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Effect of A Basic Manipulative Movement Model Towards Concentration Students

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Abstract

This research was motivated by the low level of student concentration, especially in throwing and catching material. If left unchecked, it will actually result in low student concentration during physical education learning for elementary school students. This study wants to observe the differences effect of concentration students during learning using the manipulative basic movement model and conventional in elementary school. This research is Experimental design, using randomized pretest-posttest control group design. Population is 600 students in 12 classes at SDI Darussalam Cikunir, and sampling technique used Randomized, with 30 students in class 5 B will learn using the manipulative basic movement model and 30 students in class 5 C learn using the conventional. Instrument used the concentration grid test. Data was processed using Paired and Independent t Test. Results of Paired test show the experimental group obtained t 9.122, Sig. 0.000 and the control group obtained t 0.239, Sig. 0.183. That's mean the experimental group had an improvement in concentration and the control group didn't. Result of Independent t test obtained t 7.074, Sig. 0,000. That's mean the experimental group who learned using basic manipulative movement model has a significant effect on students' concentration than the control. Learning physical education using manipulative basic movement models was have a better effect than conventional on student concentration. These findings suggest every teacher should be able to provide meaningful, useful learning that is able to support the growth and development of their students, such as this basic manipulative movement model.

Keywords: *Manipulative Basic Movement, Concentration, Students, Elementary School, Physical Education*

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INTRODUCTION

Education is the holistic development of an individual, from an innocent human being to developing themselves comprehensively in physical, mental, social, and spiritual aspects. Early growth and subsequent development, because childhood is the beginning of the formation of all potential such as psychomotor, cognitive, affective and mental aspects (Magistro et al., 2020). In general, more focus is placed on fine motor development, while gross motor skills are less noticed (Ginanjar et al., 2020; O'Brien et al., 2023). Manipulative movement skills of throwing and catching movements that increase and are accompanied by greater leverage of the legs and arms (Lubis et al., 2024; Ummah et al., 2019). The basic manipulative movement of throwing and catching is a complex motor skill required for high performance. This skill is a combination of behaviors of two or more joints, where one is interconnected with the other in producing a movement skill. Based on this view, the development of the basic manipulative movement model can be described as follows.

The problem that occurs is that there are still students who lack focus or have low concentration (Çoban et al., 2023) in the basic manipulative movement material which includes catching and throwing. In addition, students still have difficulty learning to throw and catch because motor skills are developed in childhood so that physical education cannot be implemented optimally. This condition causes many students to not understand the correct basic manipulative movements (Beseler et al., 2024). The use of basic manipulative movement models for elementary school students is seen as a fun learning solution for students. In addition, the use of this basic movement model is a new innovation in physical education learning that is useful for training and improving the concentration of elementary school students. The main goal is that when students learn the basic manipulative movement model material, students can stay focused in the lesson and maintain full concentration during the lesson.

Research on the benefits of fundamental manipulative movements has explored outcomes related to throwing performance and affective factors (Casey & Fernandez-Rio, 2019), Subsequently, the Jigsaw method—supported by a structured lesson plan—was also incorporated into such studies (Astuti & Winarni, 2020). Other investigations have examined academic outcomes and student satisfaction (González-Gálvez et al., 2023) as well as the cognitive, affective, and psychomotor learning outcomes associated with basketball-related activities (Kara & Çetin, 2025). However, the aspect of concentration

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has yet to be investigated, even though it represents a fundamental outcome resulting from the study of manipulative movements, specifically through throwing-and-catching activities.

Given this, the author aims to contribute to the existing body of research on fundamental manipulative movements—which are widely applied in physical education—by developing a series of lessons focused on throwing and catching. These lessons have been carefully structured to explicitly incorporate the development of concentration within each instructional scheme. This approach is illustrated in the diagram below, which outlines the learning process for fundamental manipulative movements centered on throwing and catching.



Figure 1. Basic Manipulative Movement Model (Rihatno et al, 2026)

Based on this perspective, physical education teachers need to design meaningful learning for students in the topic of throwing and catching so that students are motivated to learn and feel joy, because the form of education is tailored to their circumstances. The

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movement components consisting of energy, muscle contraction, nerves, bones, and joints constitute the neuromuscular manipulative movement skill of throwing and catching (Sorgente et al., 2022). This activity is very important in supporting motor, social, and emotional development and needs to be designed in a fun way so that children are motivated to be active.

METHOD

This study want to observe the differences effect of concentration students during learning using the manipulative basic movement model and conventional in elementary school. This research is Experimental design, using randomized pretest-posttest control group design (Creswell, 2018). Population is 600 students in 12 classes at SDI Darussalam Cikunir, and sampling technique used Randomized, with 30 students in class 5 B will learn using the manipulative basic movement model and 30 students in class 5 C learn using the conventional. The instrument used in this study was the Concentration Grid Test (Zimmerman & Kitsantas, 2007), used to measure concentration of students. The test conducted using a standardized concentration sheet and is conducted by recording the time after the student has completed the sheet.

Research Procedure

The research procedure to be implemented is in the initial stage the researcher communicates with Headmaster and Physical Education teacher of SDI Darussalam Cikunir. The research held at SDI Darussalam Cikunir, which located at Cikunir Raya Street No. 2, RT. 001 / RW. 015, Jaka Setia, South Bekasi District., Bakasi City, West Java 17147. Next, students of Darussalam Cikunir, asked to fill the ethics form and agreeing from their parents. When the research started, students in each group were informed about the activities to be carried out. In the initial stage, students in experimental & control group fill the concentration grid test and the time was recorded. In the Treatment stage, students in the experimental group who learned using basic manipulative movements held on Mondays and Wednesdays. Meanwhile the control group who learned using conventional model held on Tuesday and Thursdays. Each group meeting designed in 12 meetings ± 2 months. At the end of meetings, students in experimental & control group fill the concentration grid test and the time was recorded. The data the interpreted and

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communicated to SDI Darussalam Cikunir and used to motivate students when learning Physical Education.

Statistical Analysis

The data processing and analysis using *Microsoft Excel* and *IBM SPSS Statistics v.26* and the steps are:

1. Tabulating the concentration test scores to facilitate data processing.
2. Presenting descriptive statistics to provide a clearer, more accurate overview of the research data
3. Conducting prerequisite tests: a) a normality test to determine whether the data follow a normal or non-normal distribution, and b) a homogeneity test to determine whether the data are homogeneous or heterogeneous. These prerequisite tests are necessary because, if the data are normally distributed and homogeneous, the analysis will proceed using Paired and Independent t-tests. Conversely, if the data are non-normally distributed and heterogeneous, the Wilcoxon and Mann-Whitney U tests will be used.
4. Conducting a paired test to assess the extent of improvement in concentration test scores for both the experimental group (using the manipulative basic movement model) and the control group (using the conventional model). This analysis reveals the improvement resulting from the interventions applied to each group.
5. Conducting Paired and Independent t-tests to examine the differences in concentration test results between the experimental group (using the manipulative basic movement model) and the control group (using the conventional model). This analysis highlights the differences in concentration between the experimental and control groups.

RESULT

Results of the research will be explained in the following material.

Table 1. Descriptive Statistics of Research Variables

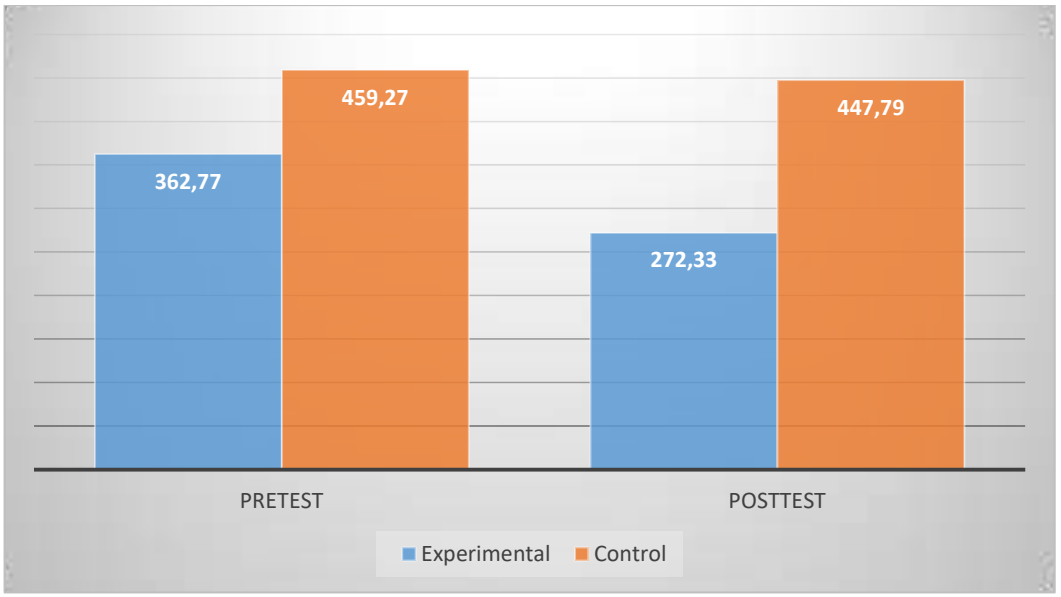
No	*Criteria*	*Experimental*	*Control*
1.	Summary Pretest	362.77	459.27
2.	Summary Posttest	272.33	447.79
3.	Mean Pretest	12.0923	15.3090

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4.	Mean Posttest	9.0777	14.9263
5.	Std. Deviation Pretest	2.93144	2.01949
6.	Std. Deviation Prosttest	2.18193	2.07164
7.	Variance Pretest	8.593	4.078
8.	Variance Posttest	4.761	4.292

**Note: Less is Better*

In the table 1, the experimental group that learned using basic manipulative movement model Pretest obtained score 362.77, Mean 12.0923, Std. Deviation 2.93144 and Variance 8.593 and Posttest obtained score 272.33, Mean 9.0777, Std. Deviation 2.18193 and Variance 4761. Meanwhile the control goup that learned using conventional model obtained score 459.27, Mean 15.3090, Std. Deviation 2.01949 and Variance 4.078 and Posttest obtained score 447.79, Mean 14.9263, Std. Deviation 2.07164 and Variance 4.292. More complete results are presented in the following figure.



**Note: Less is Better*

Figure 2. The Comparison of Elementary School Students' Concentration Results

Table 2. Normality and Homogeneity Test

Normality	Statistic	Sig	Homogeneity	Statistic	Sig
Experimental Pretest	0.119	0.200			
Experimental Posttest	0.137	0.155	Concentration	12.855	0.101
Control Pretest	0.147	0.098	Experimental X Control		
Control Posttest	0.142	0.123			

In the table 2, result of normality test for experimental group who learned using basic manipulative movement model pretest obtained statistic value 0.119, Sig. 0.200 and posttest obtained statistic value 0.137, Sig 0.155. Meanwhile the control goup who learned

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using conventional model pretest obtained statistic value 0.147, Sig. 0.098 and posttest obtained statistic value 0.142, Sig. 0.123. All data have significance value greater than 0.05, so all data have normally distributed. Still in table 2, result of homogeneity test obtained statistic value 12.855, Sig. 0.101. All data have significance value greater than 0.05, so all data have homogeneously distributed.

Table 3. Paired & Independent Test

Paired Test	T	Sig	Independent Test		t	Sig
Experimental Pretest - Posttest	9.122	0.000	Concentration			
Control Pretest - Posttest	0.239	0.183	Experimental Control	X	7.074	0.000

In the table 3, result of Paired test the experimental group who learned using basic manipulative movement model obtained t 9.122, Sig. 0.000. Meanwhile, the control group who learned using conventional model obtained t 0.239, Sig. 0.183. Based on the significance, it can be seen that the experimental group had an improvement in concentration and the control group doesn't. Still in table 3, result of Independent t test obtained t 7.074, Sig. 0.000. Based on the significance, it can be seen that the experimental group who learned using basic manipulative movement model has a significant effect on concentration students' than the control group who learned using conventional model.

DISCUSSION

Physical education learning at SDI Darussalam Cikunir, which uses Basic Manipulative Movements for the throw-catch material, is conducted in a fun and makes all students always strive to achieve good results (Jiang et al., 2023). This well-planned and fun learning process is able to bring out aspects of courage to try again, tenacity, and concentration (Chen et al., 2021) in students. The impact is that during physical education learning time is more effective and in a cheerful and motivated condition. Throw-catch learning that uses Basic Manipulative Movements can help students to understand the material well (Putranto et al., 2023) and increase learning motivation (Boke et al., 2025) which is not found in learning usually with conventional models. Technically, in this throwing-catching material, students often appear lazy and unwilling to actively participate because they feel they already know how to do it. However, using Basic Manipulative Movements can foster a sense of enjoyment in learning and a high level of enthusiasm

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(Puente-Maxera et al., 2021).

The learning process can encourage students and experience like the courage to try again, persistence, sincerity, and never giving up (Zach et al., 2023), and these traits are then instilled throughout the learning process, leading to improved classroom learning (Maiztegi-Kortabarria et al., 2024). Students also appear more capable of engaging in discussions with their teammates, arousing curiosity and a sense of responsibility. Through learning Basic Manipulative Movements, students are also directed to be able to successfully achieve learning objectives optimally, in an easy, fast and fun way, with students learning without any psychological burden (Jabson Tree et al., 2025).

There's no increased the concentration of students who learn using the conventional model.

Physical education instruction at SDI Darussalam Cikunir which uses the conventional model, typically involves drills or repetition, which makes it difficult for physical education teachers to cultivate independence, creativity, and responsibility in students. This is also considered an ineffective and inefficient learning concept due to the lack of student interaction, as students are accustomed to simply receiving material from the teacher (Aydın et al., 2024). Yet, various studies indicate that active student involvement is essential to fostering the concept on students, the tendency toward an authoritarian approach in managing activities makes it extremely difficult to achieve the learning objectives of physical education.

However, several studies have shown that active student involvement is essential to support the concept of Health-Related Quality of Life, which is expected to be long-lasting. The learning tends to be authoritarian in achieving activities, making it very difficult to achieve physical education learning objectives when using the conventional model. Therefore, appropriate strategies are needed to stimulate student learning activity, as this can impact concentration during learning. When learning using the conventional model, students sometimes feel lazy and perceive the learning as less engaging (Lim et al., 2023). The lack of planning by physical education teachers, which will worsen the learning conditions of students who are constantly studying under pressure (Maesaroh et al., 2025). If this continue, it will be very difficult for students to develop and have positive attitudes in physical education lessons.

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Basic manipulative movement model has a better influence on concentration among students compared to the conventional.

Physical education learning at SDI Darussalam Cikunir using Basic Manipulative Movements has a more significant impact than the Conventional Model on improving student learning concentration. Reflecting on this condition, physical education learning with the material of throwing and catching is very suitable using Basic Manipulative Movements because it always provides a high opportunity for students to be able to be actively involved during learning with full concentration (Kwon et al., 2024). All instructions given by the teacher during learning are able to foster concentration skills (Puente-Maxera et al., 2021) and accurate task completion (Sulz et al., 2024). After a high level of awareness arises in students, students are given freedom and practice solving problems that occur during learning (Iqbal et al., 2025). This is clearly not the case in conventional physical education learning models (Nurdiyan Haris et al., 2025) with their numerous repetitions and authoritarian style. During conventional learning, students simply execute the lessons without understanding the meaning of the physical education lessons themselves (Murphy et al., 2021). Therefore, learning using Basic Manipulative Movements makes it easier for students to follow the physical education teacher's directions (Gao & Tasnaina, 2024) and trains students' concentration and kinesthetic intelligence, enabling them to perform throwing and catching activities (Rico-González et al., 2025).

It also appears that learning using the Basic Manipulative Movement Model has a more significant impact than the Conventional Model on improving student concentration at SDI Darussalam Cikunir. In their learning, teachers can trigger high motivation that makes each student compete with positive enthusiasm (Liebendörfer et al., 2023; Park et al., 2023), through well-planned games. This condition is in contrast to students who learn with conventional models who seem less enthusiastic about learning. This situation occurs because in its implementation, students are only given instructions without understanding their meaning (Fox et al., 2025; Qin et al., 2025; Zhou et al., 2025) which makes some students anxious and afraid and become unfocused or even lose concentration in learning. Without realizing it, this condition actually makes students frustrated in being able to solve problems (Boshoff-Knoetze et al., 2023; Muljana et al., 2023) in monotonous learning and does not train students' critical thinking skills (Bjørke & Mordal Moen, 2020). Therefore, it is appropriate for physical education teachers to use the Basic Manipulative Movement

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model which is able to direct students and maintain learning motivation with full concentration and positive enthusiasm, especially a lifelong sports attitude to improve their quality of life (Health Related Quality of Life).

CONCLUSION

The students who learned physical education using basic manipulative movement model showed significant improvements, while students who learned using conventional doesn't. Learning physical education using using basic manipulative movement model was proven to have a better effect than conventional towards student concentration. These findings suggest every teacher should be able to provide meaningful, useful learning that is able to support the growth and development of their students, such as this basic manipulative movement model.

ETHICS STATEMENT

This research followed ethical standards and received approval from the LPPM Universitas Negeri Jakarta, Jakarta, Indonesia with the reference number (1116/UN39.5.FIKK/V/2026) and date of approval Mei 4, 2026.

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CONFLICT OF INTEREST

The author declares that there is no conflict whatsoever related to the research, writing and publication of this research.

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