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Organizer and Contact Details

Department of Health and Sport science, Faculty of Education, Mahasarakham University
Nakhonsawan Road, Ta-Lad Sub-district, Muang District, Mahasarakham Province, 44000,
Thailand

Tel : (+66)4375-4322 Fax : (+66)4372-1764 E-mail : AUCPESS2013.msu@hotmail.com

Website: <http://www.edu.msu.ac.th/ss/>

Conference Secretariat

Lect. Wannaporn Sumranpat

Department of Health and Sport science, Faculty of Education, Mahasarakham University
Nakhonsawan Road, Ta-Lad Sub-district, Muang District, Mahasarakham Province, 44000,
Thailand

Tel : (+66)8273-51588 Fax : (+66)4372-1764

E-mail: poon_wanna@hotmail.com; aucpeess2013.msu@hotmail.com

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THE EFFECTIVENESS OF THE INSTRUCTIONAL MODEL OF PLAYING TO INCREASE THE PHYSICAL FITNESS

SUKARMIN Yustinus
Semarang State University, Indonesia

ABSTRACT

This research came from the problem on the physical fitness of the elementary school students, which was low because of the development of technology and they were not really interested to follow the physical education subject. The aimed of this research was to find the effectiveness of instructional model of playing as a way to improve the physical fitness of lower grade students of elementary school. This research used Research and Development approach, which was established by Gall, Gall and Borg (2003). The effectiveness test was conducted to 40 students of SDN Adisucipto 1 elementary school. The data collection method used was: (1) observation guide, and (2) physical fitness test. Descriptive qualitative analysis technique was used to analyse the data using presentation and product moment correlation. The results from this research and development were: (1) there had been a significant change from cycle 1 to cycle 2 for all aspects measured, such as enthusiasm, excitement, discipline, and totality from Average to Good, (2) a change in the number of students who were fit and unfit from cycle 1 to cycle 2, the number of students who were in the fit category grew 4 students (10 %) and students who were not in the fit category decreased 4 students (10 %), and (3) the result of the correlation between the data observation result (X) and the result of the physical fitness test data (Y) or $r_{XY} = 0.904$, was greater than the r value table = 0.312. Thus, there was a significant correlation between the result of the observation and physical fitness test.

Keywords: observation guide, physical education, physical activity

INTRODUCTION

The studies, which were conducted by the scholars, on the students' physical fitness showed a very poor result. The results illustrate that the physical fitness status of students from elementary school to high school nowadays is low (Mutohir, 2009). The low status of students' physical fitness was caused by the lack of the physical activities, both at school and outside school. The development of technology made the students prefer the activities using machine to human power because it is more practical. On the other hand, physical education had lost its charm so that students did not have the desire to follow physical education subject.

The low status of the students' physical fitness had a wide effect, almost cover all aspects in human life: social, economy, politic, and culture were affected. Students who have low status of physical fitness were prone to degenerative illness. If the germs came to attack – the health costs will rise – as a result their life will not be productive. Lutan (2001) said that the health care costs increased 2.5 % in the Netherland, 6 % in Canada, and 8 % in the United States. Suherman (2007) added that if the students' physical fitness status was low, their intellectual development will be disturbed and it could degenerate human quality.

The high physical fitness was needed by all people, including the students. With the high physical fitness, students could do their daily activities longer than those who were not. Some studies showed that physical fitness had a positive correlation with the academic achievement. Carlson et al. (2008) explained that physical education did not have negative effect to the students' academic achievement, and female students who get more physical

education subject could increase their math and reading score. A national study in Australia found that physical fitness score was related to the academic achievement. This study involved students from elementary school to senior high school (Dewyer, Sallis, Blizzard, Lazarus, & Dean, 2001).

The other studies present the results that physical education program, which was well designed and implemented can encourage the students to be active physically and showed 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 could 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 could increase the attention span and concentration (Coe, Pivarnik, Womack, Reeves, & Malina, 2006).

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

Hinson (1995) stated that the students' physical fitness could be affected by the environment, attitude, knowledge, and lifestyle. The students' lifestyle had changed because they were always pampered by technology. Students who were quite active become passive even tend to be lazy because they preferred to use the service of technology to perform an assignment, which could actually be done by human power, such as prefer to use motorcycle rather than bicycle. Passive lifestyle, which continuously and last for a long time will reduce students' physical ability (physical fitness) significantly. Moreover, the research, which was conducted by the Centres for Disease Control and Prevention (2006) showed that children who were not physically active tend to be inactive in adulthood and increase the risk of obesity, which in turn would increase the prevalence of chronic degenerative diseases, such as hypertension, diabetes, and heart. Obesity was a serious health problem. More than a third of children and adolescent were overweight and the lack of the physical activity contributes to the epidemic (Trost, 2007).

The finding about students' low physical fitness was 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. In relation to this problem, physical education teacher had a strategic role and became one of the main powers in the formation of the attitude and habits of active life (Lutan, 2001). Therefore, passive lifestyle must be changed and we must start building active lifestyle. A nation that could encourage its people to do physical activity will significantly be able to save the cost of healthcare (Siedentop, 2002).

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

The instructional model of playing was built from an assumption that basically playing was an activity favoured by everyone, especially kids, because it gave a sense of pleasure. A pleasant atmosphere during the learning processes was what all parties, teacher, and students

wanted. It was the processes of interaction and educational communication between teacher and students, which would be well established, so that the intended purpose could optimally be achieved.

The instructional model of playing was a learning model, which was 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 was interesting (fun) between teacher and students to achieve the goal. The construction of the instructional model of playing was presented in table 1.

Table 1: The instructional model of playing construction

Steps	Activities	
	Teacher	Students
Preparation	<ol style="list-style-type: none"> 1. Prepares teaching administration, such as lesson plan, attendance list, and evaluation sheet. 2. Prepares and arranges the position of the learning equipment, which is going to be used. 	<ol style="list-style-type: none"> 1. Prepare themselves, such as change to sportswear and prepare the drinks. 2. Help the teacher to prepare the lesson instruments.
Pre-activity	<ol style="list-style-type: none"> 1. Leads the prayer. 2. Checks the attendance list. 3. Inform the materials that are going to be learnt. 4. Delivers the goals that will be achieved. 5. Asks the students to measure the pulse. 6. Leads the warming up in a form of playing or fun physical activities. 	<ol style="list-style-type: none"> 1. Pray together. 2. Answer when they are called. 3. Listen to the explanation, which is delivered by the teacher. 4. Listen to the explanation that is delivered by the teacher. 5. Measure their pulse. 6. Do the warning up as the instruction/order presented by the teacher.
Main activity	<ol style="list-style-type: none"> 1. Gives a motor task in a form of games. 2. Monitors and evaluates the students. 3. Gives feedback to the students. 4. Asks the students to measure the pulse. 	<ol style="list-style-type: none"> 1. Conducting motor task with teacher guideline. 2. Stay active to play for being monitored or evaluated. 3. Implementing input delivered by teacher. 4. Measure their pulse.
Closing	<ol style="list-style-type: none"> 1. Leads the cooling down in a form of playing or fun activities. 2. Gives general correlation and appreciation to the students. 3. Gives motor task as a home work. 4. Asks the students to measure the pulse. 5. Leads the prayer. 	<ol style="list-style-type: none"> 1. Conducting the cooling down with teacher guideline. 2. Listen to the teacher's guideline/explanation. 3. Listen to the explanation delivered by the teacher. 4. Measure their pulse. 5. Pray together.

PURPOSE OF THE STUDY

The aimed of this study was to examine the effectiveness of the instructional model of playing as a tool to increase the elementary school students' physical fitness in the lower grade.

RESEARCH METHOD

This research used research and development (R&D) approach. According to Sugiyono (2010), research and development method is a method that was 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 had two main objectives, they were: (1) to develop a product and (2) to test the effectiveness of the product.

The test subjects were the target user of the product; they were the lower grade students of elementary school, especially the third grade students. The age of the students from each school was 8-9 years old. The test of the product conducted in two stages. First stage was a small group test, which involved students from two different schools, they were SDN Ringinsari and SDN Depok 2 with 28 students from each school. Second stage was a large group test, which involved students from five different schools, they were SDN Tajem (36 students), SDN Corongan (39 students), SDN Kalongan (18 students), SDN Depok 1 (34 students), and SDN Nanggulan (27 students). In order to evaluate the effectiveness of the product or to validate the instructional model of playing, the students of SDN Adisucipto 1 (40 students) were used as the participants.

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

The data analysis technique used in this research was descriptive quantitative analysis techniques with percentage. Data obtained from observation guide and Physical Fitness Test of Indonesia (PFTI) subsequently correlated with the Pearson product moment correlation with a significance level of 5 % to determine whether there was a relationship from both.

There are the standard used in order to classify the effectiveness of the product: very good (VG) total score 5.0, good (G) total score 4.0 up to 4.9, average (A) total score 3.0 up to 3.9, poor (P) total score 2.0 up to 2.9, very poor (VP) total score 1.0 up to 1.9.

RESULT OF THE RESEARCH

The researcher managed to construct an instructional model of playing after conducted the stages procedure of the research and made revisions based on input from subject matter experts and practitioners. Once the final product was produced in the form of instructional model of playing, the effectiveness test of the product - conducted in two cycles with 4 meetings in each cycle - and the physical fitness test were 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 of playing

No	Aspect	Cycle 1		Cycle 2		Alteration	
		Σ	%	Σ	%	Σ	%
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

Table 2 showed the alteration from cycle 1 to cycle 2 for every aspect measured, they were 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	PFTI Classification	Cycle 1		Cycle 2		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 3 showed that there have been changes between the number of students who were fit and who were not. In cycle 1, there were 11 fit students (27.5 %) whereas 29 students (72.5 %) were not. In cycle 2, there were 15 fit students (37.5 %), whereas 25 students were not (62.5 %). Thus, the number of students who could be categorized as fit increased to 4 students (10 %) and not fit decreased to 4 students (10 %).

In order to determine whether there were relationships between the PFTI results and the results of the effectiveness test of the product, the researcher conducted a correlation test using the formula of Pearson's product moment correlation. The result of the correlation showed $r_{XY} = 0.904$. With the level of significance 5 % and $N = 40$ obtained value r table = 0.312. If value r count and r table compared, result shows r count > r table, meaning that the correlation between the PFTI result and effectiveness test were significant. The correlation meant that students who had the enthusiasm, excitement, discipline, and totality during the physical education learning process were 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 were not in a fit condition.

DISCUSSION

The research findings, the effectiveness test showed that it required 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 and Wrisberg (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 on the first meeting did not reach the minimum requirements of completeness although they were in the criterion of Average. This was achieved due to the music which was used as the instrument of the instructional model of playing. 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 0.5 (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 cited 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. Espenschade and Eckert as quoted by Sukadiyanto (2005) and Hurlock (1990) 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 obstruct their growth.

Another thread 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, they are 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 (Hinson, 1995).

The result of the physical fitness test 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 (Corbin, Masurier, & Lambdin, 2007; Heithold & Glass, 2002).

AAHPER (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.

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.

CONCLUSION AND SUGGESTION

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 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. By not monitoring the students' activities outside school, the researcher could not know whether the students had done their motor task. Activity outside school is also affecting the students' physical fitness.

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 subject matters included in the curriculum, such as track and field, gymnastic, swimming, etc., 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 PFTI, for the same purpose.

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