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The Effect of Busy Box Media on Early Childhood Counting Skills

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ABSTRACT

The use of Busy Box media can be an alternative learning medium. The aspect of development that can be developed through Busy Box media is children's cognitive development. In this study, researchers focused more on aspects of early counting ability because Busy Box media can be used as a learning medium to stimulate children's cognitive development, including the introduction of number concepts, size, shape, and patterns. Children's ability and interest in counting in children aged 5–6 years at PAUD Nusa Indah Ceria East Jakarta is not well developed, so it is not in accordance with their developmental stages. This study aims to investigate the effect of using Busy Box media as learning media on improving the ability to count from the beginning in children aged 5–6 years at PAUD Nusa Indah Ceria East Jakarta. The experimental research method was used in this study, with the experimental group involved in learning using Busy Box media. Data were collected through observation of children's beginning counting ability before and after treatment. The population of this research is PAUD Nusa Indah Ceria East Jakarta. The sampling technique used in this study was quota sampling. The sample in this study were children aged 5–6 years at PAUD Nusa Indah Ceria East Jakarta, as many as 31 children. The results showed that the use of Busy Box media as a learning medium had a significant positive effect on the introduction of science for children aged 5–6 years. It is known that if the value of Sig. (2-tailed) is 0.002 <0.05, then H0 is rejected and H1 is accepted. So it can be concluded that there is an average difference between the introduction of science pre-test and post-test, which means that there is an effect of Busy Box media on the ability to count the beginnings of children aged 5–6 years at PAUD Nusa Indah Ceria, East Jakarta.

Keywords: *Busy Box Media, Beginning Counting, Early Childhood*

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INTRODUCTION

Education is a process both transference and refinement that combines many elements to achieve a desired goal. The government makes every effort to improve everyone's ability, which is essential for human life. Education plays an important role in everyone's life because it can determine and show the direction of their life. Education can shape and hone a person's potential so that they have a strong character and are able to handle future problems and responsibilities (Zamroni, 2017).

Numeracy is part of the concept of mathematics. Counting skills are related to numbers, in which there are activities to mention numbers, identify numbers, compare

numbers, and operate numbers (Amaris et al., 2018). Children aged 5–6 years are expected to be able to count numbers 1–10 using concrete objects. Children's ability and interest in counting in children aged 5–6 years at PAUD Nusa Indah Ceria East Jakarta is not well developed, so it is not in accordance with their developmental stages. This was found by researchers in the results of observations in January 2024 in group B PAUD Nusa Indah Ceria East Jakarta. Where there are 12 girls and 19 boys aged 5–6 years, totaling 31 children, as many as 70% of children have not been able to mention the number symbols 1–10, use number symbols to count, or match numbers with number symbols. This can be seen during the activity of mentioning, using, and matching number symbols to count, which still requires teacher assistance so that learning runs less optimally. This basic ability to count is very important to prepare them for the next level. The use of limited learning media can affect children's counting skills. Therefore, it is necessary to have enough interesting learning media. So that it can attract children's attention and be able to stimulate children's counting skills.

Given the importance of early counting skills in children, it is necessary to use the right learning media for children. Learning media itself is an intermediary tool or an introduction to information that the teacher wants to convey to children in the learning process. According to Daryanto, learning media is anything (either humans, objects, or the surrounding environment) that can be used to convey or distribute messages in learning so that it can stimulate children's attention, interests, thoughts, and feelings in the learning process to achieve goals. (Abidah, 2020). Through media, early childhood will more easily represent the abstract understanding gained into a more concrete understanding. That way, learning media is one of the most important parts of the learning process, so learning media should be made as interesting as possible without reducing the function and purpose of the learning media.

There are many kinds of learning media that can be used and applied in classroom learning for students. One of them is by using busy box media. The busy box media includes educational teaching aids made of fiber material formed into cubes and covered by flannel cloth, where there are four types of beginning math games on each side that are made as interesting as possible so that children are interested in playing them. The media is appropriate to be applied to students during learning because it can attract interest in learning in students. Another definition of busy box media is a tool that is deliberately made to resemble a box that has a three-dimensional model. Jon Kennedy suggests that three-dimensional tools are media that can be used and appropriate in the process of attracting interest and fostering the enthusiasm of students during learning, perhaps because busy box media has a concrete form of display and content so that it can make students more active and interactive during learning activities in the classroom. Busy Box is also a teaching aid used to support the smooth implementation of teaching and learning activities, especially counting in PAUD institutions, which aims to improve early counting skills in early childhood. So that counting activities can take place regularly, effectively, and efficiently and learning objectives at PAUD institutions can be achieved.

Early childhood education prepares children to develop optimally for the next level. The ability to begin counting is a basic ability that must be mastered by children. Based on the above problems, the researcher wants to conduct a study entitled The Effect of BBM Media (Busy Box) on the Ability to Count the Beginning of Children 5–6 Years of Age.

Busy Box Learning Media

Learning while playing for early childhood is very important. By learning while playing, the learning process will be effective and easier to capture when they are playing, and one of the benefits of playing is good for development. Busy Box Media is one of the educational media for children. The definition of busy box comes from English, where busy means busy and box means box, which, if interpreted as a whole, becomes busy box, which means a busy box (Nulaela, 2018). Busy Box Media itself has a variety of activities to support early counting skills for early childhood, consisting of 4 sides, and each side contains early counting concepts that can be played by children. Each side of this busy box has a different level of difficulty but has the same goal of recognizing the concept of numbers in early childhood.

Busy Box is a box-shaped learning medium that contains various kinds of educational games. The games in the busy box are designed to stimulate children's early counting skills. Busy boxes can be made from a variety of materials, such as flannel, cardboard, wood, and plastic. Busy boxes made of fiber contain activities that can stimulate children's early counting activities—subject matter that is packaged in a way that is played by children independently. This program focuses on introducing beginning counting activities through fun play that keeps children moving and busy. The Busy Box is expected to be a model for introducing the concept of beginning counting in early childhood.

Busy Box has many benefits for early childhood, according to (Khaerun Nisa et al., 2022) and (Dimas & Akmal, 2022) among others:

1. Improves fine motor skills
   The games in the Busy Box, such as opening and closing zippers, buttons, and velcro, can help improve children's fine motor skills.
2. Develops cognitive skills
   Busy Box games, such as matching shapes and colors, can help develop children's cognitive abilities
3. Improving language skills
   Busy Box games, such as naming objects and saying numbers, can help improve children's language skills.
4. Strengthens concentration and focus
   The games in the Busy Box can help strengthen children's concentration and focus.
5. Enhances creativity and imagination
   The games in Busy Box can help increase children's creativity and imagination.
6. Fosters curiosity
   The games in the Busy Box can help foster children's curiosity.

7. Develops problem-solving skills
   The games in the Busy Box can help develop children's problem-solving skills.
8. Instill positive values
   The games in the Busy Box can help instill positive values such as cooperation, patience, and perseverance.Early Childhood Counting Skills.

Early Childhood Counting Skills

Early childhood education is education to prepare children to enter further schooling by providing educational stimuli so that children's growth and development can increase in accordance with growth and development. Children who build their own knowledge actively related to their world have one of the cognitive abilities that children have. Children will learn how to interact with the environment in accordance with their developmental needs. Providing stimulation is given to children aged 0–6 years; at this stage, the child has a high level of curiosity, and questions arise in the form of things that the child does not know (Ariyanti, 2018).

Cognitive ability is a thought process to be able to solve problems, think logically, and remember (Basri, 2017). Giving encouragement to cognitive aspects in children can help them use their way of thinking to compare, combine, and remember events that occur (Rozalina, 2018).

One aspect of cognition is counting. Counting is one of the most important lessons given to children who are in kindergarten. Developing basic knowledge in kindergarten requires a game that can attract children's attention and build curiosity in them. Learning to count can build a fun learning process so that children will have the readiness and provision of counting skills to be taken to a higher level (Darnis, 2018). The ability to count that each child has brought from childhood is developed through the environment around the child through creative and innovative game media to foster children's interest in learning to count (Sagita, 2020).

METHOD

The type of research used in this study is quantitative research with experimental research methods, because this research was conducted to test the validity of a learning medium. The media tested in this study is busy box media. Experimental research is research used to seek the effect of certain treatments on others under controlled conditions (Sugiyono, 2017). This experiment aims to examine the effects of treatment. In the experimental group, the application of learning using Busy Box media to early counting skills in early childhood.

RESULT AND DISCUSSION

This study was conducted to determine the effect of Busy Box media on the calculation of the beginning of children aged 5–6 years at PAUD Nusa Indah Ceria Rawamangun, East Jakarta.

1. Implementation of Experimental Activities

In this study, the researcher acted as a class teacher when conducting research. Activities carried out by researchers are not related to the theme but to observe children's observation skills with Busy Box media. The implementation of the treatment was carried out three times by adjusting the child's needs. Before the child is given treatment, the child is invited to practice concentration first with simple concentration claps. By restoring children's concentration before treatment, children will find it easier to concentrate when they are experimented with with Busy Box media. Before the research was conducted, the researcher prepared materials to carry out the research. Among the things that need to be prepared in this study are a conducive room before carrying out the pretest, treatment, and posttest, Busy Box media, and research instruments. Treatment activities were carried out three times, with two meetings for the pretest and posttest.

2. Description of Experimental Activities

The description of experimental activities in this study to determine the effect of Busy Box media on the ability of children aged 5–6 years in PAUD Nusa Indah Ceria Rawamangun East Jakarta will be explained as follows:

a. Pretest

The first step taken by the researcher is to conduct a pretest to determine the child's initial ability related to the child's ability to count the beginning, which is done before the pretest. A test was conducted once to see the child's ability to count from the beginning. The results of observing the initial conditions in 20 students show that there are still children who have not developed. The level of achievement in the undeveloped category (BB) was 4 children, or equivalent to 12.91%; in the category of starting to develop (MB), as many as 12 children, or equivalent to 38.70%; in the category of developing as expected (BSH), as many as 11 children, or equivalent to 35.48%; and in the category of developing very well (BSB), as many as 4 children, or equivalent to 12.91%. This is because children have not been able to observe, classify, measure, use numbers, and identify cause-and-effect relationships..

Table 1. Pretest Experiment Results

Category	Class Interval	f	%
BSB	>79	4	12,91
BSH	73 - 78	11	35,48
MB	67-72	12	38,70
BB	< 66	4	12,91
Jumlah		**31**	**100**

b. Treatment

Giving treatment to research subjects, namely group B children, using Busy Box media. This treatment is carried out by researchers in learning by preparing

Busy Box media in advance to support the treatment activities to be carried out and providing material to children for three meetings.

c. Posttest

In the implementation of the posttest, the researcher repeats the material that has been given to children about beginning counting. The last stage in this study is a posttest to determine the child's final ability to begin counting. This final stage measurement was carried out once after treatment, three times.

Table 2. Experiment Posttest Results

Category	Class Interval	F	%
BSB	≥90	13	41,93
BSH	84 - 89	12	38,71
MB	78 -83	5	16,13
BB	< 78	1	3,23
Jumlah		**31**	**100**

The results of observing conditions after being given Busy Box media treatment to 31 students show that the number of the number of children who have not developed greatly decreased. The level of achievement in the undeveloped category (BB) shows that there is rapid progress, namely from 4 children to 1 child, or equivalent to 3.23%; in the category of starting to develop (MB), as many as 5 children, or equivalent to 16.13%; in the category of developing as expected (BSH), it has increased from 11 children to 12 children, equivalent to 38.71%; and in the category of developing very well (BSB), it has also experienced a drastic increase from 4 children to 13 children, equivalent to 41.93%.

Tabel 3. Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre Test	2017	31	3.73561	1.18135
	Post Test	2347	31	3.22492	1.01970

Based on the results of the paired sample statistics of the experimental class, the average of the experimental class research results is 2107, and the standard deviation is 3.73561. The average posttest of the experimental class is 2347, and the standard deviation is 3.22492.

Tabel 4. Paired Sample T Test

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre Test - Pos Test	-330	2.3664	7.4833	-9.2928	-5.9171	-10,150	34	,002

Based on the "Paired Samples Test" output table above, it is known that the sig. (2-tailed) is 0.002 <0.05, which means that H0 is rejected and Ha is accepted. So it can be concluded that there is an average difference between children's initial counting ability during the pre-test and post-test, which means that there is an effect of Busy Box media on the initial counting ability of children aged 5–6 years at PAUD Nusa Indah Ceria Rawamangun East Jakarta.The "Paired Samples Test" output table above also contains information about the value of "Mean Paired Differences," which is 7.4833. This value shows the difference between the average introduction of science pre-test and the average introduction of science post-test, and the difference is 330, which means that the treatment provided by researchers during the study has an influence on the ability to count the beginnings of children aged 5–6 years at PAUD Nusa Indah Ceria Rawamangun East Jakarta.

DISCUSSION

Early childhood education has a very important role in shaping the foundation of child development. One of the important aspects of early childhood education is to develop cognitive abilities, especially the ability to count by starters, in a fun and effective way. This study aims to understand how the use of Busy Box media can affect the beginning counting skills of children aged 5–6 years. To better understand the significance of this study, we need to review previous research that has illustrated the importance of science education in early childhood, the role of media in the learning process, and the impact of Busy Box media on the development of children's beginning counting skills.

One type of media that has attracted research attention is Busy Box Media. Previous research has explored how this medium can be used for early childhood education. (Mayar et al., 2022) conducted a study that revealed the positive effect of busy box media on the cognitive development of children aged 4-5 years. This study found that the use of busy boxes can significantly improve children's abilities in problem solving and pattern recognition. In line with these findings, Nurjanah and Hakim (2020) examined the effectiveness of busy boxes in improving early counting skills in children aged 3–4 years. Their results showed that this medium is effective in helping children understand basic counting concepts. Now, let us further detail how this study connects the previous

findings in improving the ability to begin counting in children aged 5–6 years at PAUD Nusa Indah Ceria Rawamangun East Jakarta.

First of all, it should be noted that children aged 5–6 years at PAUD Nusa Indah Ceria Rawamangun East Jakarta are a very important age group in the formation of their early understanding of the world. Previous research has shown that children of this age have very fast learning abilities and are able to absorb information well. Therefore, an effective approach to introducing number concepts to this age group has a significant impact on their development. The use of Busy Box media in this context is an interesting aspect because it can integrate children's sensory and motor aspects with the concept of number or beginning counting.This research can also provide additional insights into how Busy Box media can be adapted to the needs of children in their cultural context and educational environment. PAUD Nusa Indah Ceria has a unique cultural and environmental context, and this study can provide insights into how Busy Box media can be effectively integrated in science teaching that fits the context. Research by Hwang et al. (2018) highlights the importance of adapting teaching methods to the learning environment and culture. Therefore, this study can serve as an example of how Busy Box media-based learning methods can be adapted to the special education context of PAUD Nusa Indah Ceria Rawamangun East Jakarta.

Overall, this study connects with previous research by explaining how the use of Busy Box media in introducing beginning counting to children aged 5–6 years at PAUD Nusa Indah Ceria Rawamangun East Jakarta can provide significant benefits. Findings from previous research on the importance of beginning counting at an early age, the role of media in learning, and the positive impact of Busy Box media on children's development provide a strong foundation for further exploration of the influence of Busy Box media in the context of early childhood education. As such, this research has the potential to make an important contribution to improving the quality of early childhood education in PAUD Nusa Indah Ceria Rawamangun, East Jakarta, and possibly in other settings with similar characteristics.

CONCLUSSION

Based on the description above, it can be concluded that the use of Busy Box media as a learning media has a significant effect on cognitive development, especially the ability to count the beginnings of children aged 5-6 years at PAUD Nusa Indah Ceria Rawamangun East Jakarta. This can be seen from the total pretest value of 2017 and the total posttest value of 2347 with a difference in value of 330, which means that the treatment given by the researcher during the study has an influence on the ability to count the beginnings of children aged 5-6 years at PAUD Nusa Indah Ceria Rawamangun East Jakarta.

Hypothesis testing found that H0 was rejected and Ha was accepted. The t-test calculation shows that the Sig. (2-tailed) is 0.002 <0.05, then H0 is rejected and Ha is accepted. So it can be concluded that there is an average difference between the introduction of science PreTest and PostTest, which means that there is an effect of Busy

Box media on the ability to count the beginnings of children aged 5-6 years at PAUD Nusa Indah Ceria Rawamangun East Jakarta..

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