



The Effectiveness of the Traditional Congklak Game in Developing Fine Motor Skills in Early Childhood at the Kasih Bunda Kindergarten, South Aceh

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ABSTRACT

Purpose of the study: The primary objective of this research is to investigate the influence of the traditional game, Congklak, on the development of fine motor skills in early childhood at Kasih Bunda Kindergarten.

Methodology: This study employed an experimental research design with a pre-experimental approach. The participants consisted of students from the B2 group at Kasih Bunda Kindergarten, South Aceh, totaling 27 students in the experimental class. Data analysis was conducted using descriptive quantitative methods, comparing the averages of pre-test and post-test data collected through observations. Hypothesis testing was performed using the t-test based on the results of the activity scale.

Main Findings: The main finding of this research is the comparison of average values before and after the treatment. With $t_{count} > t_{table}$, specifically $27.30 > 2.056$, the null hypothesis (H_0) is rejected, indicating a significant difference between the scores obtained from the initial and final tests at a 95% confidence level. Consequently, it can be concluded that the Congklak game significantly contributes to the development of fine motor skills in young children at Kasih Bunda Kindergarten.

Novelty/Originality of this study: The novelty of this research lies in the discovery of the potential of traditional games, such as Congklak, not merely as recreational activities but as effective tools for enhancing young children's fine motor skills, particularly in understanding number concepts and counting activities, thereby making classroom learning more engaging and enjoyable.

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1. INTRODUCTION

Early childhood development is a critical phase in the formation of various skills, including fine motor skills [1]-[3]. As times change, traditional games are now increasingly marginalized by modern technology. However, traditional games still have important value in children's development [4]-[6]. One of the traditional games that is rich in educational value is congklak. Congklak, a game that has become part of the cultural heritage that not only offers the pleasure of playing, but also the opportunity to develop children's fine motor skills [7]-[9].

The congklak game is a traditional game that has existed since ancient times, not only popular in Indonesia but also in various parts of the world [10]-[12]. In various countries, this game has different names and variations, but the essence and goal remains the same, namely honing children's cognitive and motor skills [13], [14], [15]. In various countries around the world, congklak is an integral part of their cultural heritage and is played by children in their neighborhood. In the ASEAN region, the game of congklak has a strong presence in culture and traditions [16]-[18]. Countries such as Malaysia, Brunei, and the Philippines have their own versions of the game, with unique variations of rules and strategies. However, what they have in common is their attempt to promote the development of children's cognitive and motor skills through playing congklak.

In Indonesia, congklak is not only known as a fun traditional game but also has deep cultural values [19]-[21]. As part of Indonesia's rich culture, congklak has become part of people's daily lives, especially in rural areas. Indonesian children are often introduced to this game from an early age, both at home and at school, as a means of developing fine motor skills, creativity and cooperation. In the context of early childhood education, the congklak game is used as a fun and useful learning method [22]-[24]. Developing a learning program that integrates the congklak game can be a positive step in optimally utilizing the educational potential of this traditional game. In this way, the congklak game can continue to be an important part of early childhood learning.

Previous research by Wote et al., [25] regarding the application of the congklak game as a medium in the learning process can improve students' numeracy skills and can help students understand mathematical concepts and their applications well. Furthermore, according to research by Syahrial et al., [26] The traditional congklak game is recommended to be applied in learning because it can make learning more active and enthusiastic and get a positive response so that it can improve students' character. Based on previous research, the direction of this research is the application of the traditional congklak game in developing fine motor skills in early childhood. The novelty of this research is the use of the traditional congklak game played in the learning process to develop fine motor skills in young children.

The importance of developing fine motor skills at an early age should not be overlooked [27]-[29]. Therefore, it is necessary to consider the use of traditional games such as congklak as a useful alternative for teaching fine motor skills to children. By playing congklak, children are not only involved in physical activities that are beneficial for their health, but also stimulate brain development and hand-eye coordination [30]-[32]. In this game, children must hold and move the seeds carefully, requiring good fine motor skills to get the seeds into the holes precisely. Apart from that, congklak can also be a means of teaching children about cooperation, strategy and developing their creativity. In the process of playing, children learn to plan their moves, predict the outcome of each move, and adapt their strategy according to the game situation.

However, even though it has great potential to develop children's fine motor skills, the use of congklak in formal education contexts is often ignored. A deeper understanding of the educational benefits of congklak is needed and wider integration in the early childhood education curriculum so that the potential of this game can be optimally optimized. By paying attention to the importance of developing fine motor skills in early childhood and the educational potential of traditional games such as congklak, this research aims to explore the effectiveness of using congklak in developing children's fine motor skills. Through this research, it is hoped that it can provide a deeper understanding of the role of traditional games in early childhood education and encourage their wider use in educational practice.

2. RESEARCH METHOD

The research design used in this research is experimental research to determine the effectiveness of the traditional congklak game for developing fine motor skills in children. Arikunto [33] states that experimental research is a way to look for a causal relationship between two factors that are deliberately caused by researchers by eliminating or reducing or setting aside other disturbing factors, and experiments are always carried out with the intention of seeing the results of a treatment.

This research uses a pre-experimental research design with a one group pre-test post-test design approach with a post-test given after treatment with indicators of children developing fine motor skills. This design is used in accordance with the goal to be achieved, namely being able to develop children's fine motor skills after implementing the congklak game.

The following is a research design table for one group pre-test post-test design according to Sugiyono [34].

Pre-Test	Treatment	Post-Test
O_1	X	O_2

Information :

O_1 : Initial test (Pre-test) before treatment

X_2 : The treatment of the experimental group was the effectiveness of the congklak game in developing children's fine motor skills.

O_2 : Final test (Post test) after treatment

Population is a generalized area consisting of objects/subjects that have certain qualities and characteristics determined by researchers to be studied and then conclusions drawn [34]. In general, population can also be interpreted as all individuals, units or events that are determined as research objectives [35], [36], [37]. The population in this study was the TK B group at Kasih Bunda Kindergarten, South Aceh. The following is the population data in this study:

Table 2. Population Data

Class	Many students
A1	17
A2	21
B1	26
B2	27

The sample is the actual subject or part of the population that is the research material. The sampling technique in this research was carried out using a random sampling technique. Random sampling is taking samples at random or without any particular considerations. The sample in this study was group B2 with 27 children as the experimental class.

A research instrument is one of the tools used to find answers to research [38], [39]. Instruments are measuring tools in research that are used to measure observed natural and social phenomena. This research uses two observation guidelines or observation guidelines. The instruments used are indicator guidelines for assessing children's observations in fine motor development and teacher activity observation sheets intended for teachers and children. These guidelines use a Likert scale. The following is a table of teacher activity observation sheets regarding the effectiveness of the traditional congklak game for developing fine motor skills.

Table 3. Teacher Activity Observation Sheet

Indicators	Indicator value
Readiness of space, tools and learning media	<ol style="list-style-type: none"> 1. Not preparing space, tools and learning media 2. Prepare, but most of it doesn't serve the purpose 3. Prepare according to the objectives but not complete 4. prepare according to the objectives and complete
Carrying out gathering/circle time activities	<ol style="list-style-type: none"> 1. Initial apperception/motivation is not available 2. Relate the material to previous material 3. Relate the material to the child's early experiences in context 4. Relate the material to the child's early experiences contextually, presenting goals and steps
Explaining skills	<ol style="list-style-type: none"> 1. The explanation is not clear/organized/ordered 2. Some explanations are incomplete/doubtful 3. Most of the explanations are complete but not coherent 4. Everything explained is complete, coherent and orderly
Questioning skills	<ol style="list-style-type: none"> 1. Don't provoke the child's response 2. Provoke children's responses to remember what they have learned 3. Provoke a small portion of children's responses to come up with their own ideas 4. Provoke most children's responses to come up with their own ideas
Question answering skills	<ol style="list-style-type: none"> 1. Every question is answered directly by the teacher 2. Some questions are thrown back to other children 3. Each question is thrown back to another child 4. Each question is thrown back to another child and given reinforcement
Communication style or use of spoken language	<ol style="list-style-type: none"> 1. Not clear, a bit nervous and stuttering 2. Clear, but stuttering 3. Speak fluently and clearly understand 4. Speaks fluently, is clearly understood and focuses the child's attention
Use of four steps in the learning process	<ol style="list-style-type: none"> 1. Not using 4 steps 2. Using 4 steps, but not detailed 3. Using 4 steps, some children are not conditioned 4. Using 4 steps, all children are well conditioned
Providing three types of games in	<ol style="list-style-type: none"> 1. Not doing 3 types of playing activities

Indicators	Indicator value
core activities	2. Only do 1 type of activity with various games 3. Only do 2 types of playing activities with various games 4. Do 3 types of playing activities with various games
Management of children's play opportunities	1. Children don't get the opportunity to play 2. Children only get to play once 3. Children get to play less than 3 classes in the center 4. Children get 1 chance in the game
Evaluation	1. The teacher prepares an assessment sheet 2. The teacher prepares the assessment sheet but does not carry out the assessment 3. The teacher prepares the sheet and carries out the assessment 4. The teacher prepares an assessment sheet and carries out the assessment clearly and in detail

According to Mukhlis [40] the description of the teacher's ability level for determining the score category uses the following provisions:

$$x = \frac{\sum x}{N} \quad \dots (1)$$

Information :

- X : Mean (average)
- $\sum x$: total value (score)
- N : number of indicator points
- 0-1 = Very Not good
- >1 - 2 = Not good
- >2 - 3 = Good
- >3 - 4 = Very good

The following is a table assessing children's fine motor skills through the congklak game.

Table 4. Children's Ability Observation Sheet

Assessment Indicators	Indicator value
Children can arrange small objects by forming patterns of number and letter symbols using congklak seeds	1. Not yet developed 2. Start Developing 3. Develop according to expectations 4. Developing Very Well
Children can grasp and sort objects based on the color of the congklak seeds	1. Not yet developed 2. Start Developing 3. Develop according to expectations 4. Developing Very Well
Children can understand the concept of much and little through congklak seeds	1. Not yet developed 2. Start Developing 3. Develop according to expectations 4. Developing Very Well
Children can coordinate their hands and eyes when playing congklak	1. Not yet developed 2. Start Developing 3. Develop according to expectations 4. Developing Very Well

In this research, data collection techniques are very important to implement because the data obtained in the field is through research instruments which are then processed and analyzed so that the results obtained are able to answer research questions and solve problems in research. The data collection techniques used are observation and assignment.

Observation is a method of collecting information (data) which is carried out by systematically observing and recording phenomena that are being targeted for observation [41], [42]. When researchers carry out teaching and learning activities, observations are made by observing the activities and students. The observation task is to fill in the activity instruments and students during the teaching and learning process.

Assignments are given by educators to provide real experiences to children, both individually and in groups. The assignments referred to by the researchers in this study are assignments carried out by children in groups, because the congklak game is carried out based on groups that have been selected. The assignment that will be given is playing congklak which aims to be able to form patterns of number and letter symbols using

congklak seeds. Children can sort objects based on the color of congklak seeds. Children can count the number of congklak seeds. Children can understand the concept of much and little through congklak seeds.

Data analysis techniques are the most decisive step in research, because data analysis functions to conclude research results. Data analysis in this research uses quantitative descriptive, namely research that aims to explain existing phenomena or events by using numbers to explain the characteristics of individuals or groups [43], [44].

The data analysis technique in this research is carried out by comparing data before with data after treatment from one sample group, then comparative hypothesis testing is carried out using the T-test according to Supardi [45] as follows:

$$t = \frac{Md}{\sqrt{\frac{\sum Xd^2}{n(n-1)}}} \quad \dots (2)$$

Information :

D_i : the difference between the after score and the before score for each subject

Md : average of gain

Xd : deviation of the gain score from the average ($xd=d1-Md$)

$\sum Xd^2$: square of the deviation of the gain score from the mean

n : number of samples (research subjects)

To test the hypothesis, the t value (tcount) above is compared with the t value from the distribution table (ttable). The method for determining the value (ttable) is based on the significance level $\alpha = 0.05$ and $dk = n-1$. Then $16-1 = 15$ with a significant $\alpha = 0.05$ then $t_{table} = 2.131$. Hypothesis testing criteria (H_0) are if $t_{(count)} > t_{(table)}$ is rejected and if $t_{(count)} > t_{(table)}$ is accepted.

H_0 : (There is no influence of the congklak game in developing children's fine motor skills)

H_a : (There is an influence of the congklak game in developing children's fine motor skills)

3. RESULTS AND DISCUSSION

The research results of the congklak game have an influence on developing children's fine motor skills at Kasih Bunda Kindergarten, South Aceh. The following is a table that describes children's activities in playing congklak games to develop children's fine motor skills.

Table 5. Children's Ability to Play Congklak Games to Develop Children's Fine Motor Skills

No.	Rated aspect	Grade			
		1	2	3	4
1	Children can arrange small objects by forming patterns of number and letter symbols using congklak seeds				✓
2	Children can grasp and sort objects based on the color of the congklak seeds				✓
3	Children can understand the concept of much and little through congklak seeds			✓	
4	Children can coordinate their hands and eyes when playing congklak				✓

Table of children's abilities in the development of the congklak game to develop children's fine motor skills with four indicators, in the first aspect the child gets a score of 4 (very good) the child can arrange small objects by forming patterns of number and letter symbols using congklak seeds so that children can easily form patterns correctly . In the second aspect, the child received a score of 4 (very good). The child's ability to grasp and sort objects based on the color of the congklak seeds was very good because he was able to sort them neatly because it was in accordance with what he had learned. In the third aspect, the child gets a score of 3 (good), the child's ability to understand the concept of a lot and a little through congklak seeds is good and in accordance with the rules that have been taught. Then in the fourth aspect, the child gets a score of 4 (very good). The child's ability to coordinate hands and eyes when playing congklak is very good because he follows the directions and rules given by the teacher so that the child's fine motor skills are good.

Results of research on teacher activities in using the congklak game to develop fine motor skills at Kasih Bunda Kindergarten, South Aceh. The following is a table that describes the teacher's activities in using the congklak game to develop children's fine motor skills as follows:

Table 6. Teacher activities in using the congklak game

Rated aspect	Grade			
	1	2	3	4
Readiness of space, tools and learning media			✓	
Carrying out gathering/circle time activities			✓	
Explaining skills			✓	
Questioning skills			✓	
Question answering skills			✓	
Communication style or use of spoken language				✓
Use of four steps in the learning process				✓
Providing three types of games in core activities				✓
Management of children's play opportunities				✓
Evaluation				✓

The table above shows that there are 10 aspects for the teacher's activity in using the congklak game that must be assessed, namely the readiness of the equipment room, and learning media gets a score of 3 in the good category, while carrying out gathering/circle activities gets a score of 3 in the good category, then explanation skills get a score 3 in the good category, then the skill of asking questions gets a score of 3 in the good category, while the skill of answering questions gets a score of 3 in the good category, then the communication style or use of spoken language gets a score of 4 in the very good category. Furthermore, the use of 4 steps in the learning process obtained a score of 4 in the very good category. Meanwhile, the provision of 3 types of play in core activities received a score of 4 in the very good category, then the management of children's play opportunities received a score of 4 in the very good category, then the assessment criteria obtained a score of 4 in the very good category. Then overall the teacher's activities in the learning process obtained an overall average score of 3.5 with the category being very good. This shows that the teacher in the learning process has really prepared according to the learning objectives, has linked the material to the child's initial experience in context, and activated the child in playing the game.

The response of children in carrying out learning activities through the congklak game has been very good, in playing this game children especially listen to directions and instructions from teachers and researchers themselves when they want to play the congklak game, they play the game with enthusiasm because the game can improve children's fine motor skills. by means of children thinking while counting the number of congklak seeds. Through this congklak game, children's fine motor skills can develop very rapidly, as we can see in the table about the learning outcomes obtained by children when playing the congklak game. The following is a table of children's learning outcomes in playing the congklak game to develop children's fine motor skills at Kasih Bunda Kindergarten, South Aceh.

Table 7. Children's learning outcomes and T test calculations

No.	Respondent	Acquisition score		Gain (d) (Y-X)	Xd (d-Md)	Xd ²
		Pre-Test (X)	Post-test (Y)			
1	R1	40	80	40	0.445	0.198
2	R2	35	90	55	15.445	238.548
3	R3	45	85	40	0.445	0.198
4	R4	40	70	30	-9.555	91.298
5	R5	50	95	45	5.445	29.648
6	R6	35	80	45	5.445	29.648
7	R7	40	95	55	15.445	238.548
8	R8	35	75	40	0.445	0.198
9	R9	60	85	25	14.555	211.848
10	R10	40	82	42	2.445	5.978
11	R11	35	68	33	6.555	42.968
12	R12	60	98	38	-1.555	2.418
13	R13	30	70	40	0.445	0.198
14	R14	40	88	48	8.445	71.318
15	R15	45	79	34	-5.555	30.858
16	R16	50	80	30	-9.555	91.298
17	R17	60	88	28	-11.555	133.518
18	R18	30	70	40	0.445	0.198
19	R19	40	80	40	0.445	0.198
20	R20	45	88	43	3.445	11.868
21	R21	35	75	40	0.445	0.198

No.	Respondent	Acquisition score		Gain (d) (Y-X)	Xd (d-Md)	Xd ²
		Pre-Test (X)	Post-test (Y)			
22	R22	30	65	35	-4.555	20.748
23	R23	35	79	44	4.445	19.758
24	R24	40	88	48	8.445	71.318
25	R25	40	90	45	5.445	29.648
26	R26	45	70	35	-4.555	20.748
27	R27	50	80	30	-9.555	91.298
Amount (Σ)				1068		1474.666

Calculating the average value of gain (d)

$$Md = \frac{\sum d}{n}$$

$$Md = \frac{1068}{27}$$

$$Md = 39.555$$

Calculate the t_{count} value

$$t = \frac{Md}{\sqrt{\frac{\sum Xd^2}{n(n-1)}}}$$

$$t = \frac{39.555}{\sqrt{\frac{1474.666}{27(27-1)}}}$$

$$t = \frac{39.555}{\sqrt{\frac{1474.666}{27(26)}}}$$

$$t = \frac{39.555}{\sqrt{\frac{1474.666}{702}}}$$

$$t = \frac{39.555}{\sqrt{2.101}}$$

$$t = \frac{39.555}{1.449}$$

$$t = 27.30$$

After carrying out the T-test, a hypothesis test is carried out to find out whether the proposed hypothesis formulation is accepted or rejected. The proposed hypothesis is: How does the congklak game influence the development of children's fine motor skills at the Kasih Bunda Kindergarten in South Aceh in the 2018/2019 academic year. Hypothesis testing is carried out by comparing t_{count} (T-test) with t_{table} using the initial test score (pre-test) and the final test score (post-test). The H_0 hypothesis is rejected if t_{count} is smaller than t_{table} , while the H_a hypothesis is accepted if t_{count} is greater than t_{table} . Because $t_{\text{count}} > t_{\text{table}}$ or $27.30 > 2.056$, H_0 is rejected, which means that at the 95% confidence level there is a significant difference between the scores obtained from the initial test and the final test. If the initial test was carried out to determine the increase in fine motor skills without using the congklak game, the final test was carried out to determine the effect of the central learning model using the congklak game. So the results of the hypothesis above indicate the influence of the congklak game media in developing children's fine motor skills.

Effective learning will run well when all components work together well, one of the components in education is teachers and students [46], [47]. Teachers are the spearhead of every program in education which is

prepared to achieve the goals of early childhood education which cannot be separated from a teacher. With the presence of a class teacher and accompanying teachers, the learning process will run well.

In general, the results of research on the effectiveness of the traditional congklak game in developing the fine motor skills of young children at the Kasih Bunda Kindergarten in South Aceh are in the very good category. Children's ability to play congklak has a very positive influence, especially in improving children's fine motor skills. The results of research conducted at the Kasih Bunda Kindergarten in South Aceh show that there is an influence of the traditional congklak game in developing children's fine motor skills. This can be known based on the results of observations and assignments given by researchers and teachers to children in carrying out the learning process. Then, after implementing the congklak game media, children were more enthusiastic and excited when they wanted to play the game, because this game can also help children learn while playing.

The results of the trials given by the teacher when using the congklak game were eagerly awaited by the children, they looked happy and excited when the game was implemented, so that learning became fun. because games are a medium that can improve children's fine motor aspects. Congklak games can improve children's motor skills, such as eye-hand coordination, where children are able to carry out actions that require coordination between eyes and hands, such as moving small objects from one place to another precisely.

Congklak games can be useful for developing hand and eye coordination [48]. Playing congklak involves careful and precise hand movements when picking up and moving seeds into the hole. This helps children develop hand-eye coordination, a skill that is important in various daily activities, such as writing, drawing, and other physical activities. Congklak games can stimulate children's fine motor skills [49], [50]. The congklak game requires smooth and controlled finger movements to move the seeds precisely. Through these exercises, children can improve their fine motor skills, such as grasping, holding and carefully arranging small objects.

The implications of the congklak game in early childhood learning to improve fine motor skills in the world, ASEAN and Indonesia are very significant. By introducing congklak games in early childhood learning throughout the world, the potential to improve fine motor skills globally can be realized. This will help children from various countries develop their fine motor skills holistically. The use of congklak games in the context of early childhood education can be a bridge to strengthen intercultural relations in ASEAN and throughout the world. Through playing congklak, children can learn about each other's culture and traditions, strengthening the sense of unity and cooperation between countries. Apart from that, the introduction of congklak games in early childhood learning can also contribute to the preservation of local culture in various countries, including Indonesia. By including traditional games such as congklak in the educational curriculum, local cultural values and heritage can be preserved for future generations.

The limitation of this research is that it only involved one experimental class with a relatively small number of students. It is possible that contextual and external factors, such as the learning environment at Kasih Bunda Kindergarten, South Aceh, could influence the research results. These variables may not be completely controlled in this study, so the results may be influenced by these factors. Taking into account the limitations above, this research provides an important initial contribution to the understanding of the influence of congklak games on the fine motor skills of young children. However, to gain a more comprehensive understanding, further research is needed that takes into account and overcomes these limitations.

4. CONCLUSION

Based on the research results, it can be concluded that the congklak game has an influence on children's fine motor skills. This can be seen through the difference in pre-test and post-test results which can be seen in the results of $t_{count} > t_{table}$ or $18.52 > 2.131$, so H_0 is rejected, which means that at the level of confidence 95% of the significant difference between the initial test and final test scores. The results of the teacher's activities in developing the fine motor skills of young children are by using the traditional game congklak. This can be proven through hypothesis testing using the T-test where the result is $t_{count} > t_{table}$, which means there is an influence of the congklak game in developing children's fine motor skills. The recommendations based on the findings of this research are that educators can integrate the congklak game in a more structured manner into the early childhood education curriculum. Educators can develop learning programs that emphasize the use of congklak games as a method for developing children's fine motor skills.

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