P, Gangnon, R.E., Matthews, C.E., Thraen-Borowski, K.M., Colbert, L.H. (2013). Sedentary behavior, physical activity, and markers of health in older adults. *Med Sci Sports Exerc* .45:1493.

THE STUDY OF SPORT RECREATION ACTIVITIES TOWARD PHYSICAL FITNESS AND SOCIAL ATTITUDES OF URBAN SOCIETY

Endang Sri Hanani

Sport Science Faculty, Semarang State University

Abstract

Sport recreation can be as a life style, it can balance between the needs of physical, spiritual and social. The problems are: (1) the form of weekend sport recreation activities, (2) the form of the fitness value and social value. The objectives are: (1) to describe and assess sport recreation activities as a form of implementation of urban weekend activity, (2) to describe and assess the fitness and social values for the actors. The benefits theoretically derived some explanations empirically of the role of sport as a positive weekend leisure activity in fitness and social values for the actors. Practically, it is as an input for the institution FORMI, DIKSPORA, Nikken and stakeholder to work together as a builder and user that encourage sport recreation activities to foster social development and the fitness value for the actors. The design used in the study is: theoretical and empirical ethnographic approach, the subject of the study is the community as the subject of weekend sport recreation both groups and individuals. The objects of study are, (1) the implementation of the form of weekend port recreation, and (2) the fitness and social values of the actors. The location is Graha Padma Residence in Semarang, To collect the data, the researcher is the instrument with a focused physical examination techniques, participating observation, in-depth interviews, and documents investigation. The results of the study are: (1) the implementation of the form of urban weekend sport recreation activities weekend are: Healthy Heart Gymnastics (Tera Gymnastics), aerobic gymnastics, cycling, walking, (2) the results of physical fitness Tera Gymnastics group are: 20% very poor condition category, 40% less condition category, 40% condition medium category. Aerobic Gymnastics group: 10% very poor condition category, 20% less condition category, and 70% average category. The cycling group results are: 10% less condition category, 80% condition medium category, 10% good condition category, the walking group results are: 50% condition medium category and 50% good condition category. (3) For social values, the results are: guidance in behavior (mutual respect, committed, caring, obedient social norms in the interests of unity, kinship, can be accepted in the community, avoiding conflict, agree for the same purpose). The conclusions are: there are some specialization activities including Tera Gymnastics, aerobic gymnastics, cycling, and walking. The guideline of social value is needed in community activities to encourage pervasive dynamics of social life as a reflection of urban social life in urban areas.

Keywords: Sport Recreation, Physical Fitness Profile, Social, Society, Urban.

INTRODUCTION

Recreation is a human right for every individual, so that recreation became an integral part of life and the life of every individual who grows and develops unceasing. While recreation education is an integral part of the responsibilities of national, state, and society for state officials, executive education, society, and other education stakeholders. Law No. 3 of 2005 on the national system divides sports Sport on 3 types: (1) Sports, (2) Sports Achievement, (3) Sports Recreation. Why is sport recreation important for society? , because it can be used as a recreational sport lifestyle (life style), can strike a balance between physical and spiritual needs, improve the physical, mental and social. Restoration of balance through sport recreation activities continues to develop

into a sport recreation called "Sport for all" / in Europe "trim Actie" whose benefits are physical, mental, and social. According to the WHO healthy is not just freedom from disease, but complete physical, mental, and social (Panduan Olahraga Rekreasi; 2011; 2).

In sport recreation, there are three categories: (1) mass Sports, (2) a traditional sport, (3) special Sports / rehabilitation. Besides, in the society there are also sports recreation / life style sports (Aerobic Gymnastics and manifold, weight training, spa, massage, fitness).

While the results of the author's observation, especially in the city of Semarang sport recreation conducted at various places in the city of Semarang particularly in the open space like in Simpang Lima, Pemuda Street, Pandanaran, Pahlawan Street (Free Day Care) and sport recreation activities such as: walking, cycling, jogging, gymnastics of healthy heart, aerobics, rollerblading, etc. While in Graha Padma Residence, the activities performed include: gymnastics of healthy heart, walking, jogging, cycling, football, and futsal.

Statement of the Problems, Based on the description and initial observations, the literature study and previous research results, it can be formulated some problems that arise with regard to the theme. They are : 1). Why does Sport Recreation become an urban society's option as a weekends / holidays activity?, 2). What are the forms of sport recreation activities that can be facilitating urban societies for activities on weekend/ holiday?, 3). How is the effect of sport recreation activities for physical fitness condition?, 4). How is the effect of sport recreation activities to the social attitudes of the actors of such activities?

Objectives of the Research, 1). To identify and assess the sport recreation activities chosen by the urban society as a weekend/holiday activities, 2). To identify and assess the forms of sport recreation activities which can be facilitating the urban society in weekends / holidays activities, 3). To assess and inform physical fitness condition of the actors of such activities, 4). To identify and assess the effect of sport recreation to the social attitudes of the actors of such activities.

Significance of the Research, The benefits of this research theoretically, is expected to obtain an explanation based on empirical facts about the role of the sport recreation toward fitness condition and social attitudes of the urban society, which is used as a strategy to maintain continuity in culture and sport with its various forms, and is used as a development issue needs assessment of physical fitness, and social society. Practically, the results of this research would be useful as an empirical input for FORMI institutions, KEMNEGORA, DIKSPORA, FIK, and stakeholders to work together as a builder and user that is driven sport recreation activities in growing, reflecting the physical aspects (physical fitness), social values of urban society.

Review of Related Literature

Survey results of Aerobic Gymnastics Event, Survey conducted Teachers' Training College FPOK BANDUNG (th 2000) of 1,195 women and 576 men comprising members of society who diligently practicing aerobics and manifold, the results tend to support the validity of socioemotional functioning sport stems on the image improving the health and physical fitness, in addition to the profit of psycho-social nature as increasingly unable to control themselves, cope with stress and focus, getting a good night's sleep, and a growing social relations. (Rusli Lutan, et al: 2000; 7).

Sport Recreation, Sport recreation is a sport that is done by people with a penchant and ability to grow and develop in accordance with the condition and value of local culture to health, fitness and excitement. Besides, port recreation is to build social relationships between perpetrators and preserve and increase the wealth of the national culture (Paper: 2011; 10). Sport recreation is one of the sports that are important in order to increase the degree of health and fitness community, but also important in building national unity, peace and harmony, brotherhood and friendship, as well as improve the well-being, resilience and productivity of the people of Indonesia. (Seminar paper FORMI: 2011; 2).

Socio-Cultural Dimension In Sports, Sports are not growing up in a vacuum, because of the implementation and development based on the value of the community as the reference value. Sport coaching behaviors are influenced by a belief system (belief system) and the value of role models. Sport has the potential to spur social change surrounding communities, as well as through participation in sport socialization process takes place as well. (Rusli Lutan, et al: 2000; 49).

Social Function of Society Sports, Framework of (Nixson and Stevenson 25 years ago) looking at sport as a social institution that contains the potential to perform several functions, namely: social emotional, socialization function, integrative functions, political functions, and functions of social mobility. Some of these functions can be called a sport instrumental functions that stem from participation in the activity. In addition to the meaning of the instrumental function, also appointed another meaning, for example the meaning of social interaction, symbolic meaning, and the meaning of expressive (Rusli Lutan, et al: 2000; 5).

Instrumental function: the function of the socio-emotional needs of individual sports include to maintain the socio-psychological stability includes three mechanisms: (1) a mechanism to manage the tensions and conflicts in individuals through catharsis and aestetis channel, (2) providing an opportunity to evoke feelings in the community , recognized as one of the forms of the ritual to maintain the existence of cultural and social status, (3) an opportunity to vent their aggressive behavior that is safe and approved, a delay in the emotional reaction cheerfulness success, satisfaction as a member of a group or community, and a rare opportunity to express themselves in collective behavior of sports spectators. (Rusli Lutan, et al: 2000; 6). Meaning of function instrumental :Participation, Meaning of social interaction, Expressive meaning, Symbolic meaning.

METHOD

Subjects of the Research, In this research, the subjects were healthy heart gymnastics group, aerobics groups, cycling groups of urban society urban residents who do recreational sports activity on weekends / public holidays in Graha Padma Residence West Semarang.

Object and Location of the Research, The objects of the research in accordance with the problems that have been raised in the research are (1) why the sport recreation is a choice for the urban society, (2) forms of sport recreation can be facilitating for the urban society in weekends / holidays activities, (3) the impact of activities sport recreation for physical fitness condition, (4) the effect of sport recreation to the social attitudes of the actors of such activities. The location of the research in accordance with the problems and research objectives was in Graha Padma Residence West Semarang. The location was considered in accordance with the interests of research because: (1) participants of the sport recreation activities are many and varied, ranging from children, adults, the elderly, men and women both individually, or in groups, (2) area / open space large enough and representative has access as a green sports area, (3) the region from conflict-free, safe, convenient for control system security.

Method of Data Collection, Based on the research problems and approaches, the researcher acts as a data collector (human instrument), with a focused physical examination technique is to test the fitness condition of the offender, observations about the shape of sport recreation participation made by the offender, in-depth interviews activity impact on social attitudes offender and search for documents to administrative records about the data perpetrator.

Data Validation, The validation of the data was through triangulation of data and triangulation informant compare / confirm similar data acquisition on the condition of physical fitness and social attitudes from various sources / actors sport recreation activities: tera Gymnastics, aerobics, bike groups.

Source of Data, Mostly in the form of data source descriptions are expressed through (1) events: the implementation process of urban recreational sports activities in the area of urban

housing complex environment Graha Padma, (2) actors: the members of urban society of sport recreation activities with all forms and manifold is Tera Gymnastics, Seman aerobics, and cycling groups, (3) data sources in the form documents / written information in the form of sport recreation activity implementation.

Steps of Data Analysis, All data / information obtained inductively analyzed using an interactive cycle by Miles and Huberman, and data reduction steps / processes reducy.

RESULTS AND DISCUSSION

Physical Fitness Conditions is: 1). Tera Gymnastics group: 20% very poor condition category, 40% less condition category, 40% condition medium category, 2). Aerobic Gymnastics group: 10% very poor condition category, 20% less condition category, and 70% were category conditions, 3). Cycling groups: approximately 10% less condition category, 80% condition medium category, 10% good condition categories. 4.2. Form of the chosen sport recreation activities: Healthy Heart Gymnastics (Gymnastics Tera), aerobic gymnastics, cycling, walking, jogging, etc, 4). The effect on the overall social attitude description is: a. Guidance in behavior: in the form of mutual respect, obey the agreed commitments, concerns and values of obedience in regular life, b Maintaining the integrity and integration of society: in the form of togetherness in activity, kinship, acceptable in the community, obeying social norms, avoiding conflict, c. social control: in the form communities to avoid conflict, agree to the same purpose, in a broader perspective.

CONCLUSION AND SUGGESTION

The effect of weekend/ holiday sport recreation activities on the condition of physical fitness of the actors for a group gymnastics is very less because almost all are in the age group of elderly. In this age it occurs physiologically degenerative processes that optimize the activation of the organs less runs as it should, and even had to face several problems related to blood circulation, metabolism, and muscle stiffness in the organs.

For the gymnastics aerobics and cycling groups the effect is substantial because the culprit relatively young age under 50 years, so the physiological ability of the organ to be driven a maximum body of work load still qualified, supported by 3 times a week activity so the activity effect allowing the body (heart) can still work normally.

The effect on social attitudes description includes: behavior, maintaining the integrity and community integration, and social control, weekends / holidays sport recreation here acts as a medium in community activities as a group, its existence must adapt to the environment, does not violate societal norms values, nuanced wide, away conflicts and uphold social attitudes in daily behave well for others and the environment.

REFERENCES

- Alan G, Ingham, John W, Loy : 2003. Sport In Social Development : Chicago : Rand Mc. Nally and Company, University of Nort Carolina, Chape Hill.
- Anselm Straus, Juliet Corbin ,2009. jogjakarata: Basies of Qualitatif Research: Dasar dasar Penelitian kualitatif: Terjemahan Pustaka Pelajar.
- Biro Humas, Dan Hukum, 2007. Undang Undang Republik Indonesia Nomor 3 Tahun 2005 Tentang Sistem Keolahragaan Nasional, Jakarta: Kementrian Negara dan Olahraga.
- Dwi Narwoko,Bagong Suyanto, 2007. Sosiologi Teks Pengantar Dan Terapan: Jakarta, Kencana, Prenada Media Group.
- FORMI. 2011. Makalah Seminar Olahraga Rekreasi Masyarakat: Semarang.Panetia Seminar.

THE RELATIONSHIP BETWEEN NUTRITIONAL STATUS, PHYSICAL FITNESS AND EMOTIONAL INTELLIGENCE ON STUDENT ACHIEVEMENT HIGH SCHOOL

Sulaiman¹, Catur Wahyu P.²

^{1,2}Semarang State University

¹lemans_fik@yahoo.co.id

Abstract

This study aims at finding out a correlation between nutrient status, physical fitness, emotional intelligence and students' achievement. This research applied quantitative approach by taking 87 students of Grade X as the research subject sample, in SMA Negeri 1 Bayat, the academic year of 2013/2014. The independent variable was measured by using body mass index, physical fitness was measured by using *Tes Kesegaran Jasmani Indonesia*, and emotional intelligence was measured by documentation of psychology test. The student's achievement as the dependent variable was taken from the documentation of the study report in even semester in the academic year of 2013/2014. The data were analyzed with Single Regression Analysis, Double Regression Analysis and Path Analysis (Structural Equation Modeling). There is an increase of one unit of nutrient status that is followed by the increase of students' achievement 0.221 if the physical fitness, emotional intelligence variables are controlled. There is an increase of one unit of physical fitness that is followed by the increase of students' achievement 0.215, if the nutrient status, physical fitness variables are controlled. There is an increase of one unit of emotional intelligence that is followed by the increase of students' achievement 0.247 if the nutrient status, physical fitness variables are controlled.

Keywords: Nutrient Status, Physical Fitness, Emotional Intelligence, Students'

INTRODUCTION

Student achievement is strongly influenced by two factors namely internal factors and external factors. Internal factors of the student, including physical factor (health and disability) and psychological factor (intelligence, talent, emotion, motivation, and maturity), while the external factors of students, including family, school and community (Slameto, 2010). The research focused only on internal factors: physical factors such as nutritional status and physical fitness level of students and psychological factors such as emotional intelligence of students. Good nutritional status is determined by the consumption of foods containing nutrients such as carbohydrates, fats, proteins, vitamins, minerals, and water. Nutrients are useful as a source of energy, growth and maintenance of tissues and regulate body processes (Sunita Almatseir, 2006). Joko Pekik Irianto (2004) states that the success of achieving physical fitness is determined by the dose of the exercises described in the concept of FIT (Frequency, Intensity, and Time). Surya Putra (2012) states that emotional intelligence is the ability to motivate oneself, to control a frustration, to regulate self-control and mood, and able to manage a community. The level of emotional intelligence of students allow the opportunity to be a successful person.

Observations in SMA Negeri 1 Bayat Klaten in Central Java is done from April 24, 2014 through May 5, 2014. Observations on the economic conditions of the parents was conducted to determine the initial conditions of nutritional status, because the food consumed is very dependent on the economic conditions of parents. Results presented as follows:

Table 1. Economic Level of Student's Parents SMAN 1 Bayat

Level of Student's Parents	Number of student	Percentage (%)
High economic level (> Rp. 3.000.000,00)	2	0,7
Medium economic level (Rp. 1.500.000,00 – Rp. 3.000.000,00)	76	25,4
Low economic level (< Rp. 1.500.000,00)	221	73,9
Total	299	100

(Source: cumulative record MGBK SMA kab. Klaten)

Physical fitness condition is done by observation of transportation they use to come to school. It is presented in the following table:

Table 2. Student's transportation to go to school

Transportation	number	Percentage (%)
Walk	15	5
Bicycle	244	81,6
Motorcycle	40	13,4
Total	299	100

Observation of student learning outcomes is done by looking at the of student's mastery learning outcomes. Results is presented as follows

Table 3. Student's Mastery Learning Outcomes on Class X SMA Negeri 1 Bayat

Mastery Learning Outcomes	Sample	Percentage (%)
Completeness of KKM (Minimal completeness criteria)	87	100
Incompleteness of KKM	0	0
Total	87	100

From these tables is known that most parents have a low economic level, students use bicycles, and learning outcomes 100% complete. Good nutritional status is obtained when the body is getting enough nutrients so that it enables the physical growth, brain development, health and ability to work at high levels.

Physical fitness support creativity, and durability of a person to enhance their power. Thus, in the learning process of physical fitness can improve the ability and willingness to learn. Associated with psychological processes of learning, emotions can help the learning process more meaningful and fun, because a positive or pleasant emotions can help neural activity of the brain to store things learned in the memory. The observation has been described previously, are used as a basis to examine the relationship between nutritional status, Freshness Physical and Emotional Intelligence with Student Achievement class X SMA Negeri 1 Bayat Klaten academic year 2013/2014.

METHOD

It is a correlational research that aimed to determine the relation between nutrition status, physical fitness, emotional intelligence and student achievement. The sampling technique used purposive sampling, it consisted of 87 students from the entire Class X SMA Negeri 1 Bayat Klaten in academic year 2013/2014.

Documentation techniques used to determine the level of student achievement, the document is a report on the results of semester exams of the school year 2013/2014. The instrument used to measure the nutrition status is the body mass index. Instruments used to measure physical fitness is *Physical Fitness test Indonesia done by Debdikbud*.

Puskesmasrek Indonesia at 2000 for high school (ages 16-19 years). The instrument used to determine the emotional intelligence is a psychological test certificate documentation done by Yayasan Bina Asih Yogyakarta. Data analysis techniques in this study, is the single regression analysis and multiple regression analysis to seek the contribution of each independent variable on the dependent variable with SPSS 21 edition of Cornelius Trihendradi and path analysis techniques with structural equation modeling with AMOS program version 5.0 edition Ghozali.

RESULTS AND DISCUSSION

On average, learning achievement reached 81.49 with a median and mode are 81.25. The average, median and mode are relatively the same; it indicates that the data tend to be normally distributed, which shows the proportion of ideal learning achievement, because distribution makes the normal curve. The number of students who have achievement was more than the students who had high and low achievement (highest rate 88.25 and lowest 76.75). It shows that the range of student achievement is not too big. This means also that the distribution of student achievement tend to gather in the average area. This can be seen from the variance (4.28) and standard deviation (2.07). It still under 10. The range of student achievement on the average area $\bar{x} \pm 2SD = 81,49 \pm 2 (2,07)$ in the range of 77,35 – 85,63.

Tabel 4. Description of BMI criteria

Body Mass Index (IMT)	Criteria	Frequenc	Percentage
< 18.5	Fat	22	25.3
18.5 – 25	Mediur	60	69.0
>25	Thin	5	5.7
Total		87	100

(Criteria of BMI Sunita Almatsier, 2006 p. 149)

Description of BMT criteria showed that 60 students (69%) had a BMI in the interval 18.5 – 25. It was a normal category, 22 students (25.3%) were in thin category and 5 students (5.7%) in obese category.

Tabel 5. Description of student's fitness

Score	Caterogy	Frequenc	Percentage
5 – 9	Very less	0	0.0
10 – 13	Less	15	17.24
14 – 17	Medium	63	72.42
18 – 21	Good	9	10.34
22 – 25	Very good	0	0.0
Total		87	100

(Classification of Puskesmasrek, 2000 :28)

Physical fitness showed that 63 students (72.42%) in the medium category, 15 students (17.24%) in less category and 9 students (10.34%) in good category.

Table 6. Emotional Intelligence

Scale of score	category	qualitative men	Frequen	Percentag
>100	A	Very good	0	0.0
70 – 99	B	Good	19	21.8
50 – 69	C	Medium	67	77.0
30 – 49	K	Less	1	1.1
<29	KS	Very less	0	0.0
Total			87	100

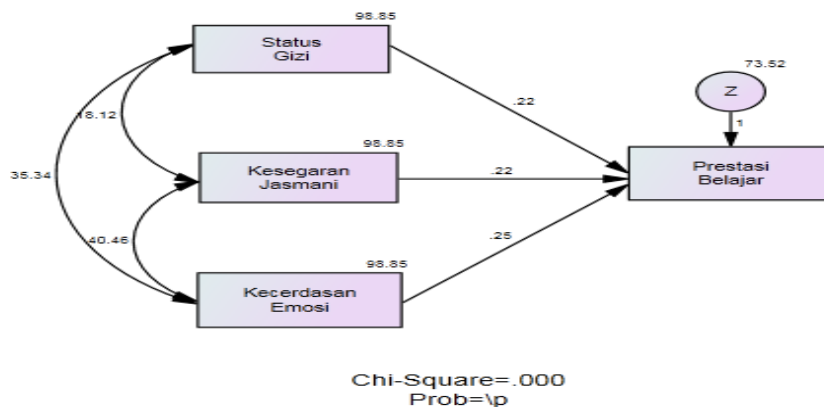
(Criteria of emotional intelligence by Yayasan Jasa Psikologi Bina Asih Yogyakarta)

Criteria emotional intelligence showed that the majority of students have medium emotional intelligence with score at the interval 50-69, 19 students were in good category with intervals of 70-99, and one student was in less category. Emotional intelligence of students was measured in six aspects: the ability to self-control, self-understanding, passion and fighting spirit, self-motivated, skill of socialization and empathy. Analysis of the relation between nutrient status, physical fitness, emotional intelligence and student achievement in class X SMA Negeri 1 Bayat at 2013-2014 academic years are described as follow:

1. Regression coefficient of variable of nutritional status is 0.349 with constants 32.566. It means that an increase of one unit of BMI will be followed with an increase of 0,349 of learning achievement, and vice versa.
2. Regression coefficient of variable of physical fitness is 0,357 with constants 32.154. It means that an increase of one unit of physical fitness will be followed with an increase of 0,357 of learning achievement, and vice versa.
3. Regression coefficient of variable of emotional intelligence is 0,414 with constants 29,285. It means that an increase of one unit of emotional intelligence will be followed with an increase of 0,414 of learning achievement, and vice versa.
4. Regression coefficient of variable of nutrient status is 0,293 and physical fitness is 0,303 with constants 20,185. It means that an increase of one unit of nutrient status will be followed by 0,293 of learning achievement if physical fitness is controlled and vice versa.
5. Regression coefficient of variable of nutrient status is 0,230 and emotional intelligence is 0,332 with constants 21,897. It means that an increase of one unit of nutrient status will be followed by 0,230 of learning achievement if emotional intelligence is controlled and vice versa.
6. Regression coefficient of variable of physical fitness is 0,225 and emotional intelligence 0,322 with constants 22,639. It means that an increase of one unit of physical fitness will be followed by 0,225 of learning achievement if emotional intelligence is controlled and vice versa.

UNNES
UNIVERSITAS NEGERI SEMARANG

7. Path analysis: the relation between nutritional status, physical fitness and emotional intelligence and learning achievement can be described as



follow.

Picture 1. Relation between nutritional status, physical fitness and emotional intelligence and learning achievement

Tabel 7. Model of relation between nutritional status, physical fitness and emotional intelligence and learning achievement

			Es			P	Labe
Y	<---	x1	.221	.100	2.216	.027	
Y	<---	x2	.215	.102	2.110	.035	
Y	<---	x3	.247	.107	2.302	.021	

Results of path analysis with structural equation modeling with AMOS program version 5.0 presented that nutritional status, physical fitness and emotional intelligence affected student achievement, and every increase of one unit of nutritional status will be followed by an increase learning achievement at 0.221, each unit changes the physical fitness will followed by learning achievement at 0.215 and any change of the unit of emotional intelligence and academic achievement will be followed by 0.247

8. The effective contribution of nutritional status, physical fitness and emotional intelligence to learning achievement can be seen in the R-square, as shown in table 8

Table 8. The effective contribution of nutritional status, physical fitness and emotional intelligence to learning achievement

Model Summary					
Model	R Squ	Adjusted R	Std. Error of the Estimate	R Square Change	Change Statistics
1					

a. Predictors: (Constant), EI, BMI, PF

Table 8 shows that the effective contribution or donation of nutritional status, physical fitness and emotional intelligence to learning achievement was 25.6%, the rest is influenced by other factors.

Table 9. Contribution Nutritional Status, Physical Freshness and Emotional Intelligence on Learning Achievement Coefficients^a

Model	Unstandardiz Coefficients		Standardiz Coefficients		Correlations			
	B	Std. E	Beta	t	S	Zero	Par	Pa
1 (Constant)								
BMI								
PF								
EI								

a. Dependent Variable: learning achievement

Table 9 shows that the partial value of body mass index (BMI) to learning achievement at 0.232, nutritional status contribute to the achievement of learning was 5.4%; Indonesian physical fitness (PF) tests to learning achievement at 0.222, physical fitness contribute to the achievement of learning was 4.9%; and tests of emotional intelligence (EI) on learning achievement at 0.241, emotional intelligence contribution to learning achievement is 5.8%.

Based on the classification of the income of parents, 73.9% having low-income, under Rp 1.500.000,00 per month, 25.4% belong to the middle range of Rp 1.500.000,00 to Rp 3.000.000,00 and 0.7% having high income, more than Rp 3.000.000,00 (CR MGBK high School Klaten District, 2013). Klaten Regency regional minimum wage is Rp 1,026,000.00, thus most of the income of parents is still below the minimum wage. The subjects were students of SMAN 1 Bayat is geographically located in the District of Bayat Klaten district which is dominated by subsistence farmers. Pulses and rice became the main income of the farmers in the district Bayat, so that from the aspect of basic food, they are not malnourished. These conditions make the nutritional status of students classified as moderate. The results showed that as many as 69% of the nutritional status of students as seen from BMI in the range of 18.5 to 25 is in the medium category.

Data menunjukkan bahwa sebagian besar (72,42%) tingkat kesegaran jasmani siswa tergolong menengah, 17,24% berada pada klasifikasi kurang dan 10,34% tergolong baik. Tingkat kesegaran jasmani ini dipengaruhi oleh aktivitas siswa. 81,6% siswa datang ke sekolah menggunakan sepeda, dan 13,4% yang naik sepeda motor. Aktivitas lainnya adalah ekstrakurikuler yang dilakukan di sore hari. Siswa wajib mengikuti ekstrakurikuler Pramuka dan minimal satu ekstrakurikuler pilihan. Setiap minggunya, siswa melakukan kegiatan olahraga pada pelajaran Penjasorkes. Aktivitas-aktivitas fisik siswa tersebut mempengaruhi tingkat kesegaran jasmani siswa.

Data show that the majority (72.42%) physical fitness level of students classified as intermediate, 17.24% are in less classification and 10.34% are in good classification. Physical fitness level is influenced by the activity of the students. 81.6% of students come to school by bike, and 13.4% were riding a motorcycle. Other extracurricular activities are done in the afternoon. Students must attend at least one extracurricular Scouts and one extracurricular optionnal. Each week, students perform sporting activities in course of sport. Physical activities affected physical fitness level of students.

IQ is a measurement of intellectual ability, analysis, logic and the ratio of a person who is often called intelligent people. EQ is a measurement of the ability of emotional intelligence called smart people, or the ability called common sense (Suryaputra, 2004). Data show that 77% of students have emotional intelligence in medium category. EQ assessment conducted by Psychology Services Yasayan Bina Asih Yogyakarta covers 6 aspects: the ability to self-control, the ability to self-understanding, passion and fighting spirit, the ability to

self-motivate, dexterity of socialization or adaptation and the ability to empathize. Most students have emotional intelligence in the medium category for aspects of self-control, self-understanding and empathy, while other aspects vary.

CONCLUSION

The conclusion of this research are:

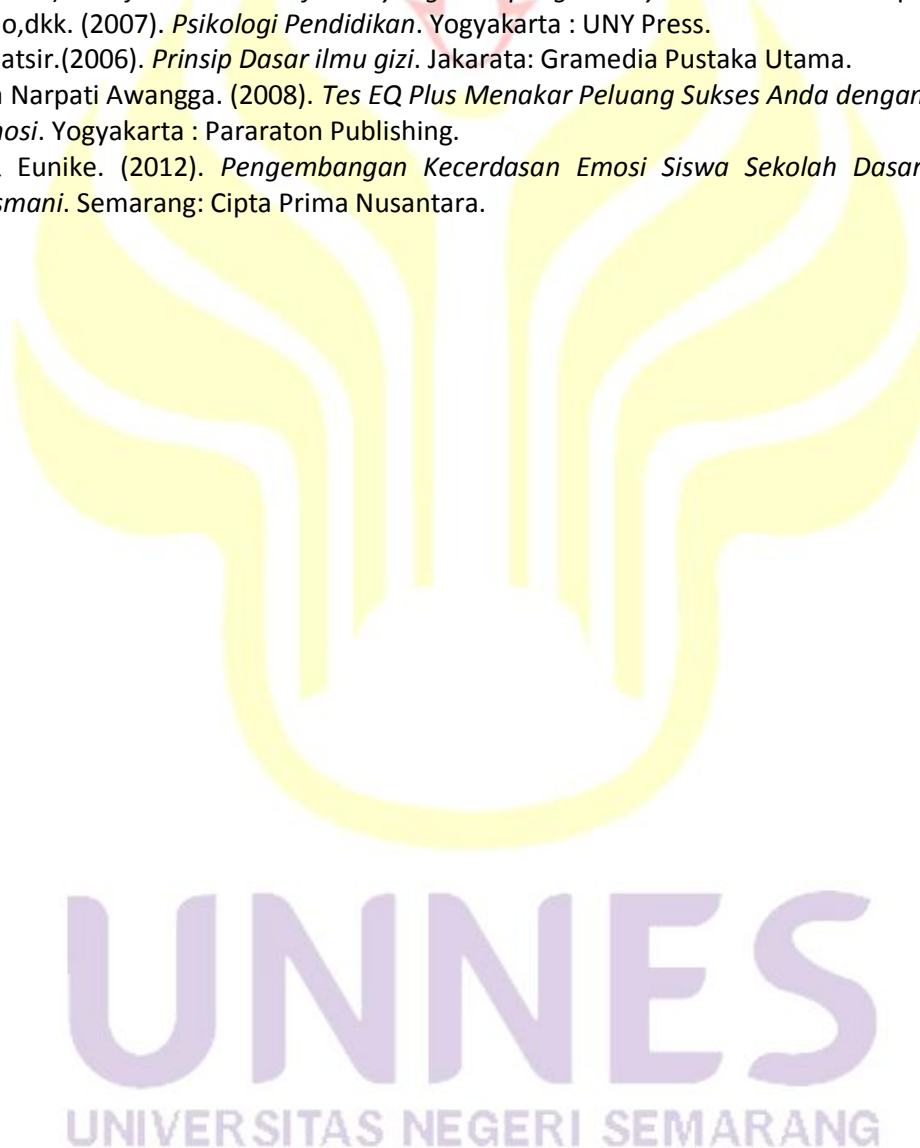
1. There is a significant relation between nutritional status and learning achievement of class X SMA Negeri 1 Bayat Klaten in academic year 2013/2014.
2. There is a significant relation between physical fitness and learning achievement of students on class X SMA Negeri 1 Bayat Klaten in academic year 2013/2014.
3. There is a positive and significant correlation between emotional intelligence and learning achievement of students of class X SMA Negeri 1 Bayat Klaten in academic year 2013/2014.
4. There is a positive and significant relation between nutritional status and physical fitness and learning achievement of students on class X SMA Negeri 1 Bayat Klaten in academic year 2013/2014.
5. There is a positive and significant relation between nutritional status and emotional intelligence and learning achievement of class X SMA Negeri 1 Bayat Klaten in academic year 2013/2014.
6. There is a positive and significant correlation between the phisycal fitness and emotional intelligence and learning achievement of class X SMA Negeri 1 Bayat Klaten in academic year 2013/2014.
7. There is a significant positive relation between nutritional status, physical fitness, and emotional intelligence and learning achievement of students on class X SMA Negeri 1 Bayat Klaten in academic year 2013/2014.

Status gizi sebagian besar siswa berada pada kategori medium dan 25,3% tergolong kurang maka disarankan sekolah melalui Pendidikan Jasmani dan Kesehatan serta kerjasama dengan instansi terkait seperti Dinas Kesehatan untuk melakukan sosialisasi atau penyuluhan tentang gizi dan pola makan yang baik untuk menunjang aktivitas belajar. Kesegaran jasmani sebagian besar siswa tergolong sedang dan 17,2% tergolong kurang maka disarankan sekolah melalui program kesiswaan perlu melakukan kegiatan-kegiatan yang menumbuh kembangkan kesadaran untuk menjaga kesegaran jasmani seperti jalan sehat bersama dan aktivasi ekstrakurikuler untuk meningkatkan kesegaran jasmani. Ditinjau dari kecerdasan emosinya sebagian besar berada dalam kategori medium, oleh karena itu guru diminta untuk memberikan informasi tentang pentingnya kecerdasan emosi dalam menunjang prestasi. Optimalisasi guru Bimbingan Konseling untuk memberikan layanan yang menunjang peningkatan kecerdasan emosi siswa. Pihak sekolah perlu berkerjasama dengan psikolog dan motivator untuk memberikan motivasi tentang pentingnya kecerdasan emosi dan cara meningkatkan kecerdasan emosi siswa.

Nutritional status of the majority of students are in the medium category and 25.3% classified as less then advised to school through physical education and health as well as the cooperation with relevant agencies such as the Department of Health to conduct socialization or counseling about nutrition and dietary habit to support learning activities. Most of the physical fitness of students is classified as medium category and 17.2% classified as less. It's suggested to school through student programs to perform activities that cultivate awareness to maintain physical fitness as walk along and extracuriculaire to improve physical fitness. The emotional intelligence are mostly in the medium category, therefore the teachers were asked to provide information about the importance of emotional intelligence in supporting the achievement. Optimalization of counselor to provide services that support the improvement of student's emotional intelligence. The school needs to cooperate with the psychologist and motivator to motivate and to provide the importance of emotional intelligence and show the way to improve the emotional intelligence of students.

REFERENCES

- Djoko Pekik Irianto. (2007). *Panduan Gizi Lengkap keluarga dan Olahragawan*. Yogyakarta : Andi Offset.
- Irwansyah. (2007). *Pendidikan Jasmani Olahraga dan Kesehatan untuk Siswa Kelas XII SMA*. Bandung: Grafindo Media Pratama.
- Ngalim Purwanto. (2010). *Psikologi Pendidikan*. Bandung: Remaja Rosdyakarya Offset.
- Nurhasan. (2005). *Aktivitas Kebugaran*. Jakarta: Direktorat Pembinaan Sekolah Luar Biasa.
- Slameto. (2010). *Belajar dan Faktor-faktor yang Mempengaruhinya*. Jakarta: Rineka Cipta.
- Sugihartono,dkk. (2007). *Psikologi Pendidikan*. Yogyakarta : UNY Press.
- Sunita Almatir.(2006). *Prinsip Dasar ilmu gizi*. Jakarata: Gramedia Pustaka Utama.
- Suryaputra Narpati Awangga. (2008). *Tes EQ Plus Menakar Peluang Sukses Anda dengan Uji Latih Kecerdasan Emosi*. Yogyakarta : Pararaton Publishing.
- Tandiyo & Eunike. (2012). *Pengembangan Kecerdasan Emosi Siswa Sekolah Dasar Melalui Pendidikan Jasmani*. Semarang: Cipta Prima Nusantara.



PATIENT SATISFACTION LEVEL ANALYSIS OF PARTICIPANT PROGRAM NATIONAL HEALTH INSURANCE (JKN) NON PREMI RECIPIENT (NON-PBI) AT PUSKESMAS HALMAHERA, SEMARANG CITY YEAR 2015

Bambang Wahyono¹, Ulfa Royanah²

^{1,2}Department of Public Health, Semarang State University, Indonesia

¹pakintelan@gmail.com

Abstract

Introduction: Presidential Decree No. 12 of 2013 explained that the implementation of health services in JKN should pay attention to the quality of service, oriented aspects of patient safety, effectiveness services, conformity with the needs of patients, and cost efficiency. The purpose of this study was to know the level of patient satisfaction participant program National Health Assurance (JKN) Non-PBI at Puskesmas Halmahera.

Method: This research was a qualitative approach with descriptive study design. The research informants selected using purposive sampling. The number of main informants were 8 peoples and additional informants, namely the head of puskesmas. Data was collected through observation, indepth interviews, and documentation study.

Results: The results showed that based on the aspect of access to services and patients safety are satisfied with the services provided puskesmas. And viewed from the aspect of effectiveness, technical competence, human relation, continuity of service and efficiency, the patient are quite satisfied with the services provided puskesmas. But patients was not satisfied with the amenity in puskesmas.

Keywords: Patient Satisfaction, National Health insurance (JKN), Non Premi Recipient (Non PBI), Puskesmas Halmahera

INTRODUCTION

Puskesmas (Primary Health Care) as a Technical Implementation Unit (UPTD) Health spearhead of health services in Indonesia. In performing its duties, health centers have a basic health service delivery functions in a comprehensive, sustainable, and quality (Decree No. 75 Year 2014). Puskesmas as a mandatory government health facilities to implement any policies established by the government. One of them is the implementation of the policy of the National Health Insurance program.

The National Health Insurance (JKN) is part of the National Social Security System held by using the mechanisms of social health insurance which is compulsory (mandatory) based on Law No. 40 of 2004 on the Social Security, with the aim to meet the basic needs of public health decent and given to every person who has paid dues or dues paid by the government (Ministry of Health of the Republic of Indonesia, 2012).

The membership of the National Health Insurance is mandatory. Based on the Regulation of the Minister of Health of the Republic of Indonesia Number 28 Year 2014 on Guidelines for the Implementation of the National Health Insurance Program to mention that there are two groups of participants, namely the participant Program National Health Insurance Premi Recipient (PBI) and

non Premi Recipient (non PBI). Presidential Decree No. 12 of 2013 states that the implementation of health care in JKN should pay attention to the quality of service, and oriented to patient safety, service effectiveness, suitability to the needs of the patient, and cost efficiency.

Puskesmas Halmahera is one of inpatient health centers in the city of Semarang. Based on data from the National Health Insurance participation in PHC Halmahera, an increase significantly the number of participation non PBI in Puskesmas Halmahera. In May 2014, the number of participants of the National Health Insurance is not PBI is 3,006 participants. And in July 2014, participants increased to 3,250 participants. Similarly, in the subsequent months the membership number is constantly increasing. Recorded in October 2014 reached 3,551 participants.

Increasing the number of membership of the National Health Insurance non PBI affect the number of patient visits in Puskesmas Halmahera. Based on data recaps outpatient visits Puskesmas Halmahera, in 2013 total patient visits Askes (now JKN non PBI) from January to December was 1,363 patients, with an average of 114 visits per month is the patient. Whereas in 2014 after transformed into BPJS, patient visits recorded JKN non PBI has increased each month for a total visits from January to October was 2,631 patients, with an average visits per month was 263 patients (Puskesmas Halmahera, 2014).

Puskesmas Halmahera in its function as a first-rate health care facilities always puts quality of care and patient satisfaction. This is evidenced by the acquisition of certificate ISO 9001: 2008 is an international standard for quality management systems / quality in 2008 which also became the first health center in the city of Semarang who get the certificate. With the good quality management can improve the quality of services that have an impact on patient satisfaction. Patient satisfaction is a patient's level of feeling that arise as a result of the performance of health services obtained after patients comparing it to what is expected (Pohan, 2007: 156). Measurement of patient satisfaction level of the National Health Insurance is important because it has been mandated by the President of the Republic of Indonesia Regulation No. 12 Year 2013 on Health Insurance Article 42, that the health care provided to the insured people must pay attention to the quality of service. To determine whether or not the quality of services provided, it can be seen from the satisfaction of patients accessing health services.

A high level of patient satisfaction will affect the patient's decision to re-access health care in a health facility. This is in line research conducted Rondonuwu NS et al (2014) which states that there is a relationship between patient satisfaction patient interest to reuse the same health services. Patient satisfaction survey is one method of measuring patient satisfaction. Puskesmas Halmahera conduct satisfaction surveys every year in July. In 2008 satisfaction survey results demonstrate that patients were satisfied with the services provided Puskesmas Halmahera. But in 2010, the survey results showed a decrease in the level of patient satisfaction when compared with the previous year which only reached the level of satisfaction enough. And in 2012, an increase in patient satisfaction in Puskesmas Halmahera. Patients were very satisfied with health center services. Results of satisfaction measurements have shown an increase and a decrease in the level of patient satisfaction in each year (volatile). But the amount of participation and the participants JKN patient visit non-PBI has increased continuously. The purpose of this study was to determine the level of patient satisfaction participants of the National Health Insurance non premi recipient (non-PBI) in Puskesmas Halmahera Semarang city.

METHOD

The method of this research used qualitative method with descriptive research. Qualitative methods are used to understand the phenomenon that is happening naturally (natural) in

circumstances that are naturally occurring. Qualitative data is what was said by those who submitted a set of questions by the researcher (Ahmadi, 2014: 15).

The research informants selected using purposive sampling. Assessment indicators used in the measurement of patient satisfaction rate refers to the theoretical dimensions of service quality according to Lori DiPrete Brown et al (1992) in Wijono (2000). In the quality dimension, there are eight indicators used, among others; (1) Technical Competence; (2) Access to services; (3) Effectiveness; (4) Human relation; (5) Efficiency; (6) Continuity of service; (7) Patient safety; and (8) Amenity (Wijono, 2000: 30).

RESULTS AND DISCUSSION

Technical Competence

Technical competence in service processes associated with the skills, abilities, and appearance of the officer. Based on the Regulation of Minister of Administrative and Bureaucratic Reform No. 16 Year 2014 on Guidelines for Public Satisfaction Survey on Public Services states that technical competence is one of the scope of public satisfaction surveys in the public service, where the implementing technical competence is the ability to be possessed by the executor includes knowledge, expertise, skills and experience. Mahrous and Hifnawy (2012) in his research stating that technical competence is one of the factors that influence patient satisfaction. In line with this, Tateke T et al (2012) suggested that the technical competence related to the level of patient satisfaction in both health care facilities owned by the government and private sectors.

Based on the results of the study showed that 6 of the 8 informants (75%) said that they had puasdan there are two informants (25%) are less satisfied with the technical competence possessed puskesmas officers. The dissatisfaction associated with those with less skill in directing and serving patients, patient friendliness is still lacking, as well as the counter clerk in communication skills.

Lack of competence of officer can reduce the effectiveness of service and impact on the ongoing process of service (Bustami, 2011: 3). Results of research conducted by Munaryo (2008) shows that the unfavorable perception of quality patient care attendant technical skills, the less loyal patients, where that determine the quality of these services including the factor of ability, skills, and knowledge of service providers.

Access to Services

Access or affordability of the service means that health services provided are not hindered by geographical conditions, social, cultural, economic, organizational, or language barriers (Bustami, 2011: 3). Access to health care can be said to equity (fair / equitable) if the status of health services distributed by geography, socio-economic, and community needs (Retnaningsih, 2013: 71). In this research service access assessment conducted on geography and language access. Based on this research, it was found that access to health centers geography Halmahera has satisfied all informants (100%). PHC conditions Halmahera, located in the city area locations with road condition is good and can be bypassed by private vehicles or public transport as the main reason patient satisfaction with access geography. Similarly, language access, all informants (100%) stated that the language used by the officer's easy to understand. According to the informant, the language used to adjust the characteristics of the patient's attendant. The language used is Indonesian and Javanese. Language is a very important aspect in service because the information related to promotive, preventive, and curative delivered by officers through spoken or written language. Shukla et al (2010) states that the communication between doctor and patient, especially officers is something that is very important but often overlooked in the implementation of health care.

Effectiveness

Quality health care depends on the effectiveness of the norms concerning health services and clinical instructions appropriate existing standards. Assessing the effectiveness of services means assessing whether the procedure or treatment is applied correctly will give the desired result (Bustami, 2011: 4).

Carried out an assessment of the effectiveness of the procedures and the availability of Human Resources (HR) at the center. Based on the Regulation of Minister of Administrative and Bureaucratic Reform No. 16 of 2014, the procedure is the procedure applied to service providers and recipients of services. Arisman (2014: 14) states that the criteria for good service procedure is simple, namely that the procedure or the procedure for the service held easily, smoothly, fast, uncomplicated, easily understood, and implemented by the recipient of the service. Based on the results of the study indicate that all respondents (100%) feel easy and procedures adopted in accordance with what they expect. In addition, from the results of observations made, there is openness about service procedures in Puskesmas Halmahera evidenced by the media information about the flow of outpatient services that will help provide information primarily on new patient visits.

As for the availability of human resources, 7 of the 8 informants (87.5%) had had enough with current availability, but also there is an informant who felt the need for increasing the number of human resources, especially the clerk and the doctor on duty at the General BP for services obtained more quickly. Muninjaya (2004: 161) states the availability of adequate human resources in quality and quantity determine the continuity of service. The number and type of personnel available in health centers vary widely. Growing services performed by community health centers, more and more types and staff needed.

Human Relation

In the perspective of quality, human relations related to the interaction between the officer and the officer with the attendant with the patient / community. Forms of human relationships, among others, can be appreciated, secrecy, respect, listening to complaints, responsive, and give attention (Bustami, 2011: 4). Results of research conducted Triwahyuni (2012) showed that personal attention factor capable of providing effective contribution or contribution greatest effect on the increase patient loyalty. Personal attention factor allegedly closely associated with the level of customer satisfaction with all the facilities and quality of service that they get from all parties including medis. Maka power of the personal attention factor plays an important role in achieving customer satisfaction.

Based on this research, it was found that 5 informants (62.5%) expressed satisfaction as well as the clerk, nurse, physician, pharmacist or other officers gave a good response when the patient asked. In addition, at the time of the examination room in a complaint asking the patient which then responded by explaining how your preventive and even curative efforts should be done to cure diseases suffered by the patient. Similarly, the pharmacist is explaining how the rules of taking the appropriate medication degan dose of each drug is administered to the patient. But there are also two informants (25%) stating that they want more intense communication with the goal of true disease he knew he was experiencing at this time. And one informant who judge that the officer still less friendly in serving patients.

Human relationships are less well in a dimension of service can reduce the levels of effectiveness and technical competence dimension of organized health services. Experience shows that patients tend to be less well enforced ignore the advice and will not re-visit (Pohan, 2007: 20).

Efficiency. Service efficiency is the best comparison between input and output services. Ideally, the service will be efficient if the service bureaucracy can provide services such as input costs and service time relieve the service user. Similarly, on the output side of the service, the bureaucracy should ideally be able to provide a quality service products, especially from the aspect of cost and service time (Dwiyanto et al, 2008: 76).

Time service according to Regulation Minister of Administrative and Bureaucratic Reform No. 16 of 2014 is the period of time necessary to finish the whole process of service of each type of service. Results of research conducted by Mukti et al (2013) showed that there is influence between the timeliness of service to the level of patient satisfaction.

Based on the research that has been conducted, it was found that 5 of the 8 informants (62.5%) said they were satisfied with the health center services related to the time of service. Explained that they felt the service at the Puskesmas Halmahera not take too long. In addition there but the informant did not make the (tolerate waiting time). But there is also an informant who said that the waiting time is too long at the health center and found that due to the long waiting time because of the limited human resources to serve patients thus assume that the necessary additional human resources in the health centers.

While in terms of cost efficiency, it was found that 7 of the 8 informants (87.5%) stated that the service they get is comparable with the premiums they pay each month. Informants revealed that the reason for the assessment is because the informant feel fit and cured when check in Puskesmas Halmahera and easily gain access to referral to secondary health facilities (hospitals) if the disease is experienced in handling capability exceeds the capacity of health centers. However, one informant stated that the cost is not comparable with the services obtained. In this study, informants used are participants of the National Health Insurance Levy non Recipient, where informants regularly every month to pay premiums paid to BPJS. Cost / tariff according to the Regulation of the Minister of Administrative Reform and Bureaucratic Reform No. 16 of 2014 is a cost to be charged to the recipient of the service in the care and / or receive services from providers as determined by agreement between the organizers and the community.

Continuity of Service

Continuity of service means the patient will receive the complete service required without repeating the diagnosis and therapy procedures are not necessary. In this case the patient must also have access to a referral for further necessary services (Bustami, 2011). Fan VS et al (2004) in his research conducted in primary health clinics shows that service continuity is closely related to patient satisfaction.

Based on the results of the study, 7 of 8 people informant stated it was satisfied with the continuity of existing services in Puskesmas Halmahera. Patients feel that the existing procedures in clinics were not convoluted (easy) to run patients, so that patients are not confused when accessing healthcare in health centers pelyanan Halmahera and there is no repetition procedure. In addition the service continuity is related to how access referrals to health facilities is higher (secondary health facilities). Regulation of the Minister of Health of the Republic of Indonesia Number 28 of 2014 states in the implementation of the National Health Insurance program, access to secondary health services such as hospitals can not be done without a referral from a primary health care facility in this clinic. According to the results of interviews with informants, most of the informants that have been referred or are currently applying a reference stating that the referral process conducted puskesmas easy, just do the queue as usual when the check. Of all the informants, one informant stated are not satisfied with the service continuity in Puskesmas Halmahera.

Patient Safety

Decree of the Minister of State Apparatus Empowerment No. KEP / 25 / M.PAN / 2004 stated, the security services are terjaminnya level of environmental safety unit or service providers the means used, so that people feel at ease to obtain the services of the risks resulting from the implementation of the services.

Based on the results of the study, all of the informants stated that they were satisfied with the security dimension in Puskesmas Halmahera. All informants (100%) agree that the terms of a physical building and the facilities available, health centers already provide security for the patient because of the condition of the building is still a new health center.

Amenity

Arisman (2014: 19) states that the dimension that must be considered in the improvement of the quality of service is the convenience in obtaining services related to space services, ease of reach, the availability of information, as well as advocates attribute other services relating to the environment, cleanliness, waiting room, facilities, and etc. Facilities / infrastructure required in the public service including the availability of a safe and orderly room, a comfortable waiting room, a small room equipped with a good irrigation system, a cafeteria, as well as a tool call (Moenir, 2006: 121).

Based on the results of the research, seen from the aspect of neatness, cleanliness and environmental conditions health centers, all informants agreed that their expectations are met or can be said to be satisfied. However, there are 4 people who complained about some conditions informant health centers that made him uncomfortable. The conditions include narrow / small pharmacy waiting room, the temperature in several places, such as the reception area and the counter drug is still relatively hot, mic conditions which sometimes sounds less clear by the patient, especially in elderly patients.

In addition, there are also patients who are less comfortable and complained about the lack of facilities clinic. However, it is caused by an informant who still minimal knowledge about the clinic. In-depth interviews were conducted with informants 7, stated that the discomfort is felt because the health center facilities that do not have the equipment CT scan and blood tests. In fact, after the observation, it is known that the health center has a blood test service facilities.

CONCLUSION AND SUGGESTION

Based on the results of research on the level of patient satisfaction JKN Non-PBI in Puskesmas Halmahera, it can be concluded that the 8 dimensions of quality assessment, the patient was very satisfied with access to services and convenience in health centers. As for technical competence, effectiveness, human relations, efficiency, and continuity of services, patients feel quite satisfied. And on the patient safety dimension, yet fasting patients with Puskesmas services in Halmahera. It can be concluded that the level of patient satisfaction participants of the National Health Insurance non Premi Recipient (non-PBI) in Puskesmas Halmahera when viewed as a whole, patients are quite satisfied with the health center services.

REFERENCES

- Ahmadi, R, 2014, Metodologi Penelitian Kualitatif, Ar-Ruzz Media, Yogyakarta.
- Arisman, 2014, Mengukur Kepuasan Masyarakat dan Kualitas Pelayanan Publik, artikel, Kementerian Hukum dan HAM

- Bustami, 2011, Penjaminan Mutu Pelayanan Kesehatan dan Akseptabilitasnya, Erlangga, Jakarta.
- Dwiyanto, A, dkk, 2008, Reformasi Birokrasi Publik di Indonesia, Gadjah Mada University Press, Yogyakarta.
- Fan VS et al, 2004, Continuity of Care and Other Determinants of Patient Satisfaction with Primary Care, General Internal Medicine, Vol XX, No 3, Agustus 2004, hlm. 226-233
- Keputusan Menteri Aparatur Negara Nomor KEP/25/M.PAN/2004 Tentang Pedoman Umum Penyusunan Indeks Kepuasan Masyarakat Unit Pelayanan Instansi Pemerintah
- Kemenkes RI, 2012, Bahan Paparan Jaminan Kesehatan Nasional dalam Sistem Jaminan Sosial Nasional, Kementerian Kesehatan Republik Indonesia, Jakarta.
- Mahrous MS dan Hifnawy T, 2012, Patient Satisfaction from Dental Services Provide by the College of Densitry, Taibah University, saudi Arabia, Vol VII, No 2, November 2012, hlm 104-109
- Moenir, HAS, 2006, Manajemen Pelayanan Umum di Indonesia, Bumi Aksara, Jakarta
- Mukti WY dkk, 2012. Pengaruh Mutu Layanan Kesehatan terhadap Kepuasan Pasien Rawat Inap di Rumah Sakit Woodward Kota Palu, Vol II, No 3, September 2013, hlm 35-41
- Munaryo, 2008, Analisis Pengaruh Persepsi Mutu Pelayanan Rawat Inap Terhadap Minat Pemanfaatan Ulang, Tesis, Universitas Diponegoro Semarang
- Muninjaya, AAG, 2004, Manajemen Kesehatan Edisi 2, EGC, Jakarta.
- Peraturan Menteri Kesehatan Republik Indonesia Nomor 28 Tahun 2014 Tentang Pedoman Pelaksanaan Program Jaminan Kesehatan Nasional.
- Peraturan Menteri Kesehatan Republik Indonesia Nomor 75 Tahun 2014 Tentang Pusat Kesehatan Masyarakat.
- Peraturan Menteri Pendayagunaan Aparatur Negara dan Reformasi Birokrasi Nomor 16 Tahun 2014 Tentang Pedoman Survei Kepuasan Masyarakat Terhadap Penyelenggaraan Pelayanan Publik.
- Peraturan Presiden Republik Indonesia Nomor 12 Tahun 2013 Tentang Jaminan Kesehatan
- Pohan, IS, 2007, Jaminan Mutu Layanan Kesehatan, Dasar-Dasar Pengertian dan Penerapan, EGC, Jakarta.
- Puskesmas Halmahera, 2014, Rekap Kunjungan Pasien Rawat Jalan Puskesmas Halmahera Tahun 2014, Semarang
- Retnaningsih, E, 2013, Akses Layanan Kesehatan, Raja Grafindo Persada, Jakarta
- Rondonuwu NS dkk, 2014, Hubungan Antara Kepuasan Pasien terhadap Kualitas Jasa Pelayanan Rawat Jalan dengan Minat untuk Memanfaatkan Kembali Pelayanan Kesehatan di Puskesmas Ranotana Weru Kota Manado Tahun 2014, Skripsi, Universitas Sam Ratulani Manado.
- Sukhla AK et al, 2010, Doctor-Patient Communication: An Important but Often Ignored Aspect in Clinical Medicine, JIACM, Vol III, No 11, hlm 208-221
- Tateke T et al, 2010, Determinants of Patient Satisfaction with Outpatient Health Service at Public and Private Hospitals in Addis Ababa Ethiopia, African Journal of Primary Health Care & Family Medicine, Vol IV, No 1, Agustus 2014, hal. 1-11
- Triwahyuni C, 2012, Pengaruh Mutu Pelayanan Terhadap Kepuasan Pasien Rawat Inap RSU Bunda Thamrin Medan Tahun 2012, Vol I, No 2, 2012

FALL INCIDENCE TO ELDERLY PHYSICAL DISABILITIES

Syarifah Nurhayati¹, Widya Hary Cahyati²

^{1,2}Public Health Science Department, Semarang State University

²widyahary27@gmail.com

Abstract

Disability is a decreasing function of individuals in performing daily activities, where these activities can be done alone or in advance without the help of others. Disability caused elderly can not achieve the goal of becoming parents stay healthy (healthy aging) and become active elderly (active aging). This study discusses the medical check-up status and its association with disability in the elderly in District Punung, Pacitan. This research is analytic observational case control approach. Total sample was composed 134 consist of 67 cases and 67 controls were taken by accidental sampling technique. The instrument used in this study was a questionnaire and scale limitations of GARS (Groningen Activity Restriction Scale). Data analysis was performed with the chi-square test ($\alpha = 0.05$). The results showed that the incidence falls variable influences the occurrence of physical disability (p value of 0.043 and OR = 2.914). The suggests that the elderly who have experienced incidence falls in elderly people at risk 2,914 times higher than those who did not experience the incidence fall.

Keywords: phsycal disability, falls, elderly

INTRODUCTION

In Indonesia, the number of elderly people (elderly) have increased rapidly each year, so that Indonesia has entered an era of population aging structure (structured aging population). The increase in the number of elderly, have an impact on the emergence of health problems, which occur in the elderly in the form of physical problems, biological, and psychosocial. The elderly tend to suffer from chronic diseases and about 80% of elderly people in the world suffer from at least one type of chronic diseases such as hypertension, arthritis, diabetes mellitus and others (Rinajumita, 2011). Besides other problems that often arise in the elderly is a series of I's like being delivered Nina Kemala Sari from Division Geriatric Medicine, Department of Internal Medicine Cipto Mangunkusumo Hospital, Faculty of Medicine, University of Indonesia in a training among groups concerned elderly, that a series of I's include immobility (immobilization), instability (instability and falling), incontinence (urinary incontinence), intellectual impairment (intellectual impairment), infection (infection), impairment of vision and hearing (impaired vision and hearing), isolation (depression), inanition (malnutrition), insomnia (trouble sleeping), to immune deficiency (decreased immunity) (Yeni and Herwana, 2006).

On the concept of the International Classification of Functioning, Disability, and Health or ICF (2001), disability is considered as a result of the interaction of limitation experienced by individuals with their environment. Not only the physical or mental state, but a multi-dimensional phenomenon that consists of body functions, activity limitations, barriers to participation, and environmental factors. Disability is often expressed as a form of incapacity or deterioration or decreased function of the individual in performing an activity or activities of daily living activities or activities which previously could be done without difficulty or help others.

The level of physical disability measured by the individual's functional ability to perform activities of daily living independently (Astuti WD and Budijanto, 2009). The magnitude of disability is one indicator of health status as a basis for determining priorities in the health sector, complementary indicators of mortality and morbidity were previously used as the basis for prioritizing health. Disability indicator becomes important with the increasing life expectancy of Indonesia (Isfandari, 2009).

Data Basic Health Research (2013) showed that Indonesia has a disability prevalence increased from 12.7% (2004) to 21.3% in 2007 to 13.6% in the percentage of elderly population and in the year 2013, decreased the prevalence of disability very significantly by 11%. This can be due to a decrease in the prevalence of malignancy of an illness (many people died because of suffering from a disease) or increased cure rates. Riskesdas 2007 study showed that the increasing age, the percentage of disability is increasing. ≥ 75 years age group is the group with the highest disability indicator, 23.8% for disability status is very problematic, and 61.4% for disability status is problematic. The same thing is shown in research Riskesdas 2013 is in the age group ≥ 75 years showed 55.9% prevalence rate.

East Java is one of the 14 provinces with prevalence above the average national disability status. In 2007, the prevalence of disability East Java province is 23.5% of the national prevalence of 21.2%, and by 2013, the prevalence was 11.6% of the average national prevalence of 11%. The percentage was higher in women, the percentage is increasing in the elderly, a group do not attend school, and the group does not work (Riskesdas, 2013).

Pacitan Regency is one of regencies in East Java with disability prevalence of disability status is highly problematic 3.9% and 46.5% of troubled disability status. Punung sub-district is in Pacitan districts that have a prevalence rate of population aged 50 years and above by 28% and the number aged 60 years and over amounted to 6020 inhabitants covering 13 villages (BPS Pacitan, 2012).

During the process of aging, the elderly have consequences for the fall. Falling is not a normal part of the aging process. Fall is regarded as a natural consequence of being old, but the fall is not a normal part of the aging process. If a person gets older, his physical and mental abilities will gradually decline. Physical and mental abilities that decline often lead to falls in the elderly and result in decreased activity of the independence of the elderly (Fried et al, 2004).

This study aims to determine the relationship between the incidence of falls in the incidence of physical disability in the elderly in the district Punung Pacitan. In Indonesia, the number of elderly people (elderly) have increased rapidly each year, so that Indonesia has entered an era of population aging structure (structured aging population). The increase in the number of elderly, have an impact on the emergence of health problems, which occur in the elderly in the form of physical problems, biological, and psychosocial. The elderly tend to suffer from chronic diseases and about 80% of elderly people in the world suffer from at least one type of chronic diseases such as hypertension, arthritis, diabetes mellitus and others (Rinajumita, 2011). Besides other problems that often arise in the elderly is a series of I's like being delivered Nina Kemala Sari from Division Geriatric Medicine, Department of Internal Medicine Cipto Mangunkusumo Hospital, Faculty of Medicine, University of Indonesia in a training among groups concerned elderly, that a series of I's include immobility (immobilization), instability (instability and falling), incontinence (urinary incontinence), intellectual impairment (intellectual impairment), infection (infection), impairment of vision and hearing (impaired vision and hearing), isolation (depression), inanition (malnutrition), insomnia (trouble sleeping), to immune deficiency (decreased immunity) (Yeni and Herwana, 2006).

On the concept of the International Classification of Functioning, Disability, and Health or ICF (2001), disability is considered as a result of the interaction of limitation experienced by individuals

with their environment. Not only the physical or mental state, but a multi-dimensional phenomenon that consists of body functions, activity limitations, barriers to participation, and environmental factors. Disability is often expressed as a form of incapacity or deterioration or decreased function of the individual in performing an activity or activities of daily living activities or activities which previously could be done without difficulty or help others.

The level of physical disability measured by the individual's functional ability to perform activities of daily living independently (Astuti WD and Budijanto, 2009). The magnitude of disability is one indicator of health status as a basis for determining priorities in the health sector, complementary indicators of mortality and morbidity were previously used as the basis for prioritizing health. Disability indicator becomes important with the increasing life expectancy of Indonesia (Isfandari, 2009).

Data Basic Health Research (2013) showed that Indonesia has a disability prevalence increased from 12.7% (2004) to 21.3% in 2007 to 13.6% in the percentage of elderly population and in the year 2013, decreased the prevalence of disability very significantly by 11%. This can be due to a decrease in the prevalence of malignancy of an illness (many people died because of suffering from a disease) or increased cure rates. Riskesdas 2007 study showed that the increasing age, the percentage of disability is increasing. ≥ 75 years age group is the group with the highest disability indicator, 23.8% for disability status is very problematic, and 61.4% for disability status is problematic. The same thing is shown in research Riskesdas 2013 is in the age group ≥ 75 years showed 55.9% prevalence rate.

East Java is one of the 14 provinces with prevalence above the average national disability status. In 2007, the prevalence of disability East Java province is 23.5% of the national prevalence of 21.2%, and by 2013, the prevalence was 11.6% of the average national prevalence of 11%. The percentage was higher in women, the percentage is increasing in the elderly, a group do not attend school, and the group does not work (Riskesdas, 2013).

Pacitan Regency is one of regencies in East Java with disability prevalence of disability status is highly problematic 3.9% and 46.5% of troubled disability status. Punung sub-district is in Pacitan districts that have a prevalence rate of population aged 50 years and above by 28% and the number aged 60 years and over amounted to 6020 inhabitants covering 13 villages (BPS Pacitan, 2012).

During the process of aging, the elderly have consequences for the fall. Falling is not a normal part of the aging process. Fall is regarded as a natural consequence of being old, but the fall is not a normal part of the aging process. If a person gets older, his physical and mental abilities will gradually decline. Physical and mental abilities that decline often lead to falls in the elderly and result in decreased activity of the independence of the elderly (Fried et al, 2004). This study aims to determine the relationship between the incidence of falls in the incidence of physical disability in the elderly in the district Punung Pacitan.

METHOD

The design used in this study is observational analytic survey with case control approach. The population in this study are all sub-district community Punung, Pacitan aged ≥ 60 years, the criteria for inclusion in the sample group of cases is diagnosed with a physical disability using a scale limitations Gars (Groningen Activity Restriction Scale), prepared as sample and criteria are eksklusinya suffered disability or congenital defect. While the criteria for inclusion in the sample of the control group was not diagnosed with a disability by using a measurement scale Gars limitations and willing to be a sample.

The sampling technique used was accidental sampling, with a sample size of 67 cases and 67 controls. The research instrument was a questionnaire risk factors of physical disability and limited scale questionnaire Gars. Data were analyzed by chi-square test or Fisher test as an alternative and are calculated using risk analysis Odds Ratio (OR) ($\alpha = 0.05$).

RESULTS AND DISCUSSION

Based on the results obtained from the data distribution of respondents by the incidence of falls which can be seen in the following table:

Table 1. Distribution of respondents by Fall Incidence

	Variable	Frequency	Percentage (%)
Fall Incidence	Experienced a fall incidence	24	17.9
	Not experienced a fall incidence	110	82.1
	Total	134	100.0

Based on Table 1, show that the number of respondents who experienced a fall incidence is 24 respondents (17.9%), and respondents who did not experience fall incidence is 110 respondents (82.1%). In the bivariate analysis obtained by cross-tabulation between the incidence of falls in the incidence of physical disability in the elderly in the district Punung Pacitan District in the following table:

Table 2. Relationship Between Fall Incidence with Physical Disabilities

Variable				Physical Disabilities				Total		<i>p value</i>
				Disability		Not Disability				
				N	%	N	%	n	%	
Fall Incidence	Experienced incidence	a	fall	17	25,4	7	10,4	24	17,9	0,043
	Not experienced incidence	a	fall	50	74,6	60	89,6	110	82,1	
	Total			67	100,0	67	100,0	134	100,0	

Based on Table 2. The results of the analysis of the relationship between the incidence of falls in the incidence of physical disabilities that the information obtained from 67 respondents 17 respondents people with physical disabilities (25.4%) had experienced falls and 50 respondents (74.6%) had never experienced a fall that resulted in disability Physical. Whereas among 67 respondents not patient physical disabilities, 7 respondents (10.4%) had experienced a fall events and 60 respondents (89.6%) had never experienced anything fall.

The result of these relationships are eligible for the test by using chi-square, because not found a cell with an observed value of zero (0) and found the cells with the expected value (expected count) is less than 5 but not exceeding 20% of the total cells. With a level of 95% was obtained p value 0.043 where the value is less than 0.05 ($0.043 < 0.05$), so that H_0 refused and H_a accepted. This means that there is a relationship between the incidence of falls in the incidence of physical disabilities. From the analysis results obtained value $OR = 2.914$ ($OR > 1$) with the interval from 1.119 to 7.587, so it can be concluded people who never experienced something falls on the age of the

elderly have 2,914 times the risk of experiencing physical disability compared with elderly people who have never experienced a fall incident.

Fall is an event that is reported to the patient or witnesses to the incident that resulted in someone accidentally and suddenly sitting or lying on the floor or lower, with or without loss of consciousness or injury. Causes of falls themselves are classified into two groups, namely intrinsic and extrinsic factors. Usually the causes of falls in the elderly is a combination of several factors or multifactorial (WHO, 2007).

Intrinsic factor is a factor that comes from inside the body of the elderly themselves. Intrinsic factors, among others, is a disorder of the heart and blood circulation, limb system disorders, such as lower limb muscle weakness and stiffness of the joints, nervous system disorders, such as peripheral neuropathy, visual disturbances, psychological disorders, ear infections, impaired dark adaptation, the influence of drugs used (diazepam, antidepressants, antihypertensives), vertigo, arthritis knee, syncope, and dizziness, systemic diseases. Whereas extrinsic factor is a factor that comes from the outside or the environment as less bright indoor light, slippery floors, stumbling objects, ill-fitting footwear, wheelchair that is not locked, and down the stairs (WHO, 2007).

Research Kane et al (1994) in Azizah (2011) in the United States, elderly hip fracture (columna fractura femoris) and 5% will experience a soft tissue injury. Soft tissue injury often is subdural hematoma, bruises, sprains and muscle. Also declared 5% of elderly who fall will have a broken rib (Stern put it), humerus (arm bone), and pelvis. All of these changes resulted in inaction moving, short steps, decrease the rhythm, the foot can not tread firmly and tend to easily falter, hard / too late to anticipate when an interruption, such as slips, trips, events suddenly so easy to fall.

The study also reinforces the theory Azizah (2011) that falls in the elderly usually cause complications, among others: the destruction of the soft tissue that feels pain in the form of shredded or attraction of muscle tissue, tearing of arteries / veins, fractures, hematomas, disability, and death, Finlayson et al (2010) revealed that the factors affecting the level of disability in performing activities of daily life are age, immobility, and easily falls. Research conducted by Krishnaswamy (2006) in India that the distribution of the incidence of falls in the elderly is 51.5% of the total sample population, and 21.3% reported fractures, and 79.6% experienced injury to those who fall. Fracture was reported more frequently in women (26.4%) compared with men (16%) are also in the elderly in urban areas (29.4%) compared to the elderly in rural areas (13.4%). While the research Fearon et al (2014) on the population of Jamaica, reported a greater incidence of falls occur in women, rural residents, people with vision problems (cataract) is p value = 0.05. The incidence of falls was reported to have occurred at home (54.3%) and limitation of activity due to fear of falling is 34.6%.

Based on the research that has been conducted, the incidence of elderly who have fallen is due to environmental conditions slippery, dizziness, sudden events without realizing it, and a decrease in visual function.

CONCLUSION AND SUGGESTION

Based on the description and discussion of the results of the study it can be concluded that there is a relationship between the incidence of falls in the incidence of physical disability in the District Punung Pacitan 2014.

ACKNOWLEDGMENT

The author acknowledge contribution from the head office of Punung Public Health centre in Pacitan District and elderly in the Punung District as respondents.

REFERENCES

- Astuti, WD, dan Budijanto D, 2009, *Tingkat Disabilitas Fisik Berdasarkan Penyakit Degeneratif yang Diderita Menurut Faktor Sosial dan Demografi (Kajian Isu Publik dalam Formulasi Kebijakan Kesehatan)*, Volume 12, No 4, October 2009.
- Pacitan Statistics Central Bureau, 2013, *Profil Kecamatan Punung Kabupaten Pacitan*, BPS Pacitan.
- Agency for Health Research and Development, 2013, *Riset Kesehatan Dasar 2013*, Ministry of Health Indonesia, Jakarta.
- Finlayson, Peterson EW, 2010, *Falls, Aging, and Disability*, Vol 21, Issues 2, May 2010, 357-373, Physical Medicine and Rehabilitation Clinics of North America,
- Fearon, James K, Waldrone N, Nevins, Tyndale, Laws dan Shearer, 2014, *Falls Among Community-Dwelling Older Adults in Jamaica*, October-Desember 2014, 1-9, <http://sgo.sagepub.com/content/4/4/2158244014564351>.
- Fried LP, Ferrucci L, Darer J, William JD, Anderson G, 2004, *Untagling the Concepts of Disability, Frailty, and Comorbidity: Implications for Improved Targeting and Care*, Vol 59, No 3, 225-263, Journal of Gerontology Medical Sciences.
- Krishnawamy dan Usha, Falls in Older People (National/Regional Review India) <http://www.who.int/ageing/projects/SEARO.pdf>, accessed in August 5th 2014.
- Isfandari S, 2009, *Besar Masalah dan Hubungan Disabilitas dengan Penyakit Kronis dan Gangguan Mental Emosional berdasarkan Survei Kesehatan Nasional Risesdas 2007-2008*, Media Penelitian dan Pengembangan Kesehatan, Vol XIX, Suplemen II.
- World Health Organization, 2001, *International Classification of Functioning, Disability and Health (ICF)*, World Health Organization 2001, Geneva.
- World Health Organization, 2007, *Global Report on Falls Prevention in Older Age*, Ageing and Life Course, Family and Community Health.
- Yenni dan Herwana E, 2006, *Prevalensi Penyakit Kronis dan Kualitas Hidup pada Lanjut Usia di Jakarta Selatan*, Universa Medicina Journal, Section of Pharmacology, Medicine Faculty, Trisakti University, Volume 25, No 4.



THE EFFECT OF PHYSICAL ACTIVITY PROMOTION USING SOCIAL COGNITIVE THEORY ON WORKERS' HEALTH-RELATED FITNESS, STRESS AND WORK EFFICIENCY

Nanthawan Thienkaew¹, Chairat Choosakul²

^{1,2} Department of Health and Sports Science, Faculty of Education, Mahasarakham University, Thailand.

¹noke.nanthawan@gmail.com, ²chairat.c@msu.ac.th

Abstract

Workers are living under circumstances with limited physical activity, which negatively affects their health-related fitness, stress and work efficiency. There is existing research supporting physical activity promotion in workers based on Social Cognitive Theory (SCT). Therefore, the knowledge and applications regarding physical activity programs using this theory are not yet comprehensive. The purpose of this study is to develop a physical activity promotion intervention based on SCT, and measure its effect on workers' health-related physical fitness, stress and work efficiency. This research will employ the 4 phases of research and development: Phase I, Study of the current situation, problems, needs, and details of the physical activity of 351 private organization workers by questionnaire and survey. Descriptive statistics and Exploratory Factor Analysis (EFA) will be analyzed. Phase II, Develop and present the physical activity promotion intervention based on SCT, by using focus groups with 7 experts. Phase III, Implementation and evaluation, using the one-group pretest-posttest design with 50 worker subjects. The health-related physical fitness protocol, stress and work efficiency will be tested and measured and t-test will be used for data analysis. Phase IV, Independent application and existence evaluation of the intervention (after three months) using the same subjects, tools and interview questionnaires as in Phase III. The one way repeated measure will be analyzed in this phase. This research will develop a physical activity promotion intervention based on social cognitive theory and measure the effect on workers' health-related fitness, stress and work efficiency.

Keywords: physical activity, social cognitive theory, health-related fitness, stress and work efficiency should

UNNES
UNIVERSITAS NEGERI SEMARANG

PHYSICAL ACTIVITY, SEDENTARY BEHAVIOR, AND HEALTH-RELATED FITNESS OF UNDERGRADUATE STUDENTS

Sonthaya Sriramatr¹, Khanita Khumsingsan², Raweewan Maphong³

^{1,2,3}Department of Sport Science, Faculty of Physical Education, Srinakharinwirot University

¹sonthase@swu.ac.th, ²football_dekza@hotmail.com, ³aroma_1111@hotmail.com

Abstract

It is recommended that adults should have 30 minutes of moderate and 20 minutes of vigorous physical activity (PA) and reduce sedentary behaviour for health benefits. The purposes of this study, therefore, were to study and compare PA, sedentary behaviour, and health-related fitness between students with and without recommended PA and sedentary behaviour. One hundred and twenty seven undergraduate students volunteered to this study. Health-related fitness was measured on the 1st day and PA and sedentary behaviour were measured by wearing a PA monitor (i.e., polar loop) from the 2nd to the 6th days. Results found that moderate PA was significantly related to arms ($r = .28$) and legs ($r = .27$) muscular strength and body fat percentage ($r = -.31$), all $p < .05$. Vigorous PA was significantly related to Vo2Max ($r = .15$), arms ($r = .38$) and legs ($r = .43$) muscular strength, and body fat percentage ($r = -.48$), all $p < .05$. Sedentary behaviour was significantly related to arms ($r = -.23$) and legs ($r = -.22$) muscular strength and body fat percentage ($r = .31$), all $p < .05$. Students who met the PA recommendation had significantly higher health related fitness than those who did not meet the PA recommendation. In contrast, students with more sedentary behaviour had lower health related fitness than those with less sedentary behavior. This study confirms that followed the PA recommendation and sedentary behavior guidelines can gain health benefits.

Keywords: physical activity, sedentary behavior, health-related fitness



THE COMMUNITY DEVELOPMENT MODEL OF HEALTHCARE AND WELFARE CENTER FOR ENHANCING ELDERS' LIFE QUALITY IN NAKHON PATHOM

Pupanead, S.¹, Suwan, S.², Piromkam, B.³

^{1,2,3}Department of Physical Education and Sport, Faculty of Education and Development Science, Kasetsart University, Kamphaeng-Saen Campus, Thailand

¹feduacrp@ku.ac.th

Abstract

This project aims to develop a community-based model of Healthcare and Welfare Center for Enhancing Elders' Life Quality. The project was conducted in different society and economy context of 7 districts, in Nakhon Pathom. The idea of "Participation Action Research: PAR" is used as the framework for developing the community-based model. Human resource and budget are supported by participating organizations; Faculty of Education and Development Sciences, Subdistrict Hospitals, Subdistrict Administration Organization, and Elderly Club. Participation process consists of 5 steps: 1) Meeting for project preparation, 2) Organizing field trip to "elderly health care program" in other communities, 3) Organizing knowledge forum concerning "Elderly Needs", 4) Performing purposeful activities base on the elderly needs, and 5) Lesson learned from the project's participants. The findings revealed that PAR could be a effective guideline for enhancing collaborate work in the local community. Knowledge and pattern of elder healthcare and welfare services could be built up more tangible, for example; elderly heath care volunteers, health care centers, and distribution centers/shops for selling elders' handmade products. Moreover, the opinions on participation/ project processes and outcome of 1,184 participants from seven districts were surveyed. Most of them hold strongly agreed that the project provided high advantage for their community ($\bar{X} = 4.21$, S.D. = 0.70).

Keywords: community development model, healthcare, elders' life quality

UNNES
UNIVERSITAS NEGERI SEMARANG

**NUTRITION, SCHOOL, HOME: DETERMINANTS OF ACADEMIC PERFORMANCE
FOR PUPILS IN ROGONGON, ILIGAN CITY, PHILIPPINES**

Rebecca M. Alcuizar

Department of Physical Education
College of Education, Mindanao State University-
Iligan Institute of Technology (MSU-IIT), Iligan City Philippines

alcuizar44@yahoo.com

Abstract

This study was designed to know the determinant factors that affect the academic performance of the pupils of Kalamalamahan Elementary School in Rogongon, Iligan City. School-related behavior, parents' relationship to their children, community, and nutrition of children were determined if it does affect their academic performance. Descriptive method of research was used in this study. Questionnaires were being formulated to know the determinant factors and its relationship to the dependent variable. Likewise, guide questions were prepared for the interview of the teachers and parents. The result of the study shows that facilities and equipment in school, quality of teachers, nutrition, and support from their parents have significant effect on the academic performance of the pupils. Lack of food as manifested by the pupils and teachers causes absenteeism among pupils resulted to poor academic performance. More pupils were absent during harvest seasons and rainy days, because of flood and slippery mountains in going to school. They have limited text books, reading materials and no appropriate laboratories for their science and other subjects. The National Achievement test of grade VI pupils was below the passing rate for the last 3 years and very low compared to other schools in the city.

Key Words: Nutrition, Home, School, Academic Performance



HEALTH PROMOTION AND EXERCISE BEHAVIORS OF TPD IN THAILAND: REAL BEFORE DEAL

Siripatt, A.¹, Suksom, D.², Khongprasert, S.³, Srihirun, K.⁴, Siripanya, S.⁵ Taweepornpathomkul, S.⁶

¹Faculty of Physical Education, Srinakharinwirot University, Thailand

^{2,3,4,5,6}Faculty of Sports Science, Chulalongkorn University, Thailand

¹apanchanits@hotmail.com

Abstract

INTRODUCTION: Thai people with physical disabilities (TPD) inevitably face not only limitations for doing daily life activities, but also participating social behavior and exercising deficiency.

PURPOSE: To explore health promotion and exercise behaviors of TPD in Thailand. **METHODS:**

The participants were 421 TPD. The multistage random sampling method was implemented.

Two questionnaires were developed and monitored the content validity by 5 experts in related disciplines; 1. Health promotion behaviors questionnaire (HPBQ), consisted of 28 items, 6 components; health responsibility (HR) eating behavior (EB) physical activity and exercise (PA&E) interpersonal relationships (IR) and spiritual growth (SG) and stress management (SM) and 2. Exercise behaviors questionnaire (EBQ). **RESULTS:** HPBQ showed that, the TPD practiced

on EB a regular basis. Five components were performed at often rates. EBQ showed that, 279 participants said did exercise. Walking and wheelchair spinning were the popular activities. The main reason for exercise was for good health, followed by physical rehabilitation needs. The participants perceived that exercise increase muscle strength and help them get better sleep.

However, in fact, 92.47% of participants who said exercise do 10-15 minute/time and light exercise does not feel tired. On the other hand, 142 people had no exercise, due to, a perception of physical limitations, lack of time and don't like to exercise, respectively. **CONCLUSIONS:** Although, the disabled population perceived the benefits of exercise, believed that they do exercise but low intensity and less time. Moreover, some of them did not do exercise, due to physical limitation, no times and do not like it. Therefore, physical activities and exercise program should be studied to get real information for them before developing the program that could be suitable deal for extending choices and chances to exercise, exercise rehabilitation, promoting health, as well as enhancing exercise behavior, and improve their quality of life.

Supported by: Thai Health Promotion Foundation

Keywords: physical disabilities, exercise behaviors, health promotion behaviors

IMPORTANCE OF PERCEPTUAL MOTOR BASED-PHYSICAL ACTIVITY IN THE FORM OF PLAYING FOR KINDERGARTEN STUDENTS

Yudanto

Faculty of Sport Science, Yogyakarta State University

yudanto@uny.ac.id

Abstract

Kindergarten students are students who are in the age range of 4-6 years and part of early childhood. The age of 4-6 years old, is a sensitive period for children, the maturation period of the physical and psychological functions that is ready to respond to the stimulation provided by environment. A child begins to receive numerous sensitive development attempts of the whole potential of the child. This period is a time to lay the first foundation in developing physical, cognitive, language, social, emotional, self- concept, discipline, moral abilities, and religious values. Therefore, it is necessary and appropriate stimulation conditions with the needs of children, so that the growth and development of children are achieved optimally. One form of stimulation that can be given is a perceptual motor based-physical activity in the form of play. A perceptual motor abilities produced by the interaction with the environment that involves the observation and the process of moving. Perceptual motor link between cognitive function and motor skills in children, which is composed by several components, including: an understanding of the body, the understanding of space, movement quality, direction understanding, the structure of time understanding, and relations with objects outside the body

Keywords: Perceptual Motor, Playing, Kindergarten

INTRODUCTION

Early childhood education is an education aimed for children in early age. In accordance with the Law No. 20 at 2003 on National Education System Article 1 Paragraph 14 states that Early Childhood Education (ECD) is a development effort aimed for children from birth to the age of six years old which is done through the provision of educational stimulus to help the growth and develop physical and mental aspect so that children have the readiness to enter the higher education. Early Childhood Education aimed for children is in the form of Day Care (TPA), Playgroup (KB) and Kindergarten (TK).

Kindergarten (TK) is one of early childhood education units in the formal education that organizes educational programs for children aged four to six years old. In accordance with the curriculum of Kindergarten (TK), it is stated that the objectives are: 1) building a foundation for the development of students' potentials to become a faithful person and devoted to the God, noble, humble, healthy, knowledgeable, competent, critical, creative, innovative, independent, confident, and become a democratic and responsible citizen, 2) developing the potential of the spiritual, intellectual, emotional, kinesthetic, and social learners during the golden age of growth in a playing environment that is educational and fun, and 3) helping the students develop a range of both psychological and physical potentials which includes religious values and moral, socio-emotional, self-reliance, cognitive and language, and physical / motor, to be ready to enter primary education, (Kemdiknas, 2010: 4).

In accordance with the educational objectives of Kindergarten (TK) mentioned above, it can be concluded that the objectives are to develop all potential early on, so that children grow in reasonable ways. The entire development for the potential of the learners in kindergarten should get the serious attention by the educators. Educators are demanded to be able and willing to provide a variety of stimuli or stimulus for developing all of the student's potential in kindergarten. One form of stimulus or stimuli that can be done is through a physical activity. In accordance with the curriculum for kindergarten, physical activity is a physical coverage on Physical Education learning programs. For the students in kindergarten, the form of physical activity should contain elements of perceptual motor. Physical activity-based perceptual motor allows sensory information so it is obtained and understood with the right reaction. Perceptual motor requires students to engage their brains and bodies in performing motion. Jill A. Johnstone and Molly Ramon (2014) state that in perceptual motor which is done by the kids, it will involve the brain and body to complete the task motion together.

Perceptual motor is different from the usual motor activity, because perceptual motor contains perceptual components. According to Gallahue and Ozmun, (2002: 263) perceptual motor components consists of: body awareness, spatial awareness, directional awareness and temporal awareness. Basically, perceptual motor is an individual's ability to receive, interpret and react appropriately to a number of stimuli that come to him, not only from outside but also from inside. According to Yudha M. Saputra (2001: 22), perceptual motor is sometimes described as the relationship between movement and perception. Perception is the process of receiving, selecting and understanding of information or stimuli from the outside. Generating the awareness about the perception is happening beyond our body and it is our ability to receive information through sensing. Perceptual motor basically refers to activities done with the intention of improving cognitive and academic abilities. In early childhood, it is very important to develop perceptual motor. Further Vannier and Gallahue in Hari Amirullah Rachman (2011: 14) underlines that the ability on motor perception can be optimally developed by the kids aged 2-6 years old and during this period a golden age of laying the foundations through the development of perceptual motor skills. More Jill A. Johnstone and Molly Ramon (2011) state that the age of 3-6 years old is the optimal age to develop perceptual motor. The same opinion is delivered by Gallahue and Ozmun (2002: 266), that the increase in perceptual motor abilities plays a critical role in the development and improvement of motor skills of the kids. Therefore, to achieve success on good movement skills, it is important to improve perceptual motor abilities of children from an early age. In accordance with the kindergarten curriculum, it shows that perceptual motor has not specifically stated in the curriculum, either independently or integrated stipulated in the development of physical / motor. Results of preliminary studies related to physical learning / motor is made to the 56 kindergarten teachers in Jogonalan, Klaten show that: 1) the physical learning / motor in kindergarten, the teacher presenting the material in accordance with the existing curriculum, but there are some materials that are not delivered. It is due to limitations of equipment and facilities, 2) the lack of experience and training related to physical learning / motor makes learning on the delivery of physical/motor aspects difficult since the teachers only have limited knowledge and they are lack of development. In addition, in contrast to education in elementary, junior high, and high school level that has a Physical Education teacher, the teachers in kindergarten have no titles of Physical Education. It can be seen from the number of 56 kindergarten teachers, there are 27 teachers graduated from S-1, 4 teachers are DII graduate, 2 teachers are DIII graduate, 6 teachers are SPG TK graduate, 14 teachers are graduated from high school, and 3 teachers are graduated from junior high school level, 3) teachers have limitations in developing physical material / motor containing elements of perceptual motor

and 4) have never done a test of perceptual motor in kindergarten. Based on the foregoing description, the development of physical activity in the form of playing based on perceptual motor for kindergarten students is very important to do.

DISCUSSION

The Nature of Perceptual Motor, Children have started to learn to interact with their environment begins at birth. Effective and efficient interaction is needed by each child. Interaction which is done by children, always involves a process of observation (perception) and move (motor). The process of observation and moving always is a unity that cannot be separated. Motion perception is sometimes described as the relationship between human movement and perception. The relationship between perception and motion is very important, without the perception of the child will have difficulty in moving, even a simple motion. The word that is a synonym perception has perceptual. Perception is defined as the process of organizing information that comes with the stored information which led to a modified response pattern, (Gallahue and Ozmun, 2002: 262). The scope and variety of perceptions are: 1) visual perception, including color perception, spatial relations, visual discrimination, discrimination on the forms and background, visual closure, and the introduction of the object (object recognition), 2) auditory perception, which include phonological awareness, discrimination auditory, auditory memory, auditory sequence and auditory fusion, 3) kinesthetic perception, which includes accurate understanding of the body, the surface of the body, and limbs, 4) tactile perception, the ability to distinguish between different types of objects and the arrangement of the functions of touch, and 5) perception of coordination or joint, such as the capabilities that include two or more perceptual patterns of movement, (Heri Rahyubi, 2012: 307). Hari Amirullah Rachman (2004: 31) explains that in perceiving an object perception, it occurs several stages, namely: 1) discovery (detection), 2) discrimination, 3) recognition, and 4) identification. Based on some opinions above, it can be concluded that the perception has important significance in a person's motor development. Differences in perception of stimuli and objects make someone have the different motor skills from each other. It is because of differences in perception that occur based on what is found, differentiated, recognizable and identified as the information. Gallahue and Ozmun (2002: 261), explain that the emergence of perceptual motor occurs for two reasons: first, in terms of perceptual motor relationship signifies the dependence of voluntary activity in some forms of perceptual information. Second, the relationship in terms of perceptual motor development in perceptual abilities indicates that someone is partially dependent on motor activity. In general, perceptual motor refers to activities done with the intention of improving cognitive and academic abilities. The term also refers to children involved in the program, because perceptual motor occurs during preschool and school period, (Amung Ma'mum and Yudha M. Saputra, 2000: 29). According to Sugiyanto (2007: 85), it states that perceptual motor skills are the abilities to interpret the stimuli received by the organs. Perceptual ability is useful to understand everything that is around, so that one is able to do or perform certain actions in accordance with the situation. For example when someone is playing the ball, he can see the ball and understand the situation the ball, so that he can play the ball according to the situation.

Rusli Lutan (2001: 78) states that the quality of the motion of a person depends on their perceptual motor. Related to this, in the implementation of motion tasks, the child's ability to perform the task depends on its ability to obtain information and interpret the meaning of that information. The ability to capture and interpret the information carefully is better, and then the implementation of a harmonious motion would be nicer than perceptual motor abilities. Perceptual motor is a process of organizing, structuring information obtained and then store, to then produce a

reaction in the form of a pattern of motion. Furthermore, it can be said that perceptual motor is a process of acquisition and improvement of skills and ability to function. The process of perceptual motor skills begins with the receipt of information from the environment to generate motion. According to Gallahue and Ozmun (2002: 262), it states that the process of perceptual motor passes through several phases, which include: sensory input, sensory integration, motor interpretation, movement activation, and feedback. This element are described as follows: 1) Sensory input: receiving various forms of stimulation by way of specialized sensory receptors (visual, auditory, tactile, and kinesthetic receptors) and transmitting this stimulation to the brain pattern of neural energy. 2) Sensory integration: organizing incoming sensory stimuli and integrating it with past or stored information (memory). 3) Motor interpretation: making internal motor decisions (recalibration) based on the combination of sensory (present) and long term memory (past) information. 3) Movement activation: executing the movement (observable act). 4) Feedback: evaluating the movement by way of the various sensory modalities (visual, auditory, tactile, and/or kinesthetic), which in turn feed information back into the sensory input aspect of the process, thus beginning the cycle again.

Elements of perceptual motor consist of the various elements, including: body awareness, spatial awareness, directional awareness and temporal awareness Gallahue and Ozmun (2002: 263-265). The following is an explanation of the various elements of the perceptual motor:

Body Awareness, Understanding the body is the willingness to recognize parts of the body and its benefits for the motion. Understanding of the body can also be referred to "body image" or "body schema", it is the basis for efficient movement and understanding of the entire motion. Body awareness is also the ability to know and understand the names and functions of various parts of the body, as well as to understand how to produce a wide range of motion and potential of the body in motion. According to Gallahue and Ozmun (2002: 263) body awareness has three aspects, *the first* is knowledge of the body parts-being able to accurately locate the parts of the body on oneself and on others. *Second* is knowledge of what the body parts can do. This refers to the child's developing recognition of how the body performs a specific act. Third is knowledge of how to make the body parts move efficiently. This refers to the ability to recognize the body parts for a particular motor act and to perform a movement task. Example: 1) touching the body parts on one by one that has been mentioned by the teachers, and state the functions of the body parts, 2) touching the left limbs by using the right hand, which had been mentioned by the teachers, and state the functions of the body member.

Spatial Awareness, Spatial awareness is a basic component of perceptual motor development that may be divided into two subcategories: 1) knowledge of how much space the body occupies and 2) the ability to project the body effectively into external space, Gallahue and Ozmun (2002: 263). Knowledge of how much space the body occupies and the body's relationship to external object may be develop through a variety of movement activities. With practice and experience, the child progresses from his egocentric world of locating everything in external space relative to himself (subjective localization) to establishing an objective frame of reference (objective localization). The child also learns to deal with the concepts of self space and general space. Self space refers to the area immediately surrounding an individual bounded by how far one can extend his or her body from a fixed point on the ground. General space refers to that which is beyond and person's self space. Example: 1) running in a circle with friends, not to collide, 2) run zig-zag passing over several pickets, and 3) up and down the stairs.

Directional Awareness, Directional awareness is an understanding of the body with regard to the place and direction. The concept of left-right, up-down, top-bottom, in-out, and front-back

are enhanced through movement activities that place emphasis on direction. According to Gallahue and Ozmun (2002: 264) directional awareness is commonly divided into two subcategories: laterality and directionality. Laterality refers to an internal awareness or feel for the various dimensions of the body with regard to their location and direction. A child who has adequately developed the concept of laterality does not need to rely on external cues for determining direction. She does not need, for example: to have a ribbon tied to her wrist as a reminder about which is left and which is right. Directionality is the external projection of laterality. It gives dimension to object space. True directionality depends on adequately established laterality. directionality is important to parents and teachers because it is basic component of learning how to read. Children who do not have fully established directionality will often encounter difficulties in discriminating among various letters of alphabet. For example, the letters b, d, and q are all similar. The only difference lies in the direction of the "ball" and the "stick" that make up the letters. The child without fully established directionality encounters considerable difficulty in discriminating among several letters of the alphabet. Entire words may even be reversed. The word cat may be read as tac, or bad may be read as dab because of the child's inability to project direction in to external space. Some children encounter difficulty in the to-bottom dimension. They may write and see word upside down and are totally confused when it comes reading.

Temporal Awareness, Understanding the structure of time (temporal awareness) refers to the development of a structure that encourages the coordination between eye movements and limbs together in an effective way. The term of eye-hand coordination and eye-foot coordination is the final result of understanding the structure of time, (Gallahue & Ozmun, 2002: 265). Awareness of the time structure allows coordination between eye movements and limb to be efficient. The term of hand-eye coordination or eye and foot structure is an expression of the awareness of time. Development of awareness in respect to the time structure of the learning process is to align the sequence of motion in a proper order. Rhythmic running, dance, or do other rhythmic movements are needed to develop awareness of the structure of time. Example: 1) swing both arms forward and backward, to the accompaniment of the count or the rhythm of music, and 2) swinging the leg forward and backward alternately, accompanied by a count or music. According to Rudolph Laban cited by Hari Amirullah Rachman (2004: 33) the ability of a person's perceptual motor is formed by: 1) understanding of the body (body awareness), 2) understanding of space (spatial awareness), 3) the quality of motion (qualities of movement), 4) relationship with objects outside the body (relationships). Understanding how the body deals with the body in moving, understanding relating to the space where the body doing the motion, motion quality with regard to how the body is doing the motion, while the relationship with the object outside the body relate to who or what is driven by the body. Based on the explanation above, something related to the perceptual motor can be concluded that the perceptual motor abilities produced by the interaction with the environment that involves the observation and the process of moving. Perceptual motor is a term used to link between cognitive function and motor skills in children, which is composed by several components, including: an understanding of the body, the understanding of space, quality of movement, understanding directions, understanding the structure of time, and relations with objects outside the body.

The Nature of Playing

Playing is an activity that can be done by everyone, from children to adults, not to mention people with disabilities. In the childhood time, playing is a part that cannot be separated from life and tends to be the essential basic needs. In fact, educational experts say that children are identical

to the play, because almost all of their life cannot be separated from the play. According to Novan Wiyani and Barnawi Ardy (2014: 93), it states that the term of play is defined as an activity that is carried out by using or without using tools that generate understanding, provide information, give pleasure, and can develop a child's imagination. Play activities children can use to explore their world, develop competence in coping with his world and develop their creativity. Furthermore, Novan Wiyani and Barnawi Ardy (2014: 93), explains that there are five sense of play, which is as follows: 1) something that is fun and has intrinsic value in children, 2) have no extrinsic purpose, motivation is more intrinsic, 3) spontaneous and voluntary, there is no element of compulsion and freely chosen by the children, 4) involves the active participation of child participation, and 5) has a systematic special relationship with something that is not playing, such as creativity, problem solving, learning, social development , etc.

Play is defined as an activity that makes the mood of a child to be happy, comfortable, and excited. In other words, playing is to do something for fun. Furthermore, Dworetzky cited by Moeslichatoen (1999: 31-32) describes the five (5) criteria in play, namely: 1) intrinsic motivation. Play motivates behavior of the child, because it is done for the sake of the activity itself and not because of the demands of society or body functions, 2) positive influence. It is fun thing or exciting to do, (3) not done casually. It is not done casually, because it does not follow the exact pattern or sequence, but rather are pretending, and (4) how/destination. How to play precedence over the objective. Children are more interested in the behavior itself rather than the output produced. According to Huizinga cited by Agus Mahendra (2005: 3), the play is an activity that is done freely and voluntarily, their activities are limited by time and place, using the rules of free and non-binding, it has its own objectives and contains elements of tension, excitement and awareness Different from ordinary life. H.E. Mulyasa (2012: 168) explains that the play is not working and is not productive activities undertaken in earnest. Instead, work can be interpreted play while playing can sometimes be experienced as work. Similarly, children who were playing, they can shape their world so often as it is considered a real, earnest, productive and resembles a real life.

The play takes a medium called the game. Santrock cited by M. Fadlillah (2014: 26) explains that the game is a fun activity that is carried out for the sake of the activity itself. The game allows children to release excessive physical energy and liberate pent-up feelings. Furthermore, Paul Henry Mussen quoted by M. Fadlillah (2014: 26) says that there are some criteria about the game, namely: 1) the game is something that is exciting and fun, 2) the game has no extrinsic purpose, the child's motivation is subjective and has no practical purpose, 3) the game is spontaneous and voluntary, freely chosen by the player, and 4) the game includes the active involvement of the player. Based on some of the above opinion about the play can be concluded that the play is an activity that is done voluntarily, without coercion that are based on the intrinsic motivation to gain a sense of pleasure.

Playing is done in organized ways and it is very useful to encourage the growth and development of children. Yudha M Saputra (2001: 7-9) states that the benefits of playing, among others: (1) for physical development. Children who have the opportunity to play activities, which involve a lot of movement of the body, then the body will be healthy and fit. The muscles of the body will be strong. Children can show their excessive energy through play activities, (2) for the development of skills. Mastery of movement skills can be developed through play activities. It can be observed in daily activities, for example, when children playing chase with friends. At first the children are not skilled to run, to play chasing, and then the child will be more interested to do so, so that the child will be skilled in running, (3) for intellectual development. Through physical activity and play, children face a problem and the ability to make decisions quickly and accurately. Physical activity and a balanced play will trigger children's intelligence, (4) for social development. Children

are usually inviting peers in play. Children will learn a variety of proprietary, using a toy in turn, carry out activities together, to maintain a relationship that has been built up, looking for a way of solving the problems it faces with his friend, (5) for emotional development. Playing is a daily necessity for children. There is no child who does not like to play. Through play, children can express their feelings and desires. Children are trained to control themselves. Playing activities are conducted with a group of friends, then each child will have an assessment of himself, about the capabilities and advantages it has. Assessment here is important for the formation of the concept of positive personality, (6) for the development of sports skills. Children who are skilled, walking, running, jumping, and throwing the child will be better prepared to pursue a particular sport. Children will be more skilled at performing these activities and will be more confident and feel capable of doing a movement more difficult.

Physical and Motor Development of Kindergarten Students

Kindergarten students are included in preschool kids aged 4-6 years old. According to Yudha M. Saputra (2001: 14), children at the age of 2-7 years old are included in the period of development of basic movement. In the phase of development of basic movement for the kids aged 2-7 years old, they begin to learn to walk at the time they are about two years and other forms of locomotor movement. Children aged 2-7 years old are basically going through a period of growth, experiencing more events, they rely on the instructions and imitating others. They become more skilled in mastering basic motor skills. In this phase, the child is ready to receive information from the teacher. Teachers are able to provide perceptual motor skills, basic movement skills, multilateral skills, and integrated skills.

Motor development that occurs during this period includes gross and fine motor development. Gross motor skills in children begin to form when children have coordination and balance almost like adults. Gross motor skills are the abilities that require the coordination of a large part of the body. Therefore, this movement generally involves large muscles in the body and also requires energy. Gross motor skills such as: running, jumping, climbing, cycling, and so on. The children's gross motor movements are usually done outdoors.

Fine motor skills are different from gross motor movement. Fine motor skill is a motion that is done with the involvement of the small muscles in the body. Fine motor skills usually need the accuracy or hand-eye coordination, and it does not require a lot of energy. Fine motor skills activities may include skills to use fingers and wrists quickly. The level of achievement of gross and fine motor development in kindergarten, among others:

Table 1. Kindergarten Student's Gross Motor Development Level

Age of 4 - < 5 Years Old	Age of 5 - 6 Years Old
1. Imitating the motion of the animals, the wind blowing the tree, airplane, and others. 2. Imitate the motion of hanging 3. Doing the motion of jumping and running in the right direction. 4. Throwing something to particular direction. 5. Catching things perfectly.	1. Doing the body motion in the right coordination to train the flexibility, balance, and agility. 2. Creating the coordination of foot-hands-head in imitating some dance. 3. Doing some physical playing with some rules. 4. Skilled in using the right and left hand. 5. Cleaning the body on their own.

6. Doing some anticipation movement. 7. Kicking something in the right direction. 8. Using some toys outside of the classroom.	

Table 2. Kindergarten Student's Fine Motor Development Level.

Age of 4 - < 5 Years Old	Age of 5 - 6 Years Old
1. Creating the vertical and horizontal lines, curves, and circles. 2. Imitating the shapes. 3. Making the eye-hand coordination to do some complex moves. 4. Making some manipulative motions to create some shapes by using some tools. 5. Expressing themselves by performing arts using some tools.	1. Drawing something with their own idea 2. Imitating some shapes. 3. Doing some exploration using several tools. 4. Using some writing tools correctly. 5. Cutting something according to its pattern. 6. Sticking something on perfectly. 7. Expressing themselves through some drawings with details.

Source: Kemdiknas, (2010: 12).

Physical development of preschool children in height and weight always has some changes. Children grow an average height of 2 inches and gain weight between 5-7 pounds per year. At age of 5, the brain reaches adult size. Some of them increase in size due to the number and size of nerves, some myelin. On some fewer girls, they are only smaller and lighter than the boys at the age of 2-6 years old. During the preschool years, both boys and girls are increasingly slim and their torso are getting long while, (John W. Santrock, 2002: 224). Furthermore, in terms of physiological development, in preschool children is characterized by a change in quantitative, qualitative, and functional from biological systems work, such as muscle contraction, blood circulation and breathing, nerve systems, production and digestive gland. At preschoolers muscle function as motor controller (Soegeng Santoso et al, 2002: 10).

The Importance of Perceptual Motor Activity in the Form of Playing for the Kindergarten Students, Playing is an approach to implement educational activities for kindergarten students. By using the strategies, methods, materials or substances, and media interest, the children's games can be fun. Through play, children are invited to explore, discover and use objects in the vicinity. Game becomes the inner needs of each child, because playing is capable of pleasing, improve skills and enhance child development. The concept of play is then referred to as learn while playing. Thus teachers should be aware of the child's play activities, particularly the play activities to be improved. Through certain play activities, teachers can improve the quality of education through play activities at school. Almost all of the programs in preschool education activities are the organized play activities in large portions for the students. For that teachers should carefully plan the play activities with the support of the school environment and play materials are considered important. Likewise, in an effort on giving motor perceptual-based physical activity in kindergarten, it should be given in the form of play. Physical activities based on perceptual motor is a process to achieve the skills and

functional capabilities involving: sensory input, sensory integration, motor interpretation, movement activation, and feedback. Practice in perceptual motor activities may, under certain conditions, enhance perceptual motor abilities, (Gallahue and Ozmun, 2002: 271). Physical activities based on perceptual motor has benefits that are very important for kindergarten students.

Perceptual-motor skills allow sensory information to be successfully obtained and understood with appropriate reaction. Perceptual deals with obtaining information and motor refers to the outcome of movement. Thus perceptual-motor activities require children to use their brain and body together to accomplish tasks, for example walking on a balance beam while reciting the alphabet. To perform well in school, children must do many things that require their mind and muscles to work together as a team. In fact, all communication skills—reading, writing, speaking, and gesturing—are motor-based abilities. We often think of them strictly as academic skills, but, for example, in learning to write, a child must not only know the alphabet and understand how words are formed by combining letters but also translate that knowledge into action by gripping, moving, and stabilizing a pencil while using perception (sight) to adjust her or his movements in order to create the correct pattern. In order for the child to learn, the mind and the body must work together. Participation in perceptual-motor activities enables students to develop greater levels of body control and encourages greater effort in all areas of the school curriculum. Young students who possess adequate perceptual-motor skills enjoy better coordination, greater body awareness, stronger intellectual skills, and a more positive self-image. In contrast, students who lack these skills often struggle with coordination, possess poor body awareness, and feel less confident. Research also shows that perceptual-motor development is critical to children's development of brain pathways that cross the right and left hemispheres. Because of this, students with poor perceptual motor development often experience difficulty in learning to read and write when they are in the primary grades. Enhancing gross motor ability by using lateralities to help develop neural pathways in the brain improves a child's ability to read and write. Reading and writing are motor-based abilities that require the mind and body to work together. Students who have not been introduced to proper movement (e.g., running, jumping, throwing, catching) tend to have problems cognitively because the pathways in the brain have not been developed. The optimal time to develop these pathways is between ages 3 and 6. Perceptual-motor activities provide a proven way to improve children's health and learning in all aspects, and our research shows that students who participate in our program demonstrate significant improvement in all areas of the learning process. Meeting a child's gross motor needs improves his or her academic readiness and overall behavior. Our students with learning disabilities also show improvement that helps them reach their full potential, (Jill A. Johnstone and Molly Ramon, 2011).

Further J. Bullus & P. Coles (2007: 14) explains that the purpose of the activity in the form of perceptual motor, among others: 1) to be preventative rather than curative. i.e. to avoid the need for remediation, 2) to provide meaningful in areas and experiences in areas that have been shown to be related to cognitive development prior to the onset of formal learning, 3) to provide the basis for a viable alternative to the usual formal learning situations, 4) to develop, through moment, motor skills that are related to the child's own needs, in the areas of eye/hand, eye/foot coordination, locomotion, balance and fitness, 5) to develop the perceptions of self with in the dimensions of space and time, 6) to interact with the environment to develop perceptions of body image, laterality and directionality, 7) to develop in the child the basic motor skill which are used in and lead to major games skills, 8) to develop language skills necessary for active involvement in the program and for formal learning, 9) to develop confidence in self, peers, teachers and other adults, and the equipment the child uses, 10) to develop problem solving skills both individually and as part of group, 11) to give

experiences that will develop strategies in memory processing, 12) to develop sequential memory both auditory and visual, particularly in the short term register, 13) to develop in the child the ability to process and interpret auditory and visual information within the child's memory span, 14) to develop auditory and visual skills and strategies to cope with factors that interfere with these skills, 15) to integrate the auditory and visual skills into memory training and to develop the ability to receive messages while performing physical tasks or against figure ground (both auditory and visual), 16) to develop motor memory, 17) to develop eye muscles so that the child can focus and track effectively along the midline, laterally, diagonally and in a circular motion, 18) to develop the ability to converge effectively with the eyes, 19) to develop the social skills of sharing, participating, assisting and caring for/with other children, and 20) to develop students who are successful.

CONCLUSION AND SUGGESTION

Perceptual motor abilities which are produced by the interaction with the environment involve the observation and the process of moving. Perceptual motor connects between the cognitive function and motor skills on children. The potential of the kindergarten students can be developed through the experience of motion-based perceptual motor. Perceptual motor is composed by several components, among others: the understanding of body, the understanding of space, quality of movement, understanding the directions, understanding the structure of time, and the relations with objects outside the body.

Age of 3-6 years old is the optimal age to develop perceptual motor, therefore children who are in preschool, should be given motion-based experience perceptual motor. In accordance with the characteristics of kindergarten children, that giving kindergartners experience motion-based perceptual motor, should be given in the form of play. Given the importance of physical activity-based perceptual motor for kindergarten children, it is very necessary to develop the physical activities based on perceptual motor.

REFERENCES

- Bullus, J. & Coles, P. 2007. *Smart Start with PM: a Perceptual Motor Program (Manual)*. Australia: Smart Starters.
- Gallahue, David. L. & Ozmun, John, C. 2002. *Understanding Motor Development*. New York: Mc Graw Hill.
- Johnstone, Jill, A. & Ramon, Molly. 2011. *Perceptual-Motor Activities for Children: An Evidence-Based Guide to Building Physical and Cognitive Skills*. USA: Human Kinetics.
- Fadlillah, M. 2014. *Edutainment Pendidikan Anak Usia Dini: Menciptakan Pembelajaran Menarik, Kreatif, dan Menyenangkan*. Jakarta: Kencana.
- Kemdiknas. (2010). *Kurikulum Taman Kanak-kanak. (Pedoman Pengembangan Program Pembelajaran di Taman Kanak-kanak*. Jakarta: Kemdiknas Dirjen Manajemen Pendidikan Dasar dan Menengah, Direktorat Pembinaan Taman Kanak-kanak dan Sekolah Dasar.
- Lutan, R. 2001. *Asas-asas Pendidikan Jasmani: Pendekatan Pendidikan Gerak di Sekolah Dasar*. Bandung: FPOK UPI.
- Mahendra, A. 2005. *Permainan Anak dan Aktivitas Ritmik*. Jakarta: Universitas Terbuka.
- Ma'mum, A. & Saputra, Y. M. 2000. *Perkembangan dan Belajar Gerak*. Jakarta: Depdiknas, Direktorat Jenderal Pendidikan Dasar dan Menengah, Bagian Proyek Penataran Guru SLTP Setara D-III.
- Moeslichatoen. 1999. *Metode Pengajaran di Taman Kanak-Kanak*. Jakarta: Rineka Cipta.
- Mulyasa, H. E. 2012. *Manajemen PAUD*. Bandung: Remaja Rosdakarya.

- Rachman, H. R. 2004, "Perkembangan Persepsi Motorik: Konsep dan Implementasi dalam Pendidikan Jasmani di Sekolah". *Jurnal Nasional Pendidikan Jasmani dan Ilmu Keolahragaan*. 3 (2): 30-40.
- Rachman, H. R. 2011. "Kontribusi Pembelajaran Motorik Dalam Meningkatkan Kualitas Jasmani Menuju Pengembangan Sumber Daya Manusia". (*Pidato Pengukuhan*). Yogyakarta: UNY.
- Rahyubi, H. 2012. *Teori-Teori Belajar dan Aplikasi Pembelajaran Motorik. Deskripsi dan Tinjauan Kritis*. Bandung: Nusa Media.
- Santosa, S. 2002. *Model Pengembangan Motorik Anak Prasekolah*. Jakarta: Direktorat Olahraga Masyarakat, Ditjen Olahraga Depdiknas.
- Santrock, John. W. 2002. *Life – Span Development (Perkembangan Masa Hidup)*. Jakarta: Erlangga.
- Saputra, Yudha. M. 2001. *Pembelajaran Atletik di Sekolah Dasar: Sebuah Pendekatan Pembinaan Gerak Dasar melalui Permainan*. Bandung: FPOK UPI.
- Sugiyanto. 2007. *Teori Kepelatihan Dasar*. Jakarta: Kemenegpora.
- Wiyani, N. A. & Barnawi. 2014. *Format PAUD: Konsep Karakteristik, & Implementasi Pendidikan Anak Usia Dini*. Yogyakarta: Ar-Ruzz Media.



THE BOUNCING BALL GAMES, TO IMPROVE THE LEARNING TABLE TENNIS

Moch Fahmi Abdulaziz

Departement of Physical Education, Health and Recreation, Faculty of Sport Science State University of Semarang, Republic of Indonesia
Departement of Physical Education

fahmi_alyasak@yahoo.co.id

Abstract

Learning physical education is one of the material are taught in schools did not respect at all times the level of junior high school , that are composed of various material learning including small game of ball. Learning the game of a small ball aimed at one of them to improve the ability of students in coordinating a member of the body in doing a movement that structured , including table tennis that would improve students kooordinasi eyes and hands. Permasalahnya learning done tends to dull so that the results of student learning is not increasing , so peniliti want to do research is the development of the game ball bounce can improve learning outcomes table tennis in Junior high school students. An instrument in research is the result of observation of learning and tests show of work and a written test students.

The research results show the aspect of psychomotor , the aspect of an affective , and cognitive aspects of increased after the students given treatment of learning bouncing ball on learning the game of table tennis. Conclusions of the study is the application of playing table tennis with the approach of the game ball bounce can improve learning outcomes table tennis in Junior high school students.

Keywords: Table Tennis, Physical Education, Junior Hight School

INTRODUCTION

The lack of physical education facilities and infrastructure owned schools, the lack of interest of the students, as well as the rule that difficult to understand by students demanding a physical education teacher to be more creative in implementing the learning process. Observations that have been made by researchers who corroborated by interviews, found that learning table tennis game that is based on the rules of the game are based on the ITTF rules, not in accordance with the characteristics of psychomotor junior high school age children. Table Tennis game with standardized rules, when applied to children of secondary school age based on growth rate, making the learning process less effective running. Besides learning the monotony of learning and refers to the rule that are not supported by the availability of infrastructure makes the learning objectives will not be achieved.

Based on the background above, the researcher is interested in conducting research entitled "Improving Learning Outcomes Through Table Tennis Ball Bounce Game Approaches on Seventh Grade Students". This exercise aims to familiarize or make adjustments between the player with bat and ball, also adept at using these tools and have a good feeling / smooth relating to bat and bounce the ball (Muhtar and Sulisty, 2009:3.2). According to Muhtar and Sulisty (2009:3.2) forms a ball bounce exercise are as follows:

Reflecting the ball up using bet, At first conducted separately, for example with the forehand or backhand side only just, and then be followed by a combination of forehand and backhand as shown in Figure 1.

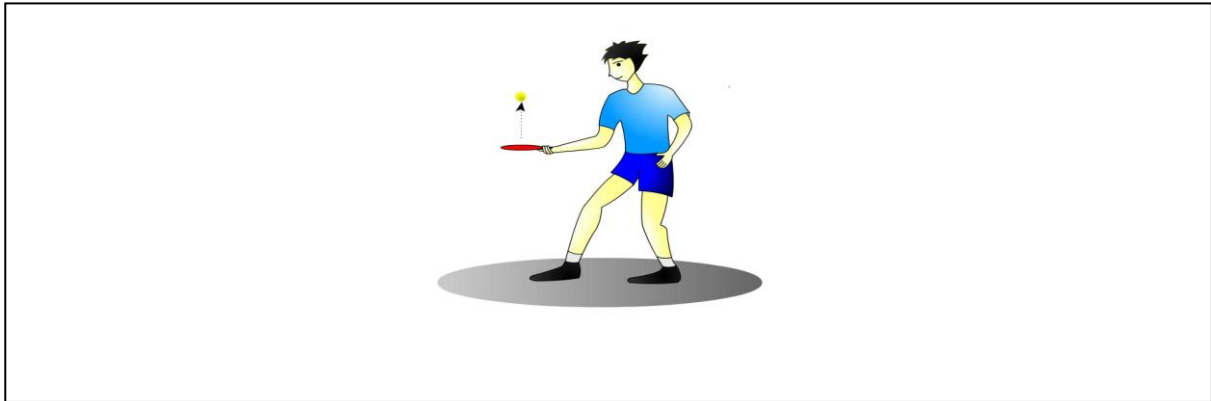


Figure 1 Reflecting the ball up using bet

Reflecting the ball to the floor, This exercise can also be varied, ranging from exercise bouncing to the floor in place, then while walking forward, backward, left or right side as shown in Figure 2.

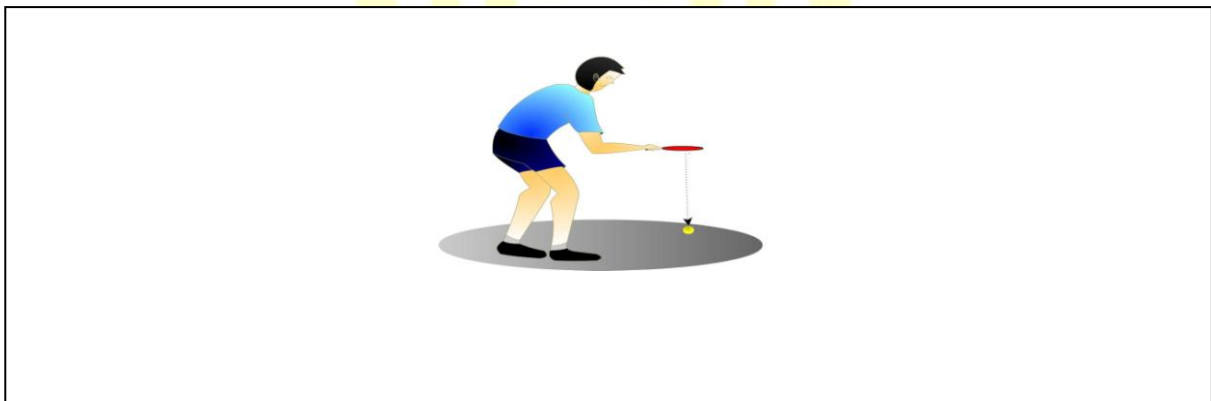


Figure 2 Reflecting the ball to the floor

Mutual bouncing ball using his bat together, Variations that can be done is two, three, four, or more. Just forehand, backhand alone or in combination as shown in Figure 3.

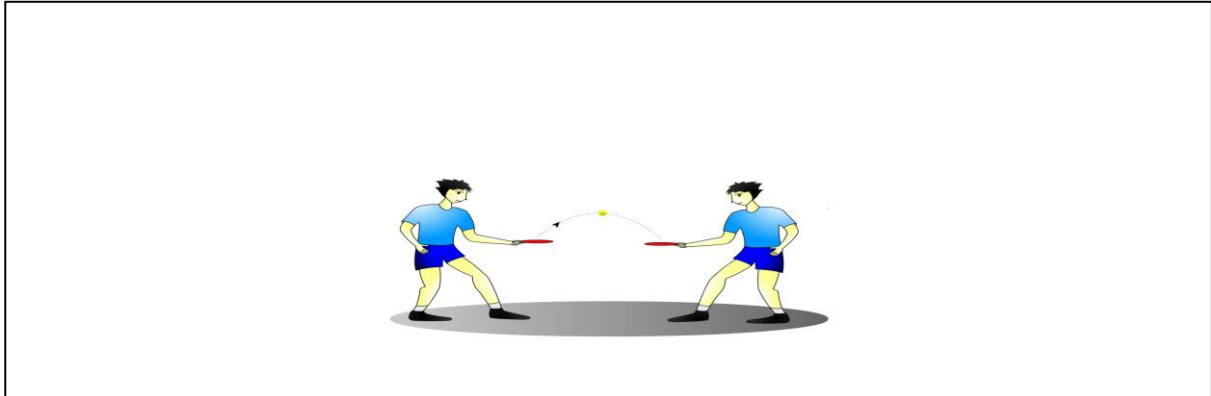


Figure 3 Mutual bouncing ball using his bat together

Practice bouncing the ball into the wall, This exercise aims to train position and the feeling of the ball as shown in Figure 4.

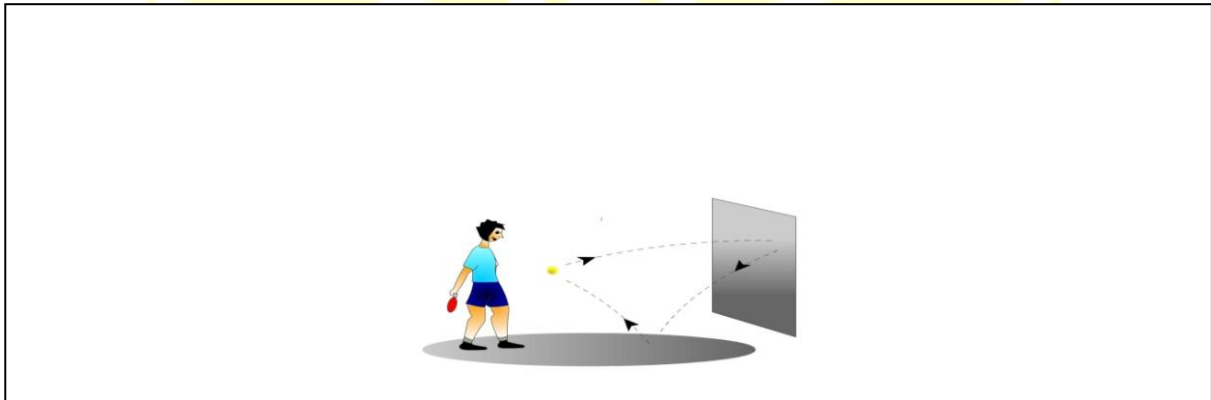


Figure 4 Practice bouncing the ball into the wall

Practice bouncing the ball by not letting the ball fall to the floor, This exercise is done by bouncing the ball into the wall continuously to not let the ball fall on the floor as shown in Figure 1.

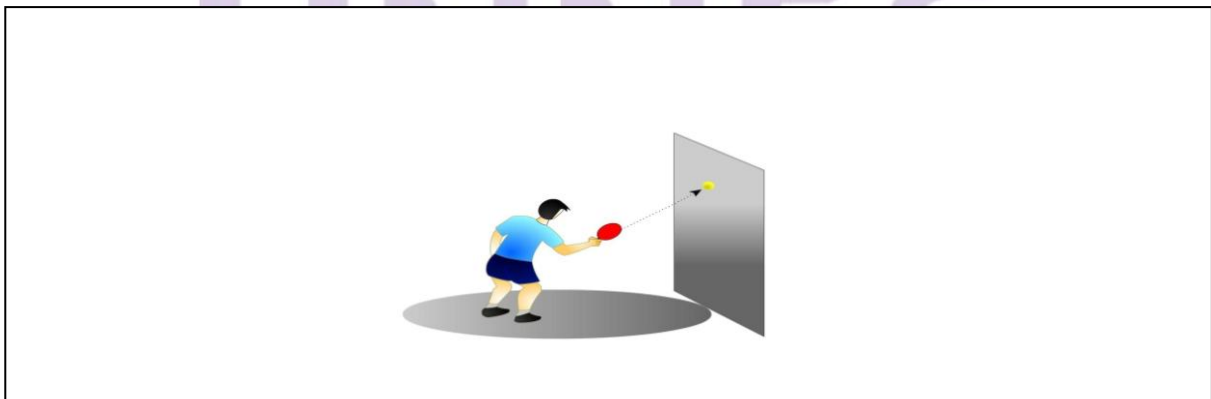


Figure 5. Practice bouncing the ball by not letting the ball fall to the floor

METHOD

This research is Classroom Action Research. The study design consists of four components, namely a plan, action, observation / observation, and reflection.

Classroom Action Research was conducted starting in March 18, 2013 to complete. Classroom Action Research conducted at First Kragan Junior High School, Kragan District, Rembang Regency, Central Java Province, Republic of Indonesia, amounting to 32 children.

RESULTS AND DISCUSSION

Affective Aspects, Observation of the behavior of students in the first cycle, the average percentage of students achieving 74.4% expressed good criteria, it shows the student has understood the learning objectives to be achieved. After learning the second cycle, the average percentage of students achieving 93.8% expressed very good.

Cognitive Aspects, Judging from the results of the assessment of student understanding in the first cycle, students' knowledge of the game of table tennis modification, the average percentage of students achieving 100% stated criteria very good.

Observations Psychomotor Aspects, Psychomotor skills of observation in the first cycle, students basic techniques in playing modified soccer game average percentage of students achieving 31.3% stated with sufficient criteria. In the second cycle the average percentage of students towards learning table tennis reached 78.13%, which is otherwise very good.

CONCLUSION AND SUGGESTION

Physical Education learning with table tennis game modifications acceptable to the students and can be applied in students of First Kragan Junior High School. This game may well cover all aspects of the affective, cognitive, and psychomotor: 1). The result of observation of student behaviors (affective) with the achievement of 93.8% into the criteria very good, 2). The results of observation of students' understanding (cognitive) to the achievement of 100% into the criteria very good, 3). Results of observation of student skills (psychomotor) with the achievement of 78.1% into the criteria very good.

Suggestions can be submitted with regard to the results of the study authors, among others, are: 1). Improved learning through a table tennis ball bounce game approach in this study can be used as an alternative to learning materials of table tennis for Junior High School students, 2). For Physical Education teachers can develop models of learning table tennis more attractive for use in learning table tennis at school, 3). For students, after participating in learning table tennis ball bounce game approach is expected to be interested to follow the teaching of physical education and sports health.

REFERENCES

- Adang Suherman. 2000. PE Basics. Ministry of National Education Directorate General of Primary and Secondary Education
- Ahmad Damiri, and Nurlan Kusmaedi. 1992. Sport Table Tennis Picks. Ministry of Education and Culture Directorate General of Higher Education Workforce Education Development Project
- Alex Kertamanah. 2003. Techniques & Basic Tactics of Table Tennis Games. Jakarta: PT Persada King Grafindo

Hodges, Larry. 2002. Tennis Table. Jakarta: PT Persada King Grafindo

Moch. Fahmi Abdulaziz. 2011. Korelasi between eye and hand coordination, and flexibility of the wrist accuracy of the Service Table Tennis Forehand Topspin. Semarang, Semarang State University



**AEROBIC GYMNASTIC LEARNING DEEP DEVELOPMENTAL ACTIVITY COLLEGE EYE COLLEGES
STUDENT CARNAL FITNESS HEALTH PHYSICAL EDUCATION AND SEMESTER RECREATION VI YEAR
2014**

Ipang setiawan¹, Agus Pujianto²,

¹Faculty of Sport Science, Semarang State University, Republic of Indonesia

¹ipang_setiawan@yahoo.co.id

Abstract

Learning system approaching, learning strategy and learning planning emphasizes how material teach that is given in learning, one that covers character, range and activity procedure, and study material can give studying experience on college student. Learning shall get to pass on aim of learning already being determined and can'te changing, science, experience, skill and behaviour to educative participant. This research designing to utilize action research brazes (classroom action research) one that is designed thru two cycles. Every cycling executed according to change which diinginkan who points on observational aim. Research did by mengimplementasikan Aerobic gymnastic Learning In Winks Developmental Activity college Carnal fitness, Health Physical Education college student and semester Recreation VI Year 2014. Steps that is done on each cycle did by planning steps (planning), action (action), watch (observation), and reflection (reflection). Base analisis's result data and validity quiz result is gotten that deep learning activity Winks Developmental Activity college Carnal fitness, on health Physical Education college student and semester Recreation VI was effectively can do Aerobic gymnastic learning with every consideration. Its reducing modifies learning to cause Aerobic gymnastic learning shall at modification utilizes more learning pulls, that learning aim can be reached. To reach learning success, researcher makes aerobic gymnastic learning concept interesting. After been done learning that constitute research action as staged as repair in i. cycle and cycle II., apparently happens learning step-up and unjuk is college student job in follow aerobic gymnastic learning. This step-up points out that learning stage as remedial as, successful fix learning process and at a swoop increase college student studying thoroughness. Learning strategy that is utilized on repair processes college student learning and learning performing that did by lecturer on i. cycle and cycle II., by emphasizes on straightforward learning that gets kontekstual's character. Learnings remedial thus gymnastic Aerobic deep learning Wink Developmental Activity college Carnal fitness corresponded to requirement, in the effort increase learning result. Learning steps that is applied has also been can increase college student studying result that after been done by learning action on cycle II., with colleges student learned thoroughness increase to reach 90%

Keywords: Aerobic gymnastic, fitnesses developmental activity carnal and health physical education college student and recreation

INTRODUCTION

In learning system approaching, learning strategy and learning planning emphasizes how pass on material to teach on learning environment that covers: character, range and learning procedure give studying experience (Vernon s Gerlach and Donald P. Ely, 1980). Learning strategy shall get to pass on special aim earlier one and can'te changing learning starts from its science, its

experience, its skill and its behaviour. On Plomp's same context and Ely (1996) declare for that learning strategy covers to identify aim, designing optimum solution, developing intervention and compares studying result.

Of both of that limitation words that learning strategy constitute planning and learning elements management that cover learning aim, learning and media material and evaluation. Studying constitutes college student active activity in build grasp / meaning, lecturer thus needs to give push to college student to utilize its authority in builds idea. Learned responsibility lies on self college student, but lecturer accounts for as to establish situation which push initiative, motivation and college student responsibility for learned along body (Anom, 2002).

Through Aerobic gymnastic learning steps that long, beginning from mengkonsep, making gymnastic power, string up from instillation phase, movement fundamental and refrigeration. Drawned out by power and music fitting. Stated Aerobic gymnastic stirred standard pock one corresponds to to method gymnastic power that really and according to base power principles bodies. Aerobic gymnastic can to increase university student earthly concern fitness semarang Country. On Aerobic gymnastic learning deep lecturing apparently can noise about college student, since aerobic gymnastic learning gets to be done by interesting music variation, interesting music type and miscellaneous. Studying is an individual effort that is done witting one results changing on self individual which studies, well current and also potential. Changing that ditengarai with acquisition ability a new one, one that prevailing in the period of long time and change relative that is not because maturity. Studying and teaching constitutes two inseparable concept each other. Studying in refer to what does have to be done by someone as subject that accepts study, be instructor in refer to what does have to be done by lecturer as instructor. College student lecturer interaction as meaning of main processes teaching hold essential role to reach effective teaching (Sudjana, 2002). Lecturer and college student interaction contain application activity and lecturing material acceptance. So lecturing can be accepted with every consideration, trick gives it shall well in mean adjusts with receiver condition, what subtracted understands or less motivation.

Studying doesn't memorize and is not too remember, but a process that marked by marks sense changing on self someone. Changing it can be pointed out for example in science, grasp and ability. Studying is process active one, if bicara about studying therefore kberbicara about how changes tune someone.

In condition that, action who can be utilized to increase college student ability in psychological aspects in winks Developmental Activity college Carnal fitness be learning distorting or college student behavior modification. College student that formerly subtracted active, changed as is involved straightforward deep lecturing for active and following experience training form.

Learning modification aims to increase college student ability in develop that learning process is more innovative and pulling, so gets response well that shown by protege. This learning development through an observational activities that as Learning Of Aerobic gymnastic In Winks Developmental Activity college College Student Carnal fitness health Physical Education and semester Recreation VI Year 2014.

METHOD

This research constitute action research brazes(*classroom action research*) since this activity slated to solve learning problem at brazes. This research gets descriptive character, because figures how a tech or learning method be performed to reach desirable result. It is meant to know sejauhmana lecturer as researcher perform task in essence and to know if that learning is successful needful collaboration with colleague who will give estimation via observation so observational result

data gets at pertanggungjawabkan scientifically as was worded above that this research utilize Action Research design brazes(*classroom action research*) as staged as trouble-shooting. This stage is appropriate Mukhlis's opinion (2003:5) one declare for that PTK is a form study that gets reflektif's systematics character by action agent to fix condition of learning which is done. Actions observational steps terminological Lewin (in Suyanto, 2005) in harmony with learning performing, which is: preparation(*planning*), learning performing(*action*), learning activity observation(*observation*), evaluate process and learning result(*evaluation*), and reflection of process and learning result(*reflection*).

Learning performing procedure in observational it is done in 2 action cycle which is i. cycles and cycles II.. Each cycle passes through four step process as point on Lewin's opinion (in Suyanto, 2005) as follows shown in Figure 1.

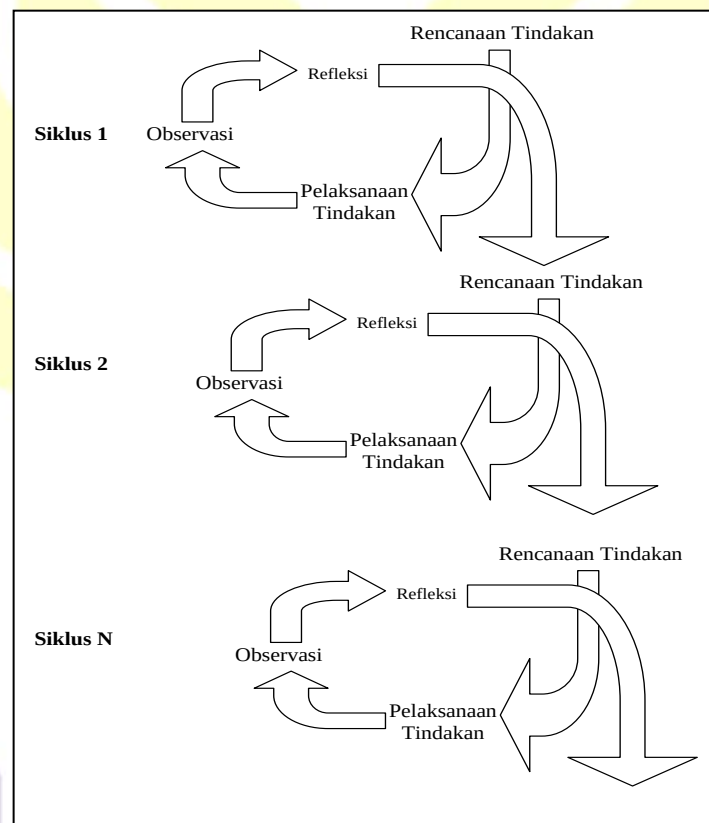


Figure 1 PTK'S step and cycle, according to Lewin (in Suyanto, 2005)

RESULTS AND DISCUSSION

1. Observational result

cycle I This cycle constitute observational action learning that executed as staged as learning which did by step as follows. After learning is performed, apparently college student so agog in follow aerobic gymnastic learning. All estimation aspect as afektif, kognitif, and psikomotorik is college student can see reality and gets to be concluded into estimation sheet. Severally ala estimation indicator rinci is enlightened as follows Figure 2.

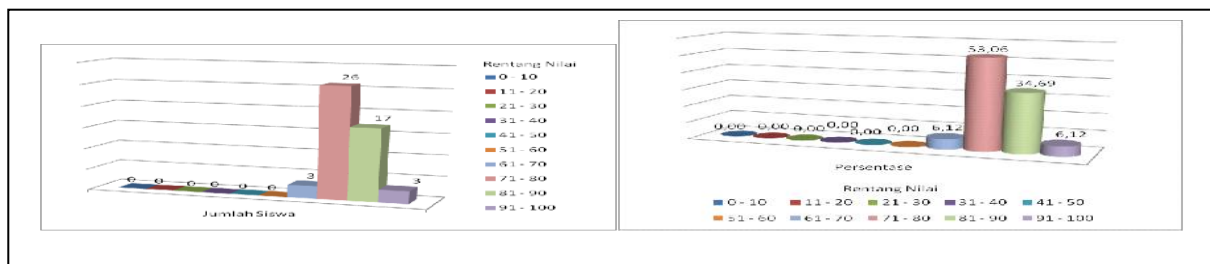


Figure 2 Learned Appreciative acquisition College Student & Appreciative derived percentage Learned College Student

Observation / watch that constitute data collecting activity is done coincides by learning process. On i. cycle learning this, comate aided writer colleague which is Sharp-witted setivan, S. Pd., M. Pd and Ranu Baskora, S. Pd., M. Pddalam observes to process learning, by undertaking analisis pass through observing sheet instrument by marks off (2 2) on score column (1, 2, 3, 4, 5) according to criterions as follows: (1) scores 1 for ability very bad, (2) scores 2 can't, (3) score 3 enoughts, (4) scores 4 good, and (5) scores 5 pretty good. Of learning performing that is done corresponds to phases in strategical learning, and afters was done by estimation to some college student success indicator that consisting of: (1) material mastery aspects as gesticulating, movement does splits, gesticulating affiliate does splits and affiliate with offbeat musikdan (2) college student behavioural aspects, cover: concentration, responsibility, braving, responsif, independence, and collaboration at dropped upon observation result as follows.

Of observation result upon can be known that college student learning was beginning good, Colleges student stirred efficiency in learning is still need improved. Subtracted observable college student keen, insufficiently braves and independent in follow learning process. Although on observation result appears to respond college student very good. On i. cycle learning this, college student concentration is still frequent out of focus. Responsibility and collaboration in solve task also observable was good. Seeing all the things denotes that colleges student learned process on i. cycle learning, need improved again.

Reflection As have at words on i. cycle observation result, extant a few things which needs improved deep learning process. Observing yielding data is utilized for merefleksi success and failing in processes learning and basal referenced to reach to the effect and determines action on succeeding cycle (cycle II). Of analisis's result to learning performing and i. cycle observation gets direfleksikan as follows: 1). Motivation that given by lecturer in learning performing, can excite spirit / college student response for active follows learning, although its concentration is still haven't in focus. 2). College student lookedding to listen but can't catch material that passed on by lecturer with every consideration 3). College student learning needs more at increases through training by lecturer. 4). Learned thoroughness on i. cycle more need at increases since new reach 83,67%. ketercapaian is this thoroughness as that prove learning was utterly successful extant cause 16,33% ones was complete. Base learning performing result, analisis is watch, and reflection, and discussion with comate colleague, therefore writer take that conclusion i. cycle was successful so needful learnings remedial steps by plot and perform research action on cycle II.

Cycle II. Cycle action II. constitute follow-up of i. cycle reflection day which is still to be required learning repair to previous learning. On cycle learning II., anxious more college student

deep follows learning. All estimation aspect as afektif, kognitif, and psikomotorik is back to be concluded into estimation sheet in Figure 3.

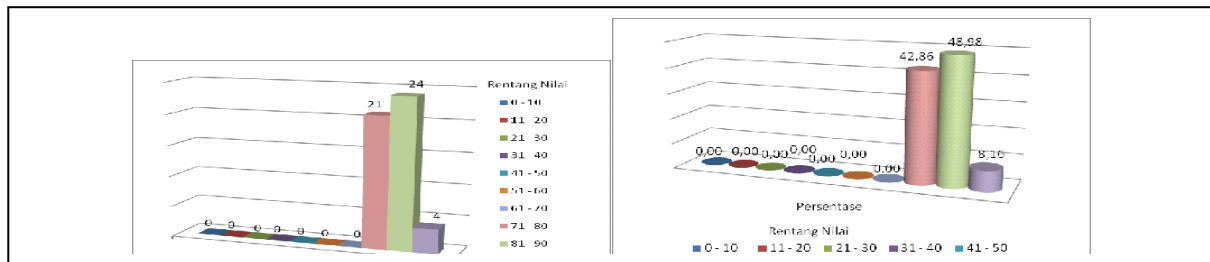


Figure 3 Learned Appreciative acquisition College Student &Appreciative derived percentage Learned College Student

Observation / watch that constitute data collecting activity is done coincides by learning process. On cycle learning II. it, writer is still to be helped colleague friend which is Sharp-witted setiawan, S. Pd., M. Pd and Ranu Baskora, S. Pd., M. Pd in observe learning process, by undertaking analisis pass through observing sheet instrument by marks off () on score column (1, 2, 3, 4, 5) according to criterions as follows: (1) scores 1 for ability very bad, (2) scores 2 can't, (3) score 3 enoughts, (4) scores 4 good, and (5) scores 5 pretty good. Of learning performing that is done corresponds to phases in strategical learning, and afters was done by estimation to some college student success indicator that consisting of: (1) material mastery aspects as movement of arms, movement does splits, arm movement affiliate and foot and at escorts dengna music and (2) college student behavioural aspects, cover: concentration, responsibility, braving, responsif, independence, and beat's collaboration and accuracy at dropped upon observation result as follows. Of observation result upon can be known that college student learning just fine, college student was enough gain control learning basic material. On cycle learning II. it, keen observable college student, brave and independent in follow learning process. Respond pretty good college student. College student concentration was lovely. Collaboration in solve task also pretty good. Seeing all the things denotes that colleges student learned process on cycle learning II., was really successful and not necessarily been increased again.

Reflection Observing yielding data cycle II., utilized for merefleksi success and failing in processes learning and basal referenced to reach to the effect and determines succeeding cycle action if needful. analisis's result to learning performing and cycle observation II. gets direfleksikan as follows: 1). Aerobic gymnastic learning performing can increase motivation, semangat, response, keaktifan, and college student studying result 2). College student so konsen in follows learning 3). College student so lively / terampil in gain control material basic movement learning as gesticulating, movement does splits, gesticulating affiliate does splits, and affiliate by escorted by music 4). Learned thoroughness on cycle II. up to 90%. ketercapaian is this thoroughness as that prove learning utterly successful. Base learning performing result, analisis is watch, and reflection, and discussion with comate colleague, therefore writer take that conclusion cycle II. so successful and not require continuing learning repair stage

Study As was worded on problem background upon that deep penjaskes's learning activity, health Physical Education college student and semester Recreation VI was effectively can do

Aerobikdengan's gymnastic learning well. Its reducing modifies learning to cause Aerobic gymnastic learning shall at modification utilizes more model pulls, that learning aim makes a abode to be reached. To reach learning success, writer makes Aerobic gymnastic learning concept alternatively media which be required. After been done learning that constitute research action as staged as repair in i. cycle and cycle II., apparently happens material mastery step-up and unjuk is college student job in follows learning. This step-up points out that learning stage as remedial as, successful fix learning process and at a swoop increase college student studying thoroughness.

Learning strategy that is utilized on repair processes to study college student and learning performing that did by lecturer on i. cycle and cycle II., emphasize on straightforward learning that gets kontekstual's character. This method slated to sharpen and increases concept think college student that concern study material with real life so college student can understand problem with every consideration. Remedial strategy thus Aerobic gymnastic learning deep learning has corresponded to requirement in the effort increase learning result. Learning steps that is applied has also been can increase college student studying result that after been done learning action on cycle II. thoroughness studies college student increase up to 90%.

CONCLUSION AND SUGGESTION

Conclusion Base observational result that is done on health Physical Education college student and semester Recreation VI, can conclude a few things as follows: 1). Aerobic gymnastic learning performing can increase motivation, response, keaktifan, and college student studying result, 2). College student so agog in follows learning, even so lively / terampil in gain control aerobic gymnastic Learning 3) Colleges student learned result in Aerobic gymnastic learning worked up reach studying thoroughness 90% on cycle II. ketercapaian is this thoroughness as that prove Aerobic gymnastic learning utterly successful.

Suggestion on a basic conclusion upon, writer that also as researcher suggests to a few things lecturer as follows : 1). Learning exploit can be applied as stage of learning innovates on learning, 2). Aerobic gymnastic learning gets to be performed utilize CD model or another one, 3). Learning that carry concept PAIKEM can also be applied on Aerobic gymnastic learning at University zoom, 4). To increase keaktifan, motivation and college student studying yen, lecturer can inure self do research as staged as repair to process learning, 5). As solution of trouble-shooting in learning, lecturer can develop model and learning method

REFERENCES

- Arikunto, Suharsimi. 2006. *Observational procedure a Practicing Approaching* , Jakarta; Rineka Composes
- National education department. 2008. *Curriculum Collation technical Increases Satuan Education*. Jakarta: Depdiknas
- Ghozali, Priest. 2010. *Apilkasi Analisis Multivariate by Programs IMB SPSS 19* . Semarang: UNDIP'S Publisher body.
- Hamalik, Oemar. 2008, *Lecturer education bases Interest Approaching* ,
- Lutan, Rusli. 2001. *AsasPendidikanJasmani* .Jakarta: Depdiknas
- Moleong, Lexy J. 2010, *kualitatif's observational method*, Bandung: PT is Rosdakarya's Stripling Offset.
- peraturan is Number Republic Of Indonesia Government 19 Years 2005 *about National Default Education*.
- Samsudin. 2008, *Sporting Physical Education learning and SD /'S health MI*, Jakarta: Litera.

Sudjana, nana . 2008. *Basic – basic Processes Teaching And Learning* , Bandung: Algesindo's New light.

Slameto. 2010, *Studying and Factor That Regards it* , Jakarta:Rineka Composes.

Uno, Hamzah. 2008, *Profession to education* . Jakarta: Letter Of The Alphabet earth.

----- . 2001. *Basis for Psychological Jasmanidi's Education School Basic* . Jakarta: Depdiknas

----- . 2004. *Physical Education update at Indonesia* . Jakarta: Depdiknas



UNNES
UNIVERSITAS NEGERI SEMARANG

DEVELOPMENT OF INSTRUCTIONAL MEDIA FOR OUTSIDE SHOOTING BASIC TECHNIQUE PRACTICE IN MINI BASKETBALL CLUB

Baskoro Nugroho Putro

STKIP PGRI Trenggalek

baskoro.np@gmail.com

Abstract

Coach and athlete get involved on communication process during training process. Many athlete can not place their hand properly when they want to shoot. The mistake happens because the communication between coach and athlete do not run smoothly. Because of that mistake they need media to reduce the barriers on their communication process. Objective of this research is develop a media which can help mini basketball athlete in order to get easier to learn outside shooting and help coach to send information about outside shooting to their athlete. Outside shooting is an important basic technique because it's the only way to make score. This research use Borg and Gall's research and development method. Research subjects are 2 coaches on interview process, 1 coach and 8 athletes on field preliminary field test process, and 2 coaches and 30 athletes on main field test process. Beside the field test process, there is a validation for media design to make media become more interesting, easier and has clear guidance to use. The result show that media can help coach on their process to send their information about outside shooting and make the athlete feel easier to learn outside shooting. Coach and athlete also feel that the media is interesting, easy to use and has clear guidance to use. The conclusion is media can help coach to send outside shooting materi to their athlete and help athlete to understand the materi.

Keywords: instructional media, basketball, mini basketball, basic technique, shooting, outside shooting.

INTRODUCTION

1. BACKGROUND

Basketball is a sport that require several basic technique in order to play. Those basic technique are main terms for someone to play basketball well. Amber (2009) said that the most important ability in basketball is ability to shooting or put the ball into the net. Shooting has many type, according to Oliver (2004) shooting as basic technique divided into inside shooting which consist of lay-up, under the basket shot and hook shot, and outside shooting which consist of jump shot, free throw and set shot. The way to release the ball in free throw almost similiar with another kind of shooting technique. Based on that similiarity, if someone can do the way to release the ball in free throw well, he or she has a big chance to do the same thing with the other of kind of shooting technique.

Beside the main function of shooting technique, which end of offense pattern. This technique has high use frequection on one game. Based on observation, U12 basketball game, both of team did 97 times of shooting which consist of 18 times free throw, 69 times set shot and 10 times lay-up. That statistic show how often shooting technique used on game, especially set shot and free throw. Nowadays, basketball has been adjusted for kid below 13th years old. That adjusted

basketball called mini basketball. FIBA Oceania (2005) said that mini basketball is a game based on basketball, for girls and boys under 13 years of age. Mini basketball has same basic technique with conventional basketball.

Regarding the important and result that given by shooting technique and high use frequention on one game, it's a must for coach to make their athlete perform a right shooting technique. Transferring information in practice time can be easier with an instructional media. Media literally means center, introduction and in-between (Munadi, 2012). The abilty of media on accelerate information transfer between coach and athlete make its has important position in shooting technique practice.

Several things that underlie this research are, which conclude from the explanation above, shooting is end of offense pattern, shooting has high use frequention, almost all of shooting kind has similair way to release the ball like free throw, mini basketball has same basic technique conventional basketball and the important position of media in any information transfer process.

2. FORMULATION OF THE PROBLEM

Based on the research background, formulation of the problem is "how to develop an instructional media that can help mini basketball ahtlete to practice outside shooting technique?".

3. GOAL OF RESEARCH

The goal of this research is develop an instructional media that can help mini basketball ahtlete to practice outside shooting technique.

4. BENEFITS OF RESEARH

Athlete get an easier process to practice shooting technique, coach get helped to transfer the shooting technique information to athlete, Mini basketball club has additional media for practice and literature in order the club want to develop another kind of media and as new precious experiences for researcher to aply the knowledge.

METHOD

1. DESIGN OF RESEARH

Research and development is chronological step to develop new product or polish up the old product in responsible way (Sukamadinata, 2005). As an chronological step, research and development has its steps to develop product. Borg and Gall (1983) set ten steps to do research and development, that is:

- 1) Research and information collecting. Includes review of literature, classroom observations, and preparation of report of state of the art.
- 2) Planning. Includes defining skills, stating objectives determining course sequence, and small scale feasibility testing.
- 3) Develop preliminary form of product. Includes preparation of instructional materials, handbooks, and evaluation devices.
- 4) Preliminary field testing. Conducted in from 1 to 3 schools, using 6 to 12 subjects. Interview, observational and questionnaire data collected and analized.
- 5) Main product revision. Revision of product as suggested by the preliminary field-test results.
- 6) Main field testing. Conducted in 5 to 15 schools with 30 to 100 subjects. Quantitative data on subjects pre-course and post-course performance are compared with control group data, when appropriate.

- 7) Operational product revision. Revision of product as suggested by main field-test results.
- 8) Operational field testing. Conducted in 10 to 30 schools involving 40 to 200 subjects. Interview, observational and questionnaire data collected and analyzed.
- 9) Final product revision. Revision of product as suggested by operational field-test results.
- 10) Dissemination and implementation. Report on product at professional.

In this case, researcher only use 1st step untill 7th step because the special condition. The step and procedure of research and development is not a normative procedure. Every developr, in this case researcer, can choose and set the step that suitable with the field condition (Ardhana, 2002).

2. SAMPLE AND POPULATION

The sample of this research are 1 mini basketball club with 1 coach and 8 athletes for preliminary field test and 2 mini basketball club with 2 coaches and 30 athletes. The population of this research is 2 mini basketball club with 4 coaches and 72 athletes.

3. PROCEDURE OF RESEARCH

- 1) Research and data collection needed to see the field condition. In this first step, researcher need to know the coach problem and how big the coach desire to solve the problem. Researcher use observation and interview method.
- 2) Plan arrangement be adapted with data that appear from observation and interview in the first step.
- 3) After plan arrangement, researcher develop preliminary form of instructional media. In this step, researcher get the expert judgement from 2 experts. Those 2 experts are expert in basketball and expert in instructional media.
- 4) After done with development of preliminiry form, which get help from 2 experts judgement, researcher held preliminary filed test. This test is a measurement how far the instructional media can help, both athlete and coach, in small scale (see the sample above). Preliminary field test data is important for polish up the instructional media.
- 5) According to preliminary field test data researcher revise the product. This step called main product revision. The revision depend on data that appear from the test before. If the data say that the coach and athlete satisfied with the product, researcher can go to the next step without revision on product.
- 6) After small scale measurement, instructional media will measure in bigger scale (see the sample above). Even though the sample is not fit with the Borg and Gall's step, researcher still want to check how far the benefit of instructional media in a bigger scale.
- 7) The last step is operational product revision. This revision based on main field test that has bigger scale than preliminary field test. This step has the same rule with main product revision. If there is not any data that show the weakness of instructional media, mini basketball club can use it to practice the shooting technique. The opposite condition will apply if there is data that show the weakness. The revision must be done before the mini basketball club can use the instructional media.

4. DATA COLLECTION INSTRUMENT

The instrument that researcher use in this research and development are obervation, interview and semi open questioner. Detail use of those instrument is on table 1.

Table 1 Instrument that use

No.	R n' D Step	Research Object	Instrument
1	Need Assesment	All Coach	Interview
		All Athlete	Observation
2	Expert Judgement	Expert	Semi open questioner
3	Preliminary field test	1 coach and 8 athelete in 1 mini basketball club	Interview
4	Main field test	2 coach and 30 athelete in 2 mini basketball club	Interview

5. DATA ANALYSIS TEECHNIQUE

Data that appear from this research are qualitative and quantitave. Qualitative data represent need assesment and advices form expert, quantitative data represent preliminary and main field test which just simple percentage. Data analysis technique is adjusted with the research step that researcher use (table 2).

Table 2 Data analysis technique

No.	R n' D Step		Data Analysis Technique
1	Need assesment		Qualitative
2	Expert Judgement		Qualitative
3	Preliminary field test	Coach	Qualitative
		Athlete	Quantitative
4	Main field test	Coach	Qualitative
		Athlete	Quantitative

Qualitative data analysis technique which use in this research is Miles and Huberman data analysis technique (Sugiyono, 2011). Quantitative data anlysis technique which use in this research is descriptive analysis technique. The formula to analyze data (Sudijono, 2008) is:

$$P = \frac{f}{N} \times 100\%$$

Explanation :

f : Frequention

N : Number of case

P : Percentage

If the data is percentage, proportion or ratio, the conclusion can make based on the norm below (Arikunto, 2006):

Good	= 76% - 100%	can use
Average	= 56% - 75%	can use
Below Average	= 40% - 55%	can not use
Poor	= < 40%	can not use

RESULTS AND DISCUSSION

1. INTERVIEW WITH COACH

Two coaches get interviewed in this step. SB3S's coach (Sekolah Bola Basket Bima Sakti) said that she put the perfection of movement as priority, the way athlete get their hand on outside shooting position is fundamental for outside shooting, athlete always did the same mistake on outside shooting whenever they practice, coach has no special instructional media for outside shooting practice, and coach put interest with instructional media that researcher develop. IMBTC's coach (Indonesia Muda Basketball Training Camp) said the same thing, except he always give feedback to his athletes and coach develop his own instructional media once, but it does not work.

Both of coach only give proper example and try to correct their athlete if they do wrong technique. Actually coaches already do something good, they never let their athlete practice a wrong technique. However, coaches still need a proper instructional media to help them in correction process. Instructional media can press athlete degree of mistake when they do outside shooting practice (Fig. 1). Instructional media can equalize the perception between coach and athlete (Sanjaya, 2012). Beside of that thing, athlete can understand easily about how to positioning their hand in outside shooting technique and make the correction process faster are another benefit of using instructional media. Sadiman, et al (2012) said that media is everything that can use to transfer information from the sender to receiver so that can stimulate think, feel, attention and interest of receiver.

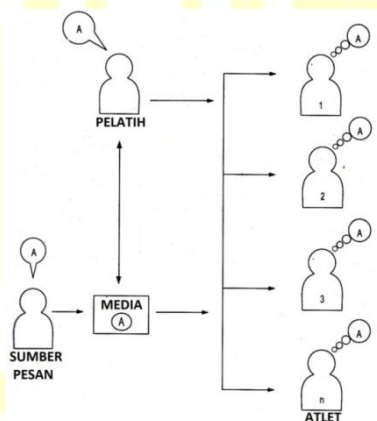


Figure 1 Good communication process (Sadiman et al, 2012)

2. EARLY OBSERVATION TO ATHLETE

The results of the way athlete get their hand on outside shooting position observation can see at table 3 and 4.

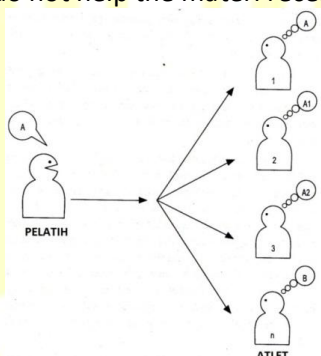
Table 3 Observation at IMBTC

No.	Aspect	Definition	Mistake Percentage (%)		
			Observer 1	Observer 2	Observer 3
1.	Shooting arm	Elbow form 90° degree	57.1	61.9	71.4
		Hand is pointing on ring	0	0	0
		Lower arm perpendicular with floor	57.1	85.7	81
		Hold the ball with fingers	0	47.6	76.2
2.	Non-shooting arm	On side of the ball	95.2	90.5	52.4
		Only use to balance the ball	90.5	90.5	71.4

Tabel 4 Observation at SB3S

No.	Aspect	Definition	Mistake Percentage %		
			Observer 1	Observer 2	Observer 3
1.	Shooting arm	Elbow form 90° degree	55.6	83.3	88.9
		Hand is pointing on ring	5.6	16.7	0
		Lower arm perpendicular with floor	50	77.8	88.9
		Hold the ball with fingers	0	22.2	0
2.	Non-shooting arm	On side of the ball	77.8	55.6	5.6
		Only use to balance the ball	72.2	72.2	88.9

Many athlete put their hand on the wrong position when they do shooting technique because there is no proper instructional media that help them. Another reason of that mistake is athlete give a wrong response to coach stimulation about shooting technique. Even coach give proper materi and example is not guarantee that athlete will receive the explanation well (Figure 2). Give proper materi and example in some repetition method which use by coach has limitation, Smaldino et al (2012) said that there is not all of materi receiver will receive well that repetition, which has potency to be bored and do not help the materi receiver to learn.

**Fig.2. Fail communication process (Sadiman et al, 2012)**

3. PRELIMINARY FORM OF INSTRUCTIONAL MEDIA

Design of instructional media which developed get revise base on results of expert judgement (table 5).

Table 5 Expert judgement results

No.	Name	Expert on	Results
1.	Bayu Santoso, S.Pd	Basketball	Add instructional media manual book fo user.
			Give mark on center of the ball to notice the ball spin after release.
2.	Adi Wijayanto, S.Or, S.Kom, M.Pd	Media	Put nails picture on hands picture in order athlete can put their hands easier.
			Add cartoon on hands picture to attract kids.
			Use eye catchy ball.
			Add instructional media manual book fo user.
			The instruction media has to accomodate southpaw athlete.

On its early design, instructional media only the basketball with a hands picture that show athlete where they have to put their hand for outside shooting. According to results of expert judgement, there are some revision that applied to instructional media (Fig. 3). As the experts give an advice about the manual book, that manual book must through expert judgement too just like the ball

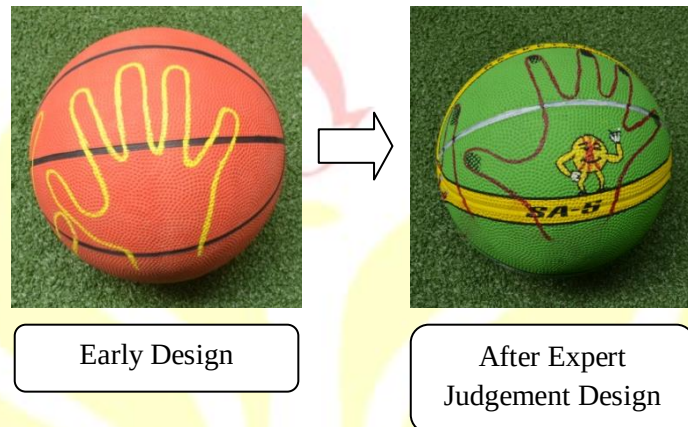


Fig. 3. Expert Judgement Results

Table 6 Manual Book Expert Judgement

No.	Name	Expert on	Results
1.	Bayu Santoso, S.Pd	Basketball	Add example picture.
2.	Adi Wijayanto, S.Or, S.Kom, M.Pd	Media	Increase font size.
			Crop ball picture according to the picture side
			Add contrast level of the color.
			Give border between example picture with materi.
			Make an interesting cover.
			Use glossy paper for the cover.
			Use 160 paper for the contents.
			Give effect on font that use in the cover.

Experts feel that design of instructional media and manual book is too simple. The early design considered lack of interest and do not show how to use it. After expert judgement process, both instructional media and manual book get revision. Application of instructional media can add student motivation, in this research refer to athlete, and make their attention to materi increase (Sanjaya, 2012). Experts want the instructional media can do the same thing with that theory. Later design of instructional media and manual book makes it more clear and interesting to use.

4. PRELIMINARY FIELD TEST RESULTS

Preliminary field test held on SB3S (Sekolah Bola Basket Bima Sakti). The test on coach result is coach want suitable palm picture for kid (Fig. 4). The test on athlete results are 100% athlete feel that explanation about the instructional media on manual book is clear, 100% athlete feel that glance about instructional media is clear, 75% athlete feel that the manual book is interesting, 75%

athlete feel that the instructional media make them easier to practice, 100% athlete feel that instructional media is interesting and 75 % athlere feel that instructional media is helpfull.



Fig.4 . After preliminary field test design

Preliminary field test show that both instructional media and manual book can use by coach and athlete. Even athlete can use the instructional media coach want to make the palm picture suitable for them. The suitable palm picture will make athlete fell comfort and easy to use instructional media. Coach request and athlete response show that instructional media can use better if has suitable palm picture. Manual book help athlete and coach to use instructional media.

5. MAIN FIELD TEST RESULTS

Main field test held on SB3S (Sekolah Bola Basket Bima Sakti) and IMBTC (Indonesia Muda Basketball Training Camp). The test on coach result are coach feel that their athlete still need time to adjust with the instructional media and need another interesting instructional media for another basic technique. The test on athlete results are 86,6% athlete feel that explanation about the instructional media on manual book is clear, 86,6% athlete feel that glance about instructional medua is clear, 86,6% athlete feel that the manual book is interesting, 96,6% athlete feel that the instructional media make them easier to practice, 100% athlete feel that instructional media is interesting and 80% athlere feel that instructional media is helpfull.

Main field test show that both of instructional media and manual book do not need some revision anymore. Both of coach feel that instructional media help them to transfer the outside shooting materi to their athlete. The modification on palm picture which more suitable for kids also make athlete comfor to use the instructional media. Beside of that results, manual book also give a contribution for athlete to understand how to use the instructional media and practice outside shooting properly. Instructional media give athlete real experience to positioning their hand poperly. Real experience is the most helpfull practice method in Edgar Dale's experience cone (Figure 5).

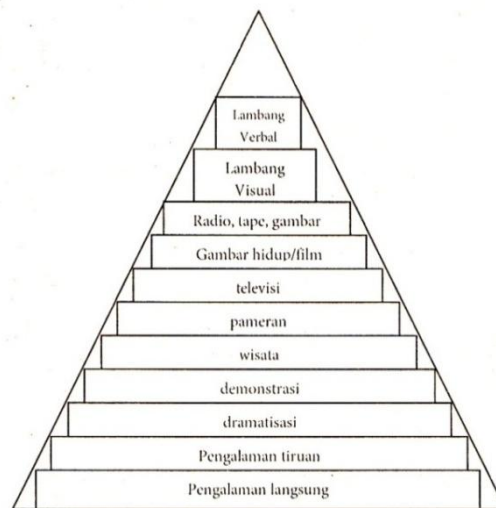


Fig.5. Edgar Dale's Cone Experience (Sanjaya, 2012)

CONCLUSION AND SUGGESTION

1. CONCLUSION

Coaches feel that instructional media and manual book help them to transfer information or materi about outside shooting basic technique. Instructional media makes practice process more fun and more interesting. Athletes feel the same thing, they feel that instructional media and manual book really helpfull. Instructional media give athlete real experience to position their palm properly.

2. SUGGESTION

1) For club

Mini basketball club supposed to use instructional media regularly to gain the good result. Beside the instructional media that developed by researcher, mini basketball club must give stimulus, support and chance for coach to develop another instructional media that more interesting, more usefull, more helpfull, easier to use and give faster result for athlete.

2) For coaches

Coach have to use instructional media to fix the technique quality. In order to make the practice run smoothly, coach have to integrate instructional media and their coaching method. Instructional media will be useless if coach can not use it properly. Coach can not always depend on instructional media that developed by researcher, they have to develop their own media that suitable with their coaching method and athlete condition.

3) For athletes

Athlete have to add their practice hour outside regular practice. Instructional media that supported with manual book give athlete a chance to practice by themself.

4) For another researcher

If another researcher want to develop similar instructional media or revise instructional media better they held a test on bigger scale. Researcher should develop an instructional media that can accomodate another basic technique.

REFERENCES

- Amber, V. 2009. *Petunjuk untuk Pelatih dan Pemain Bola Basket*. Bandung: Pionir Jaya.
- American Sport Education Program. 2007. *Coaching Youth Basketball Fourth Edition*. United States: Human Kinetics.
- Ardhana, W. 2002. *Konsep Penelitian Pengembangan dalam Bidang Pendidikan dan Pembelajaran*. Malang: Universitas Negeri Malang.
- Arikunto, S. 2006. *Prosedur Penelitian Suatu Pendekatan Praktek Edisi Revisi VI*. Jakarta: Rineka Cipta.
- Arikunto, S. 2010. *Prosedur Penelitian Suatu Pendekatan Praktek Edisi Revisi VII*. Jakarta: Rineka Cipta.
- Arsyad, A. 2009. *Media Pembelajaran*. Jakarta: Rajawali Pers.
- Asyhar, R. 2011. *Kreatif Mengembangkan Media Pembelajaran*. Jakarta: Gaung Persada Press.
- Borg, W. R. and Gall, M. D. 1983. *Educational Research: An Introduction Fourth Edition*. New York: Longman.
- Daryanto. 2009. *Panduan Proses Pembelajaran Kreatif dan Inovatif*. Jakarta: AV Publisher.
- Decaprio, R. 2013. *Aplikasi Teori Pembelajaran Motorik di Sekolah*. Jogjakarta: Diva Press
- Dimiyati dan Mudjiono. 2013. *Belajar dan Pembelajaran*. Jakarta: Rineka Cipta.
- FIBA OCEANIA. 2005. *Mini Basketball Coaching Manual A game for boys and girls 8-12 years old*. Australia: FIBA OCEANIA.
- FIBA. 2005. *Mini Basketball Rules*. Switzerland: FIBA.
- FIBA. 2012. *Official Basketball Rules*. Switzerland: FIBA.
- Jawa Pos. 2012. *Lima Seri Tembus 130 Penonton: Jangkau Lebih Banyak Kota pada Musim Berikutnya*. <http://www.deteksibasketball.com/>. Diakses pada tanggal 12 Desember 2012
- Munadi, Y. 2012. *Media Pembelajaran Sebuah Pendekatan Baru*. Jakarta: Gaung Persada Press.
- Oliver, J. 2004. *Dasar-Dasar Bola Basket Cara Yang Lebih Baik Untuk Mempelajarimya*. United States: Human Kinetics.
- Pave, B. and Pave, P. 2001. *Youth Basketball Drills 110 basic to advanced drills*. United States: Human Kinetic.
- Sadiman, A. S., Rahardjo, R., Haryono, A. dan Rahardjito. 2012. *Media Pendidikan: Pengertian, Pengembangan, dan Pemanfaatannya*. Jakarta: PT. Rajagrafindo Persada.
- Sanjaya, W. 2012. *Media Komunikasi Pembelajaran*. Jakarta: Kencana Prenada Media Grup.
- Santyasa, W. 2007. *Landasan Konseptual Media Pembelajaran*. Disajikan dalam Workshop Media Pembelajaran bagi Guru-Guru SMA Negeri Banjar Angkan.
- Smaldino, S. E., Lowther, D. L. Dan Russell, J. D. 2012 *Instructional Technology & Media for Learning 9th Edition*. 2012. Jakarta: Kencana Prenada Media Grup.
- Sudijono, A. 2008. *Pengantar Statistik Pendidikan*. Jakarta: PT. Rajagrafindo Persada.
- Sukadiyanto. dan Muluk, D. 2011. *Pengantar Teori dan Metodologi Melatih Fisik*. Bandung: CV. Lubuk Agung.
- Sukamadinata, N. S. 2005. *Metode Penelitian Pendidikan*. Bandung: PT. Remaja Rosadakarya.
- Wissel, H. 2000. *Bola basket dilengkapi dengan program pemahiran teknik dan taktik*. Jakarta: PT. Rajagrafindo Persada.

THE DEVELOPMENT OF HEALTH EDUCATION LEARNING MEDIA THROUGH TRADITIONAL GAME "BOY" ELEMENTARY FOR SCHOOL IN KUPANG CITY

Maria Fatubun¹, Lukas M. Boleng², Robert Tetikay³

¹PJKR UKAW University of Kupang, ²UNDANA University

²bolenglukas@yahoo.co.id, ³robertetikay@gmail.com

Abstract

Purpose: This research is background by the motivated by at learn two things they are of conventional method in learning process which make student bored and there is not interactive using Compact Disk as learning media yet, as the learning media of health education with thematis approach. This research is the aim is create the learning media of health education through traditional game "boy" as student learning media in health education especially under topic of well-balanced nutrient as an effort to improve the motivation of the fourth grade student of Inpres Oesapa elementary school in Kupang city.

Methods: The method used is Research Development method which is development by Borg and Gall in Wasis (2010) in developing seven steps. **Results:** From the result of the entire aspects evaluation of the developed media and his using 1 - 4 scale it was obtained 91,66% in average (very good). **Conclusion:** It can be concluded that the learning media development product of health education through traditional game " boy" approach being based on Compact Disk was proper to be used for the fourth grade students of Inpres Oesapa elementary school in Kupang city.

Keywords: development learning media, well-balanced nutrient, traditional game "boy"

INTRODUCTION

The application of 2013 Curriculum based on character has been running by partial school and it's implementation is not optimal yet. However, the teacher claimed to apply such scientific approach in learning process. Physical, athletic and health education at elementary school used thematic approach which is required interesting and succeeding teaching aid. So for, the used of learning method generally at elementary school and especially conducted at Oesapa Inpres elementary school which used amount of discourse method, and it make students bored. The exploiting of media or learning aid influence, the student learning result, it become better as it's claimed in 2013 curriculum. From such media or learning aid that is applied in the traditional game it can also be developed some other such as aspects morality, religion value, social, language and motorik function (Haris Iskandar,2006).

The early research conducted at Inpres Oesapa Elementary School in Kupang city indicated that the learning of health education an add anomalous semester in academic year 2014/2015 is not conducted appropriately because the use of lectures method in the learning process was very dominan, so the student felt bored. Another fact also showed that the teacher of physical, athletic and health education at this school was the only teacher which representing teacher in East Nusa Tenggara Province about 2013 curriculum in Training Of Trainer, in fact the realization of scientific approach based on 2013 curriculum, has not been applied yet.

The aim of this research is to produce the learning media of health education through traditional game " boy " being based on Compact Disk. The media of health education study in the form of Compact Disk (CD) was necessary for the student of Inpres Oesapa elementary school in Kupang city to make the student faster to comprehend the learning material in this case about well balanced nutrient. Due to the interaktif learning media in the form of Compact Disk about the scenario of health education study using thematic approach is not existence yet. The benefit of this research is expected to assist the teacher of physical, athletic and health education in health education study with more paikem nuance and as example for school in order to develop another learning media in the form of Compact Disk.

METHOD

1. Development Model

This research used development research method to products applied in education and instruction as it was development by Borg and Gall (Wasis D.D.2010:48)

2. Development Procedure

The development of health education model through the modification approach of traditional game " boy ", was conducted by following several steps of Borg and Gall model (2003:284), that is, a) collecting data in the form of book investigate, the early research of the research location, b) planning, including material preparation for designing the early product and discussion with media and materials expert; c) making the media or teaching aid of the early product, d) conducting evaluation of the early product based on the media and materials expert validation; e) revising of the early product, f) the small scale testing, g) revising the product based on the small scale and big scale testing ; h) revising product; and i) the final product.

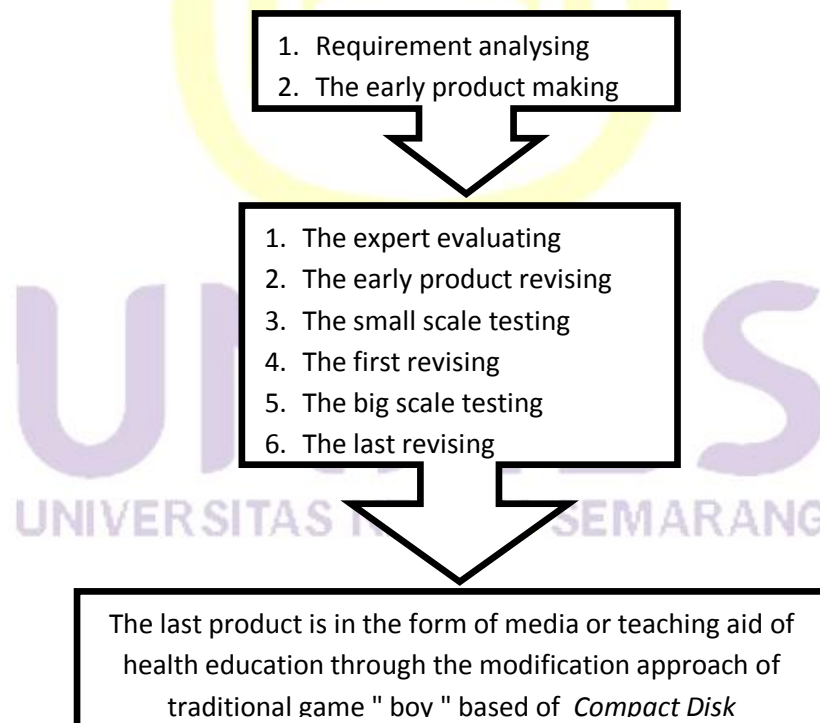


Fig. 1. Diagram development procedures

RESULTS AND DISCUSSION

This research development have yielded the product of media or learning aid of health education and as solution for learning problem through tematis approach faced by teacher of physical, athletic and health education and also the students of Inpres Oesapa elementary school in Kupang city especially in the material of well-balanced nutrient. The feasibility of this product was proven through the result of data research analyse as the following:

1. The result of data analysis and the learning evaluate of physical, athletic and health education expert obtained 95% in average and based on the determined criterion, this product had fulfilled the criterion **"very good"**. Meanwhile for the expert or media designer obtained 88,33% in average and based on the determined criterion, this product had also fulfill the criterion **"very good"**. Thereby, the average percentage hance from their assessment was 91,66%. Based on the research criterion of the existing expert test, the learning media product of health education hence through traditional game " boy" approach had fulfilled the criterion **"very good"**, so it's applicable for the fourth grade students of Inpres Oesapa elementary school in Kupang city.
2. The result of small scale testing data analysis obtained 88,29% in average and based on the determined criterion, this product had fulfilled the criterion "very good". Meanwhile big scale testing obtained 92,43% in average and based on the determined criterion, this product also had fulfill the criterion "very good". Thereby, the average percentage from both of small scale and big scale testing was 90,36%. Based on the research criterion of the existing expert test, the learning media product of health education through traditional game " boy" approach had fulfilled the criterion "very good" so it's applicable for the fourth grade students of Inpres Oesapa elementary school in Kupang city.
3. The development of this testing media was based on several reasons, they are,1) this media is standard of the age of primary school, 2) It was development from traditional game which is familiar to the students. All this reasons were clearly proved by result of questionnaire admission filling of question number 31,33,and 35 got 93,33% in average, fulfilling the criterion **"very good"** in the small scale testing and 98,33% in average, fulfilling the criterion **"very good"** in the big scale testing.

CONCLUSION AND SUGGESTION

Based on the analysis of results of the research in study, it can be concluded that this media is standard of the age of primary school. Based on the conclusion given above, the researcher would like to give some suggestions as follows :

1. The students are expected to use Compact Disk media as learning source to increase the athletic ability and knowledge and also able to conduct this game as one of game in their residence environment.
2. This learning media can be used as the alternative media in delivering of forwarding the materials of health education especially for well-balanced nutrient material for the fourth grade students of Inpres Oesapa elementary school in Kupang city.
3. The teachers of physical, athletic and health education at elementary school are expected to be able to develop often models of games, following this model, in teaching other material in order to be more interesting to the student.

REFERENCES

- Boleng Lukas, at al. 2006. "Permainan Tradisional" (*Jurnal Politik, Hukum, dan Sosial Budaya*). Kupang. Gatra Nusantara.
- Dwiyogo Wasis D, 2010. "Penelitian Keolahragaan". Malang, Universitas Negeri Malang (UM Press).
- Effiana Yiriasstein, at al. <http://id-id.facebook.com/notes/kesehatan-ibu-dan-anak/manfaat-bermain-bagi-anak/hmtl>, It was accessed on 09 Oktober 2014
- Fajar M. Karis, at al. 2012. " Hubungan Status Gizi Dengan Konsentrasi Siswa SMP Negeri I Ngunut-Tulungagung " (Jurnal Membangun Karakter Melalui Pendidikan Jasmani dan Olahraga). Perwira Media Nusantara dan Griya Kebraon Tengah. Surabaya.
- Giam C. Keong dan Chuan The Kong, 1993. "Ilmu Kedokteran Olahraga". Binapura Aksara Jakarta. Penerjemah Satmoko Hartono.
- Hardinsyah, 2007. *Pengetahuan Gizi Seimbang* <https://www.google.com/search/?q=Pengetahuangiziseimbang=org.mozilla>. It was accessed from internet on 09 Oktober 2014.
- Hendrayana Yudi, 2003. "Learning Basic the Games". Departemen Pendidikan Nasional Direktorat Jenderal Pendidikan Dasar Dan Menengah Direktorat Pendidikan Luar Biasa. Jakarta.
- Irianto J. Pekik, 2007. "Panduan Gizi Lengkap Keluarga dan Olahraga". Yogyakarta, CV Andi Offset Yogyakarta
- Katu, 2006. *Pengetahuan Gizi Seimbang* <https://www.google.com/search/?q=Pengetahuangiziseimbang=org.mozilla>. Oesapa. It was accessed from internet on 09 Oktober 2014.
- Kemendiknas. 2013. "Tema 2 Selalu Berhemat Energi (Tematik Terpadu Kurikulum 2013)", Jakarta, Kemendiknas.
- Kemendiknas. 2013. " Kurikulum 2013 Kompetensi Dasar Sekolah Dasar (SD)/ Madrasah Ibtidaiyah (Mi)", *Kementerian Pendidikan Dan Kebudayaan*. Jakarta, Kemendikbud.
- Kemendiknas, 2000. <http://cayangsauntian.blogspot.com/pengertian-sekolah-dasar.html>. It was accessed from internet on 09 Oktober 2014.
- Lumba Johni, at al. 2012. "**Nilai-Nilai Permainan Tradisional Kuda Alang(Jurnal Membangun Karakter Melalui Pendidikan Jasmani dan Olahraga)**", Surabaya, Perwira Media Nusantara dan Griya Kebraon Tengah.
- Patty A.M, 1991. *Boy-boyan*, <http://www.budaya-indonesia.org/iaci/Boy-boyan>. It was accessed from internet on 09 Oktober 2014.
- Rahayu Ega Trisna, 2013. "Strategi Pembelajaran Pendidikan Jasmani Implementasi Pada Pembelajaran Penjasorkes". Bandung, Alfabeta Bandung.
- Rahman Taufik, at al. 2012. "**Jenis – Jenis Media Pembelajaran (Membangun Karakter Melalui Pendidikan Jasmani dan Olahraga)**". Surabaya, Perwira Media Nusantara dan Griya Kebraon Tengah.
- Rohman Ujang, at al. 2012. "Pembelajaran Pendidikan Jasmani Sebagai Sarana Meningkatkan Motivasi Belajar Peserta Didik"(Jurnal Membangun Karakter Melalui Pendidikan Jasmani dan Olahraga). Perwira Media Nusantara dan Griya Kebraon Tengah. Surabaya.
- S. Indrarti, at al. 2010. "Kesehatan Olahraga Panduan Untuk Pelatih Olahragawan Usia Dini. Pusat Pengembangan Kualitas Jasmani", Sekretariat Jenderal, Kemendiknas. Jakarta.
- Suniar Leane, 2002. "Dukungan Zat-Zat Gizi Untuk Menunjang Prestasi Olahraga". Kalamedia. Jakarta.
- Sutrisno Hadi, 2004. "Statistik", Yogyakarta, Andi Offset Yogyakarta
- Uhamisastra, 2010. <http://fpok.upi.edu/artikel/jurnal-pgsd-pendidikan-jasmani-volume-1-nomor-3-desember-2013-budi-sukarno>. It was accessed from internet on 10 Nopember 2014.

THE MAJOR PROBLEMS OF TEACHING SWIMMING TO YOUNG CHILDREN

Kaswarganti Rahayu

Sport Science Faculty, Semarang State University

kaswarganti@gmail.com

Abstract

The major problems of teaching swimming to young children are firstly the problem of the child who cannot touch the bottom and secondly the problem of face and head immersion. To teach the beginners can use a floatboard in order to practise armaction, leg kicks and breathing methode. Small children who are in armbands because they cannot touch the bottom tend to teach themselves head immersion accidentally, water may go in their mouth while they are laughing, they may hold onto the sides of the pool and launch themselves off only to find the water has covered the lower part of their face. They need to be told to keep their mouths closed.

Key words: teaching swimming, young children



THE INFLUENCE OF TEACHING MODELS THROUGH SIENTIFIC APPROACH TOWARDS THE SKILL OF PLAYING FOOTBALL

Dena Widyawan

Indonesia Education University

dena_widyawan@yahoo.com

Abstract

The research is purposed to analyze the influence of problem based learning model towards the skill of playing football, which is expected to give positive contribution to the achievement of the goals of Curriculum 2013. The research method employed in the research is experimental randomize pretest and posttest control group design. The participant of the test was 60 students consisted of 30 experimental group students and 30 control group students. The research was done for 8 weeks; twice a week for each session. The instrument used to measure the skill of playing football was the GPAI. The analysis technique employed was the T-Test, by using SPSS 18. The result of the research are as follows: (1) There is a significant improvement between pretest and posttest score of the playing football skill using the problem based model; (2) there is a significant improvement of the playing football skill between pretest and posttest using the direct instructional method; and (3) there is a different score of playing football between the students who learn by using the problem based model and those who learn by using the direct instructional method.

Key words: Problem based learning model, playing football skill.

UNNES
UNIVERSITAS NEGERI SEMARANG

THE EFFECT OF LEARNING MODEL AND GANDER TO STUDENTS' SOCIAL AWARENESS ON PHYSICAL EDUCATION LEARNING

Dupri

Indonesian University of education

dupriok@gmail.com

Abstract

This study departs from the idea of the descent on students' social awareness. This condition is characterized by high rates of juvenile delinquency, students' fighting and high influence of technology which decreases students' social awareness to people and their environment. This research intends to describe the different levels of students' social awareness taught by two models of Hellison and Cooperative. Experimental method is the research approach used in this study with Non-equivalent control group pretest posttest design. This research uses several data analyses techniques, such as observation, interview, teaching program, tests, analyses and conclusions. The instruments of the research are questionnaire of social awareness and analysis design with two-way ANOVA. The results show that there are significant differences of students' awareness between Hellison model group and cooperative models group. However, significant level of awareness is not appeared in gender differences.

Keywords: physical education, teaching hellison model, cooperative



LOVE OF ENVIRONMENT THROUGH THE OUTDOOR EDUCATION CAMPING PROGRAM KARDJONO

Kardjono

Faculty of Sport and Health Education

Indonesia University of Education

haruni.anajohn@gmail.com

Abstract

Human desire to life in the city area has caused increasing number of urbanization. The movement makes cities more crowded and the number of unemployment rises year by year. Physical education through outdoor education camping program may be implemented as potential to be improvement of domain affective such as love of village environment. The purpose of this research is to investigate the effects of an Outdoor Education's Camping program upon student's loving of village environment. The subjects consisted of 50 male and female students from secondary school in west java. Subjects were divided into an experimental and a control group. The loving environment Scale used modification questions from The Relationship Awareness Scale from the Snell, W.E., Jr., & Finney, P.D. (1997). The results after three days camping program showed that the Outdoor Education Camping program had positive effects on the experimental group. The results of this study suggest that living in the outdoor such as camping is an active meditation with pleasure, challenge, stress reduction, and naturally shifts attention away from the cities crowded problem.

Key Words: outdoor education, camping, love, environment



TOOLS DEVELOPMENT TO MEASURE EFFECTIVENESS PHYSICAL EDUCATION TEACHER LEARNING

Nyak Amir

Universitas Syiah Kuala Banda Aceh

amir_fkip@yahoo.com

Abstract

One of the main problems of physical education in Indonesia, until today has not been effective teaching of physical education in schools. This condition is caused by several factors, including the limited ability of physical education teachers and resources are used to support the learning process of physical education and for this there is no measuring instrument to measure the effectiveness of teaching physical education teacher. The purpose of this study was to develop a measurement tool of learning effectiveness as a physical education teacher assessment scale. Subjects in this study is a physical education teacher and high school students of Banda Aceh amounted to 24 people. Measuring tool making process of learning effectiveness of physical education teachers includes two stages: (1) The collection of grains (item pool) and (2) Selection of grains (screening of item pool) with a Q-sort method. Furthermore, this measure was tested in 385 high school students in Banda Aceh State Aceh province. Data were analyzed by testing the validity, reliability, and factor analysis. The result of research that scale learning effectiveness of physical education teachers of seven dimensions and 92 items is valid measuring tool and has a high level of validity to 0.929 and reliable indices that have a high degree of reliability with a 0.985 index that can be used to measure the effectiveness of learning physical education teacher.

Keywords: development, measurement, effectiveness



DEVELOP TARGET NET AS A TOOL FOR SHOT LEARNING IN BADMINTON SPORT AT JUNIOR HIGH SCHOOL

Afif Khoirul Hidayat

Musamus University

afif.khoirulhidayat@gmail.com

Abstract

Badminton is a kind of sport that is quite difficult to be mastered by JHS students. This research aims to produce and develop target net tools in facilitating JHS students to improve the basic techniques of net shots, smashes, drives, dan short serves.

This research and development study follows the steps of: (1) the potential and problems identification, (2) data collection, (3) product design, (4) the design and validation of the instrumen, (5) revision of the design, (6) product trials, (7) revision, and (8) production/implementation of the product. The trials were conducted to 168 students. The small scale trial was conducted to 47 students of class 8F of Piyungan JHS 1 and class of 8B Piyungan JHS 2. The large scale trial was conducted to 121 students of class 8H of Piyungan JHS 1, class 8C of Piyungan JHS 2, class 8D of JHS Development Piyungan, class 8A of Muhammadiyah Piyungan JHS and class 8B Hasyim Asy'ari Piyungan MTs. The data collection instrumens were the design factors and teaching material factors each of which consisting of six indicators. The technique of data analysis is descriptive quantitative analysis and qualitative descriptive analysis.

The result of this research is a learning tool of target net product and manual book of the target product. At the end of the research, it can be concluded that the learning tools and target net manuals have a very good quality, which is proved by the average percentage quality assessment score of the learning tools and manuals targeted net being 98.66%.

Keyword: development, target net, badminton

UNNES
UNIVERSITAS NEGERI SEMARANG

INCREASING SPORT PARTICIPATION THROUGH INCREASED FOCUS ON SCHOOL SPORTING EXPERIENCES IN SINGAPORE

Cho Jin Jin Tessa

Nanyang Technological University, Singapore

tessacjj@gmail.com

Abstract

Although literature on the importance of sport and physical education has existed and is acknowledged as an integral part of nation building and personal growth, few have examined or discussed the influence of school sporting experience on local athlete's future sporting choices. This paper aims to introduce school sports as the foundation of majority local athletes and leverage on it to increase sport participation in the future generations in Singapore. The study provides perspectives and insights from school athletes that have competed in various sporting competitions, whether overseas or locally. It showcases the local enthusiasm in school sports and how increased focus on it has driven local support towards further pursuit of sporting excellence. This research involves qualitative research techniques, through onsite surveys and interviews with different stakeholders in the Singapore school sporting scene (student athletes, their parents and commercial partners, eg. Redsports.sg). The study affirms that the experience gathered from athletes' school sporting times play a significant role in their future experience with sport. Pursuing sport competitively is largely dependent on the experience gathered in their schooling days. Therefore, more effort should be put into developing school sporting cultures and experiences to engage the young early, to cultivate a national sporting culture for the future.

Key words: School Sports, Sport Participation

UNNES
UNIVERSITAS NEGERI SEMARANG

PREDICTION OF THE RECORD LEVEL OF LONG JUMP WITH THE SIGNIFICANCE OF LEARNING ASPECTS TO TRACK AND FIELD EVENTS FOR PREPARATORY STAGE STUDENTS

Mostafa Mohammed Nasr AlDeen

Faculty of Physical Education, Port Said University

prof_mostafanasr@yahoo.com

Abstract

This study aims at identifying the contribution proportion (C.P) of learning aspects to track and field events for preparatory stage students in record level of long jump by using descriptive method . The study was applied on first grade preparatory stage students (n = 120) by using SPSS program to apply step wise regression (SWR) and to conclude matrix correlation to factors of study. Most important results showed that the first contributor to record level of long jump was the second factor (pull up) which represents arm strength component of (C.P) of (0.14%) . The second contributor was the eighth factor (attitude scale) which represents the psychological aspect of pure (C.P) of (0.05%) , and together to first contributor of (0.19%). The third contributor was the fifth factor of (45.70 m. dash of high start) which represents full speed component of pure (C.P) of (0.06%) and together to first and second contributors (0.25%). The study recommended to pay attention to these contributors components when instructing long jump event.

Keywords: contribution proportion, learning aspects, long jump

INTRODUCTION

Teacher should understand the main aspects of learning process that he should teach to his students, what contributes greatly in achieving the educational objectives. If the teacher has a good vision of the objectives, he will carry them out easily because there is a positive relation between the objectives clarity and good teaching.

Some of learning aspects have been focused on in the previous studies such as Ahmed (2008) which aimed at recognizing the difference between the influences of two educational programs in learning triple jump for preparatory stage students. Imbaby (2010) did a study for recognizing the influence of introductory games program on performance in track and field events for the first year in preparatory stage students. AlHadidy (2013) also conducting a study aimed at recognizing the influence of an educational program on cognitive achievement and the psychomotor performance level for beginners in long jump.

Long jump, as one of the track and field events, is one of the activities in physical education curriculum that needs to benefit of all learning aspects to rise the record level of its performance.

The researcher noticed, during his supervision to field training students, that teachers do not care about providing students with learning aspects of the sportive activities specially track and field events. Physical education is a subject without a textbook, to show the objectives of each event of track and field events such as long jump and learners do not realize the aspects and objectives that they should achieve during studying. Therefore, the researcher tried to find to what extent learning aspects contribute with record level.

The study aims at recognizing:

1. The percentage of learning aspects (cognitive- physical- affective) contribution in psychomotor domain represented in the record level of long jump for the first year students in preparatory stage.
2. The prediction equation with the significance of the learning aspects which contribute with the record level of long jump for the first year students in preparatory stage.

Hypothesis:

The percentages of learning aspects (cognitive- physical- affective) contribution in psychomotor domain represented in the record level of long jump for the first year students in preparatory stage are different.

METHODS

Design: The descriptive design has been used.

Sample:

The sample has been chosen randomly from for the first year students in preparatory stage from Dakahlia Governorate during the scholastic year (2014- 2015) , as (120) student their characteristics were as in the following tables (1), (2) and(3).

The procedures:

1. 120 student have been chosen randomly from first year of the preparatory stage to be the sample of the study.
2. The growth ranges (age, length, weight and intelligence) have been measured.
3. Physical tests of track and field events (running(45.70 m.) from high start test, bend the trunk forward from standing test, broad jump of stability test, screwing to the top on the horizontal bar test and numbered circles test) have been applied.
4. The cognitive test, attitudes criterion and record level of long jump are measured to find out which one of the aspects contribute in the record level of long jump and the percentages of that contribution.
5. Forming the final predicted equation with the significance of the record level of long jump.

Instruments:

1. The measurements of growth ranges:
 - Age by revising dates of birth from school folders.
 - Length by using measurement tape.
 - Weight by using medical balance.
2. Pictured intelligence test prepared by Ahmad Saleh (1988).
3. Physical tests of track and field events:
 - Running (45.70 m.) from high start test prepared by Alawy and Radwan (1987) to measure speed.
 - Bend the trunk forward from standing test to measure flexibility.
 - Broad jump of stability test to measure ability.
 - Screwing to the top on the horizontal bar test to measure muscles strength.
 - Numbered circles test to measure adjustment prepared by Hasaneen (2001).

The main experiment:

The tests and measurements has been done in between Wednesday 15- 10- 2014 and Thursday 30- 10- 2014.

Statistical techniques:

The researcher used the Statistical Program for Statistical Sciences (SPSS) to find mean, standard deviation, correlation and stepwise regression.

Stepwise Regression has been used to find the percentage of learning aspects contribution in the record level of long jump, correlation values were as shown in table (4).

RESULT AND DISCUSSION

Table (1)

The description of growth ranges and intelligence of the sample.

no	Statistics Ranges	Measuring unit	x-	Sd±
1	Age	Month\ year	12.06	0.03
2	Length	cm.	148.47	3.81
3	Weight	Kg.	44.98	2.53
4	Intelligence	degree	38.75	3.43

Table (1) shows that the means of the age, length, weight and intelligence are (12.06) (148.47) (44.98) (38.75) and the standard deviations are (0.03) (3.81) (2.53) (3.43) respectively.

Table (2)

The description of the physical factors.

No	Statistics Factors	Measuring unit	x-	Sd±
1	Bend the trunk forward from standing	cm.	1.68-	2.50
2	Screwing to the top on the horizontal bar	no.	1.04	0.80
3	Broad jump of stability	cm.	1.19	0.22
4	Numbered circles	sec.	8.18	1.28
5	Running (45.70 m.) from high start	sec.	9.71	0.76

Table (2) shows the means of the physical factors of the sample represented in the tests: bend the trunk forward from standing which measures flexibility of the backbone is (1.68-), screwing to the top on the horizontal bar, which measures arm muscles strength is (1.04), broad jump of stability which measures muscles ability of the legs is (1.19), numbered circles which measures the adjustment of the legs and eyes is (8.18), and running (45.70 m.) from high start which measures the extreme speed in running is (9.71). The standard deviations are (2.50), (0.80), (0.22),(1.28) and (0.76) respectively.

Table (3)

The description of the cognitive and affective factors and the record level of long jump.

no	Statistics Factors	Measuring unit	x-	Sd±
1	Cognitive	Degree	54.40	3.54
2	Attitudes criterion	Degree	94.43	2.59
3	Record level of long jump	cm.	2.15	0.16

Table (3) shows the mean of the sample in cognitive test as (54.40), in attitudes criterion is (94.43) and in record level of long jump is (2.15). the standard deviations are(3.54) (2.59) and (0.16) respectively.

Table (4)

The inter-correlation matrix between the aspects and the record level of long jump.

	flexibility	strength	ability	adjustment	speed	cognitive	affective	Record level
flexibility								
strength	0.12 -							
ability	0.10 -	**0.41						
adjustment	0.07 -	**0.28 -	*0.20 -					
speed	0.09 -	*0.20 -	0.14 -	**0.56				
cognitive	0.04	**0.41	0.15	**0.29 -	**0.37 -			
affective	0.14 -	0.10	0.07 -	*0.19 -	0.07	0.13 -		

Record level	0.05 -	**0.37	0.17	**0.29 -	**0.30 -	0.11	**0.27	

** = significant at 0.01 * = significant at 0.05

Table(4) shows the inter-correlation matrix between the aspects which are (28) aspects fifteen of them are not significant with a percentage (53.57%) and thirteen aspects with a percentage of (46.43%) are significant, ten of them are significant at (0.01) with a percentage (76.92%) and three aspects significant at (0.05) with a percentage (23.08%).

Table (5)

The final step of aspects regression to the record level of long jump.

No	statistics statement	Partial regression factor	Standard errors	Contribution percentage	Total of the contribution percentage
	Invariably value	1,15	0.48	-	-
1	Arm muscles strength aspect	0.06	0.02	0.14%	0.14%
2	Affective domain	0.02	0.01	0.05%	0.19%
3	Extreme speed in running aspect	0.05-	0.02	0.06%	0.25%
Total of the contribution percentage					0.25%

Table (5) shows that the first contributor of the record level of long jump is the second aspect (arm muscles strength) with a percentage of (0.14%) while the seventh aspect (affective) is the second contributor with a percentage (0.05%) alone and (0.19%) gathered with the first contributor. The fifth contributor (Extreme speed in running aspect) is(0.06%) alone and (0.25%) when it gathered with the first and second contributors in the record level of long jump. The total of the contribution percentage of all the aspects in the record level of long jump is(0.25%). The final predicted equation with the significance of the second aspect (arm muscles strength), the seventh aspect (affective) and the fifth aspect(extreme speed in running) is: The record level of long jump= 1.15+ (0.06) (arm muscles strength) +(0.02) (affective) +(0.05-) (extreme speed in running).

Tables (4 and 5) shows that there is a correlation relation at the significance of (0.01) as a proportional relation between the record level of long jump and arm muscles strength aspect, the correlation between them is (0.37). there is an inversely proportional relation between extreme speed in running aspect and the record level, and the correlation between them is (0.30-). There is also a proportional relation between the record level of long jump and the affective aspect, the

correlation between them is (0.27). The percentage of the aspects contribution in the record level represent (0.14%) for strength aspect, (0.05%) for the affective aspect and (0.06%) for speed aspect.

The researcher see that caring about learning aspects: physical, affective and cognitive reflects on the psychomotor domain. Practicing learning in school lead to a positive attitude to learners and give students information about the skills and how to perform it, what reflects on their dynamic performance.

Results of the research agree with results of the studies of Ibraheem (2007), AlGendy (2007), Antoniou (2010), Nada (2011), Abo AlAtaa (2012) and AlHadidy (2013), those studies referred to that teaching methods with the physical, affective and cognitive aspects contribute positively in developing the psychomotor domain.

From the above discussion, the hypothesis of the study which is the percentage of learning aspects (cognitive- physical- affective) contribution in psychomotor domain represented in the record level of long jump for the first year students in preparatory stage are different, is achieved.

CONCLUSION AND SUGGESTION

Conclusions:

- There is proportional relation between the record level of long jump and arm muscles strength aspect.
- There is inversely proportional between record level and extreme speed in running.
- There is proportional relation between the record level of long jump and the affective aspect.
- The percentage of contributor of the record level is (0.14%), the affective is (0.05%) and speed aspect is (0.06%).
- The predicted equation of the record level of long jump has been formed as follows:
 - The record level of long jump= $1.15 + (0.06) (\text{arm muscles strength}) + (0.02) (\text{affective}) + (0.05) (\text{extreme speed in running})$.

Recommendations, teaching long jump from running needs using the aspect of arm muscles strength and the extreme speed in running and the affective aspect represented in attitude criterion to rise the record level.

ACKNOWLEDGMENT

REFERENCES

- Abo-AlAtaa, S.A. (2012). *An Influence of an Educational Program Using Multi-Media in Some Aspects of Cognitive, Skills and Affective in Handball in Preparatory Stage Students*. Unpublished PhD. Physical Education Faculty, Mansoura University.
- Ahmed, A. A. (2008). *The Influence of Super Digital Multi-Media on Teaching Triple Long Jump for Preparatory Stage Students*. Unpublished M.A. thesis. Physical Education Faculty, Mansoura University.
- Alawy, M.H. & Radwan, M.N. (1987). *Psychomotor and psychological tests in sportive field*. Dar Alfr Alaraby. Cairo.
- AlGendy, M.M. (2007). *The Influence of a Suggested Educational Computerized Program on The Cognitive and Psychomotor Achievement on Preparatory Stage Students in Weight Lifting Sport*. Unpublished M.A. thesis. Physical Education Faculty, Mansoura University.

- AlHadidy, H. E. (2013). *The Influence of an Educational Multi-Media Program on The Cognitive and Psychomotor Achievement for Beginners in Long Jump*. Unpublished M.A. thesis. Physical Education Faculty, Port Said University.
- Antoniou, P., Derri, V., Kioumourtoglou, E., Mouroutsos, S. (2010). *Applying Multimedia Computer-Assisted Instruction to Enhance Physical Education Students' Knowledge of Basketball Rules*. Department of Physical Education and Sport Science, Democritus University of Thrace, 69100 Komotini, Greece.
- Hasaneen, M.H. (2001). *Measurement and Evaluation in Physical Education*. Part 1 ,4 ed. In press, Dar Alfkr Alaraby. Cairo.
- Ibraheem, A. I.(2007). *The Effectiveness of Using Multi-Media in Giving the Main Skills for Beginners in Karate Sport*. Unpublished PhD. Physical Education Faculty for Boys, Banha University.
- Imbaby, H.A.(2010). The Influence of Introductory Games Program on Some Skills in Track and Field Events for Preparatory Stage Students. In press, *Theories and Applications Journal*, (68), Alexandria University.
- Nada, A. A. (2011). *The Influence of a Suggested Educational Electronic Program on Learning Aspects in Track and Field Events for Preparatory Stage Students*. PhD. Port Said University.
- Saleh, A. Z. (1988). *Educational Psychology*. In press, AlNahda AlMasrya, (ed. 13) Cairo.



COMPARED TO FAVORITE LEADERSHIP BEHAVIOR BETWEEN PLAYERS AND SOCCER COACHES

Refaei Moustafa Hussein ¹, Mahmoud Hassan Elhofy ²

¹Professor of soccer training, Faculty of Physical Education, Port Said University

²Professor of soccer training, Faculty of Physical Education, Sadat University

¹prof_refaei@yahoo.com, ²Pr_mahmoudelhofy@hotmail.com

Abstract

Research aims identify leadership behavior favored by players in coach, identify leadership behavior as coaches seen in themselves, and identify differences between them. Researchers used survey method, Sample included 125 personnel divided to 55 coaches and 70 players, Researchers used Leadership Scale For Sport designed by Saleh & Chelladurai then Mohammed Allawi modified it to fit with Arab environment, Scale includes 5 dimensions: (training behavior, democratic behavior, autocratic behavior, social support behavior, reward behavior) and contains 38 phrase, five Ranking. Results showed that leadership behavior favored by players in coach: democratic, training behavior, reward behavior, social support behavior and autocratic behavior. While favorite leadership behavior for coaches as seen in themselves: training behavior, social assistant, autocratic, reward, democratic. Researchers recommend soccer coaches modifying behavior from autocratic to democratic.

Keywords: soccer, psychology

INTRODUCTION

Leadership one of complex concepts that contain many of nested variables which that affect and are affected by each other, and it is one of most important manifestations of social interaction and **Cox** defined "it's individual behavior when one person leading activities of group of people towards achieve goal in common"[3].

The Leaders plays key role in guiding Activity Community, extent of its production and spirit of support between their members. [4], [11].

Coach one of fundamental factors in training process through the duties and responsibilities entrusted to him, both in field of training and implementation planning or in sports competition administration. [14].

Also player one of axes of training process, he is contributes in extent of accepting to his coach technically and administratively, he is play an important role in success of coach work and achievement of team goals.[15].

Many experts of psychology agree that leadership behavior is "all acts, words, expressions and activities issued of coach during sports practice or outside scope towards his players or to other workers in field of sports when he performs his duties functional" [13].

Hersey and Blanchard sees that leadership styles are prescriptive Leadership Behavior, marketing Leadership Behavior, participation Leadership Behavior and delegated Leadership Behavior. [7] While **EzbiniewCzajkowski** sees that leadership styles are formal style, wave style, dictatorial style, cooperative style, friendly style. [5].

Mohammad Allawi And **Osama Rateb** sees that there are two styles of leadership: autocratic style it focus on "gain, control, regulation and action" and another style is democratic it focuses on "athlete, cooperation, interest and feelings of players" [14], [12].

Several studies performed on leadership behavior of coach in many sports activities showed it's extent affecting on team's performance and its relationship on achieve desired goals of team.

Through work of researchers in soccer training field and follow-up of many coaches in soccer they noticed that there are many different leadership styles used by both of them, which may significantly effect on players performance, whether positively or negatively, and here emerged idea of this research in scientific try to know the leadership behavior through opinion of coaches in themselves and know the behavior that players favored in their coaches.

Research aims, to identify the leadership behavior through opinion of coaches in themselves, know the behavior that players favored in their coaches, and identify differences between them.

METHODS

Researchers used survey method, Sample included 125 personnel divided to 55 coaches and 70 players.

Researchers used Leadership Scale For Sport designed by **Chelladurai and Saleh**[2] then **Mohammed Allawi**[10] modified it to fit with Arab environment, Scale includes 5 dimensions: (training behavior, democratic behavior, autocratic behavior, social support behavior, reward behavior) and contains 38 phrase, five Ranking.

Statistical treatments, Researchers used statistical software pac χ^2 ge (SPSS) to treatment of statistical data by using:

1. Arithmetic mean.
2. Standard deviation.
3. The correlation coefficient.
4. Percentage.

RESULT AND DISCUSSION

Table (1)

Mean, standard deviation, discretionary degree, relative importance and χ^2 to opinions of coaches in training behavior.

No. Phrases	$\bar{x}$	SD	discretionary degree	relative importance	χ^2
1	4.47	0.84	246	89.45	50.96
5	3.47	1.10	191	69.45	3.26
8	3.69	1.27	203	73.82	14.55
11	3.45	1.12	190	69.09	14.00
14	3.71	1.36	204	74.18	13.00
17	3.64	1.18	200	72.73	13.27
20	3.71	0.96	204	74.18	13.29

25	4.58	0.60	252	91.64	28.07
28	3.25	1.28	179	65.09	4.36
34	3.60	1.41	198	72.	13.09
36	2.91	228	0.93	4.15	22.31

Showed the most important behavior in opinion of Coaches in training behavior were: First behavior **"I refuse to compromise in any matter related to my team"** importance degree 91.64% and value of χ^2 28.07. Second behavior **"I make sure that each player performed in accordance to his abilities"** its importance degree 89.45% and value of χ^2 50.96. Third behavior **"Explained what is expected of each player in a specific manner"** importance degree is 82.91% and value of χ^2 22.31.

Table (2)

Mean, standard deviation, discretionary degree, relative importance and χ^2 to opinions of coaches in democratic behavior.

No. Phrases	$\bar{x}$	SD	Discretionary degree	Relative importance	χ^2
2	1.73	0.73	95	34.55	7.33
9	2.89	0.96	159	57.82	31.46
15	2.51	1.35	138	50.18	7.09
18	2.95	1.24	162	58.91	6.73
21	3.25	1.35	179	65.09	3.46
23	3.27	1.25	180	65.45	8.55
29	3.02	1.16	166	60.36	9.46
32	3.60	1.21	198	72.00	13.09
37	2.75	1.16	151	54.91	11.64

Showed the most important behavior in opinion of Coaches in democratic behavior were: First behavior **"I encourage players to submit proposals on ways of organize and manage training"** importance degree 72.0% and value of χ^2 13.09. then **"I leave freedom to my players to determine their goals by themselves"** importance degree 65.45% and value of χ^2 28.55. then **"I'm trying to get approval from my team in important issues before make decision"** importance degree 65.09% and value of χ^2 23.46.

Table (3)

Mean, standard deviation, discretionary degree, relative importance and χ^2 to opinions of coaches in autocratic behavior.

No. Phrases	$\bar{x}$	SD	Discretionary degree	Relative importance	χ^2
6	3.89	1.08	214	77.82	22.00
12	3.64	0.97	200	72.73	6.16
26	3.67	1.09	202	72.73	28.67
33	3.11	1.01	171	62.18	21.09
38	2.35	1.22	129	46.91	14.36

Showed the most important behavior in opinion of Coaches in autocratic behavior were: First behavior "**I planning training without involving the players**" its importance degree 77.82% and value of χ^2 22.0. Second behavior "**I try to give my instructions to players through way does not give them a chance to discussion or inquire**" its importance degree 73.45% and value of χ^2 28.67. Third behavior "**Do not explain the reasons of my decisions or my behavior for players**" its importance degree 72.73% and value of χ^2 26.16.

Table (4)

Mean, standard deviation, discretionary degree, relative importance and χ^2 to opinions of coaches in social support behavior.

No. Phrases	$\bar{x}$	SD	Discretionary degree	Relative importance	χ^2
3	4.07	0.98	224	81.45	38.00
7	3.80	0.99	209	76.00	7.76
13	3.83	0.86	211	76.73	15.04
19	3.24	1.14	178	64.73	14.36
24	3.36	1.14	185	67.27	13.27
30	4.04	0.72	222	80.73	32.06
31	3.11	1.08	171	62.18	16.73
35	3.62	1.06	199	72.36	18.73

Showed the most important behavior in opinion of Coaches in social support behavior were: First behavior "**I help players to solve their personal problems**" importance degree 81.45% and value of χ^2 38.0. Second behavior "**I care of players personal care**" importance degree 76.73% and value of χ^2 15.04. Third behavior "**I help team members in solve and end conflicts or disputes between them**" importance degree 76, 0% and the value of χ^2 27.76.

Table (5)

Mean, standard deviation, discretionary degree, relative importance and χ^2 to opinions of coaches in reward behavior.

No. Phrases	$\bar{x}$	SD	Discretionary degree	Relative importance	χ^2
4	3.09	1.11	170	61.81	16.00
10	3.33	0.94	183	66.55	30.00
16	3.53	0.94	194	70.55	13.27
22	3.56	0.90	196	71.27	14.60
27	3.09	1.05	170	61.81	17.64

Showed the most important behavior in opinion of Coaches in reward behavior were: First behavior **"I express my good feelings about players"** importance degree 71.27% and value of χ^2 14.60. Second behavior **"I make sure of that player rewarded for his good performance"** importance degree 70.55% and value of χ^2 13.27. Third behavior **"I encourage the player who performed well"** importance degree 66.55% and value of χ^2 30.0.

Table (6)

Mean, standard deviation, discretionary degree, relative importance and χ^2 to opinions of players in training behavior.

No. Phrases	$\bar{x}$	SD	Discretionary degree	Relative importance	χ^2
1	4.09	0.96	286	81.71	19.26
5	3.64	1.18	255	72.86	25.00
8	4.04	0.89	283	80.86	19.49
11	3.04	0.86	238	68.00	52.19
14	3.56	1.07	249	71.14	7.14
17	3.44	1.12	241	68.86	14.71
20	3.43	1.11	240	68.57	21.14
25	4.03	1.04	282	80.57	17.54
28	3.60	1.12	254	72.57	20.29
34	3.30	1.39	231	66.00	5.57
36	3.14	1.32	220	62.86	11.14

Showed the most important behavior that players favored in coach in training behavior were: First behavior **"Explain to each player what to do and what not to do"** importance degree 81.71% and value of χ^2 19.26. Second behavior **"Show for each player strengths and weaknesses"** importance degree 80.86% and value of χ^2 19.49. Third behavior **"Ensure that each player perform accordance to his abilities"** importance degree 80.57% and value of χ^2 17.54.

Table (7)

Mean, standard deviation, discretionary degree, relative importance and χ^2 to opinions of players in democratic behavior.

No. Phrases	$\bar{x}$	SD	Discretionary degree	Relative importance	χ^2
2	3.76	1.27	263	75.14	21.57
9	3.60	1.36	252	72.00	14.00
15	3.70	1.34	259	74.00	22.43
18	3.33	0.99	233	66.57	30.57
21	3.81	1.20	267	76.29	19.97
23	4.03	0.93	282	80.57	35.57
29	3.81	1.05	267	76.29	28.13
32	4.09	0.90	286	81.71	24.74
37	3.44	0.86	241	68.86	26.71

Showed the most important behavior that players favored in coach in democratic behavior were: First behavior **"Leave freedom to players performance according to their speed"** importance degree 81.71% and value of χ^2 24.74. Second behavior **"Allows to players perform by their own way, even them do some mistakes"** importance degree 80.57% and value of χ^2 35.57. Third behavior **"Inquires about players opinion in some important things in training"** importance degree 76.29% and the value of χ^2 28.83.

Table (8)

Mean, standard deviation, discretionary degree, relative importance and χ^2 to opinions of players in autocratic behavior.

No. Phrases	$\bar{x}$	SD	Discretionary degree	Relative importance	χ^2
6	2.50	1.02	175	50.00	26.71
12	2.11	0.96	148	42.29	47.57
26	2.82	0.88	198	56.57	46.14

33	3.10	0.92	217	62.00	36.86
38	2.34	0.87	164	46.86	71.71

Showed the most important behavior that players favored in coach in autocratic behavior were: First **"planning training without involving the players"** importance degree 62.00% and value of χ^2 36.86. Second behavior **"Do not explain reasons of his decisions or his behavior to the players"** importance degree 56.57% and value of χ^2 46.14. Third behavior **"Do his work independently without the players"** by 50.00% and value of χ^2 26.71.

Table (9)

Mean, standard deviation, discretionary degree, relative importance and χ^2 to opinions of players in social support behavior.

No. Phrases	$\bar{x}$	SD	Discretionary degree	Relative importance	χ^2
3	2.94	1.39	206	58.86	3.00
7	3.43	1.15	240	68.57	13.86
13	3.24	1.16	227	64.86	19.86
19	3.06	1.28	214	61.14	16.43
24	3.46	1.54	242	69.14	40.57
30	2.94	1.30	206	58.86	3.14
31	2.96	1.15	207	59.14	16.14
35	2.89	1.36	202	57.71	2.00

Showed the most important behavior that players favored in coach in social support behavior were: First behavior **"He help players to solve their problems"** importance degree 69.14% and value of χ^2 40.57. Second behavior **"He help team members in solve and end conflicts or disputes between them"** importance degree 68.57% and value of χ^2 13.86. Third behavior **"He cares about interdependence of the whole team as a unit"** importance degree 59.14% and value of χ^2 16.14.

Table (10)

Mean, standard deviation, discretionary degree, relative importance and χ^2 to opinions of players in reward behavior.

No. Phrases	X	SD	Discretionary degree	Relative importance	χ^2
4	3.44	1.35	241	68.86	8.00
10	3.26	1.60	228	65.14	11.57
16	3.54	1.45	248	70.86	25.57
22	3.40	1.23	238	68.	15.43
27	3.67	1.27	257	73.43	37.29

Showed the most important behavior that players favored in coach in social support behavior were: First behavior **"He make sure that player rewarded for his good performance"** importance degree 73.43% and value of χ^2 37.29. Second behavior **"I encourage the player who performed well"** importance degree 70.68% and value of χ^2 25.57. Third behavior **"Praise player in front of other players when he performed well"** importance degree 68.86% and value of χ^2 8.00.

Table (11)

Mean, standard deviation, discretionary degree, relative importance and Ranking to opinions of coaches in scale axes .

Axles	$\bar{x}$	SD	Discretionary degree	Relative importance	Ranking
Training behavior	208.64	23.35	2295	75.87%	First
Democratic behavior	158.67	29.62	1428	57.70%	Fifth
Autocratic behavior	183.20	34.17	916	66.62%	Third
Social support behavior	199.88	20.05	1599	72.68%	Second
Reward behavior	182.60	12.52	913	66.4%	Fourth

Showed the ranking of most important behavior in opinion of Coaches it were: The first is training behavior and its importance degree 75.78%. Second behavior social support behavior and its importance degree 72.68%. Third behavior is autocratic behavior and its importance degree 66.62%. Fourth behavior is reward behavior and its importance degree 66.4%. The last behavior is democratic behavior and its importance degree 57.70%.

Table (12)
Mean, standard deviation, discretionary degree, relative importance and Ranking to opinions of players in scale axes.

Axles	$\bar{x}$	SD	Discretionary degree	Relative importance	Ranking
Training behavior	252.64	22.27	2779	72.18%	Second
Democratic behavior	261.11	17.36	2350	74.60%	First
Autocratic behavior	180.40	27.37	902	51.54%	Fifth
Social support behavior	218.00	16.13	1744	62.29%	Fourth
Reward behavior	242.40	10.88	1212	69.26%	Third

Showned the ranking of most important behavior that players favored in coach it were: The first behavior is democratic behavior and its importance degree 74.60%. Second behavior is training behavior and its importance degree 72.18%. Third behavior is reward behavior and its importance degree 69.26%. Fourth behavior is social support behavior and its importance degree 62.29%. The last behavior is autocratic behavior and its importance degree 51.54%.

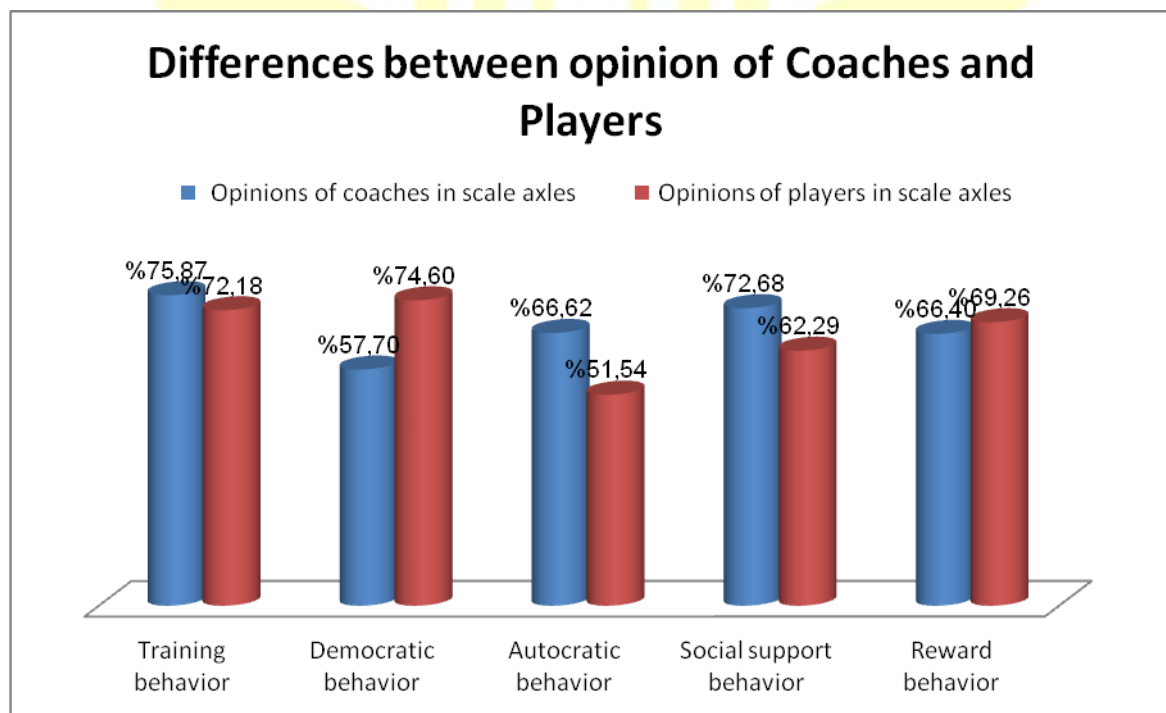


Fig. 1. Differences between opinion of Coaches and Players in scale axes.

Showned the differences between opinion of Coaches and Players in Leadership behavior where ranking of favored leadership behavior from perspective of coaches and players due to nature of work of each them.

CONCLUSION AND SUGGESTION

Through results of the study, researchers found that there are differences in leadership behavior for both coaches and players. Where it showed that coaches care about good training behavior and subsequent behaviors that are deemed necessary for success of his mission with team, as he prefers autocratic behavior where they see that it reflects strength of personal to coach and at same time he works on presence of good relationship with his players by solving problems and team cohesion as well as reward good players in team.

While players see that autocratic behavior for them hinder training process for this the democratic method must be the basis for dealing so they can exert maximum effort, and them see that should be on coach work to disbursed rewards and praise to good players.

Recommendations: 1) The researchers recommended the necessity of modifying the coach behavior from autocratic behavior to democratic behavior. 2) The researchers also recommended the players to pay more attention in training more than attention of coach behavior.

ACKNOWLEDGMENT

REFERENCES

1. **Ahmed Amin Fawzy:** sports psychology - principles and applications, technical publishing, Alexandria, 1992.
2. **Chelladurai, P. and Saleh, S.D:** Dimensions of Leader Behavior in Sports development of a Leadership Scale, Journal of sport psychology, 1980.
3. **Cox, R.H:** Sport psychology : Concepts And application, Dubuque, low brown publisher, 1985.
4. **EntsarYounis:** human behavior, Dar Elmaref, Cairo,1993.
5. **EzbiniewCzajkowski:** Knowledge, skills, personality and work of coach, Human Movement, No. 2, Poland, 2000.
6. **GamalMohamed AliYusuf:** patterns of behavior leading role in the sports area and its relationship with the social and economic level, the Faculty of Physical Education, Assiut University.
7. **Hersy. P & Blanchard, K.H:** Management of Organizational Behavior, Utilizing Human Resources (5Thed) Englewood cliffs New Jersey prentice Hall, 1988.
8. **IsisSamyGirgis:** leadership behavior coaches volleyball and their relationship accomplishment for the team, the Conference of the Faculty of Physical Education in Alexandria in December 1986.
9. **MahmoudSaadYahya:** the leading style for trainers and its relationship to the results of the teams in basketball, Faculty of Physical Education, Minia University, 1988.
10. **Mohammad HassanAllawi:** Encyclopedia of psychological tests for athletes, book publishing center, Cairo, 1998.
11. **Mohammad HassanAllawi:** psychology coach sports training, Dar Elmaref, Cairo, 1997.
12. **Mohammad HassanAllawi:** the psychology of sports leadership, the book publishing center, Cairo 1998.
13. **MustafaKamel AbuZaid:** factors associated with behavior leading in the domain Sports, Physical Education College in Cairo, 1990.
14. **Osama KamelRateb:** The Psychology of Sport (concepts - applications) Edition 3, DarElfekrElaraby, Cairo.2000.
15. **RefaeiMoustafa Hussein:** training soccer origins, Makah publisher, Cairo, 2005.

16. **ZakiMohammed Hassan:** trainer foundations working in the profession of training, Dar Elmaref, Alexandria 1997.



EVALUATION OF TRAINING PROGRAM IMPLEMENTATION AT SWIMMING CLUB IN YOGYAKARTA SPECIAL REGION

R. Agung Purwandono Saleh

Sport Lecturer of UPN "VETERAN" Yogyakarta, and Student of Doctoral Physical Education
Postgraduate Program UNNES

purwandono.agung@yahoo.co.id

Abstract

The purpose of this research was to reveal: various aspects affecting training program implementation, the supporting and inhibiting factors of training program implementation, and the training program effectiveness. This is an evaluative research using *input, output, product, and outcome* model which emphasized the process factors. It was conducted in Yogyakarta Special Region. The sample selected by purposive sampling technique and data collection used *polling, observations, interviews and documentations*. The collected data were analyzed descriptively with SPSS program Principal Component Analysis (PCA). The results are: 1) The swimming coaches quality can be categorized as excellent (percentage = 30,4%). 2) The coaches ability in developing training program can be categorized as excellent (percentage = 52,3%). 3) The coaches ability in operating the conditioned training can be categorized as satisfactory (percentage = 47,4%). 4) The coaches ability in conducting training program can be categorized as satisfactory (percentage = 51,3%). 5) The coaches ability in applying training methods can be categorized as excellent (percentage = 42,0%). 6) The coaches ability in using the training equipment and facilities be categorized as sufficient (percentage = 31,2%). 7) The coaches ability in evaluating the training program can be categorized as satisfactory (percentage = 39,4%).

Keywords: evaluation, swimming, training program

INTRODUCTION

The problem of decreased sport achievement in Indonesia all this time because of development conducted by sport club is not optimal yet. The development avant-garde of pyramid model is sport club, neither regional nor national training centralization. It is in line with swimming sport which swimming club is the most important development avant-garde. Sport club is a development organization aimed to train athletes start from basic level until development level directed to improvement of achievement. According to Setyo Nugroho (1997, 55), the essence of sport development is accumulating, revealing and developing athlete's potential into achievement. This research was conducted by select active object of swimming club carrying out training program all this time. It is aimed to find out the real field condition accurately whether the causal factor of decreased achievement is the lack and undeveloped existing development basics. The coach's educational background is one important factor to improve sport achievement. According to Harsono (1988, 36), athlete's achievement levels depend to knowledge and skill level of their coach. Besides, Drowatzky and Amstrong (1984, 77) stated that coach should master owned sport skill better either its practice or theory. Furthermore, training program served as controller of achievement improvement reached by their athletes. According to Bompa (1994, 22), the following principles must be paid attention when organizing training program: 1) participation principle, 2) multilateral development principle, 3) specialization principle, 4) individualization principle, 5)

training variation principle, 6) regularity principle, and 7) improvement principle on load training. According to Nossek (1982, 45), quality improvement of athlete's physical will achieved by exercise and training load. Councilman (1986, 30) also affirm that physical preparation components required for well-achievement of swimming sport consist of three components which are strength, endurance, and flexibility.

Conditioning training is very important. It is in line with Councilman on Pearl (1986, 34)'s statement: "my swimming athletes used load exercise to improve strength and bursting power". The endurance will achieved by strength enhancement. In addition, Luttgen and Hamilton (1997, 21) stated that push power improved by development of technique movement and conditioning training. Improvement of swimming sport achievement is determined by its training program implementation. Lukman Niode (2000, 22) stated that beyond the technology, success key laid on training method and its implementation. In swimming sport, 80% its achievement is relied on training method, 10% is relied on mental and fight spirit, and the rest 10% is relied on used technology. Thus, its basic should be powerful. According to Rick Curl (2002, 44), the sustained training is aerobic exercise in order to improve cardiovascular capability. It was carried out by far distance and interval training with shorter break time.

Specifically, definition of evaluation on sport development is stated by Jones (1982, 32): "evaluation should be a sustained process, not only conducted at end-training program in year-end". Evaluation method correspond to training program is program evaluation model developed by Kaufman and Thomas (1982, 20). It is very useful to assist data collection as material of decision-making, which program should be continued, stopped, or modified. Based on theory review mentioned above, it is obtained some evaluation research variables which are: coach's quality, training program arrangement, conditioning training implementation, training program implementation, training method application, training tools and facility utilization, and the way of training program evaluation.

METHOD

This research used survey method with questionnaire technique. The questionnaire used to reveal variable: 1) coach's quality, 2) training program arrangement, 3) conditioning training implementation, 4) training program implementation, 5) training method application, 6) training tools and facility utilization, and 7) the way of training program evaluation. Those seventh variables described in several indicators, which are 16 indicators on first variable, 10 indicators on second variable, 7 indicators on third variable, 9 indicators on fourth variable, 4 indicators on fifth variable, 7 indicators on sixth variable, and 6 indicators on seventh variable. The questionnaire arranged by appraisal criteria model which score 1 for answer a indicated very bad, score 2 for answer b indicated bad, score 3 for answer c indicated sufficient, score 4 for answer d indicated satisfactory, and score 5 for answer e indicated excellent. It delivered on research subject and they required to choose one available answer in line with self-state. Appraisal criteria based on fidelity approach. According to Said H Hasan (1988, 60), fidelity approach is developed first before the evaluator or researcher moves to field in order to collect data. Before evaluation process is conducted, the researcher determines appraisal criteria either by observation, interview, or documentation. In addition, the appraisal is also based on theory review, researcher's consideration, and arrangement guideline of swimming training program. The research population was 22 coaches who belonging to swimming association in Yogyakarta Special Region. Sample is selected by purposive sampling technique because the researcher has recognizing its population characteristics. Thus, it was required proportional sample in line with this research objective. According to Masri S and Sofian E (1984, 33), the way of sample selection with purposive sampling technique is the researcher chooses

sub-group and population in such a way, so selected sample have characteristic in line with population characteristic.

Table 1 List of Swimming Club and Coach /Subject Amount

No	Swimming Club	Coach amount
1.	PR. TirtaAgung Sleman	3
2.	PR. YUSO Sleman	2
3.	PR. TirtaTaruna KotamadiaYogya	3
4.	PR. Dolphin Sleman	3
5.	PR. OSCAR Bantul	2
6.	PR. TirtaAlvita Bantul	3
7.	PR. Arwana GunungKidul	3
8.	PR. Tirta Amanda Sleman	3
	Total	22

Data analysis technique used technique computation program with extraction method and rotation method. The extraction method used Principal Component Analysis (PCA), and the rotation method used Varimax with Kaiser Normalization.

RESULTS AND DISCUSSION

The result of validity test for factor analysis with Principal Component Analysis (PCA) method obtains coefficient value 0, 59336. And the result of item reliability test with reliability scale (alpha) for each variable are 1) coach's quality is 0,7130, 2) training program arrangement is 0, 7770, 3) conditioning training implementation is 0,7874, 4) training program implementation is 0,8208, 5) training method application is 0,5259, 6) training tools and facility utilization is 0,7792, and 7) the way of training program evaluation is 0,7429.

Based on swimming associations which always develop their athletes actively, it is obtained 22 coaches as research subject. The sampling used in order to compare condition each swimming associations towards: 1). The amount of trained athletes is 20 to 30 athletes as regulation determination for swimming association which belonging to Indonesian Swimming Federation (PRSI). The training program refers to improvement of athlete's achievement, 2). The swimming association which registered as member of PRSI in Yogyakarta Special Region, 3). Take participation on competition events start from regional level to national level actively and routinely, 4). Have sufficient facility and training supporting equipment, 5). Have management organization completeness of active swimming association, 6). Have coach, 7). Have sufficient facility and training supporting equipment

Coach's Quality, Based on answer of 16 question items on research instrument which is questionnaire, can be concluded that the assessment result from 22 coaches of swimming club in Yogyakarta Special Region as follows: score one with score total 38 and its percentage 10,8% indicated that its quality is very bad. Score two with score total 35 and its percentage 9.9% indicated

that its quality is bad. Score three with score total 88 and its percentage 25,0% indicated that its quality is sufficient. Score four with score total 84 and its percentage 23,9% indicated that its quality is satisfactory. Score five with score total 107 and its percentage 30,4% indicated that its quality is excellent.

Training Program Arrangement, Based on answer of 10 question items on research instrument which is questionnaire, can be concluded that the assessment result from 22 coaches of swimming club in Yogyakarta Special Region as follows: score one with score total 9 and its percentage 4,1% indicated that its quality is very bad. Score two with score total 4 and its percentage 1,8% indicated that its quality is bad. Score three with score total 20 and its percentage 9,1% indicated that its quality is sufficient. Score four with score total 72 and its percentage 32,7% indicated that its quality is satisfactory. Score five with score total 115 and its percentage 52,3% indicated that its quality is excellent.

Conditioning Training Implementation, Based on answer of 7 question items on research instrument which is questionnaire, can be concluded that the assessment result from 22 coaches of swimming club in Yogyakarta Special Region as follows: score one with score total 1 and its percentage 0,6% indicated that its quality is very bad. Score two with score total 7 and its percentage 4,5% indicated that its quality is bad. Score three with score total 21 and its percentage 13,6% indicated that its quality is sufficient. Score four with score total 73 and its percentage 47,4% indicated that its quality is satisfactory. Score five with score total 52 and its percentage 33,8% indicated that its quality is excellent.

Training Program Implementation, Based on answer of 7 question items on research instrument which is questionnaire, can be concluded that the assessment result from 22 coaches of swimming club in Yogyakarta Special Region as follows: score one with score total 3 and its percentage 1,9% indicated that its quality is very bad. Score two with score total 10 and its percentage 6,5% indicated that its quality is bad. Score three with score total 10 and its percentage 6,5% indicated that its quality is sufficient. Score four with score total 79 and its percentage 51,3% indicated that its quality is satisfactory. Score five with score total 52 and its percentage 33,8% indicated that its quality is excellent.

Training Method Application, Based on answer of 4 question items on research instrument which is questionnaire, can be concluded that the assessment result from 22 coaches of swimming club in Yogyakarta Special Region as follows: because there is no respondent who answer it, so score one have score total 0 and its percentage 0%. Score two with score total 9 and its percentage 10,2% indicated that its quality is bad. Score three with score total 13 and its percentage 14,8% indicated that its quality is sufficient. Score four with score total 29 and its percentage 33,0% indicated that its quality is satisfactory. Score five with score total 37 and its percentage 42,0% indicated that its quality is excellent.

Training Tools and Facility Utilization, Based on answer of 7 question items on research instrument which is questionnaire, can be concluded that the assessment result from 22 coaches of swimming club in Yogyakarta Special Region as follows: score one with score total 7 and its percentage 4,5% indicated that its quality is very bad. Score two with score total 19 and its percentage 12,3% indicated that its quality is bad. Score three with score total 48 and its percentage 31,2% indicated that its quality is sufficient. Score four with score total 45 and its percentage 29,2% indicated that its quality is satisfactory. Score five with score total 35 and its percentage 22,7% indicated that its quality is excellent.

The Way of Training Program Evaluation, Based on answer of 6 question items on research instrument which is questionnaire, can be concluded that the assessment result from 22 coaches of swimming club in Yogyakarta Special Region as follows: because there is no respondent who answer it, so score one have score total 0 and its percentage 0%. Score two with score total 5 and its

percentage 4,5% indicated that its quality is bad. Score three with score total 24 and its percentage 18,2% indicated that its quality is sufficient. Score four with score total 52 and its percentage 39,4% indicated that its quality is satisfactory. Score five with score total 51 and its percentage 38,6% indicated that its quality is excellent.

CONCLUSION AND SUGGESTION

The conclusion of research result as follows: 1.) coach's quality on implementation of swimming development on swimming club in Yogyakarta Special Region (DIY) belonging to very good category with its percentage 30,4%, 2) coach's quality on training program arrangement of swimming club in Yogyakarta Special Region (DIY) belonging to very good category with its percentage 52,3%, 3) coach's quality on conditioning training implementation of swimming club in Yogyakarta Special Region (DIY) belonging to good category with its percentage 47,4%, 4) coach's quality on training program implementation of swimming club in Yogyakarta Special Region (DIY) belonging to good category with its percentage 51,3%, 5) coach's quality on training method application of swimming club in Yogyakarta Special Region (DIY) belonging to very good category with its percentage 42,0%, 6) coach's quality on training tools and facility utilization of swimming club in Yogyakarta Special Region (DIY) belonging to enough category with its percentage 31,2%, and 7) coach's quality on the way of training program evaluation of swimming club in Yogyakarta Special Region (DIY) belonging to good category with its percentage 39,4%, 8) the most principal inhibiting factor on swimming training program implementation for swimming club per DIY are: restrictiveness of training equipment and facilities, and swimming pool utilization which cannot used freely because its utilization together with public visitors, 9) the main supporting factors which help fluency of swimming training program implementation for swimming club per DIY are high motivation of athletes for exercise intensively, coach's skill on their efforts to improve achievement of their athletes and parent's role in order to support improvement of their children's achievement

Implication of swimming training program on swimming club in Yogyakarta Special Region can be categorized belonging to good enough. It is useful information for all coaches, trainer and management of Indonesian Swimming Federation (PRSI) in Yogyakarta Special Region over its efforts in order to improving their athlete's achievement into optimal level. The inhibiting factors should be sought for solution mainly the availability of equipment and facility for exercise. Likewise, the supporting factors which are coach's quality, training program arrangement, conditioning training implementation, training program implementation, training method application, training tools and facility utilization and the way of training program evaluation require improvement as well. For PB PRSI, particularly research and development department, this research is expected will be useful information in order to assist preparation of national swimming team which will take participation on international event such as Sea Games, Asian Games, and Olympiad.

Suggestion Based on conclusion and implication above, so in future is 1) needed presence of support from swimming pool management, Regional Management of PRSI and local KONI which are dispensation of swimming pool rent expense, increment of exercise time, and special schedule of swimming pool utilization for swimming club that will carry out training, and equipment donation for them in order to completing supporting equipment of either conditioning training (physical) or in the water, 2) needed cooperation and effort inter-tolerance between swimming club, coach, management, school, local sport educational institution in terms of dispensation giving towards excellent athletes particularly because their participation on each followed events, 3) incentive award particularly for athletes who have showing their achievement, 4) needed further development for such research.

REFERENCE

- Bompa, T. O. (1994). *Theory and methodology of training: The key to athletic performance*. Iowa: Kendall/Hunt Publishing Company.
- Counsilman, J.E. (1986). *The scientific of swimming*. Englewood cliffs, New Jersey : Prentice Hall Inc.
- Curl,Rick. (2002). http://www.poweringmuscles.com/swimming.asp?article_number=1
- Drowantzky, J.N. dan C.W. Armstrong.(1984). *Physical education carrer perspectives and professional foundation*. Englwood Cliffs, New Jersey: Prentice Hall Inc.
- Harsono. (1988). *Coaching dan aspek-aspek psikologi dalam coaching*. Jakarta: Departemen Pendidikan dan Kebudayaan.
- Jones, B.J. (1982). *Guide effective coaching: principles and practice*. Boston: Allyn and Bacon Inc
- Kauffman, R. dan S. Thomas.(1980). *Evaluation without fear*. New York: New Viewpoints.
- Lukman Niode.(2000, September). Sydney, Ajang sejarah berulang. *Bola*. Jakarta.
- Luttgen.K dan N.Hamilton. (1997).*Kinesiology: Scientific basis of human motion*. Dubuque Guilford: Brown and Benchmark Publishers.
- Masri Singarimbun, dan Sofian Efendi.(1984). *Metode penelitian survei*. Jakarta: LP3ES.
- Nossek, J. (1982). *General theory of training*. Pan African Press Ltd.
- Pearl, B. (1986). *Getting Stronger*. Bolinas California: Shelter Publication Inc.
- Said Hamid Hasan.(1988). *Evaluasi Kurikulum*. DirektoratJenderal PendidikanTinggi. Jakarta.
- Setyo Nugroho.(1997). *Perkembangan ilmu olahraga dan implikasi bagi peningkatan prestasi olahraga di Indonesia*. Yogyakarta: IKIP Yogyakarta.



THE STATUS OF PHYSICAL EDUCATION LEARNING AND TEACHING MANAGEMENT IN ELEMENTARY SCHOOLS OF THE WESTERN REGION IN THAILAND

Teamtaokerd, W.¹, Krabuanrat, C.²

^{1,2} Department of Physical Education, Faculty of Education, Kasetsart University, Bankhen Campus,
Thailand

¹feduacrp@ku.ac.th

Abstract

The purpose of this research was to study the status of physical education learning and teaching management in elementary schools of the western region in Thailand on 7 aspects: teachers, curriculum development, instruction times, physical education programs management, equipment and facilities, learning and teaching management and evaluation. A questionnaire was developed by the researcher and a group of research project. Content validity was judged by 7 experts. The document was mailed to one thousand four hundreds and forty-five physical education chairpersons from one thousand four hundreds and forty-five schools. One thousand one hundred and thirty-eight respondents (78.75 %) were completed and returned. Data were analyzed by using percentage, and mode. The results revealed that there were 808 schools (71 %) that physical education teachers did not get a degree in physical education, teaching load was twenty hours per week. Most schools developed the physical education curriculum with the other school. School's academic committee served for instruction times of physical education. Physical education teaching was organized on basic material one hour per week for all grade levels. A few schools organized one hour per week for an additional material. All schools ran an intramural athletic program. Most schools did manage the interscholastic athletic program. None of schools did not carry on physical education program for special children. The space for physical education classes was an outdoor field that was safe, appropriate standard and sufficient. Physical education teacher used only 75% of child-centered for classroom learning management that using the lecture method of teaching. Ability for communication of student's competency, and discipline were the most subject matter that physical education teachers organized activities to promote. Grading system was criterion-standard. Grades in physical education were based on sport knowledge, skills, morality and ethics, physical fitness, and desirable feature for 30, 50, 10, 30, and 10 points, respectively. Knowledge assessment used objective tests and subjective tests, using quantitative and qualitative measurements to assess sport skills. Health-Related Physical Fitness Test and Norms for Thai Children Aged 7-18 Years was used to assess health-related physical fitness. Desirable feature was measured by using scale desirable feature, but using scale of moral and ethics to measure morality and ethics.

Keywords: physical education learning, teaching management, elementary schools

PEAK PERFORMANCE PROFILES OF COMBAT SPORT ATHLETES: THE SPORTS HERO PROJECT

Wongpa, K.¹, Siripatt, A.², Boonveerabut, S.³

^{1,2,3}Faculty of Physical Education, Srinakharinwirot University, Thailand

apanchanits@hotmail.com

Abstract

Combat sports in Thailand are popular. There are a lot of competitions and more medals. The government has sports hero project to support them. The objectives of the study were to examine and compare athletes' peak performance profiles of combat sport from sports hero project. The sample of the study eighteen athletes in the project more than one year up to nine people and athletes under one year, nine people. The questionnaire peak performance profiles three factors, stress management, concentrate and confidence. Data were analyzed using statistical independent (T-test). The results of the study were as follows athletes in the project more than one year, the average age was nineteen years of the athletes is years less than one year, the average age was fifteen years, but peak performance profiles no different between the two groups was statistically significant at 0.05 level.

Keywords: talented athlete, combat sport, peak performance profiles

UNNES
UNIVERSITAS NEGERI SEMARANG

REFEREE INSTRUMENT ASSESSMENT OF VOLLEY BALL

Saifuddin

Syiah Kuala Banda Aceh University

ata_lanta.sport@yahoo.com(Poster)

Abstract

One of the major problems in the game of volleyball referee's Aceh is no standardized measurement tool to assess the performance of referee volleyball in Aceh, during the volleyball referee chose to lead the match through direct appointment by agreement instead of the referee's performance assessment parameters -standard parameters. The purpose of this study was to prepare the performance appraisal instrument referee volleyball games that have a high degree of reliability validity. The subjects were refereeing volleyball games that have a C license, amounting to 7 people. The process of making performance assessment instrument that includes a volleyball referee 7 stages (1) Develop a sequence of test items and test items (2) Make a test guidelines (3) determine the criterion (4) Determine footage (5) Looking for validity coefficient (6) Looking keofesien reliability, (7) Develop a rating scale. The data have been collected subsequently categorized and analyzed both qualitatively and quantitatively. It can be concluded that the performance appraisal instrument referee volleyball game that consists of 4 indicators and a 53 point declaration is a measure of a valid and reliable measure of performance for volleyball referee and referee's performance appraisal instrument volleyball has a high degree of validity and reliability is very high.

Keywords: instrument, assessment, performance



EFFECTS OF DYNAMIC FLEXIBILITY TRAINING ON SPRINT PERFORMANCE

Jacklyn anak Joseph

Faculty of Educational Studies, Universiti Putra Malaysia

¹jacklynjoseph91@gmail.com

Abstract

The purpose of the study was to examine the effect of the dynamic flexibility training on sprint performance and stride frequency. Sprint performance and stride frequency was measured using 30 meter sprint test. Subjects consisted of students from the Faculty of Sports Science and Recreation (FSR) (n=18) UiTM Sarawak. The subjects undergone pre-test procedure prior to 6-week intervention, and post-test following the intervention. There were significant improvement in speed and stride frequency, from pre-test (m=5.052, SD=0.606) to post-test (m=4.681, SD=0.690), $t(17)=3.970$, $p< .005$ (two-tailed) and pre-test (m=11.780, SD=1.263) to post-test (m=11.390, SD=1.335), $t(17)=3.289$, $p< .005$ (two-tailed), respectively. In conclusion, study showed that dynamic flexibility training improves e sprint performance due to the specific movement pattern that was applied during training. This study also indicated that optimal flexibility on hip flexor and stride frequency are the two important factors that influence sprint performance.

Keywords : dynamic flexibility training, sprint performance

UNNES
UNIVERSITAS NEGERI SEMARANG

THE EFFECTS OF PLYOMETRICS TRAINING AND WEIGHT TRAINING UPON LEGPOWER AND LEG STRENGTH OF BLOCK JUMPING SEPAK TAKRAW PLAYERS

Chotika Boonthong¹, Duangkrai Taweesuk²

^{1,2}Health and Sport Science Department, Faculty of Education, Mahasarakham University, THAILAND

¹chotika_noona@hotmail.com

Abstract

This researched aim is for study of The Effects of Plyometrics Training and Weight Training upon Leg power and Leg Strength of legs muscle, weakness and accuracy in obstruction of Block Jumping Sepak takraw Players. After that compared within 3 groups, before and after of the 4th week and Eighth week and compared between three groups. After practice 4th and 8th week, the sample group that been 15-25 years women Sepak takraw's Athlete, total 15 persons, separated the athletes to be 5 persons per Group, sampling selection by Cluster Random Sampling (Sampling from One institution). The instrument that use in research were Plyometrics practice program, weight program and Plyometrics practice program combine with weight practice and physical efficiency testing. Statistic that's used for data analyzing were mean and standard deviation, to analyze in group variation by statistic using of Friedman test analyze the variation between groups by using Non-parametric kruskal-wallis one-way ANOVA with repeat measure.

The result of research is : 1). the result of first group, second group and third group has legs muscle. power development, legs muscle strength, weakness and accuracy in obstruction is better. 2. from three groups when compared before and after practice inside testing group found that, after forth week and after eighth week get different in statistic significant all of variation. 3. three groups testing, when compared before and after practice, between each testing groups found that, the weakness after eight-week practice, the first group testing is different from the third group, and second group different from third group in statistic significant, and accuracy in obstruction after eight-week the second testing group different from third group in statistic significant.

Keywords: Plyometrics, block Jumping

UNNES
UNIVERSITAS NEGERI SEMARANG

THE EFFECTS OF SHORT-TERM TRAINING ON STRENGTH AND BALLISTIC POWER IN FOOTBALL ATHLETES

Sakchai Srisuk

¹Department of Health and Sport Science, Faculty of Education, Mahasarakham University, Thailand

¹sakchai0072@hotmail.com

Abstract

The main purpose of this research is to develop a short-term training program (4 weeks) for strength training, ballistic power and speed skills in football athletes. Thus, the hypothesis for this research is strength and ballistic power short-term training can increase football athletes' performance in muscle strength, muscle power, as well as in speed. The subjects are divided into two groups. Twenty-five subjects are male football athletes from Nakhon Phanom University (group1) and the other twenty-five subjects are male football athletes from Nakhon Phanom FC (group2). There are two types of trainings: strength training and ballistic training. The first consists of bench press, lateral pull-down, back extension, dumbbell push sit-up, leg extension, leg curl, and barbell squat (at 75-90% intensity of individual 1 RM) and the latter consists of drop jump, multiple two feet forward lateral hurdle jumps, box jump, and multiple two feet forward hurdle jump (at the height of 40-60 cm). The following measurements are performed before and after the training period: maximal oxygen consumption, anaerobic power, anaerobic capacity, one-repetition maximum, 30 sec endurance jump, 30 sec sit-up, and 20 m sprint test. The data are analyzed by using means and standard deviation. One-way analysis of variance, ANOVA and two-way analysis of variance, ANOVA are used to estimate the difference between 2 groups of subjects before and after the training respectively. Statistical analysis is set at $p \leq 0.05$. This research result could be contributed in the immediately training program for football athletes and also suggested the further study.

Keywords: strength, ballistic power, short-term training

UNNES
UNIVERSITAS NEGERI SEMARANG

A STUDY OF TWO DIFFERENT TRAINING PROTOCOLS OF HIGH INTENSITY INTERVAL TRAINING (HIIT) ON AEROBIC CAPACITY OF FEMALE FIELD HOCKEY PLAYERS

Stella Anak James Martin

Universiti Putra Malaysia

koklianyee@yahoo.com

Abstract

The objective of this study is to compare the effects of two different training protocols of high intensity interval training (HIIT) on aerobic capacity of female field hockey players. A total of 30 female hockey players aged between 13 to 17 years old participated in this study. Three tests were performed (Pre test, Post test 1 and Post test 2) with the subjects divided into two groups (n=15). Both group undergo two different training protocols of HIIT 1 which is 5 repetitions of 30 seconds maximum effort sprints with a 3 minutes of active recovery (jogging) and HIIT 2 which is 5 repetitions of 2 minutes at VO₂max intensity (95%-100% HR_{max}) with 3 minutes of active recovery (jogging) in different times for 4 weeks for each protocols. Results showed significant effect on aerobic capacity of female field hockey players ($p < .005$) for both groups for HIIT1 and HIIT 2. This study shows that both of the training protocols can be used to improve aerobic capacity of female field hockey players.

Keywords: training, protocol.



THE DEVELOPMENT AND MODIFICATION OF STRENGTH TESTS FOR SPORT MEASUREMENT AND EVALUATION

Endang Rini Sukamti¹, Sb. Pranatahadi², Guntur³

Faculty of Sports Science, Yogyakarta State University

endangrinisukamti@yahoo.com

Abstract

This study is aimed to develop and modify the strength test tool of back and leg dynamometer. The specific target of the recent study is to create a modified tool for back and leg dynamometer that can withstand the load resistance of up to 400 kg that is in accordance with current requirements, where the back and leg dynamometer are currently only able to withstand the load resistance of up to 300 kg. In fact, within the last 2 years, several athletes have the abilities more than 300 kg, so there is a need for development and modification of back and leg dynamometer which is up to 400 kg load resistance. The design of current research is the R & D (Research and Development). This research was conducted in the Sport Building of Yogyakarta State University (GOR UNY). The research subjects are performance athletes in DIY. The result of this study was in the form of the development and modification of a completed tool prototype of back and leg dynamometer which can withstand the load resistance of up to 400 kg and 600 kg. The tool developed has some advantages including the measuring capability of more than 300 kg, the ability to store data in memory on the tool developed, an aluminium frame material that is not easy to rust, the ability to be used indoor or outdoor, and the view displays of the data with greater figures. In the following years, this prototype can be realized in form of tools that are ready to be marketed to support the sports industry in Indonesia and to obtain patent or copyrights. In the first step of this study, it can be concluded that it has been resolved a docking tool prototype of leg and back dynamometer with the load resistances of 400 kg and 600 kg.

Keywords: development, modification, strength test

UNNES
UNIVERSITAS NEGERI SEMARANG

REVITALIZING SEPAK TAKRAW SOLE OF FOOT SMASH USING HANGING BALL

I Ketut Semarayasa

Physical Education, Health, and Recreation Department, Sport and Health Faculty,
Ganesha University of Education

semarayasaiketut@yahoo.com

Abstract

Sepak takraw is kind of a mix of soccer and volleyball games, competed in a field whose size resembles a badminton court size doubles game and the player may not touch the ball with his hands. It is a popular game known in society, both the general public and students. However, the achievement is not quite satisfying. It is observable that its players have not mastered the skills very well. Therefore, it is strongly needed the strategies to learn and practice the basic skills properly, especially smash technique. Smash is hitting the ball hard, sharp and fast over the net that are directed to the opponent's field to get the score. It is one of the most important techniques which must be possessed by a player, because by performing it, it is easier for the team to win the game. Among many type of smash, sole of foot smash is one of those popular yet difficult to perform. Due to its popularity as well as its difficulty, it needs a lot of practice and strategy. This paper then is intended to describe the technique which can be implemented in practicing it.

Key words: revitalizing, sepak takraw , sole of foot smash



EFFECT OF MANIPULATION OF COMPLEX TRAINING ON AGILITY, POWER, SPEED AND ENDURANCE AEROBIC (VO2 MAX)

Mansur

Sport Science Program, Graduate Program, State University of Surabaya

mansur_uny@yahoo.com

Abstract

The physical condition is an important component and the basis for the development of techniques, tactics, strategies and mental development. The purpose of training is to optimize the physical condition of the athlete's performance and minimize the risk of injury and illness. Physical condition parameters can be seen in the quality of the physical condition of athletes components such as strength, aerobic endurance, anaerobic endurance, speed, power, agility, flexibility, coordination and balance. Application of appropriate training methods will greatly affect the development biomotor and reduce the risk of injury. Controversy effect of complex training method of training is still a matter of current issues in the assessment and improvement of the physical condition of the athlete. The purpose of this study was to examine the influence of training method Pyramid Complex (PCT) and Square Complex Training (SCT) on agility, power, speed and VO2 max. The design of this study used a quasi-experimental. Research subjects consisted of 21 students man from the Department of Education Coaching, aged between 19-22 years (± 19.3), height 162.3 - 187.0 cm (± 171.053), 51.22-75.5 kg body weight (± 63.0527) and resting heart rate is 50 to 81 per minute (± 63). Based on the ranking of T pretest scores (agility, power, speed and VO2 max) is used to divide the subjects into two groups, namely the PCT and SCT. Group PCT treated combination of weight training 8 RM, 6 RM, 4 RM and plyometrics with pyramid system (lateral single leg jump 6 contacts, side jump 8 contacts, the box's jump 10 contacts, twist front jump 12 contacts and twist tuck jump 14 contacts). Group SCT were treated combination of weight training 8 RM, 6 RM, 4 RM and plyometrics with system-square (single leg jump 10 contacts, side jump 10 contacts, front box's jump 10 contacts, hardle front jump 10 contacts and tuck jump 10 contacts). Training conducted 3 training sessions per week for 7 weeks. All groups were given the initial test and final test. Initial tests performed 40-48 hours before the test treatment, and final tests conducted 48 after treatment. Power tests using the Jump Duration of Fright (DF) TKK 5114 series made in Japan, agility with electric side step (TKK 1272 BEAM TYPE SIDE STEPPING Repetitive TESTER), speed with a sprint of 40 m, and VO2 max with Technogym Treadmill brands, Type: Run excite 700 made in Italy. Analissi research data to test the population mean vector and mean vector similarity comparison test.

The results of the study: Training Methods PCT has a significant effect ($0.000 < \frac{1}{2} \alpha = 0.025$) to increase agility and no significant effect ($0.188 > \frac{1}{2} \alpha = 0.025$) against power, not significant ($0.096 > \frac{1}{2} \alpha = 0.05$) to speed and not significant ($0.055 > \frac{1}{2} \alpha = 0.005$) of the VO2 max. SCT training method has a significant influence ($0.000 < \frac{1}{2} \alpha = 0.025$) to increase agility and no significant effect ($0.896 > \frac{1}{2} \alpha = 0.025$) to the power, not significant ($0.936 > \frac{1}{2} \alpha = 0.025$) of the velocity and not significant ($0.240 > \frac{1}{2} \alpha = 0.025$) of the VO2 max. PCT and SCT training methods proved equally effective $F = 0.177 < 3:01 = F_{0.05} (4,16)$ to improve agility, power, speed and VO2 max. Conclusion: There is no significant influence of the PCT and SCT training methods to improve power, speed and VO2 max. There is significant influence of the PCT and SCT training methods to increase agility. PCT and SCT training methods proved equally effective in improving the agility, power, speed and VO2 max.

Key words: Complex Training, plyometrics, Weight Training, Agility, Power, Speed, Endurance Aerobic, VO2 max.

EFFECTS OF PILATES TRAINING ON CORE STABILITY OF JUNIOR KARATE PLAYERS IN MALAYSIA

Seyedeh Nahal Sadiri

University Putra Malaysia

thanaamu@yahoo.com(

Abstract

Karate is a combative sport with a high risk of injuries. Since 15-18 years old karate players holding brown and black belt might be the future professional athletes, getting injured in this stage might ruin their athletic future. Having a stable core can be helpful for high-leveled karate players to produce stable, powerful and explosive movements, and prevent core-related injuries. The use of Pilates as a core training method to enhance core stability has not been investigated among karate players. The purpose of the present paper was to investigate the effects of a 12-week Pilates training on core stability among junior karate players in Malaysia. Twenty-nine adolescent male karate players (15-18 ages) who were representing Persatuan Hayashi-Ha Karate Club, Kuala Lumpur randomly assigned into 2 groups: experimental (n=15) and control (n=14). The participants in the experimental group attended 36 sessions (120 minutes, 3 times a week) of karate training involving 30 minute Pilates training in the general preparation stage, while the control group only attended their regular karate training without performing any Pilates exercises for 36 sessions (120 minutes, 3 times a week). A pretest-posttest design was used in the present study. Prior to and after the intervention, the participants in both groups were tested regarding their core stability using McGill's core stability testing protocol (trunk flexion, extension, right side bridge, left side bridge).

The data gathered during the study was analyzed using paired sample and independent samples t-test. The results of data analyses demonstrated that there was a significant difference between the mean score of the experimental and control group in the level of core stability ($t= 3.59$, $p<0.05$) as a result of the study intervention. Thus, these findings confirm that karate Pilates program used in this study considerably improved adolescent male karate players' core stability. This study highlights the potential of Pilates training as an effective method of core enhancement in karate, which can be used by karate trainers, coaches and athletes to improve core stability and eliminate the risk of injuries in the high-intensity combative sport of karate.

Keywords: effect, karate.

UNNES
UNIVERSITAS NEGERI SEMARANG

FOOTBALL PLAYER AGGRESSION: PHENOMONOLOGY STUDY ABOUT VIOLENCE BETWEEN FOOTBALL PLAYERS

Komarudin

Yogyakarta State University

komarudin@uny.ac.id

Abstract

Issues about violence in Indonesian football are still being a serious problem. Not many researchers conduct the research about Aggressivity of Indonesian football players. Aggressivity is an act that aims to hurt others physically or emotionally. This research aims to reveal the purpose of aggressivity done by the football players.

The subject of this research is football players of Persiram Raja Ampat. They joined Indonesia Super League. This research is qualitative research with phenomenology study approach. This research is expected to reveal the purpose of aggression act which is done by football players.

The result of the research shows that family has important play in aggressivity of the football players. Football game is katarsis for the pressure they felt from the family. Besides, unideal learning process is also the factor that influenced aggressivity of the football players.

Keywords: aggressiveness, football player, meaning, family

INTRODUCTION

There have been various issues in Indonesian football such as violence and fighting. Fighting has also occurred between football players on and off the field. (Aryono, 2011; Oro, 2010; Setiawan, 2010; Prastya, 2011; Ras, 2010; Effendi, 2009; Wiharyo, 2011; Wijaya, 2001; Damanik, 2012). Many researches have been focused in the act of Aggressivity in sport like in Loughhead and Leith (2001) and Kerr (2006) in ice hockey, Ruiz & Hanin (2011) in Karate. Moreover, other research grouped the factors influencing in all sports like in Kimble, Russo, Bergman, & Galindo (2010); Guilber (2008); eptipenelitiandari Kimble, Russo, Bergman, & Galindo (2010); Guilbert (2008); Coulomb-cabagno & Rascle, (2006); Coulomb & Pfister (1998); Coulomb-cabagno, Rascle, & Souchon, 2005; Keeler, (2007). Grange and Kerr (2010) analyzed the Aggressivity in football is the Aggressivity done by Professional Australian Football player.

Jarvis (1999) defines Aggressivity as an unpleasant shown towards others. Russel (2008) stated that Aggressivity is stimulus aversive from one person to another. This is to hurt people so that the people will agonize himself. Other than that, the act of Aggressivity occurs when the target of Aggressivity try to make an escape or avoid that stimulus. Wann (1997) gives definition of acts needed in the game as the assertive doer. The big difference between assertive act and aggressive act is that assertion was still on the field while aggressive was off the field. Maxwell in Maxwell and Moores (2007) defines Aggressivity as intentional act, (2004 dalam Maxwell & Moores, 2007) defined that aggressivity is subconscious act, illegal act, aimed to the opponent team, and official act.

Wann (1997) divides aggressiveness into three, namely: hostile aggression, instrumental aggression and assertiveness. Hostile aggressiveness is a form of aggression committed with the motive of anger that really wants to injure opposing players. This aggressiveness types also have a tendency to be impulsive and anger as the main cause (Russell, 2008). Aggressiveness is

instrumental aggressive actions undertaken to injure another person with the motive that the perpetrators can achieve the goal the game is not the pain of the other person. Aggressive action of this type in the underlying over the motive of anger and want to hurt other people. Aggressive behavior only serves as a tool that another goal could be achieved (Wann, 1997). The third form of aggressiveness that also often caused confusion is assertiveness. In general, assertiveness is not included as an aggressive action, but this action is often regarded as an aggressive act (Wann, 1997). In addition to the division above, Kerr (2005) tried to differentiate aggressive action becomes an act of aggression which allowed (sanctioned) and are not allowed (unsanctioned) (Kerr, 2005; Kerr, 2006; Grange & Kerr, 2010). Acts of aggression are allowed aggressive actions related to the types of direct body contact sports, such as martial arts, boxing or sports game that still tolerate the intensive body contact.

According to the theory of instinct emergence of aggressive action is a manifestation of the conflict between the instincts of life (Eros) and the death instinct (Thanatos) (Freud, 1920 in Wann, 1997). According to Freud, the aggressiveness can also be a form of catharsis of the perpetrator. There are actually two types of catharsis, the cathartic aggressive and cathartic symbolic. Catharsis is output aggressively aggression through aggressive responses made by the person.

The symbolic catharsis is output aggression by looking at aggressive behaviour of others (Wann, 1997). Collins & Loftus (1975 in Bushman, 2002) suggests that aggressive action is the result of a process of learning and memory associated with a person. Aggressive thoughts, emotions, and behavior tendencies are related to each other in memory. The concepts that have the same meaning (such as, injure, harm) and concepts that often appear simultaneously activated (e.g. shooting, weapons) developed in association strong. These is reinforced by social learning theory from Bandura (1983 in Wann, 1997) which states that human behavior including aggression act is the result of the learning process and view others.

Aggressiveness is also explained as the result of frustrating conditions experienced by a person. This theory is based on the hypothesis that aggressive behavior is actually triggered by external stimuli or from outside the individual. Stimuli were then lead to increased impetus from within oneself. One type Model Reduction Encouragement is Frustration-Aggression Hypothesis is conveyed by Dollard, Miller, Doob, Mowrer, and Sears in 1939 (Berkowitz, 1993). The general theory of aggressivity model tried to explain about the aggressiveness of the various aspects and viewpoints (Anderson & Bushman, 2002). According to this theory, the aggressive action of man is an interaction between various factors. The process of aggressive actions can be traced to the input or the sources that cause the emergence of aggressive action. The second process is called route that is how human cognitive abilities to process information related to aggressive action, as well as the outcome, namely action chosen by the individual results of the interaction of various factors..

Based on some previous studies, the researchers are interested to know more related to the aggressiveness that made by football players. More specifically, the researchers want to find the meaning of the Participants of this study were 3 football players related to the aggressive actions of the Persiram Raja Ampat football player who plays for Indonesia Super League competition as well as what factors are the cause of aggressive action in the football match.

RESEARCH METHOD

Participant

Participants of this research are three football players from Persiram Raja Ampat. They play in Indonesian Super League competition. Effectiveness research on aggressiveness is

supported by the selection of appropriate participants for this study, so before been the players who become participants, researchers must first consult with the coaching staff and the players play the board in place. Based on an initial interview with the coach it is acquired three players who have a high tendency to aggressiveness in the football game.

Procedures

The approach used in this study is qualitative with phenomenology of extracting meaning from this research theme. Phenomenology is a strategy or a way to explore a phenomenon in which researchers identified the essence of the experience of the subject of a phenomenon through the description of the subject (Cresswell, 1998). The procedure involves only a small number of subjects through a deep and prolonged involvement of researchers to develop and discover patterns of relationships between the meanings.

Methods of data collection study using in-depth interviews as the main source, observation, documentation, Focus Group Discussion and court records related to the phenomena observed cases and arrested by investigators. Researchers play an important role as a research tool, while the experience on the subject and the phenomenon of case studies that are the focus of study become an important point in exploring and understanding the phenomenon of the case.

Analysis of the data in this study, the authors used a model developed by Von explication Eckartsberg (1985, 1989) and Schweitzer (1983) in Subandi (2009). In detail, the procedure of data applied has the steps of: (1) Gain an understanding of data as a whole comprising the transcription process and doing overview, (2) Develop Individual Phenomena Description (DFI); (3) Identifying common episodes in each DFI; (4) Synthesis of explanation of the themes in each episode. Verification in this study is using inter-subjective validity (Creswell, 1998).

Interview Guidelines

Five questions were asked as the interview guidelines. All the five questions are the basic question which includes the reasons why act of aggression occurs, feeling when doing that on field, other aspects that trigger act of aggression, the accident happens because of acts of aggression, socioeconomic background of the subject, and how the family grow the subject. The follow up question is based on special case by each participant.

RESULT

After going all type collection data of the subject, it obtained themes from each subject. Those themes from each subject vary even though in general they are the same. The result of subject DAW, it obtained eight themes, on subject DA it found 10 themes and on subject RP found 12 themes related to act of aggression done by the subject.

Those themes are synthesized so that result in three group themes related to act of aggression by the football players, they are:

Family and environment

Family is the crucial cause. Family environment perceived by simply pressing subject. All three subjects have the same trend in terms of meaning to the upbringing of parents. Each subject felt he got enough pressure from families although each subject has problems tend to differ from one another. Subject first gain considerable pressure to be ideal, since he is considered a favorite son. The second subject had economic problems coupled with the absence of a father figure in the family so that the subject feels himself to be responsible in terms of economy for families. An unfortunate situation because the subject is actually used to be a child who is considered spoiled by the family so that the conflict occurred in the subject. The situation is often perceived as a stressful situation in the subject. The third subject has more or less the same conditions, the pressure of a father who wanted him to become a professional soccer player. Technical and

mental state of the subject was no longer wish to be a professional player. The situation that makes the appearance of the opposite actions to channel the pressure obtained earlier.

My father always wanted me to become a professional player. He was a tough person, sometimes likes to get angry. He is always watching the game that I did. For example, when I did not play so good, my father got anger. My mother just kept silent, she also did not dare toward my father. The point is my father's wish is I am going to be a great person so mas.

Controlled Emotion

Aggressive actions of the respondents also directly related to emotional control when in stressful situations. Respondents admitted more easily ignited emotions when the team is in a position behind. Besides a situation in which other emotions is when teammates scored in charge were not immediately able to create goals so that things do not change soon. Emotional control will be a problem in a situation like this, when the opponent is precisely that gets a lot of balls, then the respondent will be easier to play rough and aggressive.

The finding that reinforces uncontrolled emotion which is seemed from the way of the subject resolves football player's provocation of other team and bad referee leadership. The provocation challenges them to fight; therefore it will trigger the football player's emotion being aggressive. Another aggressive action from them is caused by an unclear guidance from the referee that not encloses the offenses. Here, some interview's quotation for illustrating the problem:

If the opponent team makes a score, I obsess to make a score as soon as possible. Moreover, if I see the striker of my team can't offence opponent's goal, I feel like my uncontrolled emotion higher. Then, if the opponent dominates the ball, it leads me to struggle the ball to make the goal. However, all of them can trigger the offenses.

The learning process of playing football isn't ideal

An average age of football learners is starting from 15 years old. The early phase of playing football did not provide the understanding about the basic techniques and the rules. As a result, they just acquire the techniques based on senior's experiences and become a football player in extra class.

Actually the training was not good at all since the coach only came and gave a warming up before we played a football. Even though the coach gave some theory which is not really detail, he expected for us to play the game enthusiastically.

This affected on the information acquired which is relating to the elements of fairplay and the basic techniques to deal with the types of games. In this case, the lack of this technique is the player has less ability to overcome some problems in a real game. They also only learned through an observation from the seniors:

I just observed what my seniors played in the game. Then I imitate what they did. Moreover, the coach did not teach me what to do to win the football game. But sometimes my seniors teach me how to fight the opponent team. If their play was going well, so we need to play roughly in order to make them lost their focus.

RESEARCH FINDING

Regarding to the data of each subject, either in the form of interview data and observation data which are obtained by the conclusion that the purpose of aggressive actions in football game is an attempt to distribute the pressures what they feel at home. The three subjects stated that the condition at home provides a relatively high pressure to them.

In a view of the theory of frustration-aggression hypothesis (Berkowitz, 1993) someone's aggressive acts possibly come because it was preceded by the frustration of the person. The theory also states that when a person is having a frustration, it indicates where it comes from. It

seems that players' frustration comes from a family environment which gives them heavy pressure. Those pressures are such as economic conditions, parents who are too rigid, and the desire of parents with regard to the future of her child and soon. Therefore, the football players distribute the pressures to play the game roughly. The truth is showing off is one of the media to bridge an aggressive acts. Unconsciously, the football players tend to be dominant player where they did not find in their family.

Henegby and Tenenbaum (2001) found some examples of aggressive acts which are obtained from athlete experiences when they felt frustrated in the game. Many of 17 junior tennis players (13-14 years old) expressed their feeling either caused by their own mistakes, the integrity of opponent team and the referee's decision. They expressed them into four ways, those are: an aggressive act toward their selves, toward the things around them, the opponent or the referee and soon. Those are categorized as inappropriate norms. Thus, frustration comes when the athletes think that they do not please their selves and others (Hanegby and Tenenbaum, 2001). In this case, parent and family's role also can be seen in the research from Estrada-Martinez, Padilla, Caldwell, and Schulz (2010), it is proof that children grows in wrong family.

Second finding concerns about uncontrolled emotional factor from the football player. Bettencourt, Talley, and Benjamin (2006) give the detail example about the provocation's effect of aggression level. The researcher used meta-analysis based on the previous study which is obtained a conclusion. It concluded that provocation is one of the main factors which caused aggressive acts. Further, the research categorized the types of personality based on the reaction. More explanation about this study, one tends to be more aggressive if he/she faces the opponent which has more provocations (Chermack, Berman, & Taylor, 1997).

Poor emotional control can also be seen from the emergence of anxiety before the game. Robazza&Bortoli (2007) also proves the same thing in the sport of American football. They found that cognitive anxiety a predictor for the appearance of anger, as well as a high level of confidence which is a predictor for control of anger.

Another factor that makes the emergence of aggressive behavior of the footballers is a factor of the process of learning to play football that is less than ideal. Ideal word used here refers to the training process. This process is related to the basic capability possessed by soccer players in Indonesia. The process of learning to play football is not this whole learning process cut the core values of the game of football, namely respect, honor and uphold sportsmanship (FIFA, 2010). Training process that does not depart from a very early age will produce imperfect game. Coulomb-cabagno, Rasclé, and Souchon (2006), found that the lower the level of competition tends to produce acts of violence more. Furthermore, the study found that if the level of competition increases, the level of instrumental increased aggressiveness and hostile aggressiveness decreased. Aggressiveness is hostile aggressiveness that aims to injure others without any reason the game, while the instrumental aggression is aggression undertaken in the context of the game (Russell, 2008). Moreover, in this first finding shows that the Indonesian football players studying aggressive actions of the process to see what is done by the seniors in resolving the problems of the game. The players see the acts of violence committed by the senior players at the club where they play. This learning process is successful because the players assume the techniques performed by the senior players as an effective way. The process of aggressiveness by looking at this line with research from Anderson & Bushman (2001), which examined the effects of violent video games on adolescents in the long term.

CONCLUSION AND SUGGESTION

This research concludes that the purpose of aggressive act of football player is that it can unleash the pressure they get from family. The pressure gives strong impact to the victim of

violence. Other than that, individual factor influenced this is that the football players get less formal education and less good and proper football training, either in technical aspect or in mental aspect. They, in average, do not get ideal football training which fit emotional development phase and physic development phase.

The second finding related to factors influencing aggressive act is the bad emotional control and low technical skill unideal football learning process. Provocation from opponents is one of the big factors causing acts which are categorized excluded from the rules. Provocation from referee, supporters and other elements also cause the acts of violence in football game.

Football players should prepare the best of them to face the highest level of football match, either physically or mentally or technically in order to minimize the acts of violence in the game.

REFERENCES

- Anderson, C.A., & Bushman, B.J. (2001). Effect of violent video games on aggressive behavior, aggressive cognition, aggressive affect, physiological arousal, and pro-social behavior: A Meta analytic review of scientific literature. *American Psychological Society*, 12(5) 353-359.
- Anderson, C.A., & Bushman, B.J. (2002) Human Aggressivity. *Annual Review Psychology*, 53, 27–51.
- Berkowitz, L. (1993). *Aggressivity: Its causes, consequences, and kontrol*. McGraw-Hill, New York.
- Bettencourt B. A., Talley, A., Benjamin, A. J., Valentine, J. (2006) Personality and aggressive behavior under provoking and neutral conditions: A meta-analytic review. *Psychological Bulletin*, 132(5), 751–777.
- Chermack, S.T., Berman, M., Taylor, S.P. (1997) Effects of Provocation on Emotions and Aggressivity in Males. *Aggressive Behavior*, 23, 1–10.
- Coulomb, G., & Pfister, R. (1998). Aggressive behavior in soccer as a function of competition level and time: A Field Study. *Journal of Sport Behavior*, 21(2), 222-231.
- Coulomb-Cabagno, G., & Rascle, O. (2006). Team sports players' observed Aggressivity as a function of gender, competitive level, and sport type. *Journal of Applied Social Psychology*, 36(8), 1980–2000.
- Coulomb-Cabagno G., Rascle, O., & Souchon, N. (2005). Players' gender and male Referees' decisions about Aggressivity in French Soccer: A Preliminary Study. *Sex Roles*, 52(7), 8.
- Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions*, Thousand Oaks. Sage Publication, Inc,
- Estrada-Martínez, L.M., Padilla, M., Caldwell, C.H., & Schulz, A.J. (2011). "Examining the Influence of Family Environments on Youth Violence: A Comparison of Mexican, Puerto Rican, Cuban, non-Latino Black, and non-Latino White Adolescents." *Journal of Youth and Adolescence*, 40(8): 1039-1051.
- FIFA (2010) *Grassroots football*. Zurich. FIFA.
- Grange, P., & Kerr, J. H. (2010). Physical Aggressivity in Australian football: A qualitative study of elite athletes. *Psychology of Sport and Exercise*, 11, 36–43.
- Guilbert, S. (2008). Violence and accidents in competition sports. *Sport in Society*, 11(1), 17–31.
- Hanegby, R., Tenenbaum, G. (2001). Blame it on the racket: norm-breaking behaviours among junior tennis players. *Psychology of Sport and Exercise*, 2, 117–134.
- Jarvis, M. (1999). *Sport Psychology*. London. Routledge.
- Keeler, L.A. (2007). The differences in sport Aggressivity, life Aggressivity, and life assertion among adult male and female collision, contact, and non-contact sport athletes. *Journal of Sport Behavior*, 30 (1), 57-76.
- Kerr, J.H. (2005). *Rethinking Aggressivity and violence in Sport*. Routledge, London.

- Kerr, J.H. (2006). Examining the Bertuzzi–Moore NHL ice hockey incident: Crossing the line between sanctioned and unsanctioned violence in sport. *Aggressivity and Violent Behavior*, 11; 313–322.
- Kimble, N.B., Russo, S.A., Bergman, B. G., & Galindo, V.H. (2010). Revealing an empirical understanding of Aggressivity and violent behavior in athletics. *Aggressivity and Violent Behavior*, 15(6), 446–462.
- Loughead, T. M. & Leith, L. M (2001). Hockey coaches' and players' perceptions of Aggressivity and aggressive behavior of players. *Journal of Sport Behaviors*, 24(4), 394–407.
- Maxwell, J.P., Moores, E. (2007). The development of a short scale measuring aggressiveness and anger in competitive athletes. *Psychology of Sport and Exercise*, 8, 179–193.
- Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks. SAGE Publication, Inc.
- Robazza, C., & Bortoli, L. (2007) Perceived impact of anger and anxiety on sporting performance in rugby players. *Psychology of Sport and Exercise*, 8, 875–896.
- Ruiz, M. C., & Hanin, Y. L., (in press). Perceived impact of anger on performance of skilled karate athletes, *Psychology of Sport and Exercise*, (2011) doi:10.1016/j.psychsport. 2011.01.005
- Russel, G. W. (2008). *Aggressivity in sport world. A social psychological perspective*. New York. Oxford University Press.
- Wann, D.L. (1997). *Sport Psychology*. New Jersey. Prentice Hall.



IMPROVING SOSIAL SKILLS OF CHILDREN WITH MILD MENTAL RETARDATION THROUGH PLAY TITLE OF PAPER

Hedi Ardyanto Hermawan

Faculty of Sport Science State University of Yogyakarta

hedi.ardiy43@gmail.com

Abstract

Social skill is the ability of individuals to communicate effectively with others, both verbally and nonverbally in accordance with the circumstances at the time, in which these skills are learned behavior. Children with mental retardation are children who have problems or delays in mental development (intellectual functioning under their friends of their age) accompanied by an inability / incapacity to learn and or adapt. All of these are to happen during their development. In general, children with mental retardation have less mental development resulting the overall intelligence functions retarded. Social skills are the common problems faced by these children with intellectual challenges. However, mild mental retardation children have the ability to build social skills. With the capabilities of mild mental retardation, the children who have mild mental retardation with social skill problems can still be solved. Play cooperatively is one way to improve the social skills of children with mild mental retardation.

Keyword: Social skill, mild mental retardation, play



QUESTIONNAIRE – CHARACTERISTICS OF SPORT PSYCHOLOGIST

Kreangkrai Narktawan

Doctorate degree on Sport Psychologist, Srinakharinwirot University

buswu_7@hotmail.com

Abstract

The purpose of this thesis is to determine the characteristic, experience and management system of sport psychologist. Moreover, the propose research also focuses on the process of thinking in the improvement of the subject. Methods of data collection includes general information and questionnaire based on the person's characteristics, which is categorized into 7 traits - competence, integrity, professional and scientific, respect for people's right and dignity, concern for other's welfare, social responsibility and personality and characteristics trait. The thesis has a 0.8 correctness factor when compared with data form 3 professors in the field. When tested with the sample size of 50 people however, this variable increases to 0.92.

Keywords: questionnaire, characteristics, sport psychologist



THE ROLE OF ATTENTIONAL FOCUS; EXTERNAL AND INTERNAL FOCUS ON SKILL ACQUISITION

Yadi Sunaryadi

Faculty of Physical Education and Sports, Indonesia University of Education

ydsunaryadi@yahoo.com

Abstract

We review research related to the learning of motor skill with respect to focus of attention; inducing an internal focus and an external focus of attention. Motor skills involve specific movement patterns and outcomes. For those skills, developing appropriate technique is critical. In some sports, such as gymnastics, performance is judged according to how closely the athlete's movements match a criterion pattern. In other sports (e.g., tennis and golf), success is based on outcomes that are dependent on technique. Therefore, it is not surprising that most of practitioners only emphasize movement patterns or body movement in most of their interactions with learners (internal focus). Unfortunately, the learning of motor skills can be degraded if the learner pays too much attention to his or her performance or body movement (Wulf & Prinz, 2001). In general, directing performers' attention to the effects of their movements (external focus of attention) appears to be more beneficial than directing their attention to their own movements (internal focus of attention). A number of studies examining the role of the performer's focus of attention have consistently demonstrated that instructions inducing an external focus are more effective than those promoting an internal focus. An external focus facilitates automaticity in motor control and promotes movement efficiency (Wulf, She, & Lewthwaite, 2010).

Key words: external focus, internal focus, skill acquisition



DEVELOPING CHARACTER THROUGH SPORTS

Goh Si Win, Sherwin

Nanyang Technological University, Singapore

sgoh011@e.ntu.edu.sg

Abstract

Literature on sports participation have found that sports can have both positive and negative influence on the development of character. This paper proposes an action research project that can be conducted in sports teams to evaluate the effectiveness of the proposed Star-Cross System in inculcating positive character and values in students. The Star-Cross System leverages on teachable moments (behaviour exhibited by students which displays character traits that requires corrective teaching or commendation) during sport participation. Upon identification of a teachable moment, explicit teaching is conducted by the teacher or coach, after which good behaviour is rewarded with star(s), and inappropriate behaviour is punished with cross(es) on a Star-Cross Chart. Stars and Crosses neutralises each other on the chart. Implications of behaviour will run beyond Stars and Crosses: students who have outstanding Crosses will be prohibited from representing the team in competitions, and the student with the most number of Stars at the end of the year will receive a special commendation. The proposed action research project will use both qualitative and quantitative research methods to determine if the proposed Star-Cross System is successful in inculcating positive character and values in students; as the development of character is qualitatively determined by improvements in behaviour that the teacher notices, and the relative occurrences of these behaviour is quantitatively recorded on the Star-Cross Chart. The resulting change in the number of Stars or Crosses over a period of time can then determine the effectiveness of the Star-Cross System.

Key words: character, education, sports, star-cross

UNNES
UNIVERSITAS NEGERI SEMARANG

PARTICIPANTS' PERSPECTIVE OF INJURY IN JOGGING

Prachaya Chomsahai¹, Salee Supaporn²

^{1,2}Graduate Student in Sports and Exercise Science, Faculty of Physical Education, Srinakharinwirot University

¹assassin_pong@hotmail.com, ²salee_supaporn@yahoo.com

Abstract

The purpose of this study was to explore jogging injury from participants' point of views. Participants were intact group of 40 male joggers with at least 5 years of jogging experiences, ranging of age between 47-66 years old, and had previous injured from jogging. Data were collected using critical incident, observation and informal interview. Data were analyzed through a constant comparison and triangulated across methods. Results indicated 3 themes. First, reasons for jogging included the need to be healthy, socializing with others and participating in jogging competition. Second, most frequent injury areas centered around lower extremities (knee and ankle joints, soles and calf muscles) whereas types of injury included (1) muscular aches, swollen, inflame, (2) pain, sprain, swollen joints and (3) pain, swollen, fascialitis at sole of foot. Third, cause of injury involved with (1) the lack of warm-up and cool-down, (2) increasing of running frequency, duration, distance and speed, (3) jogging during injury, (4) incorrect jogging style, (5) improper jogging shoes and running surfaces. In conclusion, joggers should pay attention on warm-up and cool-down sessions and learn how to jog properly in order to prevent injury. In addition, when injuries occurred, joggers should rest and take proper care of themselves before returning to jog again.

Keywords: jogging, injury

UNNES
UNIVERSITAS NEGERI SEMARANG

STANDARDIZATION ELEMENTS IN MOTION BASIC MARTIAL LANGGA GORONTALO

Hartono Hadjarati

State University of Gorontalo

hartonohadjarati@ung.ac.id

Abstract

Langga martial arts is a martial art method which was created in order to defend themselves from dangers that would threaten the safety and survival of the community. Besides martial arts is one of the community's identity and develop in accordance with the customs environment and character of local communities. Martial langga there should be a positive support from the community Gorontalo to the preservation, promotion and development. Because according to preliminary observations made at this time martial langga already very concern because it was on the verge of extinction. The existence of martial langga difficult identified in terms of shape, viewed from the component implementation, martial langga have effective movement, heroic, and while there is some sort of ritual implementation is done. It is difficult where martial langga could stand as a form intact and clear. This study aims to standardize the elements of martial langga basic motion, in order to know more about how to form the basis of martial langga motion. The process of standardizing basic elements of martial arts motion langga actually to facilitate the development of martial langga, it is done so that the traditional martial langga are still evolving and no longer only known in Gorontalo, will also be very helpful in disseminating martial langga civic as well as in publications to the national level, so it may be Just a moment because obviously form the basis of martial langga motion will be a lot of interest and easily learned by society.

Keywords: Standardization, Martial, Langga Gorontalo

INTRODUCTION

Sustain human life always defend themselves from the threat of nature, animals and neighbors who are considered threatening its integrity. How to defend yourself from an area, in contrast to other areas. Mountain area in general is marked by sturdy horses and a lively arm movements, while the flat areas are characterized by an attitude horses light and nimble footwork though, (Sucipto, 2008: 2) states the difference was due to regional conditions and forms of threats, including the type of weapon being used. Moves that used to defend themselves inspired many of the different movements of animals, such as chickens, tigers, monkeys, snakes and others.

Langga martial arts is a martial art method which was created in order to defend themselves from dangers that would threaten the safety and survival of the community. In addition Martial Sports is one of the community's identity and develop in accordance with the customs environment and character of local communities. as seen in the martial character typical of the region in Indonesia which reflect the nature and character of the tribes in the area.

Ju Panggola is a title or nickname. Ju Gorontalo language which means yes, and Panggola means old. So, yes Ju Panggola mean old man. Historically, people who nicknamed Ju Panggola it is Ilato which means lightning. He was a Aulia or mayor who spread Islam in Gorontalo and has a high magic power, which is able to disappear from human view and may appear immediately if the State Gorontalo in distress. He was nicknamed Ju Ponggala, because he always appeared or emerged with an old man's profile and wearing a long beard and white robe. Ju Panggola left a stream of white

magic which is applied through the martial arts community called the langga Gorontalo. While still alive, Ju Panggola pass on his knowledge to his students by way of tears in their eyes. After that, the student will master the martial arts through dreams or reflex movements.

Martial langga not a static science. Science is evolving from time to time. The process of acculturation is one of the causes of the emergence of a wide range of flow and an increase in self-defense capability langga. Population movements, the expansion of the kingdom and the nature of love wander caused the meetings and a cross between the various science kanuragan (martial) is giving and receiving. Therefore, with the advent of various tribes and nations to Gorontalo, not closed the possibility of enriching cross langga Gorontalo martial abilities such as martial arts were heavily influenced Kuntao China in various places in the Gorontalo area has been regarded as indigenous knowledge.

Langga martial culture needs to be developed for endurance Gorontalo area, recognizing that culture is the great value to society Gorontalo. In addition langga martial sport is one aspect that needs to be given priority to be protected, nurtured, developed, which further empowered inherited. Martial langga there should be a positive support from the community Gorontalo to the preservation, promotion and development. Because this time is very memberhatikan martial langga because it was on the verge of extinction. For the current show langga martial conducted during Eid is usually done after Eid prayers alone. (Kemenpora, 2014) states that traditional martial endangered should be developed and passed on to the young generation therefore the central and local governments and communities have an obligation to lift up and redevelop the traditional martial sport.

Based on the description that has been described, the views of existence as a self-defense martial langga not been clearly identified as part of the stream of martial arts that have joined the martial arts today. Therefore, it takes a scientific study through research to identify the basic elements of martial langga motion, in order to know more about how to form the basis of martial langga motion.

The process of identification of the basic elements of martial arts motion langga actually to facilitate the development of martial langga, it is done so that the traditional martial langga are still evolving and no longer only known in Gorontalo, will also be very helpful in martial mensesosialisasikan langga to the community as well as in publications to the national level, so it may could be a while because it was clear form the basis of martial langga motion will be a lot of interest and easily learned by society.

The process of identification of the basic elements of martial arts motion langga done by video recording of the elders-old martial langga in Gorontalo, subsequently collected in order to facilitate the identification of the motion element essentially. This process is the most important thing that the martial langga can be received by the public and not only accepted, but internalized in people's lives. Because in the era of globalization, langga martial arts should be able to compete with the modern martial sport or game that is loaded with interesting art movement. In addition the process of socialization and organizational structures that are less optimal the cause of the failure of martial arts langga to exist in the era of globalization.

Based on the background described above, the formulation of the problem in this study as follows: 1) What is the basic elements of martial arts motion langga?. 2) Is the basic elements of martial langga motion together with other martial arts?.

This study aimed to obtain a comprehensive picture of the process of implementation of martial langga coaching in Gorontalo in order to preserve the martial langga Gorontalo, which is implemented by teachers langga, governments and society. Identify elements for the implementation of the basic motion martial langga in Gorontalo. To standardize the basic elements of martial arts motion langga in Gorontalo.

This research is useful theoretically and practically to support the development of martial langga in Gorontalo : 1)Theoretical Benefits, results of this study are expected to help teachers in order to teach martial martial langga this effectively, efisen and attractive as well as being the pride of the people of Gorontalo.Results of this study are expected to help, facilitate the students martial langga achievement, increase motivation and an alternative choice to learn martial arts. Results of this study are expected to keep the local identity, the collective pride of becoming a martial langga area as well as the attractiveness of tourism and support the creation of a prosperous society, so that people are more interested in studying martial langga its own country, 2) Benefits in practice, results of this study are expected to help the organization establish martial Gorontalo langga as a container of coaching and training.

METHOD

This research is the development and document (video image) as its object, using analytical techniques. The method chosen because the author will do the analysis form the basic elements of movement in martial langga in Gorontalo.

This analysis to analyze, understand, and interpret basic elements of movement with the help of a category system, the analysis can also be applied to objects (images, equipment, video) and action. Data obtained from this analysis using a large part of the science of sports science sports biomechanics, exercise physiology.The procedure of analysis to be performed in this study are as follows: The analysis begins with the identification of specific research problems, namely how the basic elements of martial arts motion langga in Gorontalo.Selection of data sources: researchers determine the source of the data relevant to the research problem, through in-depth observation of the perpetrators of martial langga surviving by age 60 years and older. The timing and amount of elders langga to be studied (sample).

RESULT AND DISCUSSION

Analysis begins with the identification of specific research problems, namely how the basic elements of martial arts motion langga in Gorontalo, from the identification of the basic elements of martial langga motion which consists of elements of attitude, Basic Motion horses, Basic Motion Attitude tides, Basic Motion: Step Pattern , As follows



Basic attitude



Fig 1 : attitude of respect

attitude stance (sikap kuda-kuda)



Fig 2 : Kuda-kuda depan



Fig 3 : Kuda-kuda tengah



Fig 4 : Kuda-kuda samping



Fig 5 : Kuda-kuda Silang

Sikap Pasang



Pola Langkah



Pola Serang



CONCLUSION AND SUGGESTION

Based on the issues and research purposes as well as the results of the identification of the basic elements of martial arts motion langga Gorontalo, it can be drawn the conclusion and suggestions: 1.The basic elements of martial langga basically the same with the martial-traditional and modern martial others which start from a basic stance to attack, but with different means and methods. It can be seen from the basic stance, stance, pairs and attacking attitude, 2.The movement of the basic elements of martial arts motion langga, very simple in practice by relying on the reaction speed and endurance as well as strength, because in martial langga where all replies parry blows with local language "Uito totame mauito Popai olo", 3.The basic elements of martial langga still close relationship with the mystical tradition Pitodu carried through to the new langga athletes want and after learning langga. Tradition pitodu done seven (7) times, 4.To be able to program the government for another tradition of martial langga every day Eid every subdistrict in Gorontalo province, 5. For the experts martial langga to be able to open up to who wants to learn langga.

ACKNOWLEDGMENT

This article is really the result of my research

REFERENCES

- Allan Maulana, 2014, *Analisis Perbandingan Aikido Di Jepang Dan Silek Di Minangkabau Sebagai Seni Beladiri Tradisional*. Diperoleh dari <http://www.researchgate.net/> (diunduh, 8 November 2014)
- Andun Sudijandoko, 2010, *Perkembangan dan pelestarian Olahraga Tradisional Gelot Pathol di Kabupaten Tuban Jawa Timur*. Diperoleh dari <http://isjd.pdii.lipi.go.id/index.php/> (diunduh 8 November 2014)
- Agung Nugroho, 2007, *Keterampilan Dasar Pencak Beladiri Materi Sejarah perkembangan Pencak Beladiri Go International*. Diperoleh dari [Fik Uny.staff .uny .ac.id/](http://fik.uny.staff.uny.ac.id/) (diunduh 08 November 2014)
- Ardiatmiko, 2014, *Seni Beladiri Tradisional Betawi Yang Tergerus Jaman*, di peroleh dari <http://dianranakatulistiwa.wordpress.com/> (diunduh 10 November 2014)
- Arikunto, Suharsimi, 2006. *Prosedur Penelitian : Suatu Pendekatan Praktek*. Revisi VI. Jakarta : Rineka Cipta
- Bambang Utomo, 2002, *Aikido, Seni Beladiri dan Filosofi*, Jakarta, PT. Gramedia Pusat Jakarta
- Bambang KS, 2011, *Pentingnya Biomekanika Bagi Para Pelatih*, Lokakarya Pengembangan Ketenagaan Pendukung Dan Pembina Olahraga Serta Pelatih Dan Instruktur, Solo, Kemenpora.

COMPARE OF GOALS SCORED IN EURO 2012 CHAMPIONSHIPS AND 2014 FIFA WORLD CUP

Mohamed Refaei Mostafa

Department of theories and applications sports and tennis games, Faculty of physical education, Port Said University

mando_love12@yahoo.com

Abstract

Purpose: The aim of this study compare of analysis technical and quantitative for goals scored in two tournaments of soccer Euro 2012 held on (Poland and Ukraine) and 2014 Fifa world cup held on Brazil, The researcher used descriptive method, Sample contained all Euro 2012 matches (31 match) and all matches of 2014 Fifa world cup (64 match). **Methods:** Researcher used television, video and form for analysis goals designed by Hassan AbouAbda to collect data, Data were analyzed and descriptively presented in form of tables and figures. **Results:** Results showed In euro 2012: 76 goals scored in 31 match, (57.89%) were scored in the second half of match, and (70.97%) of team that scored first goal was the winning team. In Fifa world cup 2014: 171 goals scored in 64 match, (61.98%) were scored in second half and extra time, and (75.44%) of team that scored first goal was the winning team. **Conclusion:** The researcher found that in two tournaments most goals scored in second half for this coaches should be cares in development of physical abilities for players because it have high impact on tactical performance of team.

Key words: Soccer, Goal scored, analysis, Euro 2012, 2014 Fifa world cup.

INTRODUCTION

Soccer is the first popular sport in world, now there are more than 208 local Federation followed to International Federation (FIFA) and there are more than 200 million players in world and the number of who follow Soccer more than 26 billion viewers, according to the statistics of the International Federation of Football Associations (FIFA), so many countries do continuous efforts to improve the quality of soccer game to can access to world Championships and achieve best results, through scientific planning (www.fifa.com). Soccer has evolved more than past in all aspects of required performance, there were many ways to play, for this all plans of defensive and offensive (individual and collective) development, and training became a complex process and it need to be planning, analysis and evaluation (Ibrahim, 1996).

To Success in modern soccer has become an important factor not leaves a lot to chance, especially in high levels Many of coaches they analyze and record performance of players (individually - collectively) in order to discover ways to increase their effectiveness as they analyze the teams that will face in the upcoming matches to purpose detecting weaknesses that can be exploited , as well as the strengths that need special attention. Analysis of great value for coaches in preparation of team and information can be obtained from several sources (Film - Television - Video - direct live matches - Discussion players who have experience to participate in various competitions (Malcolm, 1982).

Analysis is important method for development the team's performance, whether the team was winner in match or not, Analysis match gives a specific and accurate information on all events of game and through the results of analysis we can increase effectiveness of training (Hanafi, 1998).

Soccer coaches depend when put their plans and training programs on results of analysis to players in matches (Amralla, 1995). Continuous analysis of performance for players in soccer whether in training or match that help coach to identify skills and tactical of these players (Thomas, 1990).

Scoring goals in soccer is one of the most exciting aspects of the game (Mal, 1982). Spectators love goals and players who put ball in the net also celebrate uncontrollably. Scoring goals determines whether a team wins or loses a game, because the object of the game is to score goals. The winner of a soccer match is determined by the number of goals scored. For a goal to be counted the ball should completely pass the goalpost line between the posts and under the crossbar, and the team that scored the goal should not have violated the game rules (www.fifa.com). One way to know how goal scored is by observing and identifying key aspects of goal scoring and coaches need to pay attention too in training and competition (Armatas, 2007a).

Despite that there is ample amount of studies that have examined the characteristics of goals that have been scored in various tournaments, the need for constant record and evaluation of soccer characteristics is prevalent, since it presents continuous development and change as far as the mode of the game is concerned (Yiannakos, 2006). Through follow-up Egyptian soccer teams and Egyptian national team it lack to attackers scorers and weakness of scoring rate and this reflected negatively on performance of Egyptian national team and his failure to reach African Nations Cup three times consecutively (2012) (2013) and (2015), also failure to reach Fifa World Cup 2014 in Brazil.

For this researcher preferred to analyze goals scored in European Championship (2012) and Fifa world cup (2014) because they are biggest and strongest tournaments in the world. The aim of this study compare of analysis technical and quantitative for goals scored in two tournaments of soccer Euro 2012 and Fifa world cup 2014 through identify:

- 1- Number of goals and when goals were scored.
- 2- Impact of first goal in final result of the game.
- 3- Method to score goals during two championships.
- 4- Position of players who scored the goals.
- 5- Area of where goals scored.

METHOD

The researcher used descriptive method Using survey method through scientific observation. Researcher used to collected data: television, video of all goals scored in (Euro 2012 and Fifa world cup 2014), form for analysis goals designed by Hassan AbouAbda (Hassan, 2013). Additionally inter-rater reliability of separate observations was calculated to guarantee the quality of observation system, A reliability index of 0.95 was observed, and official database of website of Union of European Football Association – UEFA (www.uefa.com) and official database of website of International Federation of Association Football – Fifa (www.fifa.com). Variables of study were analyzed:

1. Number of goals scored in each half and extra time.
2. number of goals scored per 15 minutes (1 -15, 16-30, 31-45, 1st Additional time, 45-60, 61-75, 76-90, 2nd Additional time and Extra time)
2. Impact of first goal in final result of the game (win - draw – lose – no goals).
3. Method to score goals (Shot, Inner part of foot, Header, Other part of body, Own goal, Direct free kick, Penalty).
4. Position of players who scored goals in accordance to (Defenders – Midfielders – Forwards).
5. Area of where goals scored (outside penalty area – penalty area – goal area)

Sample contained all Euro 2012 matches (31 match) held on (Poland and Ukraine) and all matches of Fifa world cup 2014 (64 match) held on Brazil. Researcher used statistical software package (SPSS) to treatment of statistical data by using:

- Arithmetic mean.
- Standard deviation.
- Correlation coefficient.
- Percentage.

RESULT AND DISCUSSION

Table 1. Number of goals and when goals were scored

	Minutes	Euro 2012	World cup 2014
First Half	1 – 15	7	18
	16 – 30	13	27
	31 – 45	11	17
	45+	1	3
Total		32	65
Second Half	46 – 60	15	24
	61 – 75	13	33
	76 – 90	13	29
	90+	3	12
Total		44	98
Extra time	91 – 120	-	8
Total		76	171
Matches		31	64

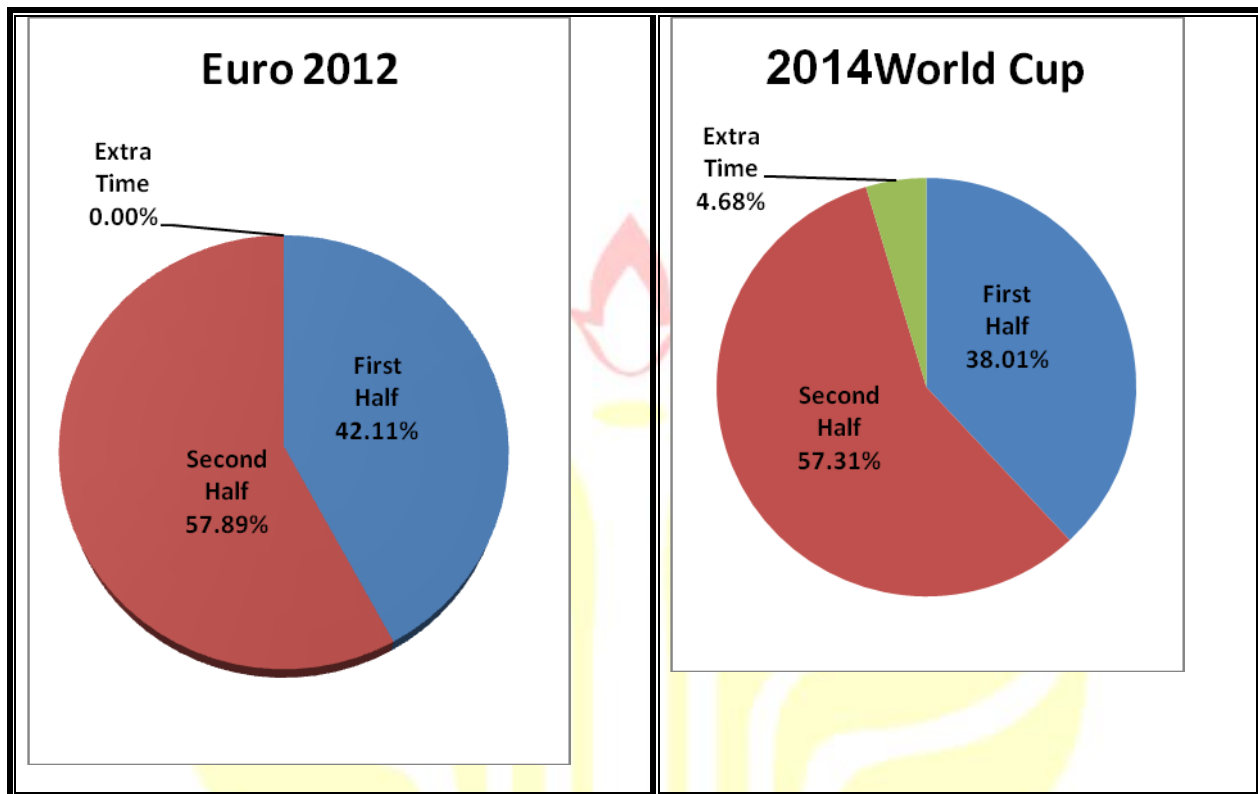


Fig. 1. Number of goals and when goals were scored

Table and figure above showed number and percentage of time of goals scored in Euro 2012 there were 76 goals scored in 31 match played, 32 goal scored in first half (42.11%) and 44 goals scored in second half (57.89%), While in World cup 2014 there were 171 goals scored in 31 match played, 65 goal scored in first half (35.01%), 98 goals scored in second half (57.31%) and 8 goals scored in extra time (4.68%).

Table 2. Impact of first goal in final result of the game

	Euro 2012		World cup 2014	
	No.	percentage	No.	percentage
Win	22	70.97%	43	67.19%
Draw	5	16.13%	6	9.38%
Lose	2	6.45%	8	12.50%
No goals	2	6.45%	7	10.94%
Matches	31	100%	64	100%

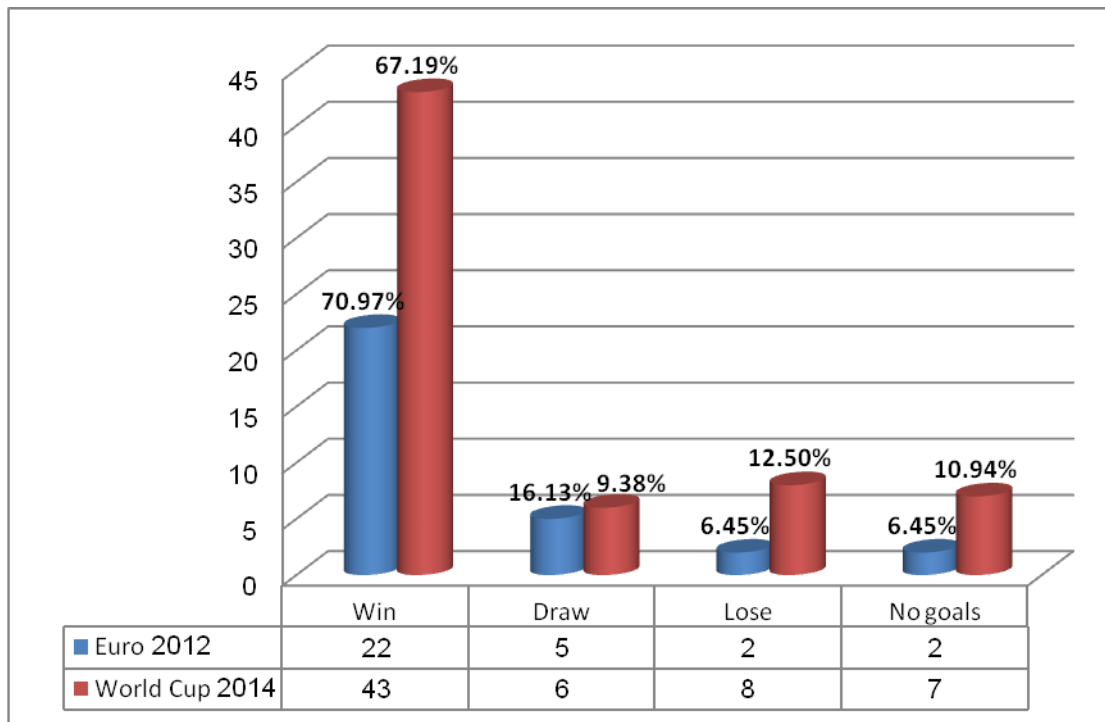


Fig. 2. Impact of first goal in final result of the game

Table and figure above showed number and percentage of impact of first goal in Euro 2012 the team that scored first goal won in 22 match (70.79%), While in World cup 2014 the team that scored first goal won in 43 match (67.19%).

Table 3. Method to score goals during two championships

	Euro 2012		World cup 2014	
	No.	percentage	No.	percentage
Shot	30	39.47%	60	35.09%
Inner part of foot	21	27.63%	55	32.16%
Header	16	21.05%	31	18.13%
Other part of body	4	5.26%	7	4.09%
Own goal	1	1.32%	5	2.92%
Direct free kick	1	1.32%	1	0.58%
Penalty	3	3.95%	12	7.02%
Total	76	100%	171	100%

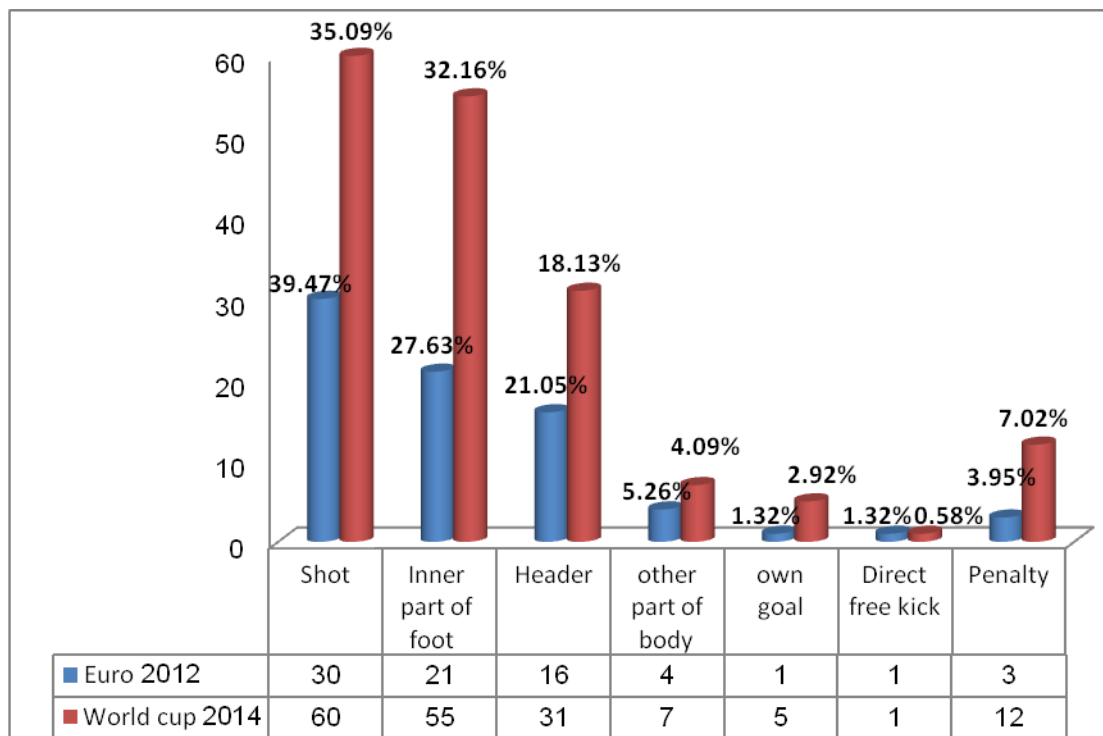


Fig. 3. Method to score goals during two championships

Table and figure above showed number and percentage of method to score goals in Euro 2012 were: shot 30 goals (39.47%), Inner part of foot 21 goals (27.63%), Header 16 goals (21.05%), other part of body 4 goals (5.26%), and 1 goal from Own goal and Direct free kick (1.32%). While in World cup 2014 shot 60 goals (35.09%), Inner part of foot 55 goals (32.16%), Header 31 goals (18.13%), other part of body 7 goals (4.09%), Own goal 5 goals (2.92%) and 1 goal from Direct free kick (0.58%).

Table 4. Position of players who scored the goals

	Euro 2012		World cup 2014	
	No.	percentage	No.	percentage
Defenders	6	7.89%	18	10.53%
Midfielders	26	34.21%	69	40.35%
Forwards	43	56.58%	79	46.20%
Own goal	1	1.32%	5	2.92%
Total	76	100%	171	100%

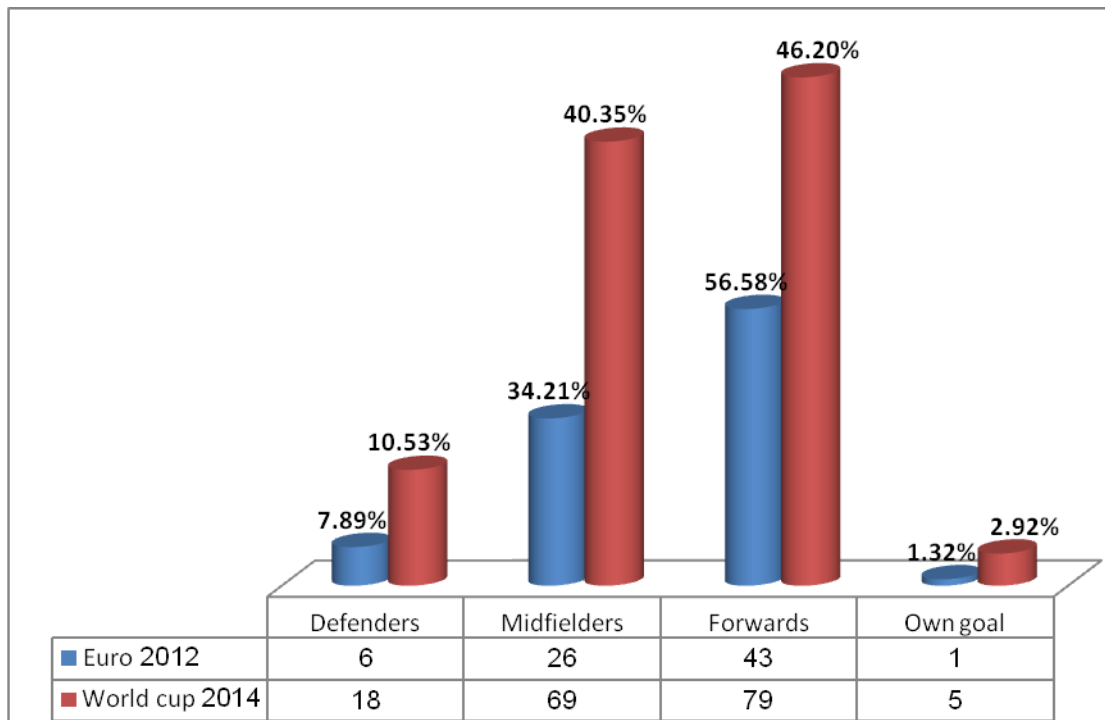


Fig. 4. Position of players who scored the goals

Table and figure above showed number and percentage of goals scored according to position of player who scored the goal in Euro 2012 were: Forwards scored 43 goals (56.58%), Midfielders scored 26 goals (34.21%), Defenders scored 6 goals (7.89%). While in World Cup 2014 Forwards scored 79 goals (46.20%), Midfielders scored 69 goals (40.35%), Defenders scored 18 goals (10.53%).

Table 5. Area of where goals scored

	Euro 2012		World cup 2014	
	No.	percentage	No.	percentage
outside penalty area	6	7.89%	18	10.53%
penalty area	54	71.05%	112	65.50%
goal area	16	21.05%	41	23.98%
Total	76	100%	171	100%

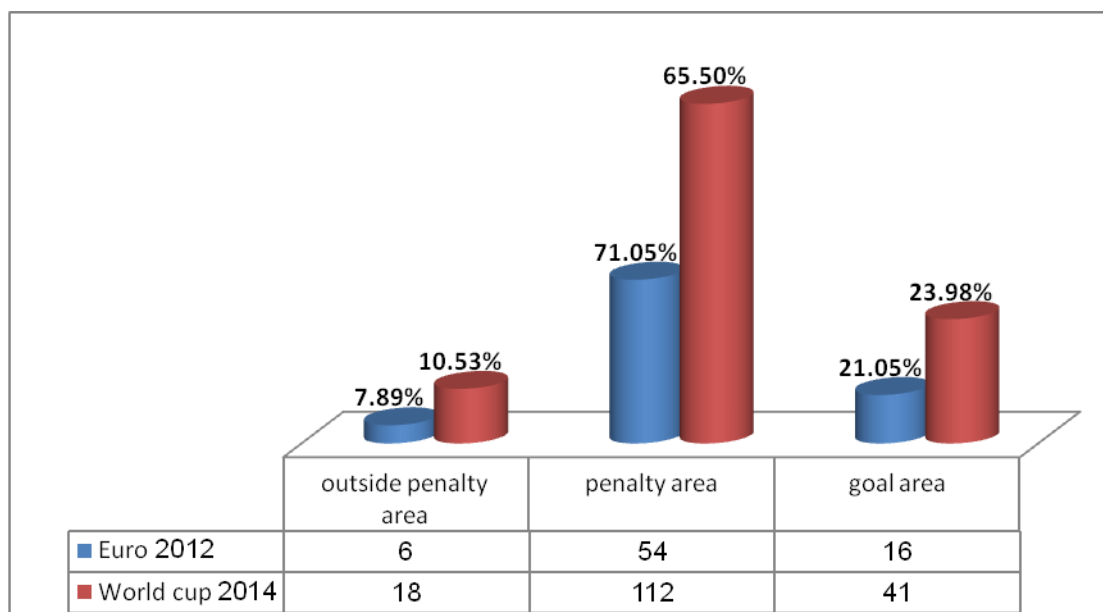


Fig. 5. Area of where goals scored

Table and figure above showed number and percentage of goals according to area of the field where it scored in Euro 2012 were:: from penalty area scored 54 goals (71.05%), from goal area scored 16 goals (21.05%), from outside penalty area scored 6 goals (7.89%). While in World cup 2014: from penalty area scored 112 goals (65.50%), from goal area scored 41 goals (23.98%), from outside penalty area scored 18 goals (10.53%).

The results showed the most goal scored in Euro 2012 in the second half 44 goals (57.89%), and in World cup 2014 the most goals scored in second half 98 goals (57.31%). Researcher due the high number of goals scored in second half to appearance of fatigue, lack of focus and lack of commitment tactical. According to Gomes et al (2011) the better performance in soccer matches is directly linked to physical fitness. The team in first half is able to perform their actions better than in second half, Therefore, the higher incidence of goals in second half of play may be due to decreased physical performance, psychological, technical, and tactical organization of a team.

The results showed the high impact of first goal in final result of game, according to data obtained in in Euro 2012 the team that scored first goal won in 22 match (70.79%), and in World cup 2014 the team that scored first goal won in 43 match (67.19%). This due to great role played when scoring the first goal in tactical and psychological and psychological aspects, First goal gives great motivation for players and gives them self-confidence as that when score first goal coaches working on follow tactics to secure the lead. According to Theis (2011) scoring of a goal increases the self-confidence of the players and their general performance. For Njororai (2007) after score first goal in match the team has advantage and the players follow a proper tactical strategy.

Results showed the most method used to score goals were: in Euro 2012 scored by shot 30 goals (39.47%), scored by use Inner part of foot 21 goals (27.63%) and scored by Header 16 goals (21.05%). And in World cup 2014 scored by shot 60 goals (35.09%), scored by use Inner part of foot 55 goals (32.16%), scored by Header 31 goals (18.13%). it is very natural because soccer dependent on kicking hence shooting is more natural than heading, these results confirm the necessity to attention of shooting from different angles, strongly and accurate Shooting on goal, also training on header.

Results showed the most player position scored goals in Euro 2012 Forwards scored 43 goals (56.58%), the Midfielders scored 26 goals (34.21%) and Defenders scored 6 goals (7.89%). While in World cup 2014 Forwards scored 79 goals (46.20%), Midfielders scored 69 goals (40.35%), Defenders scored 18 goals (10.53%). Researcher see this arrangement is natural and according to functions and duties of different players lines, where the duties of forwards are scoring goals in the first place and do the offensive duties with scoring and open gaps in defense of opponent, the higher performance of forwards and their good understanding to the requirements of their offensive duty make great advantage to increase scoring proportion.

Results showed the most area of the field used to score goals in Euro 2012 were: from penalty area scored 54 goals (71.05%), And in World cup 2014 : from penalty area scored 112 goals (65.50%). This is due to that the most of offensive tactics designed to getting the ball to attackers inside the penalty area, arrival the ball to attackers inside penalty area is one of most dangerous situations that threaten opposing team where the distance close to goal and therefore goalkeeper found difficulty to deal with ball in this situations.

CONCLUSION AND SUGGESTION

1. Coaches should be cares in development of physical abilities for players because it have high impact on tactical performance of team.
2. Coaches should therefore prepare a team's all around capacity in terms of physical abilities, technique, tactical and mental concentration so that players can face different situations in the play.
3. Coaches should analysis team during match and using strategic substitutions to help them teams to remain in peak condition in second half of game.
4. Coaches must prepare their players psychologically so as not to affect received goal on their performance and motivate them to return the outcome of the game
5. Coaches need to pay their attention to training on shooting and header from different areas because of its positive impact on scoring highest number of goals
6. Coaches must training their players to end attack by send ball inside penalty area because it is most dangerous area on opposing team, and training their forwards on how to finish the attack.
7. Coaches must training their defenders on the correct positioning inside penalty area and don't make mistakes on it.
8. Coaches should develop their training programs according to results of this study because of its positive impact on improve effectively the scoring in match.

REFERENCES

- Amralla Ahmed Bosatti, (1995). Training and physical preparation in football, Manshaet Al maref, Alexandria, P.65.
- Armatas, V., Yiannakos, A., Galazoulas, Ch., Hatzimanouil, D. (2007a). Goal scoring patterns over the course of a match: Analysis of Women's high standard soccer matches. *Physical Training*, January 2007.
- Gomes, P., Stivan, E., Luppi, F., Bien, F. (2011). Incidência de gols no campeonato brasileiro de futebol da série A 2009, *Educación Física y Deportes*, 16 (161).
- Hanafy Mahmoud Mokhtar (1998): Head Coach to Soccer, book publishing center, Cairo, P.282.
- Hassan Sayed Abu Abda, (2013). Modern Trends in planning and training soccer, Al eshaa el Fany Printing, First Edition, Alexandria, P.300.
- Ibrahim Hanafi Shaalan, Amr Ali Abul-Magd (1996). defense strategy in soccer, Dar Al Arab Thought, Cairo, P.17.

- Mal, B. (1982). Scoring Ability in Football. SNIPES Journal, 5 (2), 19-23.
- Malcolm Cook, (1982) Soccer Coaching And Team Management, EP Publishing limited, U.K, P.129.
- Mayes, H. (1975). Goals are News. Football News, 1 (12), December, 36-37.
- Njororai W.W.S, (2007). Scoring goals. What the coach should know about the timing. Soccer J. 11/12: 34-36.
- Theis R. Analyse von Torerfolgen im mittleren und unteren Amateurbereich im Fußball In: Kuhn W, Schmidt W. (Eds.) (1992). Analyse und Beobachtung in Training und Wettkampf (Schriften der Deutschen Vereinigung für Sportwissenschaft, Bd. 47). Sankt Augustin: Academia Verlag. Pp. 173-174
- Thomas Rayleigh And Vugan Thomas , (1990) , The Movement analysis of effort and performance rate in different positions During an official Football match Physical Education, Liverpool, England, P.15.
- www.fifa.com
- www.uefa.com
- Yiannakos, A., Armatas, V. (2006). Evaluation of the goal scoring patterns in European Championship in Portugal 2004. *International Journal of Performance Analysis in Sport*, 6(1), 178-188.



DEVELOPMENT OF AN EFFECTIVE SPORT MANAGEMENT MODEL FOR NORTHEAST THAILAND UNIVERSITIES

Watthanapong Khongsuebsor

Department of Health and Sports Science, Faculty of Education, Mahasarakham University, Thailand

¹wattha.k@msu.ac.th

Abstract

Model development and management in sport is taught in higher education worldwide, and also exists in the public and private sectors, managing athletic abilities. However, no clear and systematic study exists concerning the format of sports activities on campus at Thai universities. This research aims to study and develop the model management of sport activities of universities and colleges in the Northeast of Thailand by using an integrated methodology (Mixed Model Method: MMM) study, both quantitative and qualitative approaches, with an assessment interview using group discussions of the various stakeholders from the universities and colleges. The institutions were divided into three groups: six state universities, 10 institutes and private universities, and nine research institutes. Then, two processes were applied: 1) Learn about problems and suggestions for development of the sport activities of the universities consisting of two parts: (1) The survey: problems and suggestions, using purposive sampling. (2) Study of large sporting events and sports activities of prominent universities. And 2) Assess and monitor the development of the sport activities of the universities using: a form reviewed by experts, top five University focus groups regarding the suitability, coverage and accuracy of the results of the data analysis using statistics and analysis of documents and content. Therefore, the study and development of the sport activities of the universities in the Northeast of Thailand are likely to form an appropriate approach for systems development and event management for sports in both the public and private sectors, using a regional development context.

Keywords: model development, sports management, universities in the northeast of thailand

UNNES
UNIVERSITAS NEGERI SEMARANG

EFFECT OF CREATINE MONOHYDRATE SHORT TERM DECLINE AGAINST TROPONIN I LEVELS OF PLASMA AS ALERT MUSCLE DAMAGE AFTER DOING PHYSICAL EXERCISE PROGRAM WITH HIGH INTENSITY

Hari Setijono, Mintarto E, Wibowo S

Surabaya State University

harisetijono@yahoo.co.id

Abstract

The purpose of this study was to compare the sTnI in creatine monohydrate group and the placebo group. This study design is experimental laboratory to design the control group pretest and posttest. Total subjects were 20 men between 21-23 years, and There are divided into two groups. Creatine monohydrate is given at a dose of 0.07 g / kg body weight for 5 days treatment and control groups were given placebo. STnI measurement (ug / ml) were taken before, day 3 and day 5 after the intensity of physical exercise by ELISA. Results of analysis of the average in all groups increased levels of sTnI, the average increase in batches of creatine occurred on day 1 to day 3, whereas for the control group increases occur on days 3 to 5. Test paired in the creatine group concluded that the increase occurred sTnI on med test and post-test (sig. 0:00 <0.05), whereas the non treatment group that sTnI increase occurred from pre-test to post-test (sig. 0:00 <0.05). on a different test two different sample mean to say that there are differences between groups sTnI on (sig. 2 - tailed. 0:01 <0.05), with a mean sTnI the creatine group and a group of non creatine 115.2 263.2. so it can be concluded that inhibits creatine sTnI increase during high-intensity exercise, creatine effectiveness in inhibiting levels of muscle damage occurs on the first day to the third day for 5 days of treatment of high-intensity exercise.

Keywords: Creatine monohydrate, muscle damage, skeletal troponin I (sTnI), high-intensity exercise.

1. INTRODUCTION

Performance sport in promoting physical aspect involves the contraction of muscles, if the contraction is carried out continuously and with high intensity will arise fatigue, stiffness and pain in muscles (Clarkson and Hubal, 2002). this is a sign of one muscle damage (S. Brown, 1999) that may cause either mechanical disruption or interruption of muscle metabolites resulting in loss of the ability to remove the style (E.WI Yeung, 2002).

High-intensity physical activity that leads to exhaustion may produce an imbalance between the reactive oxygen species (ROS) and antioxidants (Alessio, 2000) and ATP regenerating imbalance - PC as a source of energy for metabolism. This situation could interfere with the state of homeostasis in the body, including during the exercise and after exercise such as fatigue, muscle pain, disorders of the myofibril, and weakening of the immune system (Li Li Ji, 1997).

Various ways to determine the degree of muscle damage with a sign in the form of Myoglobin levels, creatin kinase, Myosin Heavy Chain and Troponin I. Skeletal intraselurer increased levels of the protein are found in plasma has been used to determine the damage to the cell membranes of the muscle fibers which would intracellular proteins into the blood (Mc.Kunne, 2012).

Creatine is a supplement that is most widely used and recommended as an ergogenic aid that works to improve health and sports performance (Kraemer WJ, 1999), creatine monohydrate (CrM or CM) is a creatine supplement that is most widely used to be consumed orally and as well as for research, when taken orally, creatine monohydrate has been shown to increase sports performance and increase fat free mass (Bufford, 2007.ACSM, 2000), an increase in strength and muscle mass (Kraemer WJ, 1999).

However, in addition to the function of creatine in improved performance, muscle mass and strength during exercise, creatine is also useful as an anti-oxidant that inhibits the free radicals in muscle damage. (Mirzaei B, 2013). Athletes and non-athletes during the exercise, it is important to pay attention to aspects of muscle damage, it can be inhibited and they will give an advantage in conducting next performance after exercise, until now there has been no research on the effects of creatine monohydrate on levels of muscle damage with sign sTnI biological form of plasma levels. Therefore, need to be revealed the influence of administration on plasma creatine monohydrate sTnI as the degree of muscle damage after high intensity exercise.

2. METHOD

2.1. Research Method

Is the type of research conducted by the Laboratory of Experimental studies using a pretest-posttest control group design. The samples do a pretest form of blood samples to determine plasma levels of sTnI in one day before taking the maximum load, then perform weighing to determine the dose creatine persampel and taking the maximum load for the determination of high-intensity exercise program permasing - each sample. The sample rested for two days to restore the original condition, then the samples undergo training in accordance with the training program given by individuals specifically, post test performed day - 3 with a time of taking an hour after exercise, and post test was held to 2 until 5 days, one hour after exercise.

2.2. Participants

Sample (N = 20, aged 21 years (SD = 1.1) is the state university students Surabaya, faculty of sports science, male gender - men. Samples fill information for informed consent and the consent given before undergoing the study. The sample in condition (a) healthy, (b) fit with a mean VO₂ max of the sample 43 ml / kg / min (SD = 4.4), (b) trained so that they can follow a training program with a high intensity, (c) non-smokers and (d) have a body mass index normal. Sampel will be divided into 2 groups, ie groups who use creatine supplementation and groups that do not use creatine supplementation.

2.3. Procedure

Samples will do a pretest to see sTnI in plasma levels, these levels will determine the grouping determination in samples by the method of ordinal pairing. The sample will perform retrieval maximum load with the 8 work station in accordance with an exercise program that has been designed. For samples that are members of the group will be taking creatine creatine supplementation at a dose of 0.07 g / kg bw / day, creatine supplementation performed at intervals during the 4 hours per day and the other group will not do the consumption of creatine.

Training programs will be undertaken of all the samples for 5 days training program was conducted using a total body workout with the kind of dynamic - eccentric, a form of exercise to be lived with intensity circuit training models pembeban as much as 90% of 1 RM, with four repetitions for 3 sets. Speed reps on the concentric phase for 2 seconds, 1 second hold phase and eccentric phase salaam 4 seconds (2: 1: 4). Phase break per set at intervals of 1: 1 and the resting phase

between work station for 2 minutes. On day 3 samples do med test by sampling blood one hour after exercise and to day 5 post-test performed by the method of sampling blood one hour after exercise.

2.4. Measurement

Making maximum load (1 RM max) was performed to determine the exercise intensity, the sample perform a total body workout exercise program used at eight work station is 1. Abdominal crunch, 2. abductor, 3. Chest press, 4. Delts machine, 5. Glute 6. Leg curl, 7. Leg Press, 8. Upper Back. in accordance with the exercise referral program. STnI content measurement in plasma will be done by ELISA.

3. Results

Results will describe about the mean sTnI the creatine group and non - creatine, and the difference results in the groups using creatine and non creatine.

Tabel of Mean sTnI levels between groups

STnI levels (pg / ml) In High Intensity Exercise Group + Creatine (Cr)											
Pre Test		Med Test		Post Test		$\Delta 1$		$\Delta 2$		Δa	
Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
477.8	301.9	513.2	285	593	288	35.4	60.5	79.7	27.5	115.2	74.6

STnI levels (pg / ml) In High Intensity Exercise Group (Non Cr)											
Pre Test		Med Test		Post Test		$\Delta 1$		$\Delta 2$		Δa	
Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
456.6	328	614.7	283.3	719.7	297	158.2	104.6	105	50.9	263.2	138.2

Creatine and Non Creatine groups (N=10)

Δ (delta) 1 = the difference between the results of med test to post test .

Δ (delta) 2 = the difference between the results of post test to med test.

Δ (delta) a = the difference between the results of post test to pre test.

Based on the Mean results, show that the group Cr sTnI contained elevated levels in muscle after high intensity exercise with evidence of results and post-test mean med growing larger than the pre-test.

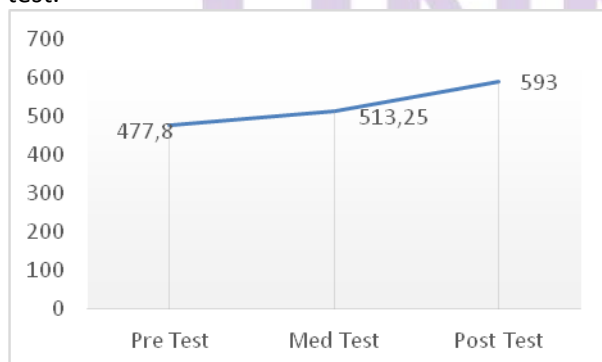


Fig.1. STnI chart levels in the group given creatine

STnI chart levels in the group given creatine

Results mean $\Delta 2$ at 79.75 ng / ml greater than $\Delta 1$ at 35.45 ng / ml. It can be concluded that there is damage to the muscles after high intensity exercise with a record increase of greater muscle damage occurs after a lapse of three days of administration Cr. This proves that the administration Cr only can inhibit muscle breakdown during 3 days after administration Cr.

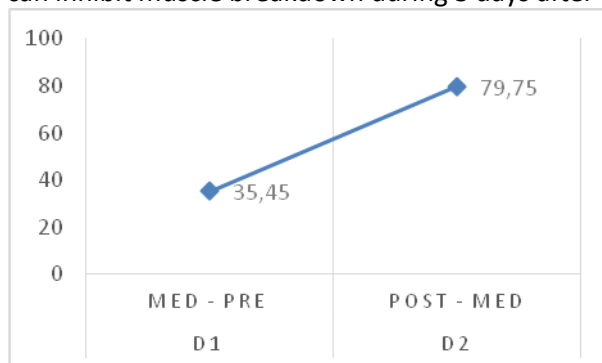


Fig.2. Graph Δ (delta) sTnI levels in the group given creatine

In the group of Non Cr showed there sTnI elevated levels in the muscles after high intensity exercise with evidence of results and post-test mean med is greater than the pre-test.

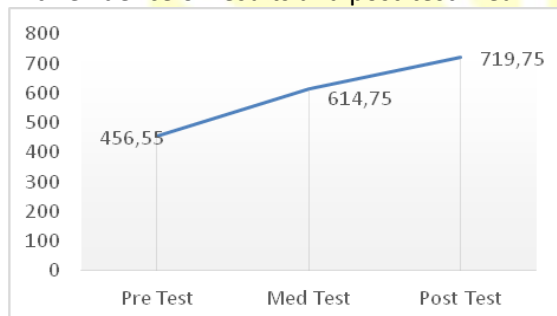


Fig.3. STnI chart levels in the group of non-creatine

STnI chart levels in the group of non-keratin

in addition, the results mean delta 2 at 105 ng / ml greater than the delta 1 of 158.2 ng / ml. It can be concluded that there is a group of Non Cr muscle damage after high intensity exercise with a record increase of greater muscle damage occurs during the 3 days. It proves that without the provision of only Cr can inhibit muscle breakdown after a lapse of three days of practice.

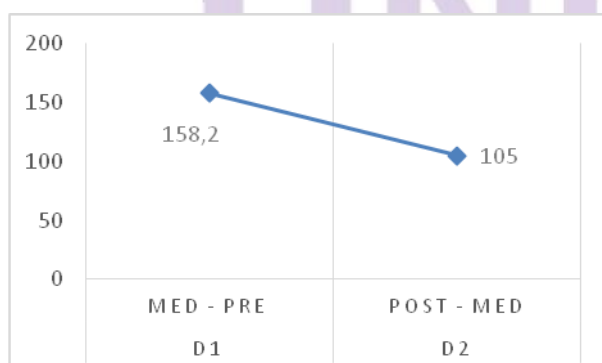


Fig.4. Graph Δ (delta) levels in the group of non creatine sTnI

Conducted tests on the data pre-test, test and post-test med. All data on all groups of normal distribution (sig.> 0.05) and homogeneous (sig. <0.05). test analysis was performed with a mean difference test using paired sample test to determine whether there are differences in the pre-test, test and post-test med.

Paired sample test

Item test		Sig.
Pair 1	Pre test Cr – Post test Cr	.001
Pair 2	Pre Test Non Cr - Post Test Non Cr	.000
Pair 3	Pre Test Cr - Med Test Cr	.097
Pair 4	Med Test Cr - Post Test Cr	.000
Pair 5	Pre Test Non Cr - Med Test Non Cr	.001
Pair 6	Med Test Non Cr - Post Test Non Cr	.000

The test results paired pre test - post test showed that there was a significant increase in levels of sTnI after high intensity exercise with the Sig. 0:00 <0.05. In addition, the results of med test - post test showed that there was a significant increase in levels of sTnI after high intensity exercise with the Sig. 0:00 <0.05. in contrast to the pre test - med test shows that there is no significant increase sTnI levels after high-intensity exercise with the Sig. 0:09 <0.05. it can be concluded that the provision of Cr for the reduction of the level of muscle damage or sTnI levels can only last up to 3 days after administration.

In the group of Non Cr paired test results pre test - post test showed that there was a significant increase in levels of sTnI after high intensity exercise with the Sig. 0:00 <0.05. Results med test - post test showed that there was a significant increase in levels of sTnI after high intensity exercise with the Sig. 0:00 <0.05. Results pre test - med test showed that there is a significant increase sTnI levels after high-intensity exercise with the Sig. 0:00 <0.05. It can be concluded that without the provision of Cr increase muscle damage or sTnI levels occurred significantly.

To test the mean difference for two different samples with independent sample test, the result is that there is a difference in the mean levels of stnI in the exercise group and creatine and exercise alone group. (Sig. 2 - tailed (0:01 <0.05).

4. DISCUSSION

4.1. A group of high-intensity exercise and creatine

The results showed that in the group supplemented with creatine can hinder sTnI rise as a sign of muscle damage. Creatine which serves to increase the depot creatine in the body. This is useful for rapid regeneration of ATP during strenuous activity (Cooper, 2012). Giving creatine accelerates regeneration of ATP and is expected to maintain the supply of energy metabolism. SERCA pump at sarcoplasmic endoplasmic reticulum Ca^{2+} -ATPase is still running well, so it remains in a state of Ca^{2+} homeostasis, protein degradation in muscle can be lowered and muscle damage can be prevented.

Creatine monohydrate granting shows function as anti-oxidants (Lawler, 2001, Rahimi 2011, Mirzaei, 2013). Exhausting physical activity can increase the production of reactive oxygen species (ROS). If there is an imbalance between the levels of ROS and antioxidants then it will lead to oxidative stress. ROS can be neutralized by antioxidants. Anti-oxidants minimize oxidative damage to biological systems by scavenging ROS before they can react with other molecules (Close, 2006). Barriers against ROS activity may prevent an increase in the permeability of the membrane so that the muscle damage can be prevented.

Antioxidant functions directly on creatine as one element of creatine is creatine arginine. Supplementasi can also increase the level of arginine in the cell that can act as anti-oxidants (Wascher, 1997). arginine can find and get rid of $O_2^{\cdot -}$ formed of xanthine oxidase, reduced lipid peroxidation by inhibiting $O_2^{\cdot -}$ cooper and produced by epithelial cells (Wu, Meininger, 2000. Lawler, 2001).

If creatine in the muscle increases, the bit arginine to be used for energy metabolism and will be available for the production of acid by acid synthase oxide oxide. (Lawler, 2001). Will get one anti tesa that describe the latest research, research on the effects of creatine monohydrate on free radicals in a number of wrestling athletes say that creatine is not so meaningful effect on the MDA as a sign of anti-oxidants in the body. also added in a study that says that sTnI discharge of the cell is due to the oxidation of the protein compared to fat oxidation (Purwanto, 2013). From this the researchers assume that the possibility of creatine as an anti-oxidant pathway function as anti-oxidants like proteins. This becomes interesting for further research on the effects of creatine against free radicals for protein.

Based on the results of research and theories that have been described above. Creatine monohydrate prevent damage when compared with subjects who did not use creatine monohydrate, creatine monohydrate researchers found has the potential to prevent muscle damage after strenuous physical activity. STnI levels in serum increased after exercise, and which reaches peak blood levels 1 hour after the workout and will not change until the 4 hour recovery (Gunerson, 2011) as a potential disruption to the athletes as well as people who will resume physical activity. Disorders that can be Fatigue Induced Muscle Disorders and Doms (Delayed Onset Muscle soreness). Fatigue Induced Muscle Disorders and Doms (Delayed Onset Muscle soreness) is one tingkatan cedera the muscles that often occur in sports. Included in the type 1 A and 1 B (Mueller, 2012). It is said that the strain of type 1 A and 1 B is an initial injury that is not visible, including in the functional muscle disorders. Has the potential to be advanced as structural muscle injury disorders. Creatine looks potentially to prevent further injury like it because it is proven to prevent sports injuries such as muscle functional disorders (Greenwood, 2003).

4.2. High-intensity exercise group.

It is said that strenuous physical activity can cause interference in the sarcomere (Newham, 1983), irritation of cytoskeletal elements involved in the distribution of force (Koh TJ, 2004), damage

to the cell membrane (Lovering, 2004), loss of homeostasis of calcium ions (Duan, 1990) and the next is the loss of function to generate the force on the muscle (Yeung, 2002), and a sense of swelling, stiffness and pain in muscles (Clarkson, 2002). Muscle damage is a failure of any level of maintaining a balance between exposure to stress and the stress response. Failure at the atomic level causes damage at the molecular level, the failure at the level of molecules causes damage at the cellular level and failure at the cellular level causing damage at the network level. (Purwanto, 2013).

Increased levels of sTnI after high intensity exercise in the group was not using creatine monohydrate indicates that muscle damage has occurred as a result of high intensity exercise. Strenuous physical activity that uses the maximum muscle contraction became one of the mechanical stress to the muscles that cause damage myofibril. Myofibril proteins such as actin and myosin breaks and regardless of the Z disc, sarcomere structure becomes unstable, protein fibrils split and the sarcomere structure suffered damage as a result of muscle contraction function in disturbed (Tilduls, 2008).

If troponin I is oxidized by ROS, it can happen to lose sensitivity to calcium, muscle contraction is not able to respond immediately and has the potential to cause damage. (Gomes, 2002). Troponin I and troponin complex regardless of actin that is issued by the cells (Sorichter, 1997).

Exhausting exercise can produce an imbalance between the production of anti-oxidants and ROS (Davies, 1982), high-intensity workout for the subjects was designed to create muscle fatigue, exercise load used in accordance with the maximum capacity of each - each subject. Skeletal muscle has the ability to increase the usage ratio at the time of contraction, this indicates that the possibility of muscle damage occurs due to an increase in the ratio of oxygen consumption by the muscles which leads to an increase in free radicals. (Mc Ardle, 2000). When ROS are produced in quantities not controlled then it can damage proteins, DNA and lipids (Halliwell, 1996). The reaction of oxygen radicals by oxidation reactive protein can be made from the amino acid side chain, and other destructive proteins. Proteins that have a thiol group is one of the targets of ROS molecules oxidation (Purwanto, 2013). When the protein is a transmembrane protein, able to induce the oxidation of certain materials pass through the membrane permeability (Morin, 2011). One material that crosses the membrane through a transmembrane protein oxidation is sTnI.

In addition, training with high intensity also affects the availability of ATP - PC role here as a provider of energy to the activities pump SERCA or Sarco endoplasmic reticulum Ca^{2+} - ATPase in order to keep it running well, if there is a decrease in ATP - PC due to heavy activity, then the pump failure SERCA may occur, so that the excess amount of Ca^{2+} in the intracellular, Ca^{2+} can activate calpain proteases and proteolytic enzymes that degrade the intracellular protein in muscle. (Feasson, 2002).

5. CONCLUSION

Based on the results, it can be concluded that creatine can inhibit muscle damage evidenced by sTnI levels in the blood. Creatine can inhibit muscle breakdown since the first day of supplementation until the third day. While the opposite happens in the group not using creatine, an increase higher, but slowed on the third day at practice until the fifth day.

6. THE FUTURE RESEARCH

For future studies, the necessary additions and testing on several additional variables such as strength or muscle explosive power, in order to determine the relationship between the function of protection and potentiation owned by creatine supplementation. Moreover, it can also be added to the testing of anti-oxidant elements and free radicals in order to know whether creatine have a

relationship when tested between the levels of free radicals and anti-oxidants and kerusakan otot levels. Conducted testing on high-intensity exercise program, a total body workout manifold dynamic eccentric exercise program to determine whether it is effective to increase the physical aspects such as strength, explosive power, and others.

7. BIBLIOGRAPHY

- Alessio, H.M., Hagerman, A.E., Fulkerson, B.K., Ambrose, J., Rice, R.E., & Wiley, R.L. 2000. Generation of reactive oxygen species after exhaustive aerobic and isometric exercise. *Medicine and Science in Sport and Exercise*, 32:1576 – 1581
- American College of Sports Medicine, 2000. Round table, the physiological and health effects of oral creatine supplementation. *Medical Science of Sports and Exercise*. 32: 706-717
- Brown S, Day S & Donnelly A, 1999. Indirect evidence of human skeletal muscle damage and collagen breakdown after eccentric muscle actions. *Journal of sports science*. 17(5):397-402
- Bufford T, Kreider R, Stout J, Greenwood M, Campbell, Spano M, Ziegenfuss T, Lopez H, Landis J, Antonio, 2007. International Society of Sports Nutrition position stand: Creatine supplementation and exercise. *Journal International Society Sports Nutrition* 4: 6
- Clarkson P.M, Hubal MJ, 2002. Exercise induced muscle damage in humans. *American Journal of Physical Medicine & Rehabilitation*. 81:S52-S69.
- Close, Dugald C & Ann E Hagerman. 2006. Chapter 1: Chemistry of reactive Oxygen Species and antioxidants. *Oxidative stress, Exercise and Aging*. 1:7
- Cooper, R, Fernando Naclerio, Judith allgrove & Alfonso Jimenez, 2012. Review: Creatine Supplementation with specific view to exercise or sports performance: an update. *Journal of the international Society of Sports Nutrition*. 9:23
- Davies, K.J. Quintanilha, A.T., Brooker, G.A., & Packer, L. 1982. Free radicals and tissue damage produced by exercise. *Biochemical biophysical research communication*, 107:1198 – 1105.
- Gomes, Potter and Cordary. 2002. The role of troponins in muscle contraction. *IUBMB Life*. 54:323 – 333.
- Gundersen, 2011. Excitation-transcription coupling in skeletal muscle: the molecular pathways of exercise. *Biological reviews of the Cambridge philosophical society*. 86(3):564-600
- Kraemer W.J, and Volek, J.S. 1999. Creatine supplementation. Its role in human performance. *Clinical Sports Medicine*. 18: 651- 666
- Lawler, John, William S Barnes, Gaoyao Wu, Wook Song & Scott Demarce, 2002. Direct antioxidant properties of creatine. *Biochemical and biophysical communications*, 290: 47-52.
- Li Li & Steve Leichtweis. 1997. Exercise and Oxidative Stress : Sources of Free Radicals and Their Impact on Antioxidant Systems. J. Interdepartmental Program of Nutritional Sciences and Institute on Aging, Vol 20 :91 – 106.
- McArdle WD, Frank I. Katch, Victor L. Katch. 2005. *Sports and Exercise Nutrition*, 2nd. Lippincott, Williams and Wilkins, Baltimore.
- Mirzaei, Bahman, Farhad Rahmani-nia, Zivar Salehi & Rahman Rahimi. 2013. Effects of creatine monohydrate supplementation on oxidative DNA damage and lipid peroxidation induced by acute incremental exercise to exhaustion in wrestlers. *Original scientific paper University of Guilan, Iran*. 1:30-40.
- Mirzaei, Bahman, Farhad Rahmani-nia, Zivar Salehi & Rahman Rahimi. 2013. Effects of creatine monohydrate supplementation on oxidative DNA damage and lipid peroxidation induced by acute incremental exercise to exhaustion in wrestlers. *Original scientific paper University of Guilan, Iran*. 1:30-40

- Morin D, Barthemely S, Zini R, Labidalle S, Tilament JP. 2001. Curcumin Induces the mitochondrial permeability transition pore mediated by membrane protein thiol oxidation. FEBS Letter 495: 131 – 136.
- Purwanto B. 2013. Mekanisme kerja curcumin dalam mencegah kerusakan otot rangka menciit yang melakukan aktivitas senatriks saat. Disertasi Fakultas Kedokteran Univ. Airlangga. Surabaya.
- Rahimi, R. 2011. Creatine supplementation decrease oxidative DNA damage and lipid peroxidation induced by a single bout resistance exercise. Journal of strength conditioning research. 25 (12). 3448 – 3455
- Sorichter S, Johannes Mair et al. 1997. Skeletal Troponin I as a marker of exercise- induced muscle damage. J. Appl. Physiol 83 (4):1076 – 1082
- Tilduls P.M, 2008. Skeletal muscle damage and repair, Human Kinetics Champaign IL
- Wascher, T. C., Posch, K., Wallner, S., Hermetter, A., Kostner. G.M., and Graier, W.F. 1997. Vascular effects of L-arginine: Anything beyond a substrate for the NO-Synthase? Biochem. Biophys. Res. Commun. 234:35-38.
- Wu, G. & Meininger, C. J. 2000. Arginine nutrition and cardiovascular function. Rec. Adv. Nutr. Scie 130:2626 – 2629
- Yeung E.W, Balnave C.D, Ballard H.J, Bourreau J.P, Allen D.G, 2002. Development of T-tubular vacuoles in eccentrically damage mouse muscle fibers. Journal of Physiology. 540:581-592.



GIVING VITAMIN C AT MAXIMUM PHYSICAL EXERCISE AND CHANGING OF HEMOGLOBIN LEVELS AND QUANTITY OF ERYTHROCYTES

Said Junaidi¹, Dwi Aries Saputro²

^{1,2}Department of Sports Sciences, Faculty of Sports Sciences, Semarang State University, Central Java 50229, Indonesia

¹said_jd@yahoo.co.id, ²dwiaries_s@yahoo.com

Abstract

This research aims to determine the change in hemoglobin levels and the number of erythrocytes after being treatment by giving vitamin C and maximal physical exercise. True experimental research methods to conduct intervention. The population of the study was wistar rats (*Rattus norvegicus*). The sample was 18 male wistar rats aged 2-2.5 months, and the weight was 100-150 grams. The number of sample was based WHO each group at least 5 tails and 1 tail reserves. This study was conducted in February 2015, in the Laboratory of Biological Science Faculty, Unnes. Data collection techniques using the method Sahli and hemocytometer. The data analysis used paired t-test. Result this research, there was significant influence between giving vitamin C before maximum physical exercise on quantity of erythrocytes with a value of $P=0.038$ ($p<0.05$). There is no significant influence between giving vitamin C before maximum physical exercise against hemoglobin levels with the value of $P=0.117$ ($p>0.05$). Conclusion the results of the research is the provision vitamin C of dose 1.8 mg/200 grBB mice per day given in wistar rats before maximal physical exercise could be significantly increase the quantity of erythrocytes, but did not significantly increase the levels of hemoglobin.

Keywords: vitamin c, maximum physical exercise, erythrocytes and hemoglobin

INTRODUCTION

Exercise and physical activity can be cause changes in homeostasis, and can be affect the decline in endurance body (Harahap, 2008). The ability of a person's physical activity varies. This variation is directly related to the activity of body organ by itself is. One of the this organs to function in the circulation of blood and components to transfer oxygen that has an important role during and after physical activity (Moosavizademonir, 2011). This role is held especially for erythrocyte because in the erythrocytes containing the hemoglobin carried oxygen and then forwarded to the vital organs. So the number of erythrocytes less will affect also the oxygen transfer.

Another important role of hemoglobin in activity or physical exercise is hemoglobin constitute a component of red blood cells that were able to bind oxygen. regard It underlies that hemoglobin has rather important role at the time of physical exercise, especially exercise in duration long. Long duration physical exercise requires considerable energy and resistant for a long time to move muscles. The energy used to drive the muscles is produced through the burning of food with oxygen which previously brought by hemoglobin. Therefore, hemoglobin plays an important role in the formation of energy, especially aerobic energy system.

Factors that affect level of hemoglobin and red blood cells (erythrocytes) on a person is food, age, gender, activity, smoking, and that accompany diseases such as leukemia, thalassemia, and tuberkulosi. Food is a nutrient or component of nutrients contained in food eaten used to

compile the formation of hemoglobin that is Fe (iron) and protein. Women are more susceptible to a decline of the male, especially during menstruation (Curtale et al., 2000) in MirzaJuanda (2013).

Maximum of physical activity can trigger an imbalance between production free radicals and the body's antioxidant defense system, known as oxidative stress (leeweelburg, 2001) in Agus Coco (2011). On condition of oxidative stress, free radicals will cause lipid peroxidation cell membrane and damage the cell membrane organization. The cell membrane is very important for receptor function and function the enzyme, so that occurrence of lipid peroxidation cell membrane by free radicals which can result in total loss of cellular function (Evans, 2000). Lipid peroxidation cell membrane makes it easy erythrocytes to experience hemolysis, that is the lysis of erythrocyte membranes which causes the free hemoglobin and eventually cause has decreased hemoglobin levels.

The driving factors absorption non-haem iron aided by ascorbic acid (Vitamin C). Vitamin C can increase iron absorption up to fourfold (Wirakusumah, 1998). According Patimah (2007) that iron is an indispensable precursor in the establishment hemoglobin and red blood cells (erythrocytes). Other than that vitamin C is a one of the antioxidants from outside that is needed by the body. Additional income identified vitamin C orally can provide a potential advantage by reducing damage caused by free radicals in the tissues (Khassaf et al., 2003).

Based on this is necessary research to find effect of vitamin C on the maximum physical exercise on hemoglobin levels and the number of erythrocytes. Therefore, the problems could be formulated as follow: 1) How the influence maximum physical exercise, five times per week, for four weeks against the hemoglobin levels Wistar male rats stain? 2) How the influence maximum physical exercise, five times per week, for four weeks against the number of erythrocytes stain Wistar male rats? 3) How is effect of giving vitamin C on the maximum physical exercise, five times per week, for four weeks against hemoglobin levels Wistar male rats stain? 4) How is effect of giving vitamin C on the maximum physical exercise, five times per week, for four weeks against number of erythrocytes Wistar male rats stain?.

Research Purposes are: 1) To determine the effect of Vitamin C with giving maximum physical exercise against the hemoglobin levels and the number of blood erythrocytes stain Wistar rats (*Rattus norvegicus*). 2) To determine the effect of maksimum physical exercise against the hemoglobin levels and the number of blood erythrocytes stain Wistar rats (*Rattus norvegicus*).

Results of this study are expected to provide scientific information for sports science about the benefits of vitamin C for people who are actively engaged in physical activity in order improve fitness. For medical science, the results of this research can be used as a reference for maintaining health and preventing diseases caused by the breakdown of erythrocytes primarily due to free radicals.

METHODS

Type of research used is true experiment with holding or wearing a treatment intervention to one or more experimental groups, then results of the intervention compared with a group that was not subjected to treatment or are referred to the control group (soekidjonotoadmodjo, 2010). This experimental study design used the design of pre-test post-test with control group (pre-test post-test with control group design). The design of randomization means that grouping members of the control group and experimental groups conducted by random.

Research instruments, the tools used in this study is balance scales, microhematocrit, swimming pool rat, Winkler bottles, measuring cup 10 ml, masks, gloves, digital cameras, hemoglobin pipette, a microscope, Haemositometer, Tubes Sahli, Haemometer, Tool counters, Pipette drops, engine coolant, permanent markers, and research animal enclosures as well as the materials used are

stain wistar male rats (*Rattus norvegicus*), Vitamin C @ 50mg (L-ascorbic acid.), Feed PB 551, Chaff, distilled water, cotton, HCl 0.1 N, Na-EDTA tube, and the solution Hayem.

Procedure research, before conducting the study, test animals first adapted for 7 day. After the completion of adaptation animal blood drawn using orbital section microhematocrit experimental animals (pre-test). The test material was taken out of vitamin C (IPI) orange-flavored powder is then made and mixed with water to make it easier when provide of the experimental animals. In this research takes vitamin C in liquid form is 1,8mg / 200grBB stain Wistar rats. This research used 18 male rats were divided into 3 groups: the 2 treatment groups and one control group. The division of the treatment groups, namely: **Group I:** Negative Control Group. **Group II:** Treatment 1 is the provision of Vitamin C 1.8 mg/200grBB rat in animals given the maximum physical exercise. **Group III:** Treatment II is the provision of maximum physical training with a frequency of 5 times a week for 28 days Giving vitamin c as 1,8mg conducted orally (gavage) for 28 days. The next white rats were fasted for 11 hours. On the 28th day whole rats in group I, II and III of blood samples (post-test). Blood is collected via orbital rats using microhematocrit. After the blood was obtained, blood is inserted into the tube vactainer which there are anticoagulants such as EDTA. Measurement of the number of erythrocytes was using hemocytometer, and for measurement of hemoglobin levels was using haemometer.

Research variables, independent variables: the provision of vitamin C at a dose of 50mg tablet @ given for four weeks and physical training in the form of swimming with maximum intensity, five times per week, for four weeks. The dependent variables: Hemoglobin Levels and Quantity of Erythrocytes. Control variables: Gender sample, age and weight of the sample.

Analysis data, the data analyzed by using a series data processing professional statistic with SPSS 15. The data obtained were observed to determine the effect of before treatment (pre-test) after treatment (post-test) using paired T-test. to test the analysis carried out tests to determine the feasibility of data requirements which include: 1) Test data normality using the Kolmogorov-Smirnov and 2) test the homogeneity of data using Levene's Test.

RESULTS AND DISCUSSION

There were four revised process on the kicking accuracy practice model in soccer for children with the age group of 13-14 years old having, those are (1) before validation, (2) before a trial product with small-scale, (3) after small-scales trials, and (4) after large-scale trials. The number of erythrocytes and hemoglobin levels at Stain Wistar rats (*Rattus norvegicus*) average number of erythrocytes and hemoglobin level every treatment can be seen in Table.

Table 1. The average quantity of erythrocytes and hemoglobin level of each treatment.

Data	Hb level (gr/dl)			Quantity of Erythrocytes (juta/mm ³)		
	K.Controls	K.P1	K.P2	K.Controls	K.P1	K.P2
Post-test	12,24	13,32	12,96	4,28	4,76	4,60
Pre-test	12,40	12,60	12,48	4,18	4,30	4,30
difference	-0,16	0,72	0,48	0,1	0,46	0,26

Table 1, K.Controls are were not given vitamin C and a maximum of physical exercise, K.P1 namely provision of vitamins C and a maximum of physical exercise, K.P2 namely providing maximum physical exercise.

Table 2. The influence test results before treatment (pre-test) and after treatment (post-test) in the control group.

Variable Differences	Pre-test	Post-test	dfsig	Mean standard deviation
Hemoglobin levels	0,16	0,829	0,431	40,688
Quantity of Erythrocytes	-0,1	0,1	-2,23	40,089

Table 2, there was no significant improvement in the control group levels of hemoglobin and erythrocytes the number of is statistically ($p < 0.05$).

Table 3. The influence test results before treatment (pre-test) and after treatment (post-test) in the treatment group I.

Variable Differences	Pre-test	Post-test	dfsig	Mean standard deviation
Hemoglobin levels	-0,72	0,807	-1,994	40,117
Quantity of Erythrocytes	-0,46	0,336	-3,06	40,038

Table 3, there is a significant improvement in the treatment group I the number of erythrocytes statistically ($p < 0.05$).

Table 4. The influence test results before treatment (pre-test) and after treatment (post-test) in the treatment group II.

Variable Differences	Pre-test	Post-test	dfsig	Mean standard deviation
Hemoglobin levels	-0,48	0,729	-1,472	40,215
Quantity of Erythrocytes	-0,26	0,409	-1,418	40,229

Table 4, there was no significant improvement in the treatment group II levels of hemoglobin and erythrocytes the number of is statistically ($p < 0.05$).

In this research, the data show that giving vitamin C at a dose 1.8 mg per 200 gram body weight stain Wistar rats (*Rattus norvegicus*) for four weeks every day in one group (treatment 1) which received the maximum physical training (swimming stress) experienced a significant increase in number of erythrocytes ($p < 0.05$) and a non-significant an increase in hemoglobin levels ($p > 0.05$) after being checked blood tests (Table 3). This increase is obtained after calculating the average hemoglobin levels and the number of erythrocytes in the pre-test and then compared with the post-test group (treatment 1). Increased levels of hemoglobin and number of erythrocytes is caused because vitamin C has a dual function, namely as a aide in the absorption of iron and antioxidants when the body produces free radicals as physical exercise maximum. Iron (Fe) are useful to increase red blood cells (SIH 2000) in Agus Coco (2011), while vitamin C is an antioxidant that the body needs

maximum physical during the move, so there is no oxidative stress that can damage enzymes, receptor proteins, membrane lipids, and DNA.

This study in line with previous research which stated that vitamin C can reduce cell damage from free radicals erythrocytes because vitamin C can improve the mechanism of the body antioxidant defense system against free radicals (Senturk, et al., 2001). Other research stated that vitamin C increases the income orally proposed as potential advantages that can reduce oxidative damage to tissues caused by free radicals (Khasaf, et al., 2003). This study also supports research that states that the provision of vitamin C as antioxidant can prevent damage that could eventually prevent erythrocyte hemoglobin a decrease and increase the aerobic endurance (Bailo, 2011).

The occurrence of oxidative stress in the body, free radicals will later form the next. When the free radicals that are reactive not stopped it will damage the cell membrane of erythrocytes and lipid peroxidation occur. The existence of lipid peroxidation of cell membranes facilitate cell that causes the erythrocytes experiencing hemolysis free hemoglobin, so that diminishing returns the levels of hemoglobin. This is in accordance with the opinion (Indera et al, 2006) which says on erythrocyte membrane lipid peroxidation can result in loss of membrane fluidity and increase the fragility or erythrocyte membrane fragility which further resulted in erythrocytes will be easily broken or hemolysis. If there is no intake antioxidant in the body, made possible there will be a decrease number of erythrocytes and hemoglobin levels greater so that it can be anemia.

Vitamin C called antioxidants because it serves as a electron donor, thus preventing other compounds experiencing oxidation. Moment vitamin C releasing electrons, it becomes radical askorbil. Compared with other free radicals, radical askorbil relatively stable with a 10-5 seconds half and not reactive. Adverse free radicals that can interact with vitamin C so that the the adverse free radicals is reduced and vitamin C turns into a less reactive radical askorbil. Reduction process reactive free radicals become less reactive compounds that is called free radical scavenging. Vitamin C is a good free radical scavenging (Padayatty et al., 2003).

CONCLUSION AND SUGGESTION

Conclusion, from the results of research and discussion can be concluded as follows: 1) Vitamin C (L-ascorbic acid) at a dose 1.8 mg / 200 grBB rats given on the rats receiving the maximum physical exercise, five times per week, for four weeks can increase the number of erythrocytes statistical significantly ($p < 0.05$) 2) Vitamin C (L-ascorbic acid) at a dose 1.8 mg / 200 grBB rats given the rats receiving the maximum physical exercise, five times per week, for four weeks can improve hemoglobin levels are not significant statistical ($p > 0.05$) 3) maximum physical exercise, five times per week, for four weeks, can be increase hemoglobin levels but not significantly statistical ($p > 0.05$) 4) maximum physical exercise, five times per week, for four weeks, can be increase the number of erythrocytes does not significantly statistical ($p > 0.05$).

Suggestions, based on the results obtained in this study, the authors advise: 1) for people who perform the activity / exercise maximum advised to consuming vitamin C 30 minutes before doing the activity/ exercise, because at the time of doing the activity/exercise physical maximum I body will produce free radicals that damage cells and lead to decreased levels of hemoglobin and number of erythrocyte. Vitamin C can neutralize free radicals in the body and are also able to stimulate the formation of new red blood cells, thus reducing damage to cells of the erythrocyte at the time of maximum physical activity 2) For scientists or researcher, the results of this research can a reference to subsequent studies.

REFERENCES

- Agus Coco Sianturi. 2011. "Effect of Water Extract Leaf Build-Build (*Coleus amboinicus* L) Against number of Red Blood Cells and Hemoglobin At the White Rat (*Rattus norvegicus*) were given a maximum of Physical Activity". *Thesis. State University of Medan*.
- Bailo B., Soheemy A., Haddad P., Arora P., Benzaied F., Kamali M., Badawi A. 2011. "Vitamin D, C, and E in The Prevention of Type 2 Diabetes Mellitus" *Modulation of Inflammation and Oxidative Stress, Biologics: Targets & Therapy, Dove Press Journal*, 18 January 2011.
- Evans, W. J. (2000). *Vitamin E, vitamin C, and exercise. Am J Clin Nutr.* 72:647S-52S.
- Harahap, Sofyan Syafri. 2010. *Critical Analysis of Financial Statements*. PT King Grafindo Persada. Jakarta.
- Indera D, Mayasari, Paramita, Yunantodan Ramadhan. 2006. "Plant Activity Correlation Rawab with erythrocyte membranes induced resistance lead (pb)". On line at http://.pkm.dikti.net/pkmi_award2006/pdf/pkmi06_077.pdf. accessed on April 10, 2015 13:32 hours GMT.
- Khassaf, M., Mcardle, A., Esanu, C., Vasilaki, A., Mcardle, F., Griffiths, R. D., Brodie, D. A. dan Jackson, M. J. (2003). "Effect of vitamin C supplement on antioxidant defence and stress proteins in human lymphocytes and skeletal muscle". *Journal of Physiology*. 549:645-52.
- Lichtman, M. A., et al., 2007. *William's Hematology*. Ed 7. USA: McGraw-Hill Companies.
- Mirza Juanda. 2013. "Hemoglobin difference between Students Exercise Routine Futsal At the Faculty of Physical Education and Arts Teachers' Training with Students rarely exercise At the Teaching Faculty of Science Teachers' Training Period January 2013 October 2013". *Thesis. Ikip University of Mataram*.
- Moosavizadeh Monir. (2011). "Effect of one period of training on hemoglobin, hemotocrit and RBC of athlete girls". *Annals of Biological Research*. 6:642-644.
- Padayatty, S. J., Katz, A., Wang, Y., Eck, P., Kwon, O., Lee, J. H., Chen, S., Corpe, C., Dutta, A., Dutta, S. K. dan Levine, M. (2003). *Vitamin C as an antioxidant: evaluation of its role in disease prevention. Journal of American College Nutrition*. 22.1: 18-35.
- Patimah, S. 2007. "Consumption patterns Pregnancy and Its Relationship With Anemia Genesis Defisiensi Iron". *Journal of Health Research. Jakarta: Faculty of Medicine. hlm.* 8-9.
- Senturk, U. K., Gunduz, F., Kuru, O., Aktekin, M. R., Kipmen, D., Yalcin, O., Borkucukatay, M., Yesilkaya, A. dan Baskurt, O. K. (2001). "Exercise-Induced Oxidative Stress Affects Erythrocytes in Sedentary Rats but not Exercise-Trained Rats". *J Appl Physiol*. 91: 1999-2004.
- Soekidjo Notoadmodjo. 2010. *Methods of health research*. Jakarta: PT. Rineka Reserved.
- Wirakusumah, E. S. 1998. *Menu Planning Nutritional Anemia Iron*. Jakarta: Trubus Agriwidya. p. 5-11.

EATING DISORDER AMONG FEMALE ATHLETES AND NONATHLETES IN UiTM SARAWAK

Ewiwe Henry

Universiti Putra Malaysia

koklianyee@yahoo.com

Abstract

The purpose of this study was to examine eating disorders among female athletes and non-athletes in UiTM Sarawak. A total of 300 subjects participated in this study which consisted of 155 athletes and 145 non athletes. Results showed no significant relationship between body composition and eating disorder ($p > .05$), however there was a significant difference in terms of number of subjects with eating disorder between athletes and non-athletes ($p < .05$). It was found that 19.3% ($n=58$) of the female athletes had eating disorder while among non-athletes the percentage was lower at 15% ($n=45$). This shows that female athletes are more likely to be at risk for having eating disorders compared with non-athletes.

Keywords: athlete, eating disorder.



SPORT INJURIES

Arif Setiawan

Sport Science Faculty, Semarang State University

Abstract

Sports is not separated from the next movement will involve a variety of structures / tissues in the human body, such as joints, muscles, meniscus / disc, capsule league meter, and muscle. movement occurs when mobility and elasticity and strength and drive joints secured the support network. The more mobile a joint have the consequences of the instability of the joint. Instability of a joint will cause injury to surrounding structures easily, especially if the elasticity and strength of the network and drive joints cantilever inadequate. The stability of the joints will be affected by: the configuration of the constituent bone, capsule league meter state, the state of muscle activator, intra-articular pressure, state disc / meniscus, the degrees of freedom of movement and the influence of gravity. The struggle to achieve a feat even international multilevel training process takes long enough to observe the principles of exercise, health factors, mental, nutritional, even factors that could cause injury. Sports injuries is a condition where tissue damage during exercise / activity sport, it can occur due to trauma or repetitive use for a long time. What sports injury usually depends on the sport you play, as Examples for contact sports: boxing, karate, area injury to the nose and face, while jogging, jumping areas are usually injury to the knee or ankle joints. orts injuries can be classified as a minor injury that occurs when a tear can be seen only under a microscope, with minimal complaints, and does not interfere with performance significantly. Examples can be seen is bruising, abrasions, and minor sprains. Injury was characterized by significant tissue damage, pain, swelling, redness, heat, and there is a malfunction. Sign of inflammation such as tumor, rubor, calor, dolor, and functiolaesa evident in whole or in part. An example of this is the tearing of muscle injuries, tendon, and ligament partially. In severe injuries occurred totally or almost totally torn, and the bias also occurs fractures. This injury requires rest, intensive treatments, or even surgery. In order to understand the pathophysiology of sports injuries, knowledge of the stability of the joint, and network elatisitas cantilever and drive joints are absolutely necessary. Such knowledge can be used at once to create a sports injury prevention program.

Keywords: sport injuries

INTRODUCTION

There are two types of injuries often experienced by athletes, namely acute trauma and Overuse Syndrome (Use of Excess Syndrome). Acute trauma is a serious injury that happens suddenly, like a torn ligament, muscle, tendon, or sprains, or fractures. Acute injuries usually require professional help. Excessive consumption syndrome often experienced by athletes, stems from the existence of a force that a bit excessive, but lasted repeatedly for a long time. This syndrome often respond favorably to medication alone. Sports injuries are often addressed by the body with inflammatory signs consisting of rubor (red), tumor (swelling), calor (heat), dolor (pain), and functiolaesa (decreased function). The blood vessels at the site of injury to widen (vasodilation) in order to deliver more nutrients and oxygen in order to support healing. Dilation of blood vessels is the one that resulted in the injury site looks more red (rubor). A lot of fluids delivered at the injury site will seep out of the capillaries into the space between cells, and causes swelling (tumor). With the support of many nutrients and oxygen, metabolism at the site of injury will increase the

metabolic waste in the form of heat. This condition causes the injury site will be more heat (heat) compared to other locations. Piles of metabolic waste and other chemicals will stimulate the nerve endings at the injury site and cause pain (dolor). The pain is also triggered by the suppression of nerve endings due to swelling that occurs at the site of injury. Both rubor, tumor, calor, and dolor will reduce the function of organs or joints at the injury site known as functiolaesa.

Sports injuries can be classified as a minor injury that occurs when a tear can be seen only under a microscope, with minimal complaints, and does not interfere with performance significantly. Examples can be seen is bruising, abrasions, and minor sprains. Injury was characterized by significant tissue damage, pain, swelling, redness, heat, and there is a malfunction. Sign of inflammation such as tumor, rubor, calor, dolor, and functiolaesa evident in whole or in part. An example of this is the tearing of muscle injuries, tendon, and ligament partially. In severe injuries occurred totally or almost totally torn, and the bias also occurs fractures. This injury requires rest, intensive treatments, or even surgery.

Injuries are common in athletes is a sprain is an injury to the joint resulting in a tear in the ligament. Sprains occur because of excessive pressure on the joints and sudden, or due to overuse repeated. Mild sprain usually accompanied hematoma with partial ligament fibers are broken, while the sprain is going effusion fluid that causes swelling. In severe sprains, broken ligaments around the fibers so it can be driven as usual by severe pain, swelling, and the presence of blood in the joint. Joint dislocation is also common in athletes that hump joints slipping out of place. If a joint had dislocated, the ligaments of the joints will be loose, so the joints are prone to dislocation of return (dislocation habitualis). Treatment can be done in the event of joint dislocation was immediately attracted by the longitudinal axis.

Severe sports injuries are common in athletes is a fracture that can be divided into open and closed fractures. Open fractures occur when the bone fragments irritate the skin, so the bones look out, whereas in closed fractures, bone fragments did not penetrate the skin's surface. In the case of fractures, athletes had to quit the game, and as soon as possible should be taken to a professional as soon as possible should be repositioned. Repositioning is done before the fifteen minutes will be members satisfactory results because at the time it has not happened bone pain (neural shock). After repositioning bias spalk installed to maintain the position and at the same time stop the bleeding.

The causes of sports injuries can come from outside such as hard contact with the opponent in body contact sports, because collisions with sports equipment such as hockey sticks, balls, rackets, and others. It can also be caused by an uneven field conditions that increase the potential for athletes to fall, sprain, or even a broken bone. The cause of the generally occurs due to the coordination of muscles and joints is less than perfect, the size is not the same leg length, muscle imbalances antagonist.

A. SPORTS INJURY CAUSES

Causes of sports injuries are usually the result of trauma / impact directly and repeatedly practice a long time. Causes can be divided into: 1). Factor from outside: a. Body contact sports: football, boxing, karate, b. Sports equipment: hockey sticks, rackets, balls, c. The pitch: slippery, uneven, muddy. 2). Factor of the: a. Factor anatomy, b. Exercises / punch the wrong example. 3). Excessive use / overuse.

B. SEVERITY OF INJURIES

1. Minor injuries: injuries followed by means tissue damage, swelling does not affect the appearance, such as: blisters, bruises. 2. Injuries were: there is tissue damage, pain, swelling real, interfere appearance, age sprains, strains grade 2. 3. Severe injuries: severe tissue damage, swelling huge, unbearable pain, no bias appeared / should stop exercise.

C. IMPORTANT FACTORS CAUSE OF INJURY

The cause of sports injury is direct trauma / impact directly on the sports activities can suffer injury due to trauma / impact directly causes acute sports injuries or due to excessive exercise / overuse injury that causes chronic. Overuse injury is caused by the accumulation of repeated injuries and new felt or known after years of doing sports activities. While the factors that can increase risk of sports injuries.

D. MECHANISM OF INJURY

Process sports injury mechanisms can be distinguished: 1). Traction: network experienced a strong pull limit spasticity resulting muscle or ligament tears, for example: achilles tendon pull, even when the drop jump, run or jump. 2). Compression: network load pressure by excess, for example, often doing the jump, jump squats, will result pressure loading on joints muscle or suppression by excessive weight. 3). Torque: network experienced wrench / abruptly when the network has loading. For example, when the jump, when the network has loading. For example, when the jump, set foot to the ground while rotating toward the body, causing tissue damage around the knee. Or the panorama of football when chasing the ball, meaning sudden and with rotation body. 4). Bending network experiencing excessive bending by the presence of a very strong force. For example, a player with volly when performing jumps and smash down with the ankle flexed position, resulting in tearing of ligaments talofibolare or when running one leg farthest into the narrow hole so that the alignment of the knee joint as forced or bent shank bone and result in fractures. 5). Shear stress: the mutual friction force opposite direction as cutting the joints, which can damage the surface of the joint / cartilage articularis. For example, a quick run to catch the ball stopped abruptly, the body leaning forward and knees bent. 6). Imposition waqlaupun repeated small injuries can result, for example in long-distance running and tennis player bike players.

E. REACTION TO INJURY NETWORK

The existence of bias in the resulting network usually per4uubahan local pathology of the blood vessels and surrounding tissue as an inflammatory reaction. Reaction immediately on the local network is a reflex vasoconstriction injured for a while, which was soon followed by a reflex vasidilatasi which will increase the flow at the site of injury. Blood vessels become more permiabel that blood plasma flow into the surrounding tissue. Besides migration of leukocytes into the injured tissue. These changes cause the typical symptoms and signs of inflammation are redness, heat and swelling. This swelling when pressing the nerve will cause pain. This phase is called a phase that lasts 24-48 hours Hyperaemia. Further into stasis phase, blood flow becomes slower and in a state status. Slowing of blood flow and increase in vascular permeability allows plasma fluid occupies the surrounding tissue. The collection of fluid in the tissues causing edema. Swelling on stage at palpas iteraba hyperaemia tense and hard, but the edema, with emphasis on the fingertips will be a long return. When blood flow is back to normal will enter the stage where the resolution of the fluid that is on the network was going back through the veins and lympe. Increased blood flow will speed healing and inflammation symptoms slowly disappeared then made to granulation tissue followed by healing respective network. Whereas the liquid that remained in the network will become fibrous tissue.

F. TYPE - TYPE INJURY

Injuries caused by trauma to the soft tissue or bone that can lead to injury include: 1). Contusions: bruising, hematoma, a blood clot on the network. 2). Sprain: partial or total tear of the ligament due to excessive stretching, usually affects the stability of the joint. 3). Subluxatio: part two facies articularis / surface joint shift. 4). Dislocation: total separation between facies articularis with each other. 5). Strain: damage that occurs due to excessive stretching of the muscle tissue, tendons. 6). Tendinitis: inflammation of the tendons caused by excessive use. 7). Avulsion fracture: bone

damage at the site of tendon adhesions due to sudden contraction, dislocation hamstring origin of the hurdler. 8). Fracture of bone that forms part of the joint: case of fracture in this area will result in Hemarthrosis (bleeding in the joints). 9). Fracture near joints: fractures near the joints can cause joint stiffness.

G. LOCATION SPORTS INJURIES

The location Of sport injuries is: 1. Shoulder, 2. Elbow, 3. Wrist, 4. Spine, 5. Pelvis, 6. Knee, 7. Ankle, 8. Head

H. WAYS SPORTS INJURY PREVENTION

Sports injury prevention is better than cure, if the injured athlete to be fast to get treatment. The faster recovery sooner to practice or compete. Prevention should start early before the athletes start exercising.

As for ways of preventing sports injuries, among others: 1). Perform routine medical examination before practicing / playing or afterwards. 2). Perform proper warm-up or stretching before practice individually or in partnership. 3). Choose good equipment: age size shoes that fit, not too narrow, consider the already thin soles that grip the racket replaced or a thin pad needs to be replaced. 4). The use of protective or safety: for example helmet use on boxers, chest protector in sports karate, martial arts. 5). control of emotions: the emotions that lead to uncontrolled bias physical impact and should be able to accept defeat, less susceptible to provocation. 6). Mastering the proper training techniques, for example in terms backhand in tennis, or how to hold the racket, how to throw the ball. 7). Checking the condition of the field: if the field flat, muddy gravel lot or field, if the field is not flat, a lot of gravel and slick to slip or fall risk is very high. 8). Strengthening the muscles - the muscles, which are widely used in certain sports, such as leg muscles strengthened for the sport of football, and karate. While knowledgeable shoulder muscles devoted to tennis and badminton. Muscle strengthening exercises can use the tool load and own weight when doing push up. can also strengthening exercises muscles leg way up and down the stairs. 9). Choosing an experienced coach means experienced in training to improve the ability of the athlete without an injury nor in terms of preventing sports injuries. For example, in a football game that is very tiring, so there are players who looked tired coach responsive to observe the other players. (Train do not strain, fatigue should not torn). 10). Improving physical fitness; physical fitness conditions of high body ready for the physical loading, so no sooner had fatigue which ultimately could result in injury.

REFERENCES

- Doris Eitner et al. 1982. *Physical Therapy for sport*, W.B Saunders Company
Kullun, D.N. 1988. *The Injured Athlete*, 2 and edition, J.B Leppincott Coy Philadelphia.
Micheli LJ 1995. *the Sport meditation*. Bible. Harper Perennial, new York Peterson L, Reston.P. 1986. *Sport Injury*, London
Sperryn ,P.N. 1986. *Sport and Medicine*. Butterwoth, London

IMPROVING OBESITY LEVELS AT THE INSTITUTE OF TECHNICAL EDUCATION (COLLEGE EAST)

Ong, Raymond Beng Chee

Exercise & Sports Studies, PESS/NTU, Institute of Technical Education, Singapore

Raymond_Ong@ite.edu.sg

Abstract

Over the past decade, there has been a rising trend in obesity rates among students at the Institute of Technical Education (ITE), College East (CE) campus. A health screening was conducted among January 2014 intake students by the Singapore Health Promotion Board (HPB). From this screening, it was noted that 28% of the students at CE were classified as Overweight or Severely Overweight based on their Body Mass Index (BMI). As the trend of increasing obesity rates among students at CE is a major concern to the College management, our team embarked on a project that could help to promote a healthier lifestyle among CE students. The key determinant is to see an improvement in body composition among the participating students. As part of the school curriculum, a class of Sport Management (SM) students was appointed as Personal Fitness Trainers (PFT). The PFTs engaged students in the Overweight category through a series of physical activities over a ten week period. The physical activities include gym weights workouts, circuit training and group fitness exercises. Body Fat percentage at the start and end of the project was conducted for the participating students. At the end of the 10 week project led by PFTs, the results were positive and the team managed to lower the Body Fat percentage of the participating students. The introduction of physical activities as a key tool in helping to lower a person's body fat percentage had been effective. However, with physical activity intervention only, it may not be easily sustained or effective in the longer term. The Team acknowledged that there are other key factors that could help lower the obesity rate at CE but were not covered in this project include proper sleep habits and healthy eating.

Keywords: obesity, physical activities

UNNES
UNIVERSITAS NEGERI SEMARANG