



## Exploring the Potential of Traditional Congklak in the Development of Early Childhood Cognitive Abilities

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### Article Info

#### Article history:

Received Dec 24, 2023

Revised Feb 28, 2024

Accepted Apr 04, 2024

OnlineFirst May 31, 2024

#### Keywords:

Cognitive Abilities

Effectiveness

Exploring

Potential

Traditional Congklak Game

### ABSTRACT

**Purpose of the study:** To determine the existence of influence Early Childhood Cognitive Development at Kasih Bunda Kindergarten, South Aceh through traditional games cocky. To determine the teacher's activities in developing the cognitive abilities of young children at the Kasih Bunda Kindergarten in South Aceh through the traditional congklak game.

**Methodology:** This research is an experimental research with a *pre-experimental design*. The subjects of this research were students in group B1 of Kindergarten Kasih Bunda South Aceh academic year with a total of 27 students as an experimental class. The data analysis technique was carried out using descriptive quantitative by comparing the average of pre-test and post-test data collected through observation.

**Main Findings:** The findings of the study revealed a notable enhancement in the cognitive capacities of children subsequent to their involvement with the traditional congklak game. This heightened cognitive development was accompanied by increased enthusiasm and active engagement in various learning activities facilitated by the game. This enhanced cognitive development was coupled with heightened enthusiasm and increased engagement in learning activities facilitated by the game.

**Novelty/Originality of this research:** The novelty of this research is the discovery of the use of traditional games, such as congklak. Where this game is not only played but can improve the cognitive abilities of young children in terms of recognizing the concept of numbers, especially in counting activities. So that studying in class is not boring.

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## 1. INTRODUCTION

Basic education is the main foundation in forming the character and basic skills of students. As the initial stage of formal education, basic education plays a crucial role in equipping students with essential knowledge and skills to face future challenges [1]-[3]. Therefore, continuing to apply innovative learning methods in elementary schools is a must so that the educational process can have maximum positive impact [4]-[6].

Early Childhood Education encompasses the educational efforts provided to children aged 0-6 years. This developmental stage marks the beginning of pre-school, a period when children are primed to engage in educational activities that are tailored to their needs and capabilities [1], [2]. Early childhood education involves

a comprehensive approach to stimulating, guiding, nurturing, and facilitating learning activities that cultivate essential abilities and skills in children [3], [4]. The significance of early childhood education cannot be overstated, as this period is characterized by unique developmental processes. It coincides with what is often referred to as the "golden age" of development, a critical window when children are exceptionally receptive to learning and growth.

The "golden age" refers to a phase during early childhood when children exhibit heightened sensitivity to various stimuli. The specific timing of this sensitive period varies among children, influenced by individual growth rates and developmental progress [5], [6]. During this time, children's physical and psychological functions mature, making them particularly responsive to environmental stimuli. This period is crucial for establishing foundational skills across multiple domains, including motor skills, language, socio-emotional development, religious and moral understanding, and cognitive abilities [7], [8].

Cognitive development is especially pivotal during early childhood [9], [10]. Cognition as the process of recognizing or contemplating the circumstances surrounding behavior. At this stage, children are at the nascent stage of numeracy, often engaging in counting activities using objects from their immediate surroundings within playful contexts. Hence, it is vital to introduce numeracy concepts early on through diverse media and methods. Educators can enhance children's cognitive skills by employing play-based learning strategies, which not only capture children's attention but also foster cognitive growth in an engaging manner [11], [12].

In the context of language, play is described as an instinctive and joyful activity where children interact with others and their environment. This interaction is driven by curiosity and imagination, involving the use of the five senses and the entire body [13], [14]. When children engage in play, it is essential for adults to respond positively, as this encouragement can further enhance their enjoyment and engagement in the activity. Play is beneficial for cognitive development as it promotes critical thinking and problem-solving skills through imaginative scenarios.

Games serve as an excellent medium for developing cognitive aspects in children [15], [16]. Games provide a relaxed and enjoyable setting for children to practice necessary skills and competencies. Piaget emphasizes that cognitive structures require continuous practice, and games offer an ideal platform for such training. For instance, children learning basic arithmetic can explore numerical concepts through playful interactions with numbers [17], [18]. Effectiveness, in a general sense, refers to the capacity to achieve desired outcomes efficiently. Effectiveness entails producing effects or results that align with the intended goals. In this context, effectiveness in education implies the successful alignment of teaching methods with educational objectives. This research aims to evaluate the effectiveness of the congklak game in enhancing children's cognitive abilities.

The congklak game, known as "dakon" in Javanese, is traditionally played by two girls using a board with 16 holes designed to hold congklak seed [19], [20]. This study explores the use of the congklak game as an educational tool employed by teachers to support cognitive development in children. The game not only engages children in strategic thinking but also aids in counting and problem-solving activities [21]. Cognitive development, as defined in the Big Indonesian Dictionary, pertains to the acquisition of empirical and factual knowledge through cognition. This development reflects the evolution of a child's thinking processes, which are essential for solving various problems and are indicative of intellectual growth. This study focuses on cognitive development as observed through children's interactions with the congklak game, highlighting their strategic thinking and counting skills.

Several studies have underscored the benefits of traditional games like congklak in cognitive development. This research line with Kamid et al [22], research by has shown that the congklak game can significantly enhance cognitive abilities in early childhood. Additionally, the application of congklak as a learning medium helps children grasp numerical concepts, particularly in counting activities. Observations at the Kasih Bunda in South Aceh reveal that a lack of diverse media and methods in teaching leads to monotonous learning experiences, impacting children's engagement and subsequent learning activities. Addressing this issue, this research investigates the use of the traditional congklak game to stimulate cognitive development in early childhood. The study, titled " Exploring the Potential of Traditional Congklak in the Development of Early Childhood Cognitive Abilities," aims to explore the potential of traditional games in enhancing educational outcomes for young children.

## 2. RESEARCH METHOD

The type of research used in this research is experimental research to determine the effectiveness of the traditional congklak game in developing children's cognitive abilities. Experimental research is a way to look for a cause-and-effect relationship between two factors that are deliberately created by researchers by eliminating or reducing interfering factors [23], [24]. Experiments are always carried out with the intention of seeing the results of the treatment given. This research uses a pre-experimental research design with a one-group pre-test post-test

design approach. This approach involves measuring the child's cognitive abilities before and after treatment to assess the changes that occur. This design was chosen in accordance with the research objective, namely developing children's cognitive abilities after implementing the congklak game.

The population in this study was the Kindergarten B group at Kasih Bunda Kindergarten, South Aceh. Population is a generalized area consisting of objects or subjects that have certain qualities and characteristics determined by the researcher to be studied and then conclusions drawn. In this study, the population consisted of all children in kindergarten group B who were the research targets. The sample is part of the population used as research material. The sampling technique used is random sampling, namely random sampling without considering certain criteria [25]. The sample in this study was group B1 which consisted of 27 children who acted as an experimental class.

Data collection techniques are very important to implement because data obtained in the field through research instruments is 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 in this research are observation and assignment. Observation is a method of collecting information that is carried out by systematically observing and recording the phenomena that are the target of observation [26], [27]. When researchers carry out teaching and learning activities, observations are carried out by observing student activities and recording them using the instruments that have been prepared. Assignments are given by educators to provide real experiences to children, both individually and in groups. In this research, the assignment involved playing congklak activities, which aims to help children develop their cognitive abilities through fun and interactive activities.

Data analysis techniques are pivotal steps in research, playing a crucial role in drawing conclusive insights from gathered data. Within this study, data analysis was conducted through quantitative descriptive methods, a research approach aimed at elucidating existing phenomena or events by using numerical data to delineate the traits of individuals or groups [28], [29]. Central to this analysis is the t-test, a statistical tool employed to screen changes before and after treatment within a single sample group, followed by comparative hypothesis testing. This rigorous analytical process ensures the validity and reliability of the study's findings, facilitating a comprehensive understanding of the effectiveness of the traditional congklak game in enhancing children's cognitive abilities.

Research procedures include the steps taken by researchers to carry out research systematically. The first step is planning which includes determining research objectives, population and sample, as well as data collection and analysis methods. Next, researchers prepare research instruments, such as observation guides and activity sheets, and test their reliability. The next stage is carrying out a pre-test to measure the child's cognitive abilities before being given treatment. After that, the researcher gave treatment in the form of a congklak game to the experimental group. After the treatment was completed, the researchers carried out a post-test to measure changes in the child's cognitive abilities after being given the treatment. Data collected from observations, tests and assignments were then analyzed using quantitative descriptive techniques and t-tests. After analyzing the data, researchers interpreted the results of the analysis and drew conclusions about the effectiveness of the congklak game in developing children's cognitive abilities [19]. The final step is to prepare a research report that includes all stages and findings of this research.

### 3. RESULTS AND DISCUSSION

Effective learning will run well when all components work together well, one of the components in education is teachers and students. 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. There are five roles of teachers, namely educating, teaching, guiding, training and assessing. In general, the results of research on the effectiveness of the traditional congklak game in developing the cognitive abilities of young children at the Kasih Bunda Aceh Kindergarten South is in the very good category based on what has been researched in every activity process that has been carried out through the congklak game which aims to develop the cognitive abilities of young children at the Kasih Bunda Kindergarten in South Aceh. Children's ability to play congklak has a very positive influence, especially in improving children's cognitive abilities. because at this stage all aspects of a child's development are very quickly accepted by the child, the child finds it easy to think, remember and communicate, the better the logical thinking process will be [19], [20].

Playing will also make children know the limits of their abilities, they have the opportunity to win a game, if not, then they will continue to learn and practice until they are able to do it. The results of research conducted at the Kasih Bunda Kindergarten, South Aceh, show that there is an influence of the traditional congklak game in developing children's cognitive abilities. 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.

Overall teacher activities, activities using congklak games, puzzles and color blocks during the pretest went well. However, in following this process, children are less likely to participate, are less enthusiastic, and are busy with their own activities. So that the puzzles and color blocks did not attract the attention of children as a whole, after a post-test was carried out with several treatments using the congklak game, the children seemed enthusiastically looking forward to the congklak game that would be played during the learning process.

Trial results when the teacher used puzzles and color blocks. However, puzzles and color blocks are not the first to be used with children. When the teacher teaches lessons using puzzles and color blocks, all children follow and pay attention to what the teacher teaches. It can be seen from the child's behavior that he feels bored and does not understand what the teacher is teaching. [28], [30] Meanwhile, the results of the next trial 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 one of the media Congklak games can improve children's cognitive aspects. Congklak games can improve children's cognitive abilities in thinking and in terms of recognizing the concept of numbers, especially in counting activities.

Effective learning hinges on the seamless collaboration between all components involved, with teachers and students constituting pivotal elements within the educational framework [31], [32]. Teachers serve as the vanguards of educational programs, indispensable in realizing the objectives of early childhood education. The presence of both class teachers and supporting educators ensures the smooth progression of the learning journey. According to Majid, as cited by Abdurrahman, teachers fulfill five key roles: educating, instructing, guiding, training, and assessing.

The research findings regarding the effectiveness of the traditional congklak game in fostering the cognitive development of young children at Kasih Bunda Aceh Kindergarten in South Aceh are categorically promising. Through various activities facilitated by the congklak game, significant strides are made in enhancing the cognitive capabilities of young learners. At this developmental stage, children exhibit remarkable receptiveness, showcasing adept thinking, memory retention, and communication skills. Engaging in play allows children to explore the boundaries of their abilities, fostering perseverance and a growth mindset.

Observations and assignments conducted during the learning process underscore the tangible impact of the traditional congklak game on children's cognitive advancement [26], [33]. Following the introduction of the congklak game as a teaching medium, children exhibit heightened enthusiasm and engagement, demonstrating an eagerness to participate and learn while playing. Contrastingly, activities involving puzzles and color blocks initially yielded less favorable outcomes, with children displaying diminished interest and engagement. However, subsequent trials featuring the congklak game elicited a palpable sense of anticipation and delight among children, transforming the learning environment into a dynamic and enjoyable experience.

While puzzles and color blocks initially failed to captivate children's interest, the introduction of the congklak game sparked renewed excitement and engagement in learning activities. The congenial atmosphere created by the game cultivates a conducive learning environment, wherein children are motivated to actively participate and explore. Notably, the congklak game emerges as a multifaceted tool for enhancing children's cognitive abilities, particularly in numeracy skills and conceptual understanding. By integrating playful elements into the learning process, the congklak game effectively promotes cognitive development and fosters a positive attitude towards learning among young children.

#### 4. CONCLUSION

The research underscores the profound impact of the traditional congklak game as an effective tool for fostering the cognitive development of young children at Kasih Bunda Aceh Kindergarten in South Aceh. Through engaging activities facilitated by the congklak game, children exhibit heightened enthusiasm, engagement, and cognitive growth. While alternative methods such as puzzles and color blocks initially faltered in capturing children's interest, the introduction of the congklak game reignited excitement and transformed the learning environment into a dynamic and enjoyable experience. These findings highlight the pivotal role of interactive and playful learning approaches in promoting cognitive development and nurturing a positive attitude towards learning among young children.

#### ACKNOWLEDGEMENTS

We would like to express our deepest gratitude to all parties who have supported and participated in this research. Contributions and assistance from various parties are very significant for the smoothness and success of this research.

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