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Water Playing Method to Improve Science in Group B Children at PAUD Khairul Ummah

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Abstract. This type of research is a quantitative research (experimental) with a *one-group pretest-posttest design research method.* The number of samples in this study amounted to 15 children with a population of 35 children. Based on the results of research conducted with normality testing and t-test, the results obtained are, normality testing using the *Lilliefors method is* obtained with the results of the data in *the pre-test* obtained the value of L_{table} with determination α = 0.05 with a sample size of 15 which is 0.220 then $L_{count} < L_{table}$ (0.103 < 0.220) this indicates that the *pre-test data* is normally distributed. And in the *post-test data* obtained the value of $L_{count} < L_{table}$ (0.170 < 0.220) this indicates that the *post-test* sample is normally distributed. And the calculation of the hypothesis test above can be seen and the t -value = 4.914 and the real level α = 0.05 so that the t - $_{table}$ is 1.761. It can be concluded that $t_{count} > t_{table}$ = 4.914 > 1.761, thus Ho is rejected and Ha is accepted. It is stated that there is a significant effect on the use of the water play method to improve the *science* of group B children in Khairul Ummah PAUD, Medan Johor district, for the 2021/2022 academic year.

Keywords: water properties, *scientific abilities*, water play method

I. INTRODUCTION

The Directorate of Early Childhood Education (PAUD) of the Ministry of National Education stated that early childhood education is a process of fostering the growth and development of children aged birth to six years as a whole, which includes physical and non-physical aspects by providing stimulation for physical, moral, spiritual, motoric development. appropriate and correct emotional, and social so that children can grow and develop optimally. Early childhood has unique characteristics, both physically and mentally. Therefore, learning strategies and methods applied to early childhood need to be adapted to the characteristics possessed by children. S*cience* skills for early childhood can be done using various methods or ways that are not difficult for children. This can be directed through meaningful processes or activities.

In this study, it is hoped that children can improve their *scientific abilities* through the water play method. Water has a shape that doesn't exactly follow the container, that is, water that is poured into a glass will follow the shape of the glass, when it is transferred to a bowl, the shape will change to the shape of a bowl. Water dissolves substances for example when making sweet tea, then the sugar will dissolve with the water. The nature of water is that it follows the shape of the container where water dissolves some substances, water flows from high to low. The material used by researchers here is material that is easy for children to understand by using the simple water play method, it is hoped that children will more easily understand what and remember the material being conveyed.

In fact, the level of children's *science ability* in group B at PAUD Khairul Ummah is still said to be low, because the teacher in the teaching and learning process is less attractive, still using worksheets and the lecture method. Besides that lack of means and infrastructure which support to improve children's *science* and learning media used are also not yet maximally to improve *science for group B children. Even though science* learning does not require a lot of money and there are already many books on *science learning* for early childhood. With a lack of variations in learning methods in learning activities resulting in less trained children's *science development* , children only receive information and a lack of opportunities for children to have direct experience in carrying out simple experiments .

Based on the results of the research conducted, with a sample of 15 children, there were 7 boys and 8 girls in the activity to get to know the properties of water poured from high to low, distinguishing colors and mixing colors, and conducting walking water experiments. In the initial study there were 7 children who developed as expected in pouring water from a high place to a low place and 8 children who developed very well, 8 children who developed according to expectations on mixing basic colors and 6 children who developed very well, and there were 9 children who progressed as expected in the walking

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water trial and 5 children who did very well. So it can be concluded that the water play method is used to improve *scientific abilities* in group B children at PAUD Khairul Ummah, Medan Johor District, TA 2021/2022.

From the conclusion above that early childhood is easier to acquire knowledge that is seen around them, so educators are required to be more creative in the teaching and learning process and interesting to apply to students. For this reason, the writer is interested in conducting research on "The Influence of the Water Playing Method to Improve *Science* in Group B Children at Khairul Ummah PAUD, Medan Johor District". Researchers see this problem and want to improve it so that children's learning is more optimal in exploring the surrounding environment.

II. METHODS

The research method used in this research is quantitative research (experimental), with the type of *one-group pretest-posttest design*. With the aim of knowing the effects of using the water play method to improve children's *science* in group B. in this study the authors took a sample of 15 children in group B consisting of 7 boys and 8 girls. To make it easier for researchers to use quantitative data analysis in obtaining data carried out with research instruments using observation sheets. After the researcher made the data and collected it, the researcher analyzed and concluded the resulting data and obtained data at Khairul Ummah PAUD.

III. RESULTS AND DISCUSSION

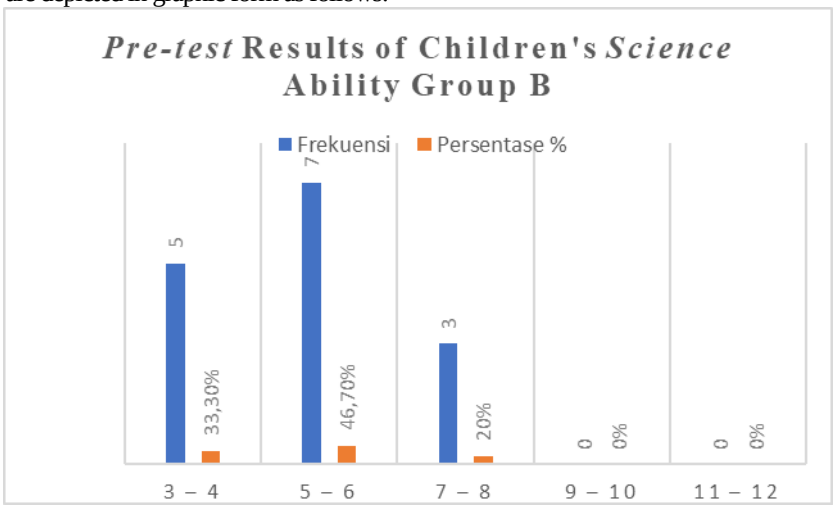
Results

This research was conducted at PAUD Khairul Ummah with a sample of 15 children. Based on the results of the *pre-test* , it was found that the children did not understand the properties of water, the children were not able to distinguish colors from mixing basic colors and the children were not able to do water walking experiments. This is because the teacher does not explain the material about the properties of water and the child does not know what *scientific form of activity is* using the water playing method. The following are the results of the children's *scientific abilities in* group B before being given water play activities.

Table 1. Frequency Distribution of Group B Children's *Science Ability*

No	class intervals	Frequency	Percentage %
1	3 – 4	5	33.3%
2	5 – 6	7	46.7%
3	7 – 8	3	20%
4	9 – 10	0	0%
5	11 – 12	0	0%
Amount		**15**	**100%**

The results of the frequency distribution of the *pre-test of children's scientific* ability in group B using the water play method presented in the table above are depicted in graphic form as follows:



***Pre-Test* Results of Group B Children's *Science* Ability**

Based on the frequency of the diagram above, it can be concluded that *the pre-test of scientific* ability with data classified as having the highest score is 7, the lowest value is 3, and the average value is 5.13. as much as 33.3% and for scores 5-6 as many as 7 children with a presentation of 46.7% and for scores 7-8 as many as 3 children with a percentage of 20%.

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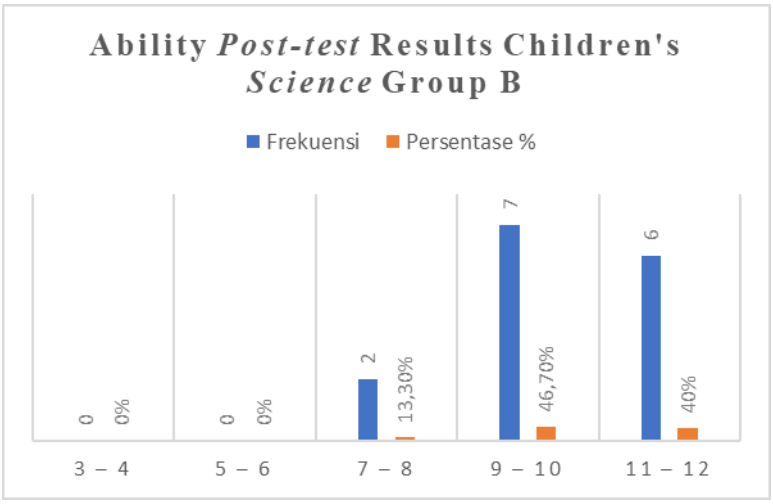
Based on research that has been done at the *post-test stage* there is progress in the *scientific abilities of* group B children with the following results:

Table 2. Frequency Distribution of Group B Children's *Science Ability*

No	class intervals	Frequency	Percentage %
1	3 – 4	0	0 %
2	5 – 6	0	0 %
3	7 – 8	2	13.3 %
4	9 – 10	7	46.7 %
5	11 – 12	6	40 %
Amount		**15**	**100 %**

pre-test frequency distribution of group B children's *scientific* abilities using the water playing method presented in the table above are described in graphical form as follows:



***Post-Test* Results of Group B Children's *Science* Ability**

Based on the frequency of the diagram above, it can be concluded that *the post-test of scientific* ability , namely the results of the study, was analyzed with the highest score of 12, the lowest score of 8, the average value of 10.2. For the results of the frequency distribution, scores of 7-8 were obtained for 2 children with a percentage of 13.30% and for scores of 9-10 there were 7 children with a presentation of 46.7% and for scores 11-12 there were 6 children with a percentage of 40%.

Discussion

In the results of the normality test using the *Lilliefors method, it was* obtained by the results of the *pre-test data obtained by the* value of L_{table} with determination α= 0.05 with a total sample of 15, namely 0.220, then $L_{count} < L_{table}$ (0.103 < 0.220) this shows that the data *pre -test* normally distributed. And in the *post-test* data, the value of L is $_{calculated} <L_{table}$ (0.170 <0.220) this shows that the *post-test* sample is normally distributed.

The results of the hypothesis test analysis data obtained dk = n-1, then dk = 15-1 = 14 and the real level α= 0.05 so that the t_{table} was 1.761. Then $t_{count} > t_{table}$ = 4.914 > 1.761 thus Ho is rejected and Ha is accepted. It is stated that there is a significant influence on the use of the water play method to improve the *science* of group B children in PAUD Khairul Ummah, Medan Johor district, Academic Year 2021/2022.

IV. CONCLUSIONS

Based on the results of the research above, it can be concluded that in general, the method of playing with water to improve the *science* of group B children at PAUD Khairul Ummah is as follows:

1. There are 3 children whose children's *scientific abilities* have not yet developed, but this is not a problem considering that each child has different abilities, intelligence and thinking power and with the media provided by the researchers it can support children's creativity and enthusiasm in this study.

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2. The total score on *the pre-test* of children's science abilities in group B obtained the highest score of 7, the lowest score of 3, an average of 5.13. The total score on *the post-test* of group B children's scientific abilities obtained the highest score of 12, the lowest score of 8, an average of 10.2.
3. of the hypothesis test is obtained $t_{count} > t_{table} = 4.914 > 1.761$ thus Ho is rejected and Ha is accepted with that it is stated that there is a significant effect on the use of the water play method to improve the *science* of group B children in Khairul Ummah PAUD, Medan Johor sub-district, 2021/2022 .

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