

Early Childhood Cognitive Development Through Mystery Box Educational Tool Game Activities at Nen Mas Ii Kindergarten In Maluku District, Maluku Province

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Abstract

Early childhood cognitive development is a crucial factor in early childhood education (PAUD), especially when the use of the Mystery Box APE is inadequate. One of the main challenges in this context is the innovation and effectiveness of APE in quality learning, which significantly impacts the cognitive development of early childhood. This study uses a descriptive quantitative approach to examine the influence of innovation and learning quality. The Classroom Action Research (CAR) approach, modeled after Kurt Lewin, was implemented in several cycles with children aged 4-5 years. Data collection was conducted through observation and documentation of 12 subjects, while data analysis used a percentage achievement formula. The results of the study showed that: (1) the results of observations in cycle I, the number of students whose cognitive development was 2 people (50%); their cognitive development was as expected for 7 people (56.25-68.75); while there were 3 people (78%) whose cognitive development was very good; (2) The results of observations in cycle II, the number of students whose cognitive development was as expected for 2 people (68.7%), while there were 10 people (87.5-100%) whose cognitive development was very good. This finding highlights the importance of using Mystery Box media in efforts to develop early childhood cognitive development. Future interventions should prioritize innovation and creativity in the use of APE to obtain quality learning in PAUD.

Keywords: Cognitive Development, Early Childhood, APE Mystery Box.

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INTRODUCTION

Early Childhood Education is a development effort aimed at children from birth to the age of 6 years, which is carried out through the provision of educational stimulation to help physical and spiritual growth and development, so that children are ready to enter further education. Early childhood is an individual figure who is undergoing a rapid and fundamental development process for later life. During this period, the process of growth and development in various aspects is experiencing a rapid period in the span of human life development, (Yuliani N.S., 2009).

Early childhood education (PAUD) aims to facilitate the holistic development and growth of children and emphasizes the development of all aspects of their personality. Early childhood, which is the vulnerable age of children aged 0-6, is also known as the golden age, a period of rapid growth and development. This period is a valuable time for a child to learn about their environment as a stimulus

for their development. Therefore, appropriate stimulation is necessary, tailored to the child's growth and developmental stages (Widodo, 2019: 3).

Each child's development is unique and different, both in terms of cognitive, social, language, emotional, and motor development. These differences in development are influenced by several factors, both internal and external. Early childhood development is also called the golden age (Turiyah, 2022: 108). While various aspects of child development are mentioned above, one important aspect of early childhood development is cognitive development. Cognitive development is the ability to develop children's perceptions based on what they see, feel, and hear, so that children have a comprehensive understanding. Cognitive development aims to develop children's thinking skills and enable them to process their learning, think symbolically, think logically, recognize number concepts, be able to represent various objects, and imagine them in the form of interesting images (Minister of Education and Culture Regulation Number 137 of 2014).

Cognitive development is one aspect of development that requires stimulation from an early age. Cognitive development is related to a child's thinking patterns, problem-solving, and imagination. According to Piaget (in Sujiono, 2009), every individual experiences four periods of cognitive development, from birth to adolescence. Children experience each period sequentially. First, the sensorimotor period occurs until the age of 2. Then, the pre-operational period occurs until the age of 7. The concrete operational period occurs until the age of 11. Finally, the formal operational period occurs until the age of 15.

Children's cognitive development can be developed through play, as play is intimately connected to them, and their world is a world of play. Play provides significant developmental benefits. Play provides a means for gaining experience, learning, for example, about relationships with others, expanding vocabulary, and expressing feelings (Mulyani, 2016: 122).

Efforts to develop early childhood cognitive development certainly require tools or media used by a teacher. The use of educational play equipment (APE) is crucial in the learning process. Educational play equipment is specifically designed for play, which has educational value and offers a wide variety of games that can be used to develop aspects of early childhood development (Lestari, 2022: 28). Educational play equipment (APE) is developed as a learning material to support educational activities, facilitate teachers in delivering learning content, and assist students in developing various aspects of their development (Fasha & Hibana, 2023: 2).

Educational play tools can help teachers and parents overcome various problems, such as communication difficulties experienced by some children. Therefore, APE can serve as a bridge that facilitates communication between children, teachers, and parents (Qadafi, 2021: 56). Engaging and enjoyable learning for children can be achieved if teachers understand how to utilize APE as educational materials to enhance children's various abilities, as early childhood learns using real objects and cannot yet think abstractly (Khaira, 2022: 3).

METHODOLOGY

This study uses classroom action research (CAR) with the Kurt Lewin (1990) model as quoted from Hidayat et al., (2024). The main concepts of Kurt Lewin's CAR model consist of planning, acting, observing, and reflecting.

This research was conducted at Nen Mas II Kindergarten, Evu Village, Southeast Maluku Regency from March 2-31, 2026. The subjects of this research were class A students of Nen Mas II Kindergarten, Evu Village, Southeast Maluku Regency, totaling 12 students.

The data collection procedure in this study uses 4 (four) stages, namely: (1) planning, (2) acting, (3) observing, (4) reflecting. In the action stage, a series of activities are carried out in the form of practice, tests, observation, and documentation.

Learning observation data were analyzed based on the research instruments used. Findings obtained in the pre-cycle were refined in the first cycle. Then, obstacles encountered in the first cycle were refined in the second cycle. Observation results were calculated and then expressed as a percentage. According to Acep Yoni, Sri Kunthi Ambarwati, and Herry Purwanto (2010: 177), the data acquisition method is as follows:

$$\text{Percentage} = \frac{\text{total score obtained by the child} \times 100\%}{\text{number of children} \times \text{maximum score}}$$

The success of classroom action research is characterized by changes toward improvement. Successful outcomes are achieved when cognitive development increases after the intervention. The indicator of success in this study is the increase in cognitive development, which can be seen in the learning process using the Mystery Box media. Researchers determined the success indicator as an average percentage of $\geq 80\%$, with very good criteria, from 12 students.

RESULTS AND DISCUSSION

a. Research Results

Cycle I.

Observations focused on children's activities in recognizing objects based on their function, classifying objects based on their function, counting objects from one to ten, recognizing number concepts, and recognizing number symbols. The indicators of children's cognitive development studied were:

Indicator I. Recognizing objects based on function

Indicator II. Classifying objects based on function

Indicator III. Counting the number of objects from 1 to 10

Indicator IV. Recognize the concept and symbols of numbers

The results of observations of children's cognitive development in cycle I are as follows:

Table 1. Observation Results from Cycle I: Children's Cognitive Development Through Educational Games Mystery Box

No	Resp.	Indic. I				Indic. II				Indic. III				Indic. IV				Σ	$\bar{x}$	%
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
1	JRR		2					3			2				2			9	2,25	56,25
2	TTA		2				2					3			2			9	2,25	56,25
3	LRU			3				3				3				3		12	3	78
4	GFD			3				3				3			2			11	2,75	68,75
5	ARA		2				2				2				2			8	2	50
6	EEL		2				2				2				2			8	2	50
7	FSI			3			2				2				2			9	2,25	56,25
8	PAS			3				3				3				3		12	3	78
9	NAL		2					3			2				2			9	2,25	56,25
10	ANI		2				2					3			2			9	2,25	56,25
11	AEL			3				3				3			2			11	2,75	68,75
12	FR			3				3				3				3		12	3	78
	Σ																		29,75	334
	$\bar{x}$																		2,41	60,25

Field Data 2026

Description:

1. BB = Not Yet Developed, 0-25%
2. MB = Starting to Develop, 26-50%
3. BSH = Developing as Expected, 51-75%
4. BSB = Very Well Developed, 76-100%

Based on Table 3.1. the results of observations in cycle I, it can be seen that the number of students whose cognitive development began was 2 people (50%); their cognitive development was in line with expectations for 7 people (56.25-68.75); while there were 3 people (78%) whose cognitive development was very good.

Cycle II

The focus of observation is on children's activities in recognizing objects based on their function, classifying objects based on their function, counting the number of objects from one to ten, recognizing the concept of numbers and recognizing number symbols.

The results of observations of children's cognitive development in cycle II are as follows:

Table 2. Observation Results from Cycle II: Children's Cognitive Development Through Educational Games Mystery Box

No	Resp.	Indic. I				Indic. II				Indic. III				Indic. IV				Σ	$\bar{x}$	%
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
1	JRR				4				4				4				4	16	4	100
2	TTA				4				4			3				3		14	3,5	87,5
3	LRU				4				4				4				4	16	4	100
4	GFD			3				3				3			2			11	2,75	68,75
5	ARA				4				4				4				4	16	4	100
6	EEL			3				3				3			2			11	2,75	68,75
7	FSI				4				4			3				3		14	3,5	87,5
8	PAS				4				4				4				4	16	4	100
9	NAL				4				4			3				3		14	3,5	87,5
10	ANI				4				4				4				4	16	4	100
11	AEL				4				4				4				4	16	4	100
12	FR				4				4				4				4	16	4	100
	Σ																		38,5	1.056
	$\bar{x}$																		3,21	80,25

Field Data 2026

Based on Table 3.2 above, the results of observations in cycle II, it can be seen that the number of students whose cognitive development was as expected was 2 people (68.7%), while there were 10 people (87.5-100%) whose cognitive development was very good.

Based on the results of observations of learning activities in Cycle II, it can be concluded that the learning indicators were fully achieved, achieving maximum scores. During the implementation of Cycle II, several aspects were found that satisfied various parties, including:

- 1). The children's cognitive development was seen to be at its maximum.
- 2). The children's interest and motivation in participating in the learning process were very high.
- 3). All students focused on learning throughout the learning process.

Furthermore, two students who received the predicate of developing according to expectations were given remedial learning. Thus, this learning cycle ended.

DISCUSSION

The Mystery Box media is designed to assist in the development of various aspects of child development, including cognitive development. Furthermore, the Mystery Box media is also very good for stimulating children to think about various images of plants, animals, and number symbols. This study measures aspects of cognitive development through learning using the themes of plants and animals. In cycle I, the theme of plants and the sub-theme of vegetables were taught in the first meeting, and the sub-theme of ornamental plants in the second meeting. The learning outcomes through observation can develop children's cognitive abilities, although cognitive development is not yet optimal. In the first learning meeting,

children take pictures of vegetable plants from the Mystery Box, then color them, then count and match the results by placing the number symbols. Children are trained in simple counting using the number symbols 1-10. Many children are still unable to distinguish between the numbers 3 and 5. Similarly, many children still lack the ability to distinguish between the numbers 6 and 9.

The learning outcomes in cycle I at Nen Mas II Kindergarten were as follows: 1 student (8.3%) had not yet developed cognitively; 8 students (66.7%) had begun to develop cognitively; and the remaining 3 students (25%) had cognitive development as expected. One child was unable to name the function of the vegetable when taking a picture of a vegetable from the mystery box. He was also unable to color the vegetable correctly, and he was unable to distinguish the numbers in the mystery box. Eight children were able to name the function of the vegetable when taking a picture of a vegetable, although their responses were not optimal. Similarly, eight children were not yet optimal in recognizing the numbers 1-10.

Learning in cycle II at Nen Mas II Kindergarten, used the theme of animals and the sub-theme of pets and wild animals. The learning results as recorded in the observation sheet are as follows: the number of students whose cognitive development is very good is 7 children (58.3%); as many as 5 children (41.7%) have cognitive development as expected, in fact there are no children whose cognitive development has not begun to develop cognitively. Of the 12 children studied, there were no children who had not developed cognitively at all, but there were 5 children who had developed cognitively although their development was not optimal. The thing that is very satisfying in the learning cycle II is that there are 7 children whose cognitive development is very good. They have the ability to recognize numbers 1-10, and can even differentiate between numbers 3, 5, also 6 and 9.

By understanding the concept of playing APE Mystery Box, children at Nen Mas II Kindergarten are able to recognize the function of objects according to the pictures, recognize geometric shapes, and recognize numbers. The children's references in recognizing the function of objects, geometric shapes, and recognizing numbers are not too abstract for them.

The research findings that use mystery box learning can demonstrate children's cognitive development in Nen Mas II Kindergarten are in line with the findings of Suyanto's (2015) research, which revealed that playing through mystery box media is an opportunity for children to explore, conduct research, conduct experiments, and gain knowledge. In early childhood, play is a child's character. Play is a vehicle for children to obtain all the information that children will capture through their five senses. Through play, children will gain a number of experiences in the form of simple counting skills in recognizing number symbols.

Learning activities using the APE Mystery Box at Nen Mas II Kindergarten have made children very interested and enthusiastic. Children are enthusiastic and happy in their learning activities in class. It is very important for early childhood to use learning media that is relevant, interesting, and diverse, as well as safe and easy to use. Therefore, the use of the APE Mystery Box helps facilitate teachers and facilitates children's understanding of cognitive development, namely in terms of recognizing geometric shapes, the function of objects, and recognizing numbers.

Concurring with Bilet Wong, in a study that also used the mystery box media, it was found that children's cognitive development can be developed through interaction. Interaction can be done through play (in Firman Ashadi, 2022).

CONCLUSIONS

The learning outcomes in cycle I through the theme of plants and the sub-themes of vegetables and ornamental plants using the mystery box game at Nen Mas II Kindergarten showed less than optimal cognitive development. On average, children were not yet able to recognize the function of plants, color correctly on plant pictures, and were not even optimal in recognizing numbers 1-10. One of the factors that had a negative influence throughout the learning process was that children's interest and motivation to participate in learning were not optimal, and there were even students who lacked focus on learning and occasionally disturbed their friends.

The learning outcomes in cycle II through the theme of animals and the sub-themes of pets and wild animals using the mystery box game at Nen Mas II Kindergarten showed very maximum cognitive development. On average, children have the ability to recognize animal functions, color correctly on animal pictures, and even have maximized in recognizing numbers 1-10. One of the positive factors with high interest and motivation of children in participating in learning, children are very disciplined in following the learning.

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