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THE EFFECTIVENESS OFTHE INSTRUCTIONAL MODEL OF PLAYING TO INCREASE THE PHYSICAL FITNESS OF THE LOWER GRADE OF ELEMENTARY SCHOOL STUDENTS

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Abstract

This research is inspired by the problem on the low physical fitness of the elementary school students due to the development of technology and they are not really interested to follow the physical education subject. The aim of this study is to find the effectiveness of instructional model of playing as the way to increase the elementary school students'low grade of physical fitness. This research uses Research and Development design, which was established by Borg and Gall. The effectiveness test was conducted to 40 students of Adisucipto 1 elementary school. The data collection method used was: (1) observation guide and (2) physical fitness tests. The descriptive quantitative analysis technique was used to analyse the data using a product moment correlation statistical formulae. The results of this research reveal that: (1) there has been a significant change from cycle I to cycle II for all aspects measured, such as enthusiasm, excitement, discipline, and totality from *Average* to *Good,* (2) a change in the number of students who are fit and unfit in cycle I to cycle II, the number of students who are in the fit category grew in 10 % and students who are not in the fit category decreased in10 %, and (3) the result of the correlation between the data observation result (X) and the result of the physical fitness test data (Y) or r_{XY} = 0.904, is greater than the r value table = 0.312. Thus, there is a significant correlation between the result of the observation and physical fitness test result.

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INTRODUCTION

The studies, which are conducted by the scholars, on the students' physical fitness show a very poor result. The results illustrate that the physical fitness of students of elementary school to high school nowadays is low (Mutohir, 2009). The low status of students' physical fitness is caused by the lack of the physical activities, both at school and outside it. The development of technology makes the students prefer to have the activities which use machines to human power. On the other hand, physical education has lost its charm to attract students to join actively in physical education subjects.

The low students' physical fitness has a wide effect, almost cover all aspects in human life: social, economy, politic, and culture are affected. Students who have low physical fitness are prone to degenerative disease. If the germs come to attack – the health costs are rising – as a result their life will not be productive. Lutan (2001) says that the health care costs increased 2.5 % in the Netherland, 6 % in Canada, and 8 % in the United States.Suherman (2007), adds that if the students' physical fitness status is low, their intellectual development will be disturbed and it can cause*the lost generation.*

The high physical fitness is needed by all people, including the students. With the high physical fitness, students can do their daily activities longer than those who are not. Some studies show that physical fitness has a positive correlation with the academic achievement. Carlson's, et al (2008) explains that physical education does not have negative effect to the students' academic achievement, and female students who get more physical education subject can increase their math and reading score. A national study in Australia finds that physical fitness score is related to the academic achievement. This study involves students from elementary school to senior high school (Dewyer, et al, 2001).

The other studies present the results that physical education program, which is well designed and implemented can encourage the students to be active physically and show a positive effect in the academic score, including the increasing of concentration, mathematic ability, reading, writing, and decreasing the negative behaviour, which can disturb. The students' mechanism can increase the academic achievement as the result of the physical activity through physical education, including the increasing of motivation, and the decreasing of boredom, which ultimately can increase the attention span and concentration (Coe, et al, 2006).

Raviv and Nabel (1992) add that the elementary school students' moving experience and physical activities have positive effect to the development of the physical, psychology, and social. Therefore, Siedentop (2002), stresses the importance of the physical education in elementary school, which can be directed so that the students can be more capable (*competent*)in doing motoric activities, understanding and animating (*literate*) the values of sport, and having enthusiasm as an individual who has the spirit of an athlete.

Hinson (1995), states that the students' physical fitness can be affected by the environment, attitude, knowledge, and lifestyle. The students' *lifestyle* is changes because they are always pampered by technology. Students who were quite active become passive even tend to be lazy! They prefer to use the service of technology to perform an assignment, which can actually be done by human power. Passive lifestyle, which continuously and last for a long time will reduce students' physical ability (*physical fitness*) significantly.

The research, which is conducted by the CDC (2006), showed that children who are not physically active tend to be inactive in adulthood and increase the risk of obesity, which in turn will increase the prevalence of chronic degenerative diseases, such as hypertension, diabetes, and heart. Obesity is a serious health problem. More than a third children and adolescent are overweight or obesity and the lack of the physical activity contribute to the epidemic (Trost, 2007).

The finding about the low physical quality of Indonesian, including the learner, is a concern

for all the people in Indonesia and the responsibility of all parties. Nevertheless, it becomes a serious problem to the physical education teacher, because according to Rink (2009), they considered as the most responsible person for the development and maintenance of physical fitness of the students through physical activity and sport.Therefore, passive lifestyle must be left and we must start building active lifestyle. A nation that can encourage its people to do physical activity will significantly be able to save the cost of healthcare (Siedentop, 2002). In relation to this problem, physical education teacher has a strategic role and become one of the main powers in the formation of the attitude and habits of active life (Lutan, 2001).

One of the alternatives, which can be done by the physical education teacher to overcome the elementary school students' low physical fitness especially in the lower grade, is to improve physical education learning processes.The improvement can be started by implementing the instructional model of playing. It is along with Desmita's (2010), who states that the characteristic of the elementary school students age 6-9 years old are like to play, to move, to work in group, and to feel or do something directly. Graham (2008) argues that playing gives more "freedom" to the students to express their movement and that is why they prefer playing to practicing.

The instructional model of playing is built from an assumption that basically playing is an activity favoured by everyone, especially kids, because it gives a sense of pleasure. A pleasant atmosphere during the learning processes is what all parties, teacher, and students want. It was the processes of interaction and educational communication between teacher and students, which will be well established, so that the intended purpose can optimally be achieved.

The instructional model of playing is a learning model, which is used as a medium to organized learning experiences through a variety of physical activities and sports in the atmosphere of interaction and educational communication which is interesting between teacher and students to achieve the goal. The construction of the instructional model of playing is presented in Table 1.

Physical education program is packed and customized in such a way and adapted to the lower grade of elementary school students' characteristic in a form of playing can encourage the students' enthusiasm, excitement, discipline and totality to follow it. The instructional model of playing, slowly, will become a magnet for the students to love physical education subject more, which is not really interesting for them. If the students have already liked to follow physical education subject, they are expected to love the other physical activities, despite it is done outside the physical education subject, which in turn will lead to increase physical fitness.

One way that can be done by a physical education teacher so that the physical fitness learning processes will be interesting is to modify the game. Siedentop (2004) states that there are five strategies to modify the game, namely: (1) make it an easier way to get a score, (2) to slow the movement of the ball or object, (3) increase the opportunity to practice techniques and tactics, (4) change the order of the game, which allows the learning tactics, and (5) change the rules how to score.

Table 1.The Instructional Model of Playing Construction

Steps	Activities	
	Teacher	Students
Preparation	Prepares teaching administration, such as lesson plan, attendance list, and evaluation sheet.	Prepare themselves, such as change to sportswear and prepare the drinks.
	Prepares and arranges the position of the learning equipment, which is going to be used.	Help the teacher to prepare the lesson instruments.
Pre-Activity	Leads the prayer.	Pray together.
	Checks the attendance list.	Answer when they are called.
	Inform the materials that are going to be learnt.	Listen to the explanation, which is delivered by the teacher.
	Delivers the goals that will be achieved.	Listen to the explanation that is delivered by the teacher.
	Asks the students to measure the pulse.	Measure their pulse.
Main Activity	Leads the warming up in a form of playing or fun physical activities.	Do the warning up as the instruction/order presented by the teacher.
	Gives a motor task in a form of games.	Conducting motor task with teacher guideline.
	Monitors and evaluates the students.	Stay active to play for being monitored or evaluated.
	Gives feedback to the students.	Implementing input delivered by teacher.
	Asks the students to measure the pulse.	Measure their pulse.
Closing	Leads the cooling down in a form of playing or fun activities.	Conducting the cooling down with teacher guideline.
	Gives general correlation and appreciation to the students.	Listen to the teacher's guideline/explanation.
	Gives motor task as a home work.	Listen to the explanation delivered by the teacher.
	Asks the students to measure the pulse.	Measure their pulse.
	Leads the prayer.	Pray together.

Physical fitness becomes a very important part of the physical education lesson, which becomes one of the targets that should be pursued to be achieved by the students during the learning process through a variety of physical activities and sports, which are chosen. Healthy lifestyles and physical fitness will be maintained throughout life. Hinson (1995) warns that physical fitness is not last result, but a continuous process that required its continuity. NASPE (2005) strengthen Hinson's argument by saying, *"... that fitness is a journey, not a destination."*

NASPE (2005) that is cited by Metzler (2005), stated that the physically educated person has the characteristics as follows: (1) has the physical skills needed in everyday life, (2) participate actively in the physical activities, (3) has a good physical fitness, (4) understand the implications and the benefits in the physical activities, (5) determine the values of physical activities and its contribution of a healthy lifestyle.

Wuest and Bucher (1995), have high expectations that physical education will be able to change the attitude of the students to the positive side that is characterized by the growth of moving culture (physical activities) in everyday life. Thus, the students can both express the motion through physical education subject at school and they are also made to be "crazy" to move.The students are moving not only when they are following the physical education subject at school but also outside the school hours and they become addicted to do physical activities.Givler (2002), suggests that physical activities should be part of the students' everyday life and the faster these habits formed the better. To reach at the stage of physical fitness achievement, students should be familiarized doing physical exercises regularly and enjoy aerobics (AAHPERD, 2005).

RESEARCH METHOD

This research used research and development (R&D) approach. According to Sugiyono (2010), research and development method is a method that is used to produce certain product and to test the effectiveness of the product itself. Gall, Gall, and Borg (2003), stated that basically research and development have two main objectives, they are: (1) to develop a product and (2) to test the effectiveness of the product.

The test subjectsare the targetuser of the product; they are the lower grade students of elementary school, especially the third grade students. The test of the product conducted in two stages. First stage, small group test, the participants are students from two different schools, they are SDN Ringinsari and SDN Depok 2. Second stage, large group test, the participants are students from five different schools, they are from SDN Tajem, SDN Corongan, SDN Kalongan, SDN Depok 1, and SDN Nanggulan. In order to conduct the effectiveness test of the product or to validate the instructional learning model, the students of SDN Adisucipto 1 are used as the participants.

The instruments used to collect the data in this research are observation guide and Physical Fitness Test of Indonesia (PFTI) for children age 6-9 years old. Observation guide is used to measure the aspects of enthusiasm, excitement, discipline, and totality of the lower grade elementary school students when they are attending the Physical education class. Physical Fitness Test of Indonesia (PFTI) is used to measure the lower grade students of elementary school physical fitness status.

The data analysis techniqueused inthis research is descriptive quantitative analysis techniques with percentage. Data obtained from observation guide and Physical Fitness Test of Indonesia (PFTI) subsequently correlated with the Pearsonproduct moment correlationwith a significance levelof5% todetermine whether there isa relationship fromboth.

RESULT OF THE RESEARCH

In accordance to the research and development procedure, the researcher had conducted some stages of the research, they are validating the early product, test the early product to a small group and a large group. After conducted those stages of the research and made revisionsbased oninput fromsubject matter experts and practitioners, the researchersmanaged toconstruct an instructional learning model. Once thefinalproductis producedin the form of instructional learning model, the effectiveness test of the product and thephysical fitnesstest are conducted afterwards. The results of the effectiveness test of the product and physical fitness test can be seen in Table 2 and Table 3.

Table 2.The Result of The Effectiveness Test of The Instructional Model ofPlaying

No.	Aspect	Cycle I		Cycle II		Alteration	
		∑	%	∑	%	∑	%
1.	Enthusiasm	3.7	74	4.2	84	+ 0.5	+ 10
2.	Excitement	3.7	74	4.2	84	+ 0.5	+ 10
3.	Discipline	3.6	72	4.0	80	+ 0.4	+ 8
4.	Totality	3.7	74	4.2	84	+ 0.5	+ 10

Annotation

No.	Effectiveness Classification	Total Score
1.	Very Good (VG)	Up to 5.0
2.	Good (G)	4.0 up to 4.9
3.	Average (A)	3.0 up to 3.9
4.	Poor (P)	2.0 up to 2.9
5.	Very Poor (VP)	1.0 up to 1.9

Table 1 showed the alteration from cycle I to cycle II for every aspect measured, they are enthusiasm, excitement, discipline, and totality significantly. Enthusiasm increased 0.5 (10 %), excitement increased 0.5 (10 %), discipline increased 0.4 (8 %), and totality increased 0.5 (10 %) or in overall, from *Average* improved to *Good* on every aspect measured.

Table 3. Result of Physical Fitness Test Using Physical Fitness Test of Indonesia (PFTI)

No.	PFTIClassification	*Pre-test*		*Post-test*		Alteration	
		∑	%	∑	%	∑	%
1.	Very Good (VG)	0	0	1	2.5	+ 1	+ 2.5
2.	Good (G)	11	27.5	14	35	+ 3	+ 7.5
3.	Average (A)	18	45	16	40	- 2	- 5
4.	Poor (P)	9	22.5	7	17.5	- 2	- 5
5.	Very Poor (VP)	2	5	2	5	0	0

Table 2 showed that there has been changed between the number of students who are fit and who are not. In cycle I, the numbers of students who are fit are 11 students (27.5 %) whereas 29 students (72.5 %) are not. In cycle II, the number of the students who are fit are 15 students (37.5 %), whereas the students who are not fit are 25 students (62.5 %). Thus, the number of students who can be categorized as fit increased to 4 students (10 %)and not fit decreased to 4 students (10 %).

In order to determine whether there are relationshipsbetweenthe PFTI resultsand theresults of the effectiveness test of theproduct, the researcher conducted acorrelationtestusing the formulaofPearson'sproduct moment correlation. The result of the correlation showed r_{XY} = 0.904. With the level of significance 5 % and N = 40 obtained price r table = 0.312. If price r count and r table compared, result shows r count > r table, meaning that the correlation between the PFTI result and effectiveness test are significant. The correlation means that students who had the enthusiasm, excitement, discipline, and totality during the physical education learning process are in a fit condition. On the other hand, students who did not have the enthusiasm, excitement, discipline, and totality during the physical education learning processes are not in a fit condition.

DISCUSSION

The research findings–in this case the test of effectiveness–show that it took seven to eight meetings to reach the minimum requirements of completeness: enthusiasm, excitement, discipline, and totality (with a score > 4.0 or with the criterion of *Good*). There is an implicit message delivered through this statement and truth; the importance of a process in achieving learning outcomes. The behavioural changes on the part of the students involved in a learning process cannot be achieved in an instant; it requires certain steps. According to Schmidt (2004), there are several steps in a learning process, which are the verbal-cognitive step, the motoric step, and the automatic step. In the beginning of doing a motor task, students need some information on how to do the task. After going through the first step, they will then try to put it into practice and find the patterns of the motor task. After hours of practice, they will then be able to do the task skilfully (automatically).

The results of the instructional model of playing did not reach the minimum requirements of completeness although they were in the criterion of *Average*. This was achieved thanks to the role of the instrument used in the instructional model of playing, which was music to accompany the games. The researcher used music to accompany the games in the hope that music would bring excitement to the students. This is confirmed by Pica (2008) who states that in physical education, music can raise enthusiasm, bring energy, and sooth the students. MacCall and Craff(2004) also state a similar opinion saying music can help students' motor skills development, body awareness, coordination, and imagination.

It was evident from the effectiveness of the instructional model of playing test that there was a significant change going from the cycle 1 to cycle 2. Enthusiasm was raised by 0.5 (10%), excitement by 0.5 (10%), discipline by 0.4 (8%), and totality by 05 (10%) or from the criterion *Average* to the criterion *Good* for all measured aspects. This was proof that the students enjoyed physical education even more when it was done through the instructional model of playing. The results were in line with Huizinga's theory (as stated in Mechikoff, 2010), which states that human's basic characteristic is to play and do anything enjoyable to them. Byl (2002) argues that playing provide students with a lot of opportunities to be themselves.

Of all the observed aspects, discipline showed the lowest result. Hurlock (1990), Espenschade, and Eckert, as quoted by Sukadiyanto (2005), believed that elementary students are characteristically curious, creative, critical, and adventurous. It is no wonder that they are hard to manage and tend to do strange things. Therefore, physical education must be organized in a way which suits these students in order to support their growth; it should not hinder their growth.

Another treat which characterizes today's students is that they are honest, but are quick to anger (Berk, 2010). Their honesty makes them act spontaneously at times using things around them. For instance, when students dislike a subject matter, theyare likely to play with themselves or disturb those around them. Therefore, although discipline proved the lowest result among the other measured aspects, it may not be a bad thing after all. The students acted as such to show their criticality of the world around them, which is the key to their life as part of their natural growth.

The physical fitness test also showed an increase indicated by the fact that the number of students who fell into the fit category was increased by 4 students (10%), while the number of students who were deemed as unfit was decreased by 4 students (10%). In order to improve and maintain fitness, one has to do physical activities on a measurable and regular basis. In other words, the physical activities, which one does, must follow certain rules and principles. In the science of coaching, this is known as the principles of training, which means a training regime can be considered effective when it meets the requirements of frequency, intensity, type, and time or FITT (Heithold and Glass, 2002; Corbin, et. al., 2007).

The result of the product moment correlation proved that there was a significant relationship between the observation guideline instruments and the physical fitness test. The result also implies that the observation guideline instruments can be used an alternate method of measuring students' physical fitness. A physical fitness evaluation using observation guidelines is conducted when the teaching-learning process is taking place. AAHPERD (2005) believes that this evaluation method is suited for early elementary students, which is in accordance with the opinion of Thomas, Lee, and Thomas (1998). They argue that evaluating early elementary students' physical fitness using performance tests is not appropriate. According to Rink (2009), physical fitness evaluation is an inseparable part of physical education which needs to be properly and responsibly carried out.

CONCLUSION

Based on the research findings and development, it can be concluded that (1) the instructional model of playing can promote students' enthusiasm, excitement, discipline, and totality in the physical education class and (2) the instructional model of playing proves an effective way of improving early elementary students' physical fitness (3rd grade).

The researcher admits that this study has defects and weaknesses, one of which was only the 3rd grade was involved and that the researcher could not monitor the students closely by coming to their homes to make sure what activities these students did at home.

Based on the conclusion and limitations, the researcher would like to suggest that (1) physical education teachers use the instructional model of playing for all physical education subjects matters included in the curriculum and (2) physical education teachers use the observation guideline instruments to measure early elementary students' level of fitness instead of using performance tests, such as TKJI, for the same purpose.

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