

Implementation of fun game training model toward improving kids locomotor movement and concentration

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Abstract:

Locomotor movement is an important component in a child's development. The Efforts to improve locomotor movements can be improved through training, one of them is Fun Game. The problem found in this study is the low locomotor movement and concentration of locomotor elementary school students at State Elementary School 04 Tanjung Baru, Tanah Datar Regency, West Sumatra, Indonesia. The condition of weak low locomotor causes children to experience movement problems in the future. An exercise approach is needed that can improve the child's locomotor motion. The purpose of this study was to determine the effect of the implementation of the Fun Game game model on the development of locomotor ability movements and concentration of students of State Elementary School 04 Tanjung Baru Tanah Datar Regency. The fun game training model is designed to combine several forms of movement consisting of running, jumping, jumping over obstacles, dribbling the ball, zig zag running, and others. The game training model named "Fun Game". This type of research is a quasy experiment, with Two group randomized pre-test post-test control design, with a total of 16 times treatments. The experimental group was given with Fun Game treatment, the control group was given with locomotor movement Physical Education material. The population of this study were all students who took part in Physical Education lessons. This research used purposive random sampling technique, and sample size was 40 people. Locomotor motion data was taken using the Gross Motor Development Test (TGMD) for ages 3-10 years, while concentration was taken using the grid concentration exercise test. Data analysis techniques using t test analysis. The results of this study are: There is an significant effect of the application of the Fun Game model on Locomotor Motion and Concentration, with a value of $\alpha < 0.05$.

Keywords: fun game implementation, locomotor movement, concentration, physical education

Introduction

The technological advancement that we are currently experiencing forces us to improve our ability in running our live. As a society that lives in the digital era, we will feel left behind if we do not keep up with the flow of technological development. This technological advancement has positive and negative impacts on its development. One of the negative impacts is that children become lazy to move characterized by consumptive children's activities watching and playing gadgets (Wang et al., 2020). Limited physical activity is believed to increase the risk of major chronic diseases and can lead to functional disability and reduced quality of life. This will impact children who are the hope for the future. Therefore, children need to be prepared to become qualified, healthy, moral, and useful human resources for society. (Arifin & Prihanto, 2015). The process of preparing children to become educational resources is not just an information processing technique, it is necessary to become quality human beings. According to Ki Hajar Dewantoro, education generally means efforts to advance the growth of character, inner strength, character, and intellect.

Education is synonymous with activities carried out in a school (Wahyulestari, 2018). Schools are one of the educational institutions that carry the task of developing children's character and intellectuality. Primary school education is the first formal level of education that will determine the direction of the development of students' potential. (Wuryandani et al., 2014).

In elementary school education, there is one subject that is applied in every elementary school, namely physical education. (Agustini et al., 2016). In one of the physical education lessons there is material that contains basic movement skills. Basic movement skills in elementary school include three types, namely: locomotor, non-locomotor, and manipulative. In basic movement skills material, students are required to be able to master several basic movement skills. The basic movements that are most often done by children in every activity are locomotor basic movements consisting of walking, running, jumping and jumping. Physical activity is important for the physical, mental and social health of all children. For optimal health, children should participate in at least 60 minutes of moderate to vigorous physical activity and several hours of light activity each day. (Pohl et al., 2019).

Efforts to develop the potential skills of elementary school children as a whole require a training model or game approach to improve locomotor movements with handling according to the characteristics and abilities of

elementary school children. An exercise model is a method or strategy carried out by a teacher so that the learning process occurs in students to achieve a systematically designed goal. The problem faced by elementary school PE teachers in the implementation of motor / movement learning is the lack of understanding and creativity of teachers in developing a varied and interesting motor / movement training model so that children are not bored (Hasbi & Sukoco, 2014).

Basic movement is an important component of physical development for a child. Optimal physical development makes it possible for children to be physically and mentally healthy in achieving achievements in sports. The influence of the development of science and technology makes children lazy to move. They are preoccupied with various activities such as playing gadgets or watching shows on other electronic devices. All of this makes children consumptive, and lazy to move. Another impact is that children become unhealthy.

One aspect of children's basic abilities that needs to be developed is gross motor skills, especially locomotor movements. Locomotor movement is a basic movement that exists in every human being. This motion can be said to be a motion that moves the human position from one place to another with its own efforts (Walton & Putranto, 2020). The form of play activities in human life has become a part of life that cannot be abandoned. Play activities are one of the necessities of life for all ages ranging from children, adolescents, adults and parents. They feel they get pleasure or satisfaction after playing activities, relieving fatigue due to tasks and work routines, the benefits of playing physically are an effort to maintain health fitness and physical and spiritual freshness. Games are carried out to form students' basic movements, which include locomotor movements, non-locomotor movements and manipulative movements (Soegiyanto et al., 2022). To respond effectively to these diverse behavioral contexts, our locomotor movements require precise adaptation, seamlessly adjusting speed and force. (Manira, 2023). Locomotor skills are skills that require fast movement of the body while moving from one direction to another. (Mardela, 2016)

Locomotor is a movement that moves the body from one point to another. Locomotor movement can be interpreted as a movement of moving places (Agustini et al., 2016). Locomotor movements have an important role in the implementation of physical education learning, especially sports that require a change of place or weight point. These movements include: a) Run (Run) b) Gallop (Horse run) c) Hop (jump with foot stomp) d) Leap (running accompanied by jumping) e) Horizontal Jump (jump in one direction as far as possible) (Bakhtiar, 2015). Locomotor motion itself is the motion of moving the body from one place to another both horizontally and vertically including walking, running, jumping, jumping, tiptoeing, climbing and others.

Based on the results of research conducted on 120 elementary school children in Ciracas District - East Jakarta, it is known that overall the basic ability of movement tools from the three existing categories is still in the poor category. There are 78 students (65%) lacking, 31 students (25.83%) sufficient and 11 (9.17%) good categories. (Sari et al., 2019). From this explanation, it can be seen that many elementary school students have low basic movement skills. This is very troubling, because low movement threatens their future movement health. However, the result of the needs analysis for learning movement skills is that the movement materials are not varied and monotonous. Thus, many students have problems with basic coordination, balance, left and right orientation, rhythm, and spatial and body awareness. This leads to the need for learning movement skills through various types of games, because children in elementary school tend to have more fun learning through various forms of games (Syaflin et al., 2021). Motor development can affect a child's self-concept. Parents can support teachers by providing extra opportunities for their children to practice skills at home, after school, on weekends and during vacations (Polcastro et al., 2022). Each movement training model has different goals and objectives. For this reason, it is necessary to think deeply in choosing a movement training model that will be given to students at school (Syaflin et al., 2021). In addition, the basic movement of concentration is an important aspect needed by every student in learning or doing other tasks. Concentration will make every child focus on what he will do, and in the end can complete the tasks at hand quickly and accurately.

Concentration also plays a key role in the learning process for children who exhibit learning difficulties. Often, children with special needs experience many failures, resulting in lower or even negative expectations, which, in turn, has a significant impact on motivation. Fun, games and humor can present a way out (Baker, 2012)(García-Redondo et al., 2019). Engaging games can ease preoperative anxiety and fear in preschoolers (Gao et al., 2014). Concentration can get students motivated in learning (Kurniawan & Hanief, 2022).

Fun games have a positive influence on the locomotor development of primary school students. Through fun games, students can improve their motor skills such as running, jumping and playing ball. This helps children develop coordination and physical skills that are important in their development. In addition, fun games can increase students' motivation to participate in physical activity, thereby reducing the risk of an inactive lifestyle. Fun games can also promote cooperation and social interaction between students, which is an important aspect of their development.

Each traditional game designed for locomotion consists of a motor diversity concept and an interactive communication structure. Each of these movements affects physical, emotional and cognitive development. (Syaflin et al., 2021). Since games are more enjoyable activities for children than traditional training, it is recommended that physical activities be designed in games (Mohammadi-Nia et al., 2023). The results also show that music and motor movement interventions can improve attention (Dewi et al., 2015) From the results of the

research, it can be seen that fun activities (fun games) cause students to experience pleasure, both in learning and daily activities. (Tisza & Markopoulos, 2021)

Based on the explanation above, the specific objectives of this study are (1) to implement a fun games training model to improve locomotor movements and (2) to implement a fun games training model to improve the concentration of elementary school students. With this study, the results will be known whether fun game training can improve the basic locomotor abilities and concentration of elementary school students.

Methods

In this study, we conducted an analysis of the impact of the application of the Fun Game exercise model on the development of locomotor movement skills and concentration levels of students. This Fun Game workout model has been designed by integrating different types of movements, including running, jumping, jumping over obstacles, dribbling the ball, zigzagging runs, and other movement variations.

This study used a pseudo-experimental method with a two-group pretest-posttest design, in line with the approach described by Sugiyono (2010). This design involved two groups, namely the experimental group and the control group. In accordance with Arikunto (2010), experimental methods are used to investigate cause-and-effect relationships between two factors deliberately applied by researchers, by controlling for other factors that can affect research results.

The population of this study consisted of grade IV and V students at Elementary School 04 Tanjung Baru, Tanah Datar Regency, West Sumatera, Indonesia, with a total of 40 people. Sampling was carried out using purposive random sampling techniques and divided into two groups. The treatment was given 16 times, where the experimental group received a Fun Game training model, while the control group received learning with a focus on regular locomotor motion material.

The instrument used to measure students' locomotor movement ability is the Gross Motor Development Test (TGMD) for ages 3-10 years (Ulrich, 2000). As for measuring the level of concentration, a grid of concentration practice tests was used in which students were asked to look for pairs of numbers sequentially within 60 seconds. Concentration test assessment refers to norms that have been established in accordance with applicable regulations. The Concentration Test Assessment Norms are as follows:

Table 1. Concentration Test Norm

No	Criteria	Description
1	< 5	Very Low
2	6-10	Low
3	11-15	Medium
4	16-20	Good
5	>21	Very Good

Results

A. Data Verification

Before processing the research data, data verification was first carried out. Of the 30 data obtained from the measurement of Locomotor and Concentration abilities, before and after treatment, it can be concluded that all data are eligible for processing.

B. Descriptive Analysis of Locomotor Ability Data

Based on the analysis of Descriptive Statistical Data, the lowest score is 18 and the highest score is 36, the minimum average is 25.5 and the maximum average is 39.30 standard deviation is at least 3.975, maximum 5.153. For more details, the data can be seen in the table below:

Table 2. Descriptive Statistics

Locomotor Ability	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Pres Test E	20	16	18	34	501	25.05	4.947	24.471
Post Test K	20	15	21	36	610	30.50	4.123	17.000
Pre Test K	20	16	18	34	503	25.15	5.153	26.555
Pos test E	20	13	34	47	786	39.30	3.975	15.800

From Table 2 above, the Experiment group has an average score before treatment of 25.05, standard deviation of 4.947, variance of 24.471. Meanwhile, the average after experimental treatment was 39.30, standard deviation of 3.975, variance of 15.800. The control group had an average score before treatment of 20.15, standard deviation of 5.153, variance of 26.555. While the average score after the experiment was 30.05, standard deviation of 4.123, variance of 17.000.

C. Data Analysis of Descriptive Statistics of Concentration

Based on the analysis of Descriptive Statistical Data, the lowest score is 4 and the highest score is 13, the minimum average is 11.30 and the maximum average is 19.30, the minimum standard deviation is 2.579, the maximum is 4.217, for more details, see the following table.

Table 3. Descriptive Statistics

Concentration	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
K Pretest	20	14	4	18	11.30	4.281	18.326
K Posttest	20	10	11	21	15.70	2.867	8.221
K Prestes K	20	15	4	19	11.90	4.217	17.779
K Posttest	20	10	13	23	19.00	2.753	7.579

Based on the data in Table 3 above, the average score of Kosentrasi before the treatment was 11.30, the standard deviation was 4.281, and the variance was 18.326, while the average after the experimental treatment was 19.00.

D. Analysis Result

1. Requirements Test Analyst

a. Normality test

To test whether the sample is normally distributed, a statistical test is carried out using the Liliefors formula:

1) Locomotor Ability

Ho: Data is normally distributed if Sig > Alpha 0.05

Ha: Data is not normally distributed, if Sig < Alpha

Table 4. Data Normality Test Results

No	Variables	Sig./P	Alpha.0.05	Description
1	Locomotor Ability Pretest Experiment	0.200	0.05	Normal
2	Control Pretest Locomotor Ability	0.200	0.05	Normal
3	Locomotor Ability Pretest Experiment	0.200	0.05	Normal
4	Locomotor Ability Pretest Control	0.200	0.05	Normal

Based on Table 4 analysis, Sig = 0.200 of 4 (four) is greater than Alpha 0.05 or Sig > Alpha 0.05. The conclusion is that the data is normally distributed.

2) Concentration

Ho: Data is normally distributed if Sig > Alpha 0.05

Ha: Data is not normally distributed, if Sig < Alpha

Table 5. Data Normality Test Results

No	Variables	Sig./P	Alpha.0.05	Description
1	Concentration ability Pretest Experiment	0.200	0.05	Normal
2	Concentration ability Pretest Control	0.200	0.05	Normal
3	Experimental Pretest concentration ability	0.200	0.05	Normal
4	Concentration ability Pretest Control	0.149	0.05	Normal

Based on the analysis of Table 5, Sig = 0.200 of 4 (four) is greater than Alpha 0.05 or Sig > Alpha 0.05, the conclusion is that the data is normally distributed.

b. Data Homogeneity Test

To test whether the data group comes from a homogeneous population, the statistical analysis of the Levene Statistic Test is carried out, as follows

1) Locomotor Ability

Ho: Data comes from homogeneous population sig > alpha 0.05

Ha: Data is not from homogeneous population sig < alpha 0.05

Table 6. Homogeneity Test Result

No	Variables	Sig./P	Alpha.0,05	Description
1	Locomotor Ability Pretest Experiment	0.278	0.05	Homogeneous
2	Control Pretest Locomotor Ability	0.190	0.05	Homogeneous
3	Locomotor Ability Pretest Experiment	0.105	0.05	Homogeneous
4	Locomotor Ability Pretest Control	0.112	0.05	Homogeneous

Based on the analysis of Table 6, Sig of 4 (four) is greater (>) than Alpha 0.05 or Sig> Alpha 0.05, the conclusion is that the data comes from a Homogeneous population.

2) Concentration

Ho: Data comes from homogeneous population sig > alpha 0.05

Ha: Data is not from homogeneous population sig < alpha 0.05

Table 7. Homogeneity Test Results

No	Variable	Sig./P	Alpha.0,05	Description
1	Locomotor Ability Experimental Pretest	0.105	0.05	Homogeneous
2	Control Pretest Locomotor Ability	0.112	0.05	Homogeneous

Based on the analysis of Table 7, Sig of 4 (four) is greater (>) than Alpha 0.05 or Sig> Alpha 0.05, the conclusion is that the data comes from a Homogeneous population.

2. **Analysis of the Effect of Fun Game on Locomotor Movement**

To see the effect of locomotor movements from pretest to post test, the Dependent Variable t test was conducted. The results are as follows:

Table 8. Pretest Posttest Locomotor Ability

Variables	Sig	Alpha
Locomotor Ability Pretest-Posttest	0.00	0.05

Based on Table 8 above, Sig=0.000 < Alpha 0.05, the conclusion is that there is a significant increase in the results of Fun Game training on Locomotor Movement.

3. **Analysis of the Effect of Fun Game on Concentration**

To see the effect of Fun Game training on concentration from pre test to post test, the Dependent Variable t test was conducted. The results are as follows:

Table 9. Pretest Posttest Concentration Ability

Variable	Sig	Alpha
Pretest-Posttest concentration ability	0.00	0.05

Based on Table 9 above, Sig=0.000 < Alpha 0.05, the conclusion is that there is a significant increase in the results of Fun Game training on Concentration Movement.

4. **Analysis of Post Test Differences between Experimental and Control Groups**

To see the comparison of the effect of the treatment results between the Experimental group and the Control Group, a different test was conducted based on the Post Test results. The results of the tests carried out obtained the following results:

Table 10. Test Results of Differences between Control and Experimental Groups Locomotor ability

Variables	Sig	Alpha
Differences in locomotor skills between experimental and control groups	0.00	0.05

Based on the data showed on Table 10 above, the result is Sig=0.000 < Alpha 0.05. From the results of the analysis, it can be concluded that the treatment of Fun Games given to the experimental group is significantly different from the control group.

Dicussion

Fun game training has a significant impact on improving locomotor motion and concentration of elementary school students. Fun games not only provide an entertaining gaming experience, but also provide additional benefits for children's physical and mental development. In previous analyses, it was seen that fun game training positively affected the improvement of locomotor motion and concentration of primary school students, providing answers to the hypotheses proposed in this study. Increased locomotor motion and concentration can be achieved through the application of fun games. This is in line with the view of experts who emphasize that slow-paced and weighted motion training can stimulate muscle hypertrophy in untrained young men. Thus, it can be concluded that fun game training is not only a fun gaming experience, but also an effective strategy to improve the physical and cognitive aspects of elementary school students.

According to (Ilham & Dimyati, 2021), Exercises that emphasize relaxation and excitement can improve motion performance. Exercise performed consistently with regular frequency has been shown to significantly increase strength (Grgic et al., 2018). The research findings suggest that basic motion learning models with the concept of play and game modification at the elementary school level can be considered feasible for use (Kurniawan & Hanief, 2022). Practicing with excitement is believed to encourage participants to show a variety of different reactions (Hwang & Kang, 2023).

The emphasis on exercises that involve relaxation and joy, as expressed by Ilham and Dimyati, reflects the importance of positive and fun elements in the training process. Likewise, research by Grgic et al. highlights the benefits of consistent exercise in improving overall body strength. Meanwhile, the results of research by Kurniawan & Hanief provide support for the use of basic motion learning models with the concept of playing and game modification at the elementary school level. Thus, practicing in a joyful atmosphere, as suggested by Hwang & Kang, not only creates a positive experience but can also stimulate a variety of reactions that can increase the effectiveness of training.

Alternative games are learning tools that provide fun experiences for children, facilitating the understanding and implementation of learning materials. Research results by (Bagus et al., 2021) showed that most respondents expressed their excitement for alternative games and found them interesting and satisfying. The importance of exciting and interesting learning is also emphasized by (Rambli et al., 2013), especially in the context of early childhood groups. The "learning by playing" experience is not only relevant in the early levels of education, but can also be applied in a variety of educational environments, including schools and universities. According to (Pontes et al., 2020), Games can be considered as effective tools that support the educational process, creating a positive and interactive learning atmosphere.

Thus, alternative games are not only an entertainment activity, but also a learning strategy that can arouse student interest and engagement, create fun learning experiences and make a positive contribution to the educational process at various levels.

Conclusions

Fun Game is a model of physical exercise that is done with an entertaining approach. This model is able to effectively improve locomotor motion and concentration, according to the explanation of experts and the findings of recent research on elementary school students. The results showed that the implementation of Fun Games significantly increased the ability of locomotor movement and concentration level of students. With this theoretical foundation and empirical evidence, it can be concluded that Fun Game is not only a play activity, but also a training model that can have a positive impact on the development of locomotor motion and student concentration. Therefore, recommendations are given to integrate the Fun Game exercise model in the learning process in schools. This is expected to enrich students' learning experience and create a more enjoyable learning environment and support the development of students' motor and cognitive skills.

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