

THE INFLUENCE OF CONGKLAK SEEDS OF SAMBUTAN GAMES ON CHILDREN COUNTING ABILITY

Ipah Saripah^{1*}, Annisa Purwani²

¹Pendidikan Islam Anak Usia Dini, Fakultas Tarbiyah, STAI. DR.KHEZ Muttaqien, Purwakarta, 41151, Indonesia

^{*}ipahsaripah1183@gmail.com

ABSTRACT

Early childhood with the background that cannot be separated from playing activities should be used as a gap in developing various aspects of development, one of which is playing that can help the cognitive development. *Congklak* game is a traditional game known by various names throughout Indonesia. There are a lot of materials that can be used in this game, such as many kinds of shell including rambutan seeds, and if not available, seeds from plants and small stones. The purpose of this research is to find out how the effect of playing *congklak* with rambutan seeds on cognitive development of students at Hidayatul Islamiyah Kindergarten institutions, Sumurugul Village, Wanayasa District, Purwakarta Regency. This study used an experimental method with a single subject research design pattern to determine the causes and effects of the research variables. The sample in this study were two children aged 5-6 years at Hidayatul Islamiyah Kindergarten. The method used in this study is the SSR (Single Subject Research) method which is an experimental study to look at behavior and evaluate certain interventions or treatments and is carried out repeatedly within a certain period of time. The instruments used were observation and analysis of each subject studied from before the treatment (Baseline 1), during the treatment (Intervention) and after the treatment (Baseline 2). The results of the study indicated a good impact on children's counting ability, the research subjects obtained a percentage of 25% at the 1st baseline, while at the 2nd baseline it increased to 90%. This research results had a positive impact on stimulating children's cognitive development, namely children could observe the shape and size of rambutan seeds as well as children could be trained in how to count according to the composition.

Keywords: *congklak*, *game for childhood*, *cognitive development*, *counting*

1. INTRODUCTION

In Indonesia, the definition of early childhood is for children aged 0-6 years, as in the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System in Article 1 paragraph 14 which states that early childhood education is education intended for children from birth up to 6 years old. Early childhood education has a very important role in developing children's personalities and preparing children to enter further levels of education (Fauziddin, 2016)

According to Susanto (2012), the urgency of cognitive development aspects is basically intended for children to be able to explore the world around them through their five senses, so that with the knowledge they gain, children will be able to live their lives and become whole human beings in accordance with their nature as creatures of God who must empower what is in this world for the benefit of himself and others. One very important ability for children that needs to be developed in order to equip their future

and present life is to provide them with the ability to count. An aspect of cognitive development that can help children's initial numeracy skills is the introduction of the concept of numbers. Children aged 5-6 years are still in the pre-operational stage in which children are still learning to use concrete objects. This concrete object introduction should also be used in the introduction of the concept of numbers because when a child interacts directly with a real object, the child can understand the concept of numbers much more easily, particularly in providing the provision of numeracy skills for early childhood education (Shukri, 2020). Early childhood is an individual who experienced a very rapid process of growth and development, even it is said to be a leap of development. But children like to learn while playing because by playing children get satisfaction, pleasure, knowledge and new experiences. Playing can also be done using game tools. In fact, playing has an important role in physical-motor, cognitive, language, moral, social-emotional development and art.

In this study the researchers wanted to introduce children to a traditional game tool, namely *congklak*. *Congklak* is a traditional game that was very popular with children in the past and was played in a pleasant atmosphere. *Congklak* can be played inside or outside the home. *Congklak* can also be used as an educational tool for children's learning activities. From this *congklak* game, it has the potential to affect children's cognitive development, namely: 1) stimulating children's cognitive development; 2) building children's cognitive abilities; 3) learning to solve problems; and 4) developing vulnerable concentration.

The implementation of early childhood learning will be more meaningful if implemented with the help of learning media. Learning media is anything that can be used to distribute teaching materials from teachers to students, so that they can stimulate the thoughts, feelings, concerns and interests of the students (Syukri, 2020:). The use of learning media will be able to divert children's attention so that they do not get bored quickly while studying. Besides, the media is also able to increase children's concentration in an activity for quite a long time compared to not using learning media (Abidin, 2016). One medium that can stimulate children's cognitive ability to count is through STEAM-based *congklak* games. In addition, by playing *congklak* children are able to identify, observe, and predict, for example, children know where the opponent's lines and hollows are, and children try to summarize playing patterns and techniques to achieve victory. Moreover, the game of *congklak* also sharpens children's sensitivity regarding the regularity of sequences and timing of turns to play,

and it can also improve children's logical abilities. Thus, it can be seen that this *congklak* game provides many benefits for children.

Based on the field observations at TK Hidayatul Islamiyah, it was found that the students had problems in counting, the researcher is, therefore, interested in implementing the rambutan seed *congklak* game at Hidayatul Islamiyah Kindergarten in Sumurgul, Kec Wanayasa, Purwakarta Regency to improve children's cognitive abilities in numeracy skills.

2. LITERATURE REVIEWS

2.1. Science

Science is a field of natural science, with the scope of matter and energy, both found in living and non-living things, discussing more about nature (natural science) such as physics, chemistry, and biology. Science learning is learning that emphasizes the process of seeking knowledge rather than transferring knowledge. Children are seen as learning subjects who need to be actively involved in the learning process, while the teacher is only a facilitator who guides and coordinates children's learning. Early childhood science learning emphasizes process skills rather than products; this process skills must be developed for children as meaningful experiences. According to Suyanto (2005), the introduction of science to kindergarten children places more emphasis on processes than products and science process skills should be carried out simply while playing by exploring various objects around them. Science and mathematics as developmental tools/facilities include: 1) developing cognitive functions (logical, critical, analytical and systematic thinking); 2) building character (sensitivity, respect, thoroughness, caring, patience, responsibility, cooperation and togetherness); and 3) instilling a scientific attitude (sense and attitude of curiosity, sensitivity to problems, search for causes, find solutions and use the best solutions).

Science and mathematics in early childhood are interpreted as development both for cognitive and other aspects of development. Play activities must start from simple things in the environment around the child and must be carried out through fun games. Hence, the basic concepts of science and mathematics can be implemented optimally. Science and mathematics are two aspects of educational development in early childhood. These two fields must be viewed from three perspectives, namely the development perspective, the activity perspective, and the perspective of subject matter or content of learning material. Viewed from a developmental perspective, science and mathematics are fields that are used as vehicles to develop aspects of cognitive development and various other related aspects of development.

2.2. Mathematics

Mathematics learning is very closely related to understanding numbers. As children's sensitivity to numbers develops, they become increasingly interested in counting. This counting forms the basis for children's activities with numbers. Children's interest in counting is the basis for children to develop their abilities in activities needed in further education in elementary schools. Another opinion was expressed by Suyanto (2005), in the Circular of the Ministry of National Education Number: 1839/C.2/TU/2009 stating that the introduction of reading,

writing, and arithmetic (*calistung*) is carried out through an approach that is appropriate to the stage of child development. Therefore, education in kindergarten is not permitted to teach arithmetic material directly as individual learning to children. This arithmetic learning in kindergarten should be carried out in the development of all aspects of children development, should be carried out through a play approach, and should be adapted to children development tasks.

3. METHODS

The method used in this research is experimental study with single subject research (SSR) design, namely research that examines or observes the same object continuously (Maturidi, 2014). The experimental research design can be broadly divided into two groups, namely 1 group design and single subject design (Yuwono, 2009). This single subject research design is a quantitative research by providing intervention or treatment to research subjects within a certain period of time. The term single subject does not mean that only one research subject is studied, but it is more typical to be somewhere between one to five participants, which is why single-subject research designs are sometimes called small-n designs, where n is the statistical symbol for the sample size (Prahmana, 2021). Single Subject Research (SSR) also refers to subject research with research procedures using an experimental design to see the effect of treatment on changes in behavior. It employed graphic visual analysis data, in which the data is analyzed based on the components at each baseline (A1), intervention (B), baseline (A2).

In this study the researchers examined two children aged 6 years at Hidayatul Islamiyah kindergarten as the subject. The two children were given a game treatment/intervention of *congklak* in steam learning to improve children's cognitive ability in counting. Data collection were carried out with tools in the form of instruments which were were observation and analysis of each subject studied from before the treatment (Baseline 1), during the treatment (Intervention) and after the treatment (Baseline 2) and documentation when the child is playing the *congklak* game.

4. RESULTS & DISCUSSION

From the results of observations made by researchers in the field, it was found that the condition of the children was that there were 10 children aged 5-6 years at Hidayatulislamiyah Kindergarten, but researchers only studied 2 children. At the beginning of the study, researchers found that the two children still had low knowledge of arithmetic. From the beginning of the study until treatment was given to the 2 children, it is explained below.

Table 1. Baseline 1 Gain Score (Session 1-3)

Name	Session Test Achievement to (%)		
	1	2	3
NDA	25%	25%	25%
WDA	25%	25%	25%

Table 2. Intervention Gain Score (Session 1-3)

Name	Session Test Achievement to (%)		
	1	2	3
NDA	82.5%	87.5%	90%
WDA	82.5%	85%	90%

WDA	25-82.5 (-57.5)	90-85 (-5)
Data Overlap	$\frac{0}{3} \times 100\% = 0\%$	$\frac{0}{3} \times 100\% = 0\%$

Table 3. Baseline 2 Gain Score (Session 1-3)

Name	Session Test Achievement to (%)		
	1	2	3
NDA	85%	87.5%	90%
WDA	85%	85%	90%

The data analysis of the two children could be described as follows

- Analysis in conditions. According to the data reviewed from the first subject, namely NDA, the length of conditions from Baseline 1, Intervention, and Baseline 2 (all have 3 sessions), the trends of all graph directions were up. The trend of stability at baseline 1 was 25%, at intervention was 82.5%, and at baseline 2 was 100%. All data traces showed positive results. Stability level at baseline 1 was 25% and ranged from 82.5-87.5, at intervention level stability was 66.6% and ranged from 82.5-90, then at baseline 2 the stability level was 100% and ranged from 79.75 – 93.75. This indicates that the components of analysis between baseline conditions (A1), intervention (B), and baseline 2 (A2) showed the increase of childrens' numeracy skills.
- Inter-condition analysis. The components of the analysis between baseline conditions (A1), intervention (B), and baseline 2 (A2) in improving numeracy abilities were as follows: the initial results can be concluded that kindergarten students were still low in their numeracy skills.

Table 4. Analysis within and between Conditions

Condition Analysis	Baseline 1 (A1)/ Intervention (B)	Intervention (B)/ Baseline 2 (A2)
Number of Variables	1	1
NDA	1	1
WDA		
Directional Trends and Effects	(+)	(+)
NDA	(+)	(+)
WDA		
Stability Change	Unstable/unstable	Unstable/unstable
NDA	Unstable/unstable	Unstable/unstable
WDA		
Level Change	25-82.5 (-57.5)	90-85 (-5)
NDA		

Based on the results of the research, namely applying the *congklak* game to children using natural ingredient tools, namely *rambutan* seeds which are very good and which children also like very much, children were found to be very stimulated in their cognitive development such as children can know the benefits of *rambutan* fruit besides being able to eat it, but the rambutan seeds can also be used to play, one of which is playing *congklak*. Besides, the children also observe the *rambutan* seeds directly, and the children could know the size of the *rambutan* seeds as well as the color of the *rambutan* seeds. Additionally, the child can also be helped in counting according to the arrangement of the numbers.

During the study, this was how to play *congklak* using *rambutan* seeds with the materials of cardboard, glue, scissors, ruler, and *rambutan* seeds. Before playing the *congklak* game, the researcher firstly explained about STEAM and mathematics. In science and mathematics, children can find out the size of the *rambutan* seeds, the shape of the *rambutan* seeds, and the color of the *rambutan* seeds. The rambutan seeds are small and oval in shape, the skin is brown, and the contents are white.

Congklak is played by two players alternately by distributing each seed in front of the player into the hole on the side and done in a directional manner until the seeds run out. And in playing *congklak*, the player may not take someone else's side.

From the results of the data in this study which can be seen both from the results of data analysis under conditions and the results of analysis between conditions that were contained in 9 sessions, namely three sessions before the intervention was given (A1), three intervention sessions (B), and three sessions after the intervention was given (A2), it can be concluded that at the time before the intervention (A1) was given to the two children by using the *congklak* game, the child's ability to count was still low, which was in the range of 25%, when given treatment in the intervention conditions, the trend towards the ability to count increased, namely at 85%, after being given treatment, the tendency for children's abilities continued to increase in the range of 90%, thus proving that the *congklak* game was effective in increasing numeracy skills of children at Hidayatul Islamiyah Kindergarten.



Figure 1. Children Playing Congklak

5. CONCLUSION

It can be concluded that the *congklak* game is very useful for cognitive development in numeracy in PAUD children. Likewise, with Hidayatul Islamiyah Kindergarten students in Sumurugu Village, Wanayasa District, Purwakarta Regency, two students really liked the *congklak* game because they already understood the rules on how to play *congklak* in which they could play and learn numeracy at the same time. This can also be seen from the research data on baseline conditions before being given the intervention (A1), showing the child's ability in counting was still low at 25%, after being given treatment by playing *congklak* it increases in which children were able to recognize concepts, knew the concept of numbers, knew the function of objects, and group objects into a little and a lot up to 85%. And after the treatment is stopped, the children's ability was stable and continued to increase in which the child is able to recognize the concept of numbers, recognize symbols, as well as recognize the concept of many and few as much as 90%. Based on the results of observations made by researchers at Hidayatul Islamiyah Kindergarten in Sumurugul, it can be seen that the *congklak* game is very influential on children's cognitive development, especially in counting.

c) 6. ACKNOWLEDGEMENTS

A sincere thank you to my beloved family who always provide support, prayer, attention and all the affection. Appreciation and gratitude also goes to Mrs. Annisa Purwani, M.Pd as the supervisor in writing this article. Thank you to my friends, the teachers, and students of Hidayatul Islamiyah Kindergarten who were willing to be the object of this research. May Allah SWT always bestow mercy, health, gifts, and blessings in this world and in the hereafter for the goodness that has been given to the researcher.

d) 7. REFERENCES

- Abidin, Z. (2016). Application of selection of learning media. *Edcomtech: Jurnal Kajian Teknologi Pendidikan*, 8(1), 9–20. <http://journal2.um.ac.id/index.php/edcomtech/article/view/1784>
- Fauziddin, (2016). Application of learning through playing with blocks units to improve early childhood creativity. *Curricula Journal*, 1(3).
- Maturidi, A. J. (2014). *Metode penelitian teknik informatika*. Deepublish.

Prahmana, R. C. I. (2021). *Single subject research teori dan implementasinya: Suatu pengantar*. UAD Press.

Putri, S. U. (2019). *Pembelajaran Sains untuk Anak Usia Dini*. UPI Sumedang Press.

Shukri. (2020). Improving children's cognitive abilities through picture card media in Bunaya kindergarten. *AL-Abyadh Journal*, 3(1), 27-38. <https://ojs.diniyah.ac.id/index.php/AL-Abyadh/article/view/168>

Susanto, A. (2012.) Introduction to early childhood development in its various aspects. Jakarta: Kencana Prenada Media Group.

Suyanto, S. (2005). Basic concept of PAUD. *Tabawin Journal*, 13(2), 4.

Yuwano, I. (2009). *Buku 1 penelitian SSR (Single Subject Research)*. Lambung Mangkurat University.