THE INFLUENCE OF PHYSICAL FITNESS TEST TOWARDS STUDENTS' MOTIVATION IN LEARNING PHYSICAL EDUCATION OF GRADE XI

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Abstract

Physical Education (PE) is critical to the development and maintenance of good health in students' life. Therefore, Physical Fitness Components (PFC) that is trained through Physical Fitness Test (PFT) must be applied in the PE class because it leads and encourages students to live a healthy lifestyle. Unfortunately, the students in grade XI SMA ABC Tangerang, did not learn PFC and PFT. When it was time for PE class, the students also had low motivation to participate. This research is a quasi-experimental research that compared two groups of subjects: XI IPA boys (experimental group) and XI IPS boys (control group). The research was conducted in two meetings. The motivation has been measured by using questionnaire with high reliability (r=0.725) and in very high reliability (r=0,952). After tested the questionnaire result with t-test for independent samples, the result has showed that there is significant difference of motivation between the experimental group and the control group (p=0,000, p<0,05).

Keywords: Motivation, Physical Education, Physical Fitness Components (PFC), Physical Fitness Test (PFT), Quasi-Experimental Research

1. INTRODUCTION

1.1. Background of Study

Physical education contributes directly to development of physical competence and fitness as well as it also helps students to make informed choices and understand the value of leading a physically active lifestyle [22]. Cognitive development in Physical Education (PE) is taught by sharping physical movement in sport and fitness enhancing [8]. There are some benefits in learning PE besides the result of healthy body, such as the ability to deal with concrete terms rather than in the abstract, developing and refining an adequate spatial world, and the chance to do fun activities than sitting down in chair [8]. Through PE they also will learn and develop fundamental movement skills, become physically fit to participate regularly in physical activity, know the implications of and the benefits from involvement in physical activities, and appreciate the value of physical activity and its contributions to a healthy lifestyle [22]. In order to gain those benefits, PE lessons should teach about movement skill acquisition and fitness enhancement [8]. Therefore, Physical Fitness Components (PFC) should be introduced through PE.

In PFC, the students do not learn about skills and not directly related to athletic skills. The students will be honed to do physical activities of health's standard then measure their percent body fat. It can be done by all people even if they do not like playing sports but want to get healthy body that lead to the healthy life. PFC can be applied since kindergarten until grade twelve. In USA, PFC started to popular to be applied since John F. Kennedy emphasized it to be learnt by all American people, included in schools there, to change their focus of PE from sport skills to PFC in 1960s [18]. He also made a quote that said "*Physical fitness is not only one of the most important keys to a healthy body, it is the basis of dynamic and creative intellectual activity*". Therefore, the PE teachers there should raise the students' intrinsic motivation in participating PE class by encouraging the students to have healthy body and good intellectual through doing PFC that will be showed in Physical Fitness Test (PFT).

However, based on the survey of Sport Development Index [19], a quality parametric organization of sport in Indonesia in 2005 showed that the quality of physical fitness of Indonesian students in level Elementary School, Junior and High Senior School orderly in categories 45,97 % in low even 10,71 in very low quality. The survey is proved in PE class of many schools in Indonesia such as SMA ABC Tangerang that did not teach PFC and PFT in their PE class. The PE teacher there said that their focus of lesson is about sport games. For the first 30 minutes of PE lesson, grade XI's students idly walked to the toilet to change their formal uniform into sport's uniform. For them who already change their cloth, they still sat in their classroom although the leaders of both class, XIA and XIB, have instructed them to go down because they would use sport field outside their classroom. Unfortunately, there are half of the students did not bring sport uniform. The class started late for 40 minutes. After that, in the beginning of the lesson, they did warming-up for five minutes, but the movement actually seemed like stretching movement for cooling down. After that, the students run for two times around a field of 6,5x4meters. Then, the teacher divided the students into two rows to exercise in doing simple stroke of badminton in the wall around the field. There was no any net. All of the students did the exercise in turn. Unfortunately, all of them talked each other and playing like "*Smack Down*" when it came to others' turn to do the exercise. When did the stroke, I saw that almost lots of the students did not stroke enthusiastically. They just did it idly. They lacked of motivation to participate the PE class.

They also lose the values of learning PE that critical to the development and maintenance of good health in their life. They have learnt about the fundamental movement skills such as jumping, bending, rolling, throwing, kicking and the other movement skills in sports. But, they did not learnt about PFC and its function to their life. As the result, the students who do not like playing sports, and the students who just like one kind of sports' game, chose to be passive during PE class when there was sports' game activity even when there was no sports' game that they like there. For they who like playing a particular sports' game, especially boys there, they still lacked knowledge of being health. For them, as long as they played sports they would get health. They did not know the essence of physically health that related with physically fit that could be learnt through the material of PFC and PFT in PE.

Based on the theory of development, the students in grade XI that are sixteen until seventeen years old, are gaining in independent life skills [10]. They will gain more confidence in their independent abilities such as passing tests or doing assignment. The students realized that they lacked of skills in sports, it is possible that they inattentive with the PE there. Based on the intellectual development in their age, they start to set personal goals [23]. Therefore, the students choose to do other things outside sports during free time that the PE teacher gave them because they are already able to decide the stuffs in PE class that they will not reach. For the students who like playing sports they also need to set right personal goals of being health that not just by doing sports but also measure their health quality by doing PFC in PFT. Achievement in doing PFT can increase the students' motivation because achievement is a need of someone that can influence him/her in doing something (McClelland as cited at Mustafa, 2001). If the motivation increases, automatically it will increase their initiation of and persistence in activities or participations [15]. Based on the commentary above, the author decided to investigate is PFT can make significant difference of students' motivation in learning PE in Grade XI SMA ABC TANGERANG.

1.2. Physical Fitness

There are two basic components that must be taught in PE, they are movement skills acquirement and physical fitness enhancement [8]. Movement skills are taught to make students to be capable in doing performing activities such as playing games and sport, dance, and the other moving activities. Physical fitness enhancement is aimed to improve students' health and performance in their daily life. Physical Fitness is the ability to perform daily tasks without undue fatigue and to possess ample reserves of energy for recreational pursuits and emergency needs [8]. There are two components of physical fitness, health-related fitness and skill-related fitness. Health-related fitness (HRF) is the ability to become and stay physically healthy [9]. HRF involves [4]:

1. Cardiovascular endurance the ability of the heart, blood vessels, and lungs to deliver oxygen and essential nutrients to the working muscles and remove waste products during vigorous physical activity. The activities that can improve cardiovascular endurance are swimming, running, bicycling, etc.
2. Muscular strength is the ability of a muscle to exert one maximal force against resistance. The activities that can be used to improve muscle strength are lifting weight at one time with variety weight.

3. Muscular endurance is is the ability of a muscle to exert repeated force against resistance or to sustain muscular contraction. The activities that used to improve muscular endurance are sit up and push up.
4. Flexibility is movement of a joint through a full range of motion. The activities that improved flexibility are bend-reach and sit-reach.
5. Body composition is the amount of body fat in proportion to fat-free weight. The measurement can be done by using skinfold caliper.

Skill-related fitness (SRF) is the ability to maintain high levels of performance on the playing field that has six components, such as [9]:

1. Agility
   The ability to change and control the direction and position of the body while maintaining a constant, rapid motion.
2. Balance
   The ability to control or stabilize the body while standing or moving.
3. Coordination
   The ability to use the senses to determine and direct the movement of limbs and head.
4. Speed
   The ability to move body or parts of it swiftly.
5. Power
   The ability to move the body parts swiftly while simultaneously applying the maximum force of muscle.
6. Reaction time
   The ability to react or respond quickly to what is hearing, seeing or feeling.

In school, both of HRF and SRF also must be considered as learning objectives of PE lesson so that the students can reach the main outcomes of PE lesson that will make them become physically educated [8]. It is important to put PFC on the assessment, called Physical Fitness Test (PFT) to make sure that the students can reach the HRF and SRF as one of the learning objectives of their PE lesson.

PFT for 13 years old and above can be done through fitness check activities such as [13]:

1. Cardiovascular Endurance such as run 1,5 miles.
2. Muscular Strength such as push up and standing long jump.
3. Muscular Endurance such as sit up.
4. Flexibility such as sit and reach.
5. Body Composition such as body mass index measurement.

All of those five have standard that should be reached by people in various ages, such as standard for 13 years old and older [14 and see Appendix]. For standard of body mass index measurement, each student must get point 17 until 24.9 after he/she divide their weight in kilograms to his/her height in meter that is squared then [5 and see Appendix].

1.3. Motivation

Motivation is defined as the collection of causes that engage someone in an activity [6]. There are two kinds of motivation, they are intrinsic and extrinsic. In teaching lesson, there are several ways to raise students' intrinsic and extrinsic motivation. In raising the intrinsic motivation, teacher should do [6]:

- Design lessons that students will find meaningful.
- Design activities that will change all students.
- Design activities that have specific goals.
- Allow students to assess their own progress, for example by using self-assessment checklist

To raise the extrinsic motivation, teacher should do [6]:

- Provide students with lots of specific feedback
- Reinforce appropriate learning practices and effort
- Get the students involved in their own learning
- Be sure that all students are actively engaged in activity for the majority of the class time

Extrinsic motivation can be growth by using extrinsic factor such as reward in grading [7]. There are three kinds of extrinsic motivation [11]. First is external regulation, which is action that shows the need to

achieve external rewards or to avoid punishment. Second is introjection, which is, action that begins internalizing behavior regulation in order to avoid negative emotions such as anxiety or humility. Third is identified regulation, which is, action of learning some new skills but not for the sheer of pleasure of the activity.

Intrinsic motivation is based in the innate, organismic needs for competence and self-determination [12]. Thus, individuals are born with intrinsic motivation to exercise their abilities, develop skills and master both their internal and external environments through doing challenging task [1]. Intrinsic motivation can be measured when the children reasoning toward their tasks are because of enjoying activities of the tasks and anticipating future benefits [14]. Based on the theory above, the author conclude that intrinsic motivation is someone's willing of doing some tasks because of enjoying and realizing that the tasks will give influence to their development of self.

Motivation of students in learning PE can be measured through accomplishment of the aim of learning PE itself. The aim of teaching PE in classroom is to make students become *physically educated person* [16]. There are several characteristics of a *physically educated person*, such as:

- Able to show their understanding about principle of physical fitness through their performance in physical activities [20].
- Students show good attitude such as support each other in reaching test standard of physical fitness [2].
- Make a healthy journal for a week [3].

National Association for Sport and Physical Education in America [16] stated that a physically educated person could do:

1. Demonstrates competency in motor skills and movement patterns needed to perform a variety of physical activities;
2. Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities;
3. Participates regularly in physical activity;
4. Achieves and maintains a health-enhancing level of physical fitness;
5. Exhibits responsible personal and social behavior that respects self and others in physical activity settings;
6. Values physical activity for health, enjoyment, challenge, self-expression, and/or social interaction.

Based on the theory above, the author conclude that students that have motivation in learning PE are those who show characteristics of physically educated person such as:

- Able to show understanding about one of several characteristics of physically educated person, that is principle of physical fitness through their performance in PFT.
- Value physical activity for health, enjoyment, challenge, self-expression, and/or social interaction through support each other to reach the standard of PFT.
- Make a healthy journal for a week.

2. RESEARCH METHOD

This research used an experimental design because the author wanted to know the effect of PFT to grade XI's motivation in learning PE. Experimental design can be used to establish possible cause and effect between independent and dependent variables [17]. The research was hold in SMA ABC Tangerang. In determining sample for this research, the author used quasi-experiment design because there are two classes of grade XI in that school so that the author did not need to artificially create groups for the experiment. Those classes are XI IPA (Science) and XI IPS (Social Science). Based on the information of teachers, there was no test and any requirement for students to entry science class or social science class. It depends on their willingness after got briefing from their homeroom teacher. There were 11 male students in each class: XI IPA and XI IPS. The author decided to use male students from each class to keep homogeneity between those two groups. XI IPA would get experimental treatment and XI IPS would be a control class. The amount of male students in XI IPA and XI IPS also fulfilled minimum requirement of sample's amount for simple experimental research so that it becomes tightly controlled study as mentioned in Roscoe's simple rules thumb [5]. There was only a post-test of PFT in XI IPA because it was not possible for the research to ask the boys' students of XI IPA to do PFT without any explanation before.

There were two times of meeting to collect data. In the first meeting, the author explained to XI IPA

male students about PFC and how to practice PFT. In the end session, the author gave them homework to make a health journal of their exercise by next week. The second meeting, the author collected data from male students in class XI IPA and XI IPS. In XI IPS, the author gave questionnaire to each male student there, and then collected it. In XI IPA, the author collected the homework and gave PFT to all boys' students in XI IPA. The PFT that did just measure HRF not included SRF particularly because of limitation meeting. In addition, during the PFT, the author asked the male students of XI IPA to write their accomplishment in each activity of PFT based on standard that generally accepted [14 and see Appendix]. After that, the author gave and collected questionnaire from the boys' students in XI IPA. The motivation of students in learning PE was measured through questionnaire with ten questions. The questionnaire used Likert's scale from one to four, in which one is for really disagree, two is for disagree, three is for agree, and four is for really agree.

3. RESULT

The data through questionnaire are showed in the table below:

Table 1: Questionnaire Result of XI IPA

Number of Quest.	Likert's Scale				Mean
	1	2	3	4	
1			10 (91%)	1 (9%)	3.09
2			6 (55%)	5 (45%)	3.45
3			9 (82%)	2 (18%)	3.18
4		1 (9%)	4 (36%)	6 (55%)	3.45
5		1 (9%)	5 (45.5%)	5 (45.5%)	3.36
6			5 (45%)	6 (55%)	3.55
7		8 (73%)	1 (9%)	2 (18%)	2.45
8		1 (9%)	6 (55%)	4 (36%)	3.27
9		2 (18%)	3 (27%)	6 (55%)	3.36
10		1 (9%)	3 (27%)	7 (64%)	3.54

Table 2: Questionnaire Result of XI IPS

Number of Quest.	Likert's Scale				Mean
	1	2	3	4	
1	9 (82%)	1 (9%)	1 (9%)		1,27
2	9 (82%)	1 (9%)	1 (9%)		1,27
3	9 (82%)	2 (18%)			1,18
4	9 (82%)	1 (9%)		1 (9%)	1,36
5	8 (73%)	3 (27%)			1,27
6	6 (55%)	3 (27%)	2 (18%)		1,64
7	6 (55%)	1 (9%)	4 (36%)		1,82
8	2 (18%)	5 (46%)	4 (36%)		2,45
9	2 (18%)	4 (36%)	5 (46%)		2,27
10	2 (18%)	3 (27%)	5 (46%)	1 (9%)	2,45

From the both tables above, it showed that there were differences between mean of scale from each question of XI IPA male students and XI IPS male students. The questionnaire that gave to XI IPA and XI IPS have same questions. In the table 1, mean of the scale that chosen by the male students in XI IPA is "3" for every questions, except question number seven that has mean about 2.45. It showed that almost all of the students chose "agree" for every question, except for question number seven. In the table 2, most of mean of the scale that chosen by the male students in XI IPS is "1", and "2" is for the rest. It showed that almost all of them chose "really disagree for most of the questions. However, there are differences in reliability's categories of questionnaire between both classes. Cronbach's Alpha for questionnaire in XI IPA is 0.725, showed that the questionnaire has high reliability based on Guilford theory [21]. The Cronbach's Alpha for questionnaire in IPS' questionnaire is 0.952, means that the questionnaire have very high reliability. To measure if there are significant difference between male students motivation in XI IPA and XI IPS, the data from questionnaire are tested for its normality distribution, to be able tested by using non or parametric test further.

Table 3: Questionnaire Score of Each Male Student

Number of Male	XI IPS (No Treatment)	XI IPA (With PFT)
1	14	28
2	17	29
3	17	28
4	16	35
5	22	29
6	21	38
7	13	34
8	18	36
9	15	30
10	15	36
11	17	37

First, the data have been tested using Shapiro-Wilk test for knowing normality distribution of the data by using SPSS. The result is:

Table 4: Normality Test Result

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelas	Statistic	df	Sig.	Statistic	df	Sig.
Motivasi	Boys XI IPS	.201	11	.200*	.932	11	.429
	Boys XI IPA	.211	11	.186	.860	11	.058

From the test result above, significance at p of XI IPS is 0.429, and p of XI IPA is 0.058, in which both of them are greater than 0.05. In conclusion, the data distribution is normal so that it can be then tested by using parametric test. The parametric test that used is t-test for independent samples to know the effectiveness of PFT to students' motivation between two independent samples such as XI IPA boys and XI IPS boys.

Table 5: Independent T-Test Result

		Levene's Tes: for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	S g.	t	df	Sig. (2-tailed)	Mean Differ erence	Std. Error Difference	Lower	Upper
Motivasi	Equal variances assumed	5.917	.025	-11.007	20	.000	-15.909	1.445	-18.924	-12.894
	Equal variances not assumed			-11.007	17.908	.000	-15.909	1.445	-18.947	-12.871

From the test result above, it showed that the samples that used have homogeneity. The significance at P for Levene's test for equality is 0,025 (< then 0,05), it means that the two samples' variants are not homogeny. Then, for the significance at P in t-test of equal variances assumed is 0,000 (< then 0,05), means that H_0 is neglected. The hypotheses for t-test are:

H_0 = Motivation of male students in XI IPA is same with the male students' in XI IPS

H_1= Motivation of male students in XI IPA is different with the male students' in XI IPS

Therefore the conclusion of the t-test result is motivation of students in XI IPA is different with the male students in XI IPS because it has significant difference.

Based on data from questionnaire of XI IPA, students there still did not do regular exercise and wrote it into a health journal like showed in the students' mean in answering number seven in the questionnaire. However, during the PE class, XI IPA male students have shown their ability in doing PFT well, although not most of them reach the standards of each activity (see Appendix). In addition, almost each of them has supported their pair enthusiastically in doing each activity in PFT as it has shown through mean of students' answer in the questionnaire number ten. Even there were two students who asked the author after the class ended about the standard of PFT and wrote it in their notebooks.

Could I know standard of health based on BMI and push up? In the beginning of the class, I forgot to take a note of them. (R – XI IPA)

About muscular strength, If I want to do once push up with my friend sit up on my back, how many weight should I forced against based on age's standard?. (NR – XI IPA)

4. CONCLUSION

Through this research, it can be concluded that there is a significant difference of motivation in learning PE from experimental group and control group because the experimental group got treatment of PFT. In the questionnaire showed that the students in experimental group became more aware of their healthy standard that they could learn through PE lesson with PFT, because most of them chose scale "3" and "4" in almost each question which showed that they agreed and really agreed towards the questions that given. Even they became better in their social skill because they should do several activities in PFT in pair. Even most of them have supported each other in accomplishing each activity in PFT.

However, the author also realized some weaknesses of this study. There were small samples of each group in this study that were measured so that this study less represented all grade XI's students. In addition, there were no pre-test that the author did before the treatment in the experimental group. Therefore, the result of this study could not be generalized. The author just took post-test result of both sample's groups because time limitation of this study. It needed two meetings to do each test, in which pre-test and post-test. In sum, it should be four meetings to do both of the tests. For the further study, it needs pre-test and random sampling so that that study could prove that PFT could raise students' motivation in learning PE lesson or not.

APPENDIX

Questionnaire

Questions	1 RD	2 D	3 A	4 RA
1. Have you measure your cardio ability in PE lesson?				
2. Do you know benefit of cardio measurement for your health?				
3. Have you measure your muscular strength and endurance ability in PE lesson?				
4. Do you know benefit of muscular strength and endurance measurement for your health?				
5. Have you measure your flexibility of your lower back and hamstring in PE lesson?				
6. Do you know benefit of flexibility measurement for your health?				
7. Do you do exercise for 225 minutes per week?				
8. Do you do all physical activities that taught along PE lesson enthusiastically?				
9. Have your PE teacher taught you to measure your body weight and categorize it in health criteria?				
10. Do you often support your friend that is doing physical activities during PE lesson?				

1= Really Disagree 2= Disagree 3= Agree 4= Really Disagree

Table of PFT Records of XI IPA Male Students

Boys XI IPA	Run 1 mile (min:sec)	Standing Long Jump (inches)	Flexibility (cm)	Push Up (times in 3 minutes)	Sit Up (times in 1 minute)	BMI
1	08:15	90,4	44,5	85	37	21,22
2	08:29	73,2	37	52	16	25,2
3	08:30	74,8	37	41	28	22,5
4	08:31	65,6	32,5	36	26	24,5
5	08:32	67,2	36	50	30	23,5
6	08:38	51,2	42	18	34	22,4
7	08:40	70	35	30	25	17
8	08:43	66,2	35	40	34	23,8
9	08:45	68,8	34	38	40	23,5
10	08:58	81,2	39	42	35	23,4
11	09.20	55,2	29	16	23	27,1

Standard of PFT

Distance Runs (13 and older)

	1.5 Mile Run (min:sec)	
Percentile	**Girls**	**Boys**
Very Good	12:17	8:37
Good	15:03	10:19
Average	16:57	11:29
Low	18:50	12:39
Very Low	21:36	14:20

21 laps of your school's field or 8 laps of Ahmad Yani's field

Push-ups (Boys)

	Age
Rating	**17**
Athletic	41
High	36
Healthy	18
Repetitions	

Repetitions in 3 minutes

Standing Long Jump (Boys)

	Age
Percentile	**17+**
Very Good	101
Good	93
Average	86
Low	78
Very Low	63
Inches	

Sit-ups (Boys)

	Age
Percentile	**17**
Very Good	62
Good	52
Average	46
Low	38
Very Low	25
Repetitions	

Repetitions in one minute

Sit & Reach (Boys)

	Age
Percentile	**17**
Very Good	45
Good	40
Average	34
Low	28
Very Low	15
Centimeters	

23cm feet long

BMI for Girls and Boys

$$BMI = \frac{Weight\ in\ kilograms}{(Height\ in\ meters)^2}$$

Classification	BMI
Obese (high risk)	Over 30
Marginal	25-30
Good fitness zone	17-24.9
Low	Less than 17

ACKNOWLEDGMENT

Author thanks to Yonathan Winardi, S.Pd., M. Pd. as scientific writing lecturer and Dr. Hananto, as statistic lecturer, at Faculty of Education Universitas Pelita Harapan Karawaci, that have helped in organizing content of this paper based on the result of the study; Yolanda Agustina and Regina Puhiri as peer assistant in doing this study included collecting data in SMA ABC Tangerang.

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