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Cognitive Development (Symbolic Thinking) of Early Childhood Through the Innovation Of Bowling Media

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ABSTRAK

The use of bowling media in RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan has not been used. Researchers are interested in developing bowling media with the aim of developing cognitive, because early childhood in RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan in terms of cognitive ability is still undeveloped. The purpose of this study is to find out the development of Media Bowling Against Cognitive Development (Symbolic Thinking) Early Childhood. This research methodology uses (research and development). The development procedure according to Borg and Gall's theory consists of seven stages. Based on the results of the study it can be concluded that, the use of bowling media in children aged 5-6 years in RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan can improve children's cognitive abilities.

Keyword : *Media Bowling, Symbolic Thinking, Children of This Age*

INTRODUCTION

Play is an overall activity carried out by an individual that is fun, exciting, and creates enjoyment that serves to help individuals achieve complete development,

both physically, intellectually, socially, morally and emotionally. Play is a relaxing, fun activity without demands (burden) for children. Play is also an essential need for children. Through play, children can satisfy the demands and developmental needs of the motor, cognitive, creative, emotional, social, values, language and life attitudes (Elfiadi 2016). One of the early childhood games in improving children's abilities is playing using bowling games.

Bowling is a game activity to help children's physical, intellectual, social, moral and emotional development by rolling the ball on ten pins which have been arranged to form a triangle seen from above (Ni Kadek Dwi Pradnya Sari, I Ketut Adnyana Putra 2016).

Based on the results of the pre-survey, the use of bowling media at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan has not been used (Anon 2020), besides that by making bowling media, it can be made using used wood or boards, so it is easy to obtain. Therefore, the author is interested in developing the bowling media.

Cognitive development focuses on thinking skills, including learning, problem solving, rationality, and memory. The development of cognitive skills is directly related to the development of other skills, including communication, motor, social, emotional, and adaptive skills (Desmita 2010) (Arimbi, Saparah ayuningsih, and Ardina 2018). In other words, the individual's cognitive ability will increase gradually from birth through the child's interaction with the environment.

In fact, everything that is around children's activities can be used as a source of useful information for children (Yusuf, Susilawati, and Maba 2020). The information they see, touch and even be able to taste with their sense of taste is an action that can be used to measure children's cognitive development. Moreover, the environment is used as a fun medium for children (Juwantara 2019).

But in reality, early childhood in RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan in terms of children's cognitive abilities is considered to be still lacking, this is caused by facilities and infrastructure that are less supportive in terms of learning, besides that the teacher places more emphasis on reading and writing and arithmetic activities because of the demands of parents who tend their children to be able to read and write when they enter school. elementary school level. With this research, it is hoped that the cognitive development of children at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan is increasing so that there is a significant balance of curriculum goals and child development which is one of the successes of education (Anon 2020). Cognitive abilities of early childhood, especially in the aspect of symbolic thinking at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan is still relatively low compared to the level of achievement of other abilities in children aged 5-6 years.

RESEARCH METHODOLOGY

In this study using the *R & D research methodology,* according to Sugiyono that *Research and Development* research is a research method used to produce certain products and test the effectiveness of these products (Sugiyono 2010). The place of

this research was carried out at RA Muslimat NU 1 Tulus Rejo, Pekalongan District, Central Lampung.

This research method uses the development model developed by Borg & Gall. Borg and Gall argue that the research and development (R & D) approach in education includes ten steps. The main purpose of this research and development method is used to produce certain products and determine the feasibility of the products being developed.

Based on the research and development stages that were developed, the researchers made simplifications and limitations into seven stages, namely 1) potential and problems, 2) data collection, 3) product design, 4) validation of the first design, 5) design improvement, 6) validation of the second design. , and 7) product revision. because of the limitations of the researcher.

RESEARCH RESULTS AND DISCUSSION

The potential in this research is that the modified bowling game has very important goals and benefits for early childhood. The purpose of bowling games for young children is to train coordination of movements, concentration, and predicting the power to drop pins.

While the problem in this research is early childhood in RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan in terms of children's cognitive abilities are considered to be still not developed, this is caused by the facilities and infrastructure that are less supportive in terms of learning, besides that the teacher places more emphasis on reading and writing and arithmetic activities because of the demands of parents who tend their children to be able to read and write when they enter to the elementary school level. Cognitive abilities of early childhood, especially in the aspect of symbolic thinking at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan is still relatively low compared to the level of achievement of other abilities in children aged 5-6 years.

Product Design

Bowling game is a game activity to help children's physical, intellectual, social, moral and emotional development by rolling the ball on ten pins which have been arranged to form a triangle seen from above. The design of bowling media in this study are:

The results of revisions from media experts in the form of improvements and suggestions on this bowling media, namely giving color to bowling pins to make it more attractive for early childhood.

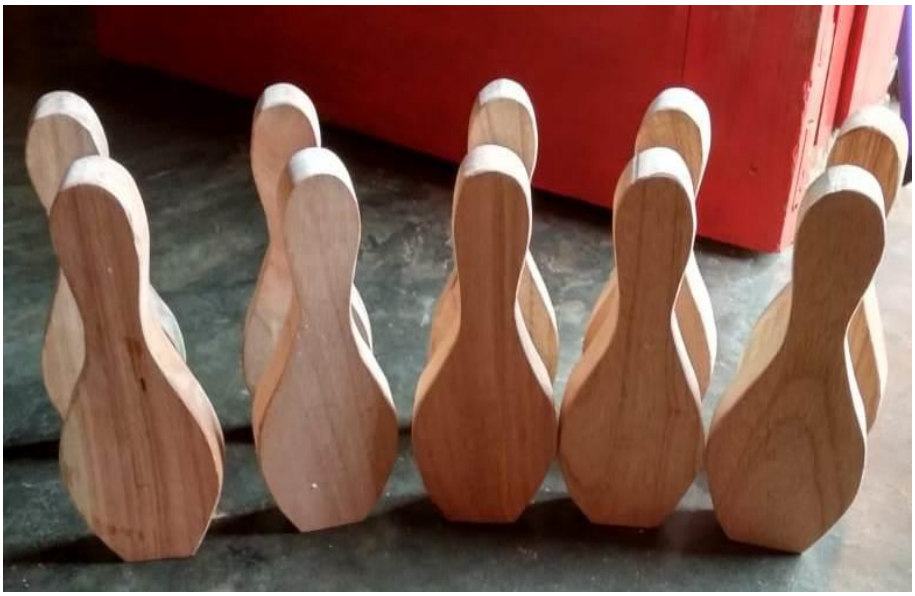


Figure 4.1 Before the revision of the Media Expert

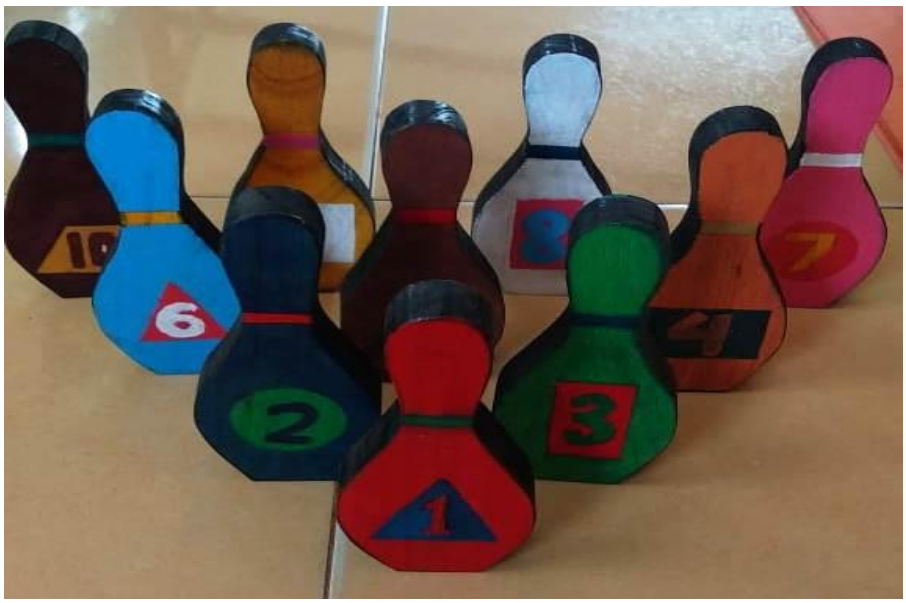


Figure 4.2 After the revision of the Media Expert

a. Material Expert

The revision result from the material expert is in the form of improvements and suggestions on this bowling media, namely the need for a number board that shows the number of bowling and the number.

Product Trial

After validating the design and making design improvements, the next step is to carry out a product trial phase as a limited trial. At the product trial stage (limited trial), the researchers first simulated the use of bowling game tools and materials, then the researchers continued with student trials.

Cognitive abilities of early childhood, especially in the aspect of symbolic thinking before using bowling media at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan is still classified as undeveloped compared to the level of achievement of other abilities in children aged 5-6 years.

In the following, the researchers include the results of a pre-survey on the level of cognitive abilities of children at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan are as follows:

Table 4.1
Pre-Survey Data on Cognitive Ability of Children at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan

No.	Name	Indicator				Result
		1	2	3	4	
1.	Abid Nur Fata Susilo	BB	MB	BB	MB	BB
2.	Ayumna Inara Putri	BHS	BSH	MB	MB	MB
3.	Azkha Ramadani	BB	BB	MB	BB	BB
4.	Elang Aliando	BB	MB	BB	BB	BB
5.	Elvika Rahma	MB	BSH	MB	MB	MB
6.	Iqlima Zamzami	BB	MB	BB	BB	BB
7.	Khusnul Khotimah	BB	BB	BB	BB	BB
8.	Maqaila Zahira	BB	BB	BB	BB	BB
9.	Muhammad Abdiansyah	MB	MB	MB	MB	MB
10.	Naira Nurrohma	MB	BB	MB	BB	BB
11.	Nazwa Assyifa	BB	BB	BB	MB	BB
12.	Nesha Anggraeni	BSH	MB	MB	BSH	MB
13.	Raisya Saputra	MB	BB	BB	BB	BB
14.	Tiara Angelina	BSH	BSH	MB	BSH	BSH

Sourse: Documentation Results of Cognitive Ability Level at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan 2020

Description:
BB : Not Developed
MB : Starting to Develop
BSH : Developing as Expected

Indicators:
1. Name the numbers 1-10
2. Use numeric symbols to calculate
3. Match numbers with the number symbol
4. Representing various kinds of objects in the form of pictures

From the table data above, in the process of cognitive development in early childhood at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan, in the researcher's observations, it can be seen from the observations in the table above, there are 9 students in the Undeveloped category, 4 students in the Beginning to Develop category and 1 student in the Developing as Expected category, while the Very Good Developing category there is not any.

Then the researchers conducted a trial using bowling media on children aged 5-6 years at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan, the results are as follows:

Table 4.2
Research Results of Children's Cognitive Ability at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan

No.	Name	Indicator				Result
		1	2	3	4	
1.	Abid Nur Fata Susilo	MB	BSH	MB	BSH	MB
2.	Ayumna Inara Putri	BSB	BSB	BSH	BSH	BSH
3.	Azkha Ramadani	MB	MB	BSH	MB	MB
4.	Elang Aliando	MB	BSH	MB	MB	MB
5.	Elvika Rahma	BSH	BSB	BSH	BSH	BSH
6.	Iqlima Zamzami	MB	BSH	MB	MB	MB
7.	Khusnul Khotimah	MB	MB	MB	MB	MB
8.	Maqaila Zahira	MB	MB	MB	MB	MB
9.	Muhammad Abdiansyah	BSH	BSH	BSH	BSH	BSH
10.	Naira Nurrohma	BSH	MB	BSH	MB	MB
11.	Nazwa Assyifa	MB	MB	MB	BSH	MB
12.	Nesha Anggraeni	BSB	BSH	BSH	BSB	BSH
13.	Raisya Saputra	BSH	MB	MB	MB	MB
14.	Tiara Angelina	BSB	BSB	BSH	BSB	BSB

Source: Documentation Results of Cognitive Ability Level at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan Year 2020

Information:
BB : Not Developed
MB : Starting to Develop
BSH : Developing as Expected
BSB : Developing Very Well

Indicators:
1. Name the numbers 1-10

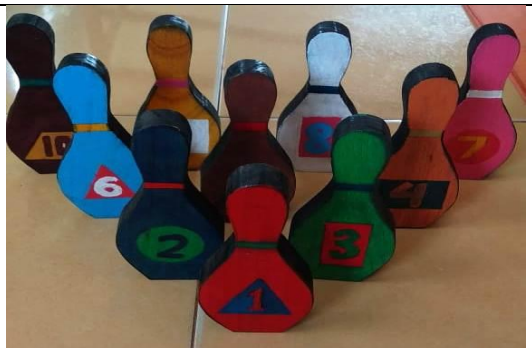
2. Use numeric symbols to calculate
3. Match numbers with the number symbol
4. Representing various kinds of objects in the form of pictures

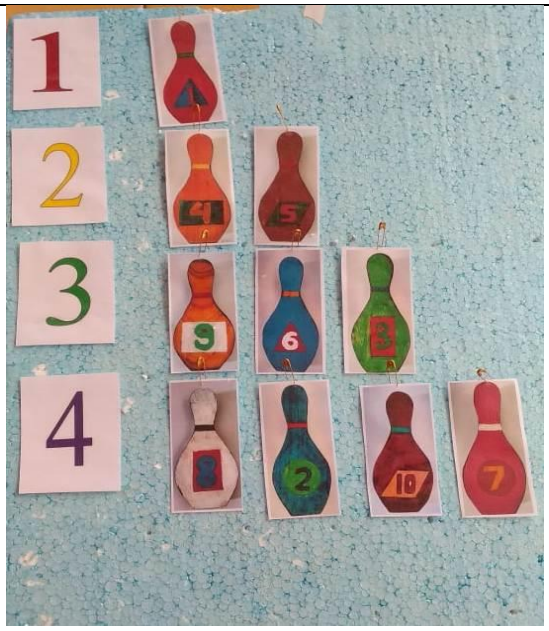
From the data above, in the process of cognitive development in early childhood at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan, in the observations of researchers, it can be seen from the observations in the table above, there are no students in the Undeveloped category, 9 students in the Beginning to Develop category and 4 students in the Developing As Expected category, while the Very Good Developing category there is already 1 child. Therefore, it can be said that bowling media can improve the cognitive abilities of children aged 5-6 years at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan.

Product Revision

After the researcher tested the bowling game tool learning media, the results would be assessed by the validator, if there were still parts of the product that were not as expected, the researcher would revise the product for these weaknesses. Because there is nothing more that needs to be revised, the bowling media in this study can be presented as follows:

Table 4.3
Final Product

Design	Figure
Bowling Ball	
Pin Bowling	

Numberboard	

The results of this research are not only to develop an existing product, but also to find knowledge or answers to practical problems. The product developed in this research is bowling media to develop the cognitive abilities of children aged 5-6 years at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan. Cognitive development focuses on thinking skills, including learning, problem solving, rationalization, and remembering. The development of cognitive skills is directly related to the development of other skills, including communication, motor, social, emotional, and adaptive skills. In other words, the individual's cognitive ability will increase gradually from birth through the child's interaction with the environment.

But in reality, early childhood in RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan in terms of children's cognitive abilities are considered to be still not developed, this is caused by the facilities and infrastructure that are less supportive in terms of learning, besides that the teacher places more emphasis on reading and writing and arithmetic activities because of the demands of parents who tend their children to be able to read and write when they enter to the elementary school level. With this research, it is hoped that the cognitive development of children at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan is increasing so that there is a significant balance of curriculum goals and child development which is one of the successes of education.

Based on these problems, the researchers developed bowling media to improve children's cognitive abilities. The steps for using bowling media for children aged 5-6 years to improve children's cognitive abilities at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan, namely:

a. The teacher provides bowling equipment consisting of a small bowling ball made of baseball, as well as ten bowling pins made of wood.

Based on the results of the study, before starting the study, the researcher prepared bowling equipment, including baseball, and ten bowling pins made of wood. This can be seen in the following image:

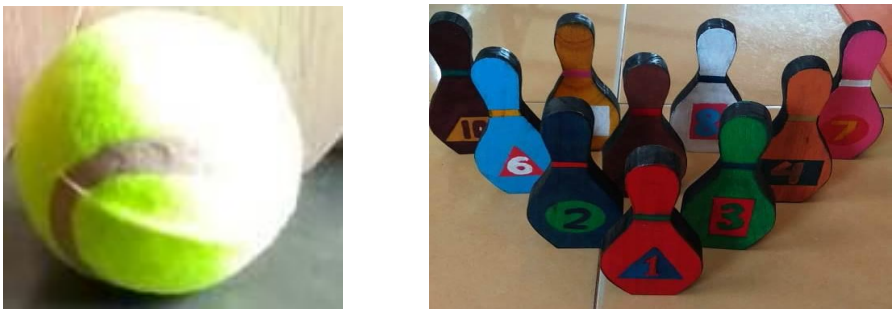


Figure 4.6 Bowling Media Equipment

Based on the picture above, it can be explained that the teacher in the learning process using bowling media has provided bowling balls and pins before learning begins.

b. The teacher provides pictures of geometric shapes that have been numbered 1-10

Based on the results of the research, in addition to preparing equipment in the form of baseballs and pins made of wood, the researchers also provide pictures of bowling pins that have been numbered 1-10, as shown below:

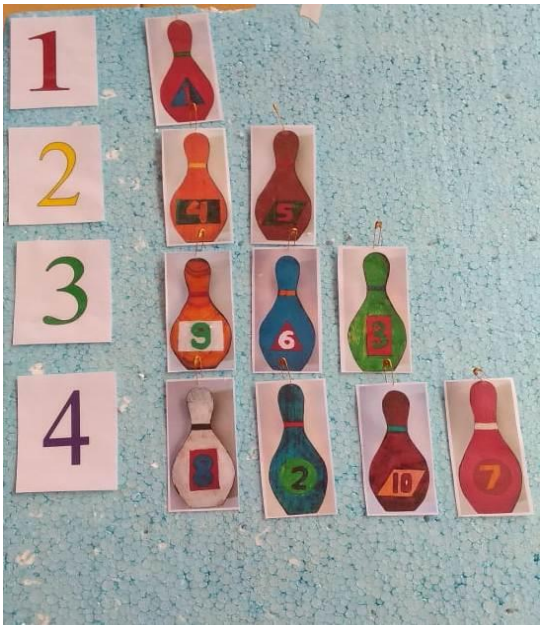


Figure 4.7 Figure Board

Based on the picture above, it can be explained that before learning begins the teacher has provided pictures of geometric shapes that have been numbered 1-10.

c. The teacher provides a blackboard for sticking

In this case, the researcher replaces the blackboard with a flannel board as a place for sticking numbers, as shown in the following image:

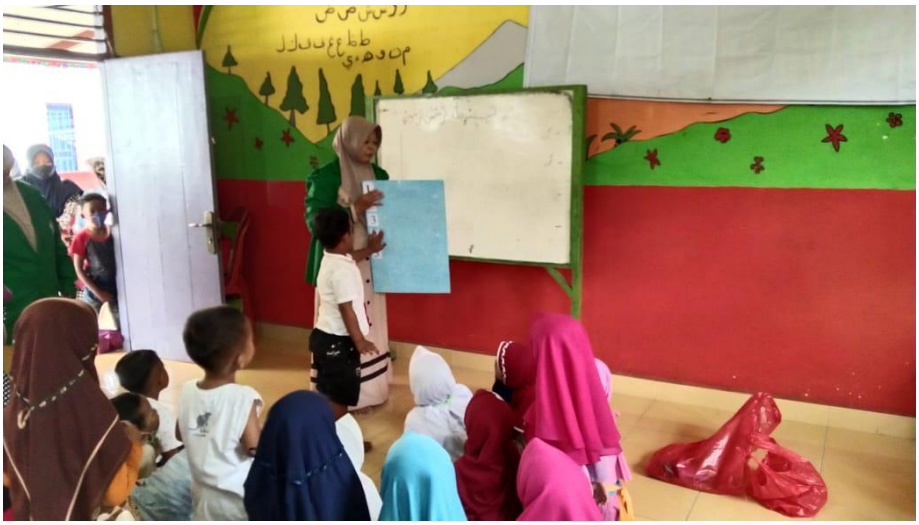


Figure 4.7 Sticking Numbers Activities

Based on the picture above, it can be explained that in the learning process using bowling media, the teacher has provide a whiteboard for pasting.

d. Arrange the bowling pins neatly.

Next, the child is asked to arrange the bowling pins neatly, and in a triangular shape so that the game can start immediately. The picture of the arrangement of bowling pins is as follows:

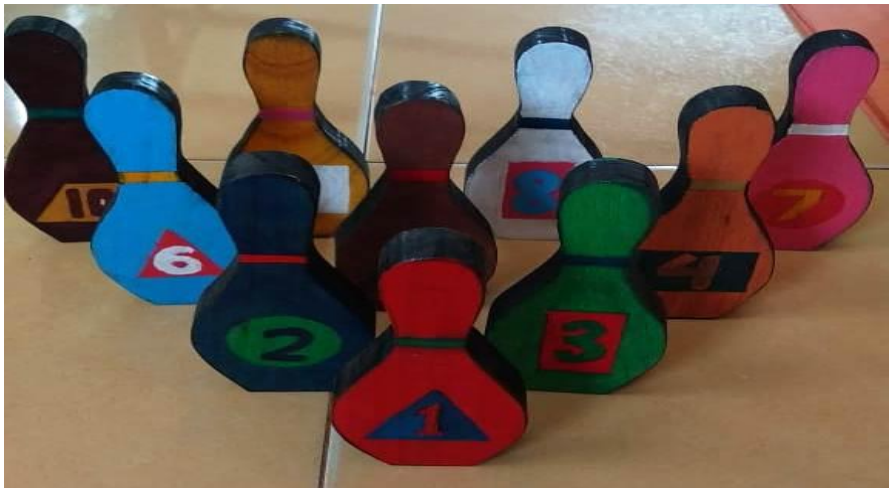


Figure 4.8 Arrangement of Bowling Pins

Based on the picture above, it can be explained that children have been asked to arrange bowling pins neatly in a triangular shape.

e. Take a small bowling ball made of baseball and ask the child to roll the ball towards the pin until it knocks down the pin.

The next activity is the child is asked to take a small bowling ball made of baseball and ask the child to roll the ball towards the pin until it knocks down the pin , as shown below:

Figure 4.9 Rolling the Bowling Ball

Based on the picture above, it can be explained that the teacher has asked the children to roll the ball towards the bowling pin until the bowling pin collapses.

f. Ask the child to count the fallen pins

After the child rolls the ball, until it hits the bowling pin, then the child is asked to count the fallen pins, as shown in the following picture:

Figure 4.10 Children count the fallen pins

Based on the picture above, it can be explained that in learning using media bowling, after the child knocks down the bowling pin, then the child counts the fallen pins.

g. Ask the child to take the number written on the geometric shape and then ask the child to paste it on the blackboard.

The last step, namely the child is asked to take the number written on the bowling pin and then asks the child to stick it on the flannel board that has been provided. As the following picture:

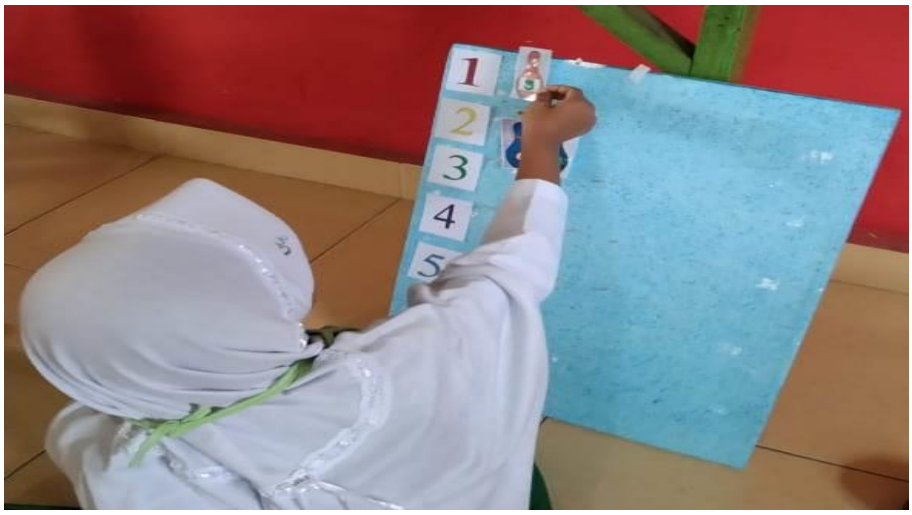


Figure 4.11 Children stick numbers

Based on the picture above, it can be explained that after the children count the fallen pins, the last step is the child sticks the numbers based on the number of fallen pins.

Based on the steps for using bowling media that have been applied to children aged 5-6 years at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan and strengthened by learning steps, it can be seen that the steps for using bowling media are in accordance with existing theory.

Cognitive Development in children aged 5-6 years before using bowling media at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan, namely students in the Undeveloped category as many as 9 children, students in the Beginning to Develop category as many as 4 children and students in the Developing as Expected category as many as 1 child, while the Very Good Developing category does not exist.

Cognitive Development in children aged 5-6 years after using bowling media at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan, namely there are no students in the Undeveloped category, 9 students in the Beginning to Develop category and 4 students in the Developing as Expected category, while the Very Good Developing category already has 1 child. Therefore, it can be said that bowling media can improve the cognitive abilities of children aged 5-6 years at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan.

This research was conducted on children aged 5-6 years at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan for 4 weeks with the initial step being making a bowling media product design. Furthermore, the researchers validated the design to two experts, in this case, media experts and material experts. After the two experts stated that the bowling media that the researchers developed was feasible, the next step was to test the product for children aged 5-6 years at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan. After conducting trials, it was proven that bowling media can improve the cognitive abilities of children aged 5-6 years at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan.

CONCLUSION

The results of this study are as follows: the development of bowling media at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan with the following steps: 1) The teacher provides bowling equipment consisting of a small bowling ball made of baseball, and ten bowling pins made of wood. 2) The teacher provides pictures of geometric shapes that have been numbered 1-10. 3) The teacher provides a blackboard for sticking. 4) Arrange bowling pins neatly. 5) Take a small bowling ball made of baseball and ask the child to roll the ball towards the pin until it knocks down the pin. 6) Ask the child to count the fallen pins. 7) Ask the child to take the number written on the geometric shape and then ask the child to paste it on the blackboard.

The use of bowling media for children aged 5-6 years at RA Muslimat NU 1 Tulus Rejo Kec. Pekalongan can improve children's cognitive abilities. This can be seen from before using bowling media, there were 9 students in the Undeveloped category, 4 students in the Beginning to Develop category and 1 student in the Developing as Expected category, while the Very Good Developing category did not exist. Then after using bowling media, there were no students in the Undeveloped category, 9 students in the Beginning to Develop category and 4 students in the Developing as Expected category, while the Very Good Developing category had 1 child.

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