International Conference on Islamic Studies (ICoIS)
Vol. 3 No.1, June 2022 **E-ISSN: 2830-2451**

The Effect of Smart Engklek Game on the Motor Development of 4-5 Years Old Children

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Abstract: Motor development is a process of maturity that a person has since birth as a form of skill to move his body that involves both gross and fine motor skills to achieve a goal. The purpose of this study was to determine the effect of the engklek game on the development of children aged 4-5 years through the smart engklek game. The method used is a quantitative approach to Quasi Experiment Design. Based on the results of calculations through independent t-test, the experimental class t-test value = 8.509 and with df = 58. The t-table value at t is 0.05 = 2.704 with a significant value (P) = 0.000 > = 0.05. With Thus the value of t count > t table which means HO is rejected and H1 is accepted. While the calculation of the control class is obtained by the value of t-test = 8,509 with df = 58 the price of t table at t 0.05 = 2.704 with significant (P) = 0.001 > = 0.05 seen that the value of t count > t table means Ho rejected and H1 accepted. Thus, the smart engklek game provides a significant influence on children's motor development.
Keywords : Ongklek Smart, Progress, Games.

Introduction

Early Childhood Education (PAUD) is a learning tool that is shown to children from birth to the age of six years which is carried out through the provision of stimulation, both physically and spiritually to children. Learning and education carried out for early childhood adjusts to the stages of development in children. Early childhood development includes intellectual, physical motor, moral and religious values, social emotional, language and art. (Suryana, 2019)

Dadan Suryana argues that progress in motor development abilities is in line with the maturity of the muscles and nerve cells of each child. In addition, the simple movements performed by children are a result of interaction patterns controlled by the brain. The motor abilities of each individual are different, depending on the stimulation and training process carried out by the family, school and environment. (Suryana, 2019)

Each learning process in each school is different, some are effective and even vice versa, even the stimulation process carried out in the development of developmental aspects in children is different. Stimulating abilities in early childhood motor development is not an easy job, it needs a certain way so that the stimulation can be accepted by children. Of course the method must be fun for early childhood so that it can be accepted easily. In formal and non-formal schools it is necessary to facilitate a fun learning system, there are many kinds of media or educational game tools that can help stimulate children's motor development.

During the learning process, early childhood requires a variety of learning media to help the learning process to be more optimal and help develop aspects of development according to what is expected. Learning media used to develop children's potential and development usually use educational game tools or often called (APE) because when an educator at a creative institution uses learning media to implement the plans that have been made, the class and learning will attract students' interest, even It will be a fun learning process.

Fun learning can help children realize their imagination, therefore a teacher has an important role in regulating the learning atmosphere that is liked by children, so that it can help develop the developmental aspects possessed by each child. Learning media is one alternative that helps teachers realize classroom learning, either using educational games or other media, which have the same function.

Motor development is one of the developmental aspects possessed by early childhood, and teachers or parents should help develop it by providing continuous stimulation.

In Surah Ar-Rum verse 54, it is explained related to motor development in children

اَللّٰهُ الَّذِيْ خَلَقَكُمْ مِّنْ ضَعْفٍ ثُمَّ جَعَلَ مِنْۢ بَعْدِ ضَعْفٍ قُوَّةً ثُمَّ جَعَلَ مِنْۢ بَعْدِ قُوَّةٍ ضَعْفًا وَّشَيْبَةً ۗ يَخْلُقُ مَا يَشَاۤءُ ۚ وَهُوَ الْعَلِيْمُ الْقَدِيْرُ

Meaning: "It is Allah Who created you from a weak state, then He made (you) after the weak state became strong, then He made (you) after being strong weak (back) and gray hair. He creates what He wills. And He is All-Knowing, All-Powerful. (Q.S Ar-Rum: 54)

The purpose of the verse above is that Allah created humans from a weak state of helplessness, unable to do anything, and made humans strong, namely when the process of growth and development that children go through, starting from the age of 0-6 years is a process that parents need to pay attention to. , and can be m The term motor refers to the actual changes that occur in observable body parts. Thus, motor is an innate ability that a person has to move or change the position of his body, either using large or small muscles. stimulate it properly to develop optimally. (Sit, 2019)

Fine motor skills according to Dini P and Daeng Sari are motor activities that involve small or fine muscles. The way fine motor works is that it requires eye-hand coordination. Such as drawing, cutting, coloring, writing and activities that use fingers, which in these activities require focus so that they can perform accuracy in movement. Then do activities that can help children increase their accuracy in movement, such as imitating gymnastics movements. (Krisnan, 2018)

Based on the background that has been described, the researchers identified the problems in this study, namely:

1. Characteristics in early childhood
2. Motor development in early childhood
3. The influence of the environment on students
4. The role of parents and parenting practices in stimulating motor development in children
5. The role of teachers in improving children's motor development;
6. The influence of the learning media used.

In the description of the identification of the problem, the researcher formulates this research, among others:

1. How is the motor skills of children aged 4-5 years before being given action using the Smart Engklek game?
2. How is the motor skills 4-5 years after being given action using the Smart Engklek game?
3. How does the Smart Engklek game affect the development of motor skills in early childhood?

In accordance with the formulation of the problem that has been described, this study aims to:

1. Knowing motor skills 4-5 years before being given action by using the Smart Engklek Game.
2. Knowing motor skills 4-5 years after being given action by using the Smart Engklek Game.
3. Knowing the effect of the Smart Engklek Game on the development of motor skills in early childhood.

This research is expected to provide benefits including: Strengthening and correctingexisting theories;

a. Building a new theory as an alternative to the correction of an existing theory;
b. Adding insight in the field of education, especially in early childhood and knowing how the learning process is when researchers carry out treatment, and what effect the smart engklek game has on motor development in early childhood.

Research methods

In this study, the design chosen was Quasi Experimental Design that used the Nonequivalent Control Group Design, namely the researcher used the experimental class and the control class in this study, because it will measure how much influence the Engklek smart educational game tool has on improving motor development in early childhood. As for what is meant by Quasi Experimental Design, namely a research design that has control but does not have the full ability to be able to coordinate or regulate other variables from outside that can affect the implementation of experimental activities.

This study was conducted to determine whether there were significant changes in the improvement of motor development in early childhood.
According to Dr. Amir Hamzah in his book entitled Research and Development Research and Development Methods is meant by quantitative methods, namely research methods that collect and then present data in the form of numbers or can be calculated that are objective (Hamzah, 2019). Researchers use experimental quantitative approach methods in this study. Because experimental quantitative research methods include research methods that use to test hypotheses, the experimental method can reveal the influence or impact that occurs between two or more variables that are related to one another.
In this study, the design chosen was Quasi Experimental Design that used the Nonequivalent Control Group Design, namely the researcher used the experimental class and the control class in this study, because it will measure how much influence the Engklek smart educational game tool has on improving motor development in early childhood.

As for what is meant by Quasi Experimental Design, namely a research design that has control but does not have the full ability to be able to coordinate or regulate other variables from outside that can affect the implementation of experimental activities. (Sugiyono, Combination Research Methods, 2017)
This study was conducted to determine whether there were significant changes in the improvement of motor development in early childhood. The Quasy Experimental research design is as follows:

Grup	Pretest	Variabel Terikat	Postest	Peningkatan
A	**T1**	**X**	**T2**	**Y**
B	**T3**	**-**	**T4**	**Y_1**

Information:

A: Experiment Class

B: Control Class

T1: Pre-test experimental class (A)

T2: Post test experimental class (A)

T3: Pre-test control class (B)

T4: Post test control class (B)

X: Treatment in the form of a smart engklek game for early childhood motor development

- : Class no treatment

Y: Difference between T2 and T1

Y1: Difference between T4 and T3

Research Implementation Procedures:

1. Determine the group of children that the researcher will use as research samples, namely children aged 4-5 years in RA in BungursarI District, Purwakarta
2. Conducting a Pettest in the IT class to find out how much the child's motor skills score is.
3. Doing treatment using the smart (X) engklek game for children aged 4-5 years
4. Conduct a posttest to T2 to determine the child's motor skills after receiving treatment using the Smart Engklek game
5. Comparing the results before (T1) and after doing treatment (T2) to be able to find out the influence of the smart crank game on motor development in early childhood.

In quantitative research, the population is the entire element that will be used as research material. The area includes subjects and objects that have certain characteristics determined by the researcher. In addition, objects in the population are studied and then analyzed, concluded then after that the conclusions apply to the entire population. (Arikunto, 2013). Sugiyono argues that the population is an element that is in the area under study, whether the object or subject being studied is to be studied, conclusions can be drawn then can be developed as appropriate. (Sugiyono, Quantitative Research Methods, 2022)

In this study, researchers used Early Childhood Children aged 4-5 years as the population, especially students who attended school in Raudhatul Athfal in Cinangka village, Bungursari district, amounted to 30 people. 2022-2023 school year.

In quantitative research, the sample is part of the number and characteristics possessed by the population in the study. In this study, sampling was carried out by taking subjects with the same age level. The sample used is children aged 4-5 years who attend RA schools in Bungursari District, Purwakarta Regency, then researchers take Raudhatul Athfal in Cinangka village, Bungursari sub-district whose students are of the same age. (Sugiyono, Quantitative Research Methods, 2022)

In this research, what is meant by the types and sources of data are what objects will be studied by researchers, then what needs to be used as reinforcement in this research. Descriptive statistics is one type of way to be able to analyze data by describing or describing the data that has been collected. (Sugiyono, Combination Research Methods, 2017)

In a study to determine the subject from which the data was obtained, as well as in this study the researcher used two data sources, namely primary data and secondary data. The main source for obtaining data in research, or it can also be referred to as a data source directly providing original data to researchers, is called primary data source. (Djam'an, 2017). Then what is meant by secondary data sources are as additional, supporting, reinforcing or complementary data. Seen in accordance with the problem and research objectives.

Thus, the researchers took secondary data sources from books, journals, web sits and the results of previous studies to strengthen the data that explained the problems related to the research, even in addition to using daily treatment records carried out by researchers, then collecting data from interviews with parties. school, as a research reinforcement. or other documentation relevant to the problem being studied.

Results and Discussion

Based on the results of the SPSS Type 25.0 calculation, values and descriptions were obtained by collecting data from the validity test, reliability test, prerequisite test, and hypothesis testing. The results are:

Validity and Reliability Test

Validity test is to find out a valid instrument and worthy of being used as an assessment instrument when it comes to the field. Then the reliability test to see whether the instrument believes in a reliable distribution or vice versa.

Instrument Reliability Test Results

Reliability Statistics

Cronbach's Alpha	N of Items
0, 962	18

Based on the Cronbach Alpha value in the table above, statistical reliability obtained a value of 0.962 where this value can be interpreted using the following criteria:

Alpha	Reliability Level
0,00 - 0,2	Less Reliable
≥ 0,20 - 0,4	Rather Reliabel
≥ 0,40 – 0,60	Enough Reliabel
≥ 0,60 – 0,80	Reliabel
≥ 0,80 – 1,00	Very Reliabel

Referring to the reliability table, the instrument made is at a very reliable level, namely with a number of 0.962 (Very Reliable). This means that the results of this research instrument are very reliable, in measuring data. Thus, it can be said that the measuring instrument for data collection in this study is accurate and precise, and can be used as a research instrument.

Prerequisite Test for Normality and Homogeneity
Normality Test Pre-test and Post-test

Pre-Test
Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelas	Statistic	Df	Sig.	Statistic	Df	Sig.
Hasil	Pre Test Eksperimen	.143	15	.200*	.966	15	.801
	Pre Test Kontrol	.189	15	.155	.951	15	.533

*. This is a lower bound of the true significance.
Lilliefors Significance Correction

Post-Test
Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelas	Statistic	Df	Sig.	Statistic	Df	Sig.
Hasil	Post Test Eksperimen	.166	15	.200*	.951	15	.542
	Post Test Kontrol	.194	15	.135	.926	15	.235

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Based on the table and statistical data above, the significant value of the experimental class and control class for testing using the Kolmogorov-Smirnov at the pre-test and post-test shows that the data is normally distributed with a value of 0, 200 for the Pre-Test for the Experimental class and 0.155 for the pre-test control class. Then the results of the post test of the two classes with a value of 0.200 for the experimental class and 0.135 for the control class. Because in the normality test the significant level is greater than 0.05.

Homogenitas Test
Pre-test
Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Hasil	Based on Mean	1.134	1	28	.296
	Based on Median	.974	1	28	.332
	Based on Median and with adjusted df	.974	1	27.855	.332
	Based on trimmed mean	1.106	1	28	.302

Post-Test
Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Hasil	Based on Mean	.096	1	28	.759
	Based on Median	.215	1	28	.646
	Based on Median and with adjusted df	.215	1	25.122	.647
	Based on trimmed mean	.135	1	28	.716

Judging from the table above, the Based on Mean Pre-test value is 0.296 and the Post-Test is 0.759, the test results from both classes are declared homogeneous, because they exceed 0.05. After discussing data analysis before treatment (treatment in learning), data analysis after treatment (treatment in learning), and data analysis of gain, the next step taken is in the form of hypothesis testing. In testing the hypothesis, it is calculated using the independent sample test statistical test contained in the SPSS type 25.0 program. The description of the results obtained by researchers from the use of the SPPS 25.0 statistical test is presented in the following table:

Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means					
						95% Confidence Interval of the Difference	
	Sig.	f	ig. (2-Itailed)	ean Differe nce	Std. Error Differ ence	ower	pper

asil belajar siswa	qual varian ces assum ed	0.798	000	.509	8	000	4.233	.673	0.885	7.582
	qual varian ces not assum ed			.509	6.569	001	4.233	.673	0.843	7.624

(Sumber data SPSS Type 25,0)

From the calculation above, the number obtained from the experimental class hypothesis that motor development in children during the pre-test and post-test has differences. Based on the results of calculations using SPSS Type 25.0 through independent t-test, the experimental class t-test value = 8.509 and with df = 58. The t-table value at t 0.05 = 2.704 with a significant value (P) = 0.000 > = 0 , 05. Thus the value of t count > t table which means HO is rejected and H1 is accepted. While the calculation of the control class is obtained by the value of t-test = 8,509 with df = 58 The price of the t table at t is 0.05 = 2.704 with a significant (P) = 0.001 > = 0.05. So, the value of t count > t table, which means Ho is accepted and H1 is rejected. This means that there is a significant effect that occurs in research in the experimental class regarding the motor development of children aged 4-5 years influenced by the smart crank game. The aspects between gross and fine motor that affect are:

ASPEK	KELOMPOK	TES	MEAN	Std. Deviation	Nilai T	Sig 2 Tailed	Kesimpulan
MOTORIK HALUS	EKSPERIMEN	PRE TEST	19.46	2.133	-2.69	0.012	Tidak Berpengauh
		POST TEST	28.8	1.859	-8.01	0.013	Tidak Berpengauh
	KONTROL	PRE TEST	15.66	1.234	-2.69	0.012	Tidak Berpengauh
		POST TEST	17.26	1.944	-8.01	0.013	Tidak Berpengauh
MOTORIK KASAR	EKSPERIMEN	PRE TEST	19.26	2.153	-2.69	0.000	Berpengaruh
		POST TEST	26.2	2.569	-3.181	0.000	Berpengaruh
	KONTROL	PRE TEST	15.06	1.944	-2.69	0.004	Berpengaruh
		POST TEST	17.13	1.597	-3.181	0.004	Berpengaruh

Based on the results of the Influence Per Aspect Test for both fine motor and gross motor skills in this study, the gross motor aspect was more influential in the use of the smart engklek game..

Conclusion

Learning to use the smart engklek game is an activity that can introduce an almost extinct ancestral culture by modifying the game. In addition, using the engklek game media in the process of realizing learning and stimulating

developmental aspects by carrying out play activities so that children feel happy and can channel their creativity. Then through the engklek game the teacher can be helped in stimulating and developing aspects of development in children, especially motor development, both fine motor and gross motor.

Judging from initial observations by interviewing school principals and teachers who were at school, the learning carried out did not use special learning media to develop aspects of development in children. The learning media carried out only use simple materials and general learning media such as Lego, story books, and thematic books.

In the experimental class learning, the teacher is not merely providing knowledge in the learning process, but provides many opportunities for children to develop their creativity and knowledge, then the teacher can also develop aspects of development in children. In addition, children can understand the flow of the game and help strengthen small (fine motor) and large muscles. (big motor).

Starting from the beginning of learning between the experimental class and the control class looks different, it can be seen from the results of the initial test scores or called the experimental class pre-test of 38.8 and the control class of 30.7

Then at the end of learning, students are given a test or called a post-test which shows an increase in motor development in children, by analyzing using the data then the data is tested using SPSS. That way the experimental class got a result of 54.8 while the control class got a result of 34, 4.

From the calculation above, the number obtained from the experimental class hypothesis that motor development in children during the pre-test and post-test has differences. Based on the results of calculations using SPSS Type 25.0 through independent t-test, the experimental class t-test value = 8.509 and with df = 58. The t-table value at t 0.05 = 2.704 with a significant value (P) = 0.000 > = 0 , 05. Thus the value of t count > t table which means HO is rejected and H1 is accepted. While the calculation of the control class is obtained by the value of t-test = 8,509 with df = 58 The price of the t table at t is 0.05 = 2.704 with a significant (P) = 0.001 > = 0.05. So, the value of t count > t table, which means Ho is rejected and H1 is accepted

In addition, seen in the results obtained, namely if Sig. (2-tailed) < 0.005 there is an influence or change. Because the value of Sig. (2-tailed) in the hypothesis test above worth 0.00 for the experimental and control classes, the hypothesis test is accepted because it is less than 0.05.

If it can be concluded that when the Sig value is less than 0.05 and the T count exceeds the T table, then there are significant changes and effects that occur in research in the experimental class regarding the motor development of children aged 4-5 years influenced by the smart crank game.

According to Masganti Motor Sit refers to the actual changes that occur in body parts that can be observed. Thus, motor is an innate ability that a person

has to move or change the position of his body, either using large or small muscles. (Sit, 2019)

As for how to develop motoric development, you can use learning media such as playing engklek, then making circular writing, coloring, drawing and it can also be playing with ropes. (bebeclub, 2022) So if there are results that do not have a significant effect due to the short treatment time and the possibility of taking a very long time, because the researchers only did the treatment for 5 days. In addition, the number of respondents is very minimal, the minimum number of respondents who are used as research samples is 30 people so that the data obtained is more and the t-count value is greater than the t-table value.

Thank-you note

Thank you to all who have supported this research, especially Allah SWT who always gives infinite health, To both parents, not to forget Mrs. Miftachul Jannah, M.Pd and Mrs. Nadya Yulianty S, S.Psi., M.Pd who always support and guide in this research report. for the head of STAI DR KHEZ Muttaqien Purwakarta, head of P3M STAI DR KHEZ Muttaqien Purwakarta. May all always be healthy and happy.

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