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Effectiveness of Traditional Games in Stimulating Elementary School Student Motor Skill Development

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Abstract

Motor skills are important skills that must be possessed by every student because it has an influence on the overall student development. However, various obstacles that affect the achievement of students' motor skills often occur during the implementation of motor skill learning. The purpose of this research was to find learning activities that can stimulate motor skills of elementary school students. Experiments were carried out using One-Group Pre-test Post-test Design. Participants of the study were 126 first grade elementary school students, consisting of 76 males and 50 females aged 6-6.5 years. The sampling technique used the total sampling method. The data collection technique used the Test of Gross Motor Skill-Second Edition (TGMD-2) with an observation sheet instrument. The analysis employed SPSS 20 with a paired sample test. The results showed that there was an increase in the post-test mean score compared to the pre-test mean score with a significant increase. This increase occurred because traditional games used a play-based approach and encouraged students to use their motor skills. For that reason, traditional games are effective in improving motor skills of elementary school students.

INTRODUCTION

The importance of motor skills to be possessed by each student is because they have benefits and influences on students' development as a whole. Students will have a healthy and fit body since doing movement activities increases the fitness of the cardiorespiratory system (Cohen et al., 2015), increases the performance of the metabolic and neuromuscular systems (Laukanen et al. 2014), causes positive changes in the physiological and anthropometric index of student health, both for students who have normal weight and obesity (Lambrick, Westrupp, Kaufmann, Stoner, & Faulkne, 2016), and as determinant factor of fitness in adolescence (Barnett et al., 2008),

Another benefit that can be obtained by the students is that they can learn from their experience by doing movement activities. In performing movement activities, children can explore their environment, hence, through the movement activities, the children are able to stimulate their cognitive development and students' academic achievement (Fedewa & Ahn, 2011; Tandon et al., 2016; Zeng et al., 2017), recognize body movements, body awareness, spatial awareness, the quality of motion, and the relationship between the ability to move and the limbs (Abels & Bridges, 2010). The existence of motor skills encourages psychological and mental health (Lobstein et al., 2015) and provides benefits to social and emotional development (Strong et al., 2005). The amount of benefits that can be obtained by students in learning motor skills should be a serious concern for parents and teachers. Students who learn motor skills not only improve their ability to move but can also improve their cognitive, affective, and socio-emotional abilities.

Motor skills possessed by the students of primary school age are generally lead to fundamental motor skills (Ulrich, 2000). This is because during the primary school age, the students are at the stage of fundamental movement development and are just starting to switch to the stage of development of specialized movements. Fundamental movement is a stage that stimulates the students to actively explore the motor skills within their bodies and develops as the result of students' learning about how to respond to stimulus in the form of motor control and motor skills. Fundamental movements are strongly influenced by maturity, task demands, and environmental factors (Goodway, Ozmun, & Gallahue,

2019).

The stimulation of motor skills is generally applied in Physical Education learning. Physical Education as a discipline has been used to describe all the conducted learning which discuss about and through human movement activities (Campbell et al., 2009). The problems that occur regarding the implementation of motor skills learning are no planning, no clear goals and objectives, insufficient time for motor skills training, limited models and examples, and unsuitable equipment (Robinson & Goodway, 2009). Another problem that occurs is that most schools and parents focus on improving students' cognitive abilities and there is lack of understanding from parents about the importance of stimulating motor skills, consequently the students experience problems related to motor skills (Mahmud, 2019). As well as, the facts show that the duration of time available for students to practice physical activity at school is relatively short so that many students have poor physical abilities (Kremer, Reichert, & Hallal, 2012). Many teachers fail to provide students with an adequate motor skill development (Dyson, 2014) which should have been done directly, take place in a social context, and be embedded in the context of the teacher's own school (Dyson et al., 2016)

The aim of this research was to examine learning activities that can stimulate motor skills of primary school students. The research was conducted using traditional games as a learning activity in an effort to stimulate students' motor skills. Previous research found that traditional games provided benefits of developing students' physical and motor skills (Hanief & Sugito, 2015). However, each region has different traditional games that are tailored to the habits of the community and the environment in which students live (Akbari et al., 2009). Learning process for primary school students is also still carried out using an approach that is in accordance with the stages of development (Kostelnik, Soderman, & Whiren, 2017) and adjusted to the level of students' motor skills (Campbell et al., 2009).

Based on the results of research by Goodway & Branta (2003), stimulation of motor development is carried out by providing various introductory experiences in skills which is considered most important for students' ability to engage in games and sports. The results of this stimulation indicates that motor skills have

increased significantly. Therefore, traditional games are considered as one of the activities that can improve the motor skills of elementary school students.

METHODS

Participants

This study involved young pupils, to be precise, first grade with an age range of 6-6.5 years. The consideration in selecting the participants is based on first grade students who were in the stage of mastering fundamental movement skills (Goodway et al., 2019). The participants are 126 students consist of 76 boys and 50 girls.

Sampling Procedure

Participants involved in the study were from four classes in two primary schools. The research was carried out in groups and adapted to the implementation of physical education learning in schools. Hence, the sampling technique applied in this study is totaling sampling in which the entire participants are subjects of experiment.

Materials and Apparatus

The data were obtained using the Test of Gross Motor Skill-Second Edition (TGMD-2) (Ulrich 2000). The motor skills test using TGMD-2 is divided into two subtest skills, namely locomotor skills and object control skills. Motor skills tests were carried out twice both in the pretest and posttest and were documented on video. The instrument used in this study was the observation sheet according to TGMD-2.

Procedures

This experimental research was conducted using the One-Group Pretest-Posttest Design. The research was initiated by giving students a pretest to find out the initial motor skills of the young pupils. Then, conducting experiments as an effort to improve student motor skills through traditional games that are widely known and frequently played by the primary school students. The traditional games used consisted of seven games, namely Lempar Kaleng, Lempar Telur Penyu, Sumpitan, Balap Balon, Estafet Kelereng, Bakiak, dan Engklek. The rules and equipment of the games were modified and adjusted to the students' abilities and to the objective of the experiments. The experiments of

the seven games were divided into two meetings and the traditional games were carried out four times so that the number of meetings was eight. The experiments were done by dividing students into groups of four to five students with the rules of the game tailored to the needs of the experiments process. Each group will compete to complete tasks or obstacles in traditional games based on the rules that have been given. Once the treatments were given, the students took the final test (Posttest) which aims to determine the final motor skills of the students after completing the test.

Data Analysis

This study used qualitative descriptive method of research. The data were analyzed by scoring the value obtained by each student and making a frequency distribution. Normally distributed data were analyzed using the t test to test the difference in the average results of the pretest and posttest, Statistical significance was analyzed using paired sample t-test in SPSS 20.

RESULT

The results of the pretest Table 1 showed that the motor skills of students were dominant in the average category with a total of 71 (56.35%). Followed by 55 (43.65%) students who were in the below average category and there are no students who are in the poor, above average, superior, and very superior categories. These results indicated that the motor skills of the students were still in the average to lower category and there were no students with above average to superior motor skills.

Table 1. The Result of Pretest Analysis using TGMD 2

Score of Motor Skill	Absolute (f)	Relative (%)	Description
> 130	0	0	Very Superior
121-130	0	0	Superior
111-120	0	0	Above Average
90-110	71	56,35	Average
80-89	55	43,65	Below Average
79-79	0	0	Poor
<70	0	0	Very Poor

The results of the posttest Table 2 revealed that the students' motor skills have increased compared to the initial test results. The students with above average category motor skills were as much as 4 (3.17%), which in the pretest there were no students who reached this category. Furthermore, students who were in the average category with a total of 95 (75.40%) or there had been an increase of 24 (19.04%) students. Followed by 27 (21.43%) students who were in the below average category or there had been a decrease of 28 (22.22%) and there were no students belonged to poor, above average, superior, and very superior categories. These results indicated that the motor skills of the students are still dominated by the average to lower categories and only few students reached the above average category and there were no students who have motor skills that were classified as superior or very superior categories.

Table 2. The Result of Posttest Analysis using TGMD 2

Score of Motor Skill	Absolute (f)	Relative (%)	Description
> 130	0	0	Very Superior
121-130	0	0	Superior
111-120	4	3,17	Above Average
90-110	95	75,40	Average
80-89	27	21,43	Below Average
79-79	0	0	Poor
<70	0	0	Very Poor

Table 3. T-Test Results

Mean	SD	t	df	Sig. (2-tailed)
3.69	2.31	0	17.91	.000

Based on the analysis result of the mean value of the pretest and posttest in table 3, the mean posttest result is 3.69 greater than the pretest mean. The standard deviation value of 2,312 and the mean standard error of 0.21 which means that the students' motor skills were around the average category. The results of the t test with $H_0 > t$ table and $H_a < t$ table obtained a value of 17.91 or greater than the t count (1.66) which means that H_0 is accepted and H_a is rejected. The results proved that learning activities which use traditional games approach can improve motor skills of primary school students. For the results of the significance test, the results obtained were 0.00 or less than the specified

significance level, namely 0.05. Thus, the increase that occurred was significant.

DISCUSSION

This study aimed to determine the effectiveness of traditional games that can stimulate motor skills of primary school students so that they can be used as physical education learning activities. The results showed that there had been an increase in the mean posttest (94) and pretest (90,31) or an increase of 3.69. The t test results revealed that the count was greater than the t table. In addition, the results of the significance test highlighted that the increase was significant. This means once these traditional games were often given or performed by students, the students' motor skills will increase. Based on these results, traditional games can improve motor skills of primary school students. The results of this study are supported by the findings of previous research which stated that learning through traditional games can improve motor skills including fundamental movement, locomotor and object control (Akbari et al., 2009; Gipit et al., 2017; Supriadi, 2019).

The increase in motor skills was due to learning that was carried out using game approach. This approach encourages students to be more excited in playing games and to use every opportunity to be involved in the game so that it can be integrated into the games played by students, especially those in elementary schools (Rouhi, 2012). The traditional games applied in this study were games that are widely known and frequently played by the students. Consequently, the students are able to easily learn and carry out every motor activity contained in the traditional games used in this study.

Playing is the main activity carried out by elementary school students, especially first graders, who generally have just transitioned from kindergarten. For this reason, the process of learning is performed while playing. Learning through play is packed in the form of games. Play can be considered as a medium of behavior formation if it is carried out according to the rules, in a certain time and space (Kovačević & Opić, 2014) and consistently carried out in a fun way (Domville et al., 2019). The use of games as motor learning activities increase students' enjoyment of learning. Students feel happy in learning because they feel they are playing

(they don't feel like studying) so that the games are taken seriously.

Besides, traditional games provide valuable opportunities for students to use their motor skills (Clements, Messanga, & Millbank 2008; Castelli et al., 2014). When playing traditional games students will perform various motor activities in accordance with predetermined conditions. Students will do every task needed in traditional games so that it affects the improvement of students' motor skills. Each of these tasks will stimulate students to do activities that require motor skills. This is of course in line with the results of the research that traditional games can improve students' motor skills. Students' motor skills are increasing due to the learning activities.

Contrary to expectation, the results of this study revealed that the increase of motor skills is classified as very small, namely 0.41% of the pretest mean value achieved by students. Since the researcher had to adjust to the schedule of learning activities at school, the number of meetings during the experiments was still insufficient. This is in line with what Kremer, Reichert, and Hallal (2012) stated, the short duration of time makes it difficult for students to achieve good motor skills. In addition, based on the stages of movement learning carried out, new students are at the stage of associating understanding into motor skills so that the results achieved are not maximized (Coker, 2017; Edwards, 2010) and a movement skill takes time to master (Silverman and Mercier 2015).). For this reason, further efforts are needed to design learning activities that are in accordance with the existing learning curriculum in primary schools. The primary school curriculum, especially classes, should accommodate and provide sufficient time for the students to carry out motor activities. This is because at that age students are still at the early childhood development stage which really needs to master movement skills and they like to play.

CONCLUSION

Traditional games are effective for stimulating motor skills of elementary school students. This result can be seen from positive increase in the posttest average score compared to the pretest average score and the increase was significant. These results indicated that traditional games can be used as a Physical Education

learning activities that are able to stimulate student motor skills.

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