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The Influence of Using Animated Videos on the Symbolic Thinking Skills of 5-6 Year Old Children

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Abstrak
Penelitian ini dilatar belakangi oleh kurang optimalnya kemampuan berpikir simbolik anak usia 5-6 tahun, yang disebabkan oleh minimnya pemanfaatan media pembelajaran. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh penggunaan video animasi terhadap kemampuan berpikir simbolik anak usia 5-6 tahun di Taman Kanak-Kanak Aisyiyah Bustanul Athfal Sumbergede. Metode yang digunakan dalam penelitian ini adalah kuantitatif dengan desain *quasi eksperimen* tipe *nonequivalent group design*. Sampel penelitian terdiri dari 30 anak, di mana 15 anak ditempatkan dalam kelompok eksperimen dan 15 anak dalam kelompok kontrol. Hasil uji hipotesis menggunakan uji *Independent Sample t-test* menunjukkan nilai signifikansi *(2-tailed)* sebesar 0,000<0,05, yang mengindikasikan adanya pengaruh penggunaan video animasi terhadap kemampuan berpikir simbolik anak usia 5-6 tahun di Taman Kanak-Kanak Aisyiyah Bustanul Athfal Sumbergede. Temuan penelitian ini menunjukkan bahwa penggunaan media video animasi berpengaruh positif terhadap kemampuan berpikir simbolik anak-anak usia 5-6 tahun, jika dibandingkan dengan metode konvensional yang hanya mengandalkan lembar kerja.

Kata Kunci: Berpikir simbolik, video animasi, anak usia dini

Abstract
This research is motivated by the less-than-optimal symbolic thinking ability of children aged 5-6 years, which is caused by the minimal use of learning media. The purpose of this study was to determine the effect of the use of animated videos on the symbolic thinking ability of children aged 5-6 years at Aisyiyah Bustanul Athfal Kindergarten Sumbergede. The method used in this study was quantitative with a quasi-experimental design of the nonequivalent group design type. The research sample consisted of 30 children, where 15 children were placed in the experimental group and 15 children in the control group. The results of the hypothesis test using the Independent Sample t-test showed a significance value (2-tailed) of 0.000 <0.05, which indicated the effect of the use of animated videos on the symbolic thinking ability of children aged 5-6 years at Aisyiyah Bustanul Athfal Kindergarten Sumbergede. The findings of this study indicate that the use of animated video media has a positive effect on the symbolic thinking ability of children aged 5-6 years, when compared to conventional methods that only rely on worksheets.

Keyword: Symbolic thinking, animated video, early childhood

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INTRODUCTION

Cognitive development is an ongoing process, but the results obtained are not always continuous with previous achievements (Hartiyaningsih & Rohmah, 2023). Every individual, from children to adults, undergoes various cognitive processes and attempts to balance their cognitive structure with new experiences. Cognitive development has a significant impact on the development of other aspects, and cognitive abilities encompass the development of thinking patterns, knowledge, creativity, and language skills (Mawadah et al., 2022; Widi Astuti et al., 2023). Activities in the learning process are always related to the thinking aspect, making cognitive development a crucial factor in a child's success. One aspect of thinking skills in cognitive development is the ability to think symbolically.

Based on the Standards for Achievement Levels of Child Development aged 5-6 years, the indicators for symbolic thinking skills are stating the symbols for numbers 1 to 10, using number symbols, matching number symbols with numbers, recognizing various letters and being able to describe an object that is encountered (Permendikbud, 2014). Jean Piaget also emphasized that children aged 5-6 years are in the pre-operational stage, during which they begin to show the ability to use symbols to represent ideas and objects (Humaida & Abidin, 2021). The ability to think symbolically is a crucial stage in early childhood development, enabling the recognition of symbols or emblems representing objects and events, both real and imaginary (Rahmadhani et al., 2023; Scalise & Ramani, 2021). This explanation suggests that the ability to think symbolically is crucial for understanding more complex mathematical and linguistic concepts later on (Collins & Laski, 2019).

The researchers found that, in the initial observations carried out at the Aisyiyah Bustanul Athfal Kindergarten in Sumbergede, the symbolic thinking ability of children in group B2, comprising a total of 15 children, revealed that nine children (60%) had not developed optimally. Children were not yet able to recognize the concept of numbers when counting; some children were unable to recall numbers written by the teacher on the board, and children also struggled to match numbers and number symbols when given a worksheet (LKA). The less-than-optimal symbolic thinking ability poses a challenge for preschool teachers, as it can impact children's numerical and literacy skills, potentially hindering their learning in further Education (Wardani & Suryana, 2021). This problem requires an appropriate solution, so that the symbolic thinking skills of children aged 5-6 years can develop optimally.

The use of diverse and engaging learning media can be a crucial commitment to enhancing children's learning abilities, according to educators' assumptions (Daryati, 2023). According to Gagne and Briggs (1975), Learning media include physical tools that serve as intermediaries to convey information from teachers to students (Nurfadhillah et al., 2021; Ardiana, 2021; Suzianti & Dafit, 2023). The choice of media must also be interesting so that children better understand the meaning of the ongoing learning (Farida et al., 2024; Sidabutar & Simaremare, 2021). According to Lindstrom (Agnia Rahmi & Tin Rustini, 2023), a person uses more than one sense to obtain information effectively, as they acquire 15% of their knowledge through the sense of sight and 30% of their knowledge through the sense of hearing. One of the learning media that has interesting audio and visuals is animated video.

According to Daryono (Kemendikbud, 2020), Animated learning videos are a type of media that has a positive impact on both individual and group learning in the classroom. Animated video learning media is a varied and interesting medium because it combines text, video, photos, graphics, and animations that can move, making the displayed material more comprehensible to children (Didik Prawira Putra et al., 2021; Kurniasih & Ramadhini, 2021). This animated video can provide a new learning experience because children can see the images presented as having similarities to the original. The use of diverse and engaging learning media can enhance learning motivation, allowing children's symbolic thinking abilities to develop optimally.

Referring to several previous studies, including "The Influence of Distance Learning Animation Videos on the Logical Thinking Skills of Early Childhood Children" (Maharani et al., 2021). The results of this study indicate that the use of animated videos in distance learning has a significant impact on logical thinking skills in Group A. Next, research with the title "Development of Animation Videos for Early Childhood Numeracy Skills" (Nur'rochim, 2024). The results of this study show that animated videos are particularly effective in helping children understand the material and also increase their interest in learning mathematics.

Based on the description of the previous research above, it is evident that this study shares similarities with previous research regarding the use of animated videos as a learning medium. This study differs from previous research in that it utilizes animated videos as a learning tool to enhance symbolic thinking skills in children aged 5-6 years. The results of the study above have not identified any studies that analyze symbolic thinking skills using animated videos, and are following the problems that researchers encountered during the preliminary research. Therefore, researchers are interested in researching the effect of using animated videos on the symbolic thinking skills of

children aged 5-6 years at Aisyiyah Bustanul Athfal Kindergarten Sumbergede. This study aims to determine the effect of using animated videos on the symbolic thinking skills of children aged 5-6 years.

METHODOLOGY

This research method uses a quantitative approach with a quasi-experimental design. The experimental method is used to identify the effect of treatment. This research design uses a nonequivalent control group design. The nonequivalent control group design is similar to the pretest-posttest control group design; however, in this design, the experimental group and control group are not selected randomly, but instead use a purposive sampling technique (Sugiyono, 2022).

Types of research

This research design uses a nonequivalent control group design. The nonequivalent control group design is similar to the pretest-posttest control group design; however, in this design, the experimental group and control group are not selected randomly. Instead, they are selected using a purposive sampling technique. This research design is described as follows:

Table 1: Research Design

Group	Pretest	Treatment	Posttest
Experiment	O_1	x_1	O_2
Control	O_3	x_2	O_4

Keterangan
O_1 dan O_3: Pretest scores of experimental and control groups
O_2: posttest scores of the class given treatment (experimental class)
O_4: posttest scores of groups that were not given treatment
X_1: *Treatment uses animated videos*
X_2: Learning using classical methods

Time and the Place of Research

This research was conducted at TK Aisyiyah Bustanul Athfal Sumbergede, located in Sekampung District, East Lampung Regency, and Lampung. This research was conducted in the even semester, from January 13 to February 3, 2025.

Research Targets

The sample of this study consisted of children in Group B, with an age range of 5-6 years. Based on the subjects to be studied, the researcher selected samples of groups B1 and B2, comprising a total of 30 children. Class B2 was an experimental class with 15 students, while Class B1 served as a control class with the same number of students. Groups B1 and B2 met the research criteria because the age range of the group fell within the 5-6 6-year age range.

Data Collection Techniques and Instrument Development

The data collection techniques employed in this study include observation, observation sheets, and documentation. This research instrument focuses on the symbolic thinking skills of children aged 5-6 years, which include indicators such as mentioning number symbols 1-10, using number symbols, and matching numbers with number symbols. The observation sheets have been tested for validity and reliability.

Data Analysis Techniques

Inferential statistics include data analysis through normality tests, homogeneity tests, and hypothesis testing. Normality tests are conducted in research to ensure that samples are drawn from populations that have a normal distribution, allowing hypothesis testing to be carried out. Furthermore, the homogeneity test aims to determine whether the data is homogeneous. After these two tests, the next step is to conduct hypothesis testing using an independent sample T-test to identify the effect of using animated videos on the experimental class.

RESULTS AND DISCUSSION
RESULTS

Efforts to improve symbolic thinking skills in children aged 5-6 years at Aisyiyah Bustanul Athfal Kindergarten Sumbergede were undertaken by observing indicators that reflect symbolic thinking skills in this age group. The indicators of symbolic thinking skills that are the focus of the study include mentioning number symbols 1 to 10, using number symbols, and matching number symbols with numbers. Data collection was conducted in groups B1 and B2, serving as the control and experimental groups, with a total of 30 children. The two groups employed different learning methods to identify the differences in the results of symbolic thinking skills between the experimental class, which used animated video media, and the control class, which employed conventional learning methods as usual. The focus of this study was to assess children's symbolic thinking skills

by comparing the posttest scores of the experimental and control groups. The results of the scores obtained the following average scores:
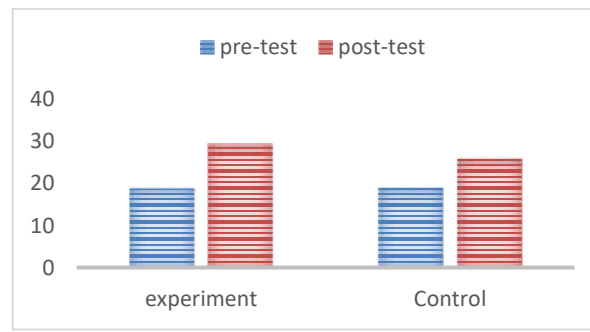

Figure 1. Results of the average pretest and posttest scores of the experimental and control groups

Based on the graph above, it can be inferred that the average values of the control and experimental groups during the pretest are nearly identical, at 18. The results of the average value after treatment show a significant difference between the control and experimental groups, with a difference of 3.6 in the average posttest value. In the control class, the average posttest value is 25.8, while in the treatment class it is 29.4.

Validity Test

The assessment instrument that has been prepared consists of 9 questions, which are then tested. The results indicate that four assessment instruments are not valid. The criteria used to assess the validity of the instrument are if r count > r table, then the instrument is considered valid. Conversely, if r count < r table, then the instrument is considered invalid. The following are the results of the instrument validity test:

Table 2. Validity Test

R Table	R Count	Information
0.316	,560	Valid
0.316	,513	Valid
0.316	,598	Valid
0.316	,659	Valid
0.316	,625	Valid
0.316	,617	Valid
0.316	,558	Valid
0.316	,314	Invalid
0.316	,701	Valid

Sumber SPSS Versi 25

Reliability Test

Decisions regarding data reliability can be taken if the Cronbach's alpha value exceeds 0.06. The results of the trial showed that the Cronbach's alpha value obtained was 0.789, which means it is greater than 0.06. These results can be categorized as reliable data. The following are the results of the reliability test:

Table 3. Reliability Test
Reliability Statistics

Cronbach's Alpha	N of Items
,789	8

Sumber SPSS Versi 25

Normality Test

The normality test aims to determine whether the research results are normally distributed. The normality test uses the Shapiro-Wilk technique. Decision making in the normality test is taken based on a significance value of 0.05. Data is considered normally distributed if the p-value exceeds 0.05; if the p-value is less than 0.05, then the data is considered not normally distributed. The results of the data calculation are as follows:

Table 4. Normality Test

Class	Data	Significance Value	Significance Level (α)	Information
Control Class	*Pretest*	0,413	0,05	Normal Distribution
	Posttest	0,266	0,05	Normal Distribution
Experimental Class	*Pretest*	0,395	0,05	Normal Distribution
	Posttest	0,074	0,05	Normal Distribution

Sumber data SPSS 25

Based on the results shown in Table 4, the pretest significance value in the control class is 0.413, while the posttest significance value is 0.266. The experimental class has a pretest significance value of 0.395 and a posttest significance value of 0.074. These findings indicate that the data from both groups, experimental and control, are typically distributed.

Homogeneity test

The homogeneity test aims to determine whether two groups, which come from different samples, have homogeneous properties. This test is conducted using one-way analysis of variance (ANOVA). Decisions in the homogeneity test are taken based on the significance value. If the significance value is greater than 0.05, then the group is considered homogeneous; if the significance value is less than 0.05, the group is declared non-homogeneous. The results of the data calculation are as follows:

Table 5: Homogeneity test

		Levene Statistic	df1	df2	Sig.
Symbolic Thinking of 5-6 Year Old Children	Based on the Mean	2,192	1	28	,150
	Based on the Median	1,356	1	28	,254
	Based on Median and with adjusted df	1,356	1	21,938	,257
	Based on the trimmed mean	2,290	1	28	,141

Sumber data SPSS 25

The results of the homogeneity test, presented in Table 5, indicate a significance value of 0.150, which is greater than 0.05. This result shows that the variance for the posttest data in the control class and the experimental class is homogeneous.

Hypothesis Testing

Hypothesis testing is conducted to identify whether there is a significant difference between the control class and the experimental class. Hypothesis testing in this study uses the independent sample t-test. The hypothesis is considered influential if the significance value (2-tailed) is less than 0.05. Conversely, if the significance value (2-tailed) is greater than 0.05, then there is no significant influence between the control class and the experimental class. The following are the results of the independent sample test

Table 6. Test Independent Sample T-Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Symbolic Thinking of 5-6 Year Old Children	Equal variances assumed	2,192	,150	-5,669	28	,000	-3,467	,612	-4,719	-2,214
	Equal variances not assumed			-5,669	23,870	,000	-3,467	,612	-4,729	-2,204

Sumber data SPSS 25

Based on the results of the independent sample t-test calculation, a significance value (two-tailed) of 0.000 was obtained, indicating that the value is smaller than 0.05. This indicates that H0 is rejected and H1 is accepted. These results indicate that the use of animated videos has a significant influence on the symbolic thinking skills of children aged 5-6 years, compared to learning methods that do not use animated videos, at Aisyiyah Bustanul Athfal Sumbergede Kindergarten.

DISCUSSION

Early childhood learning aims to improve the quality and quantity of children's development in various aspects, including symbolic thinking skills. The characteristics of early childhood include great enthusiasm and curiosity about the things around them. Media serves as a means to convey information, stimulate children's thoughts, emotions, attention, and motivation, encouraging them to participate actively in the learning process. One of the media that can be used to improve symbolic thinking skills is animated video media. Research conducted by Fauziah (2023) indicates that animated videos can enhance children's cognitive development more effectively and facilitate teachers' delivery of learning materials.

The application of learning media, including animated videos, aims to enhance the symbolic thinking skills of children aged 5-6 years in the experimental class, which was conducted by researchers with the assistance of class teachers. The application of animated video-based learning media was welcomed with great enthusiasm by the children. The enthusiasm shown by the children is evident from their interest in animated videos, although there were one or two children who did not fully engage with the video. According to the children, watching videos projected onto a screen like this is like watching a movie. Children also feel motivated to learn using animated videos, as they become happy and pay attention to the video during the learning process. Previous research has also shown that animated video learning media are an effective means of learning, as they can increase motivation, concentration, and understanding of the material (Bela Ocvi Enjela et al., 2024).

The use of learning media in the form of animated videos has been shown to influence children's symbolic thinking skills. Animated videos can provide children with the experience of recognizing symbols directly, accompanied by clear sound that describes the symbols being displayed. Animated video media provides knowledge about the learning material that teachers want to convey to children. Learning with animated videos can stimulate children's interest in paying attention to the symbols that appear in the video, which in turn affects their symbolic thinking skills. Based on the results of the independent sample t-test calculation, a significance value (two-tailed) of 0.000 was obtained, indicating that the value is less than 0.05. These results indicate that the use of animated videos has a significant influence on the symbolic thinking skills of children aged 5-6 years, compared to learning methods that do not use animated videos, at Aisyiyah Bustanul Athfal Sumbergede Kindergarten. The difference in symbolic thinking skills between the control class and the experimental class occurs due to the use of different learning media.

Learning media is an external factor that can affect children's symbolic thinking skills. The control class in this study used conventional methods, using children's worksheets (LKA). Conventional learning often leaves children feeling bored and less motivated to learn. This result is reinforced by observations showing that children taught using conventional methods have lower symbolic thinking skills compared to those whose learning process utilizes animated video media. Conventional learning can yield positive results; however, more creative and innovative methods need to be explored to achieve even better outcomes. More focused and interactive educational programs can also yield positive results in developing children's symbolic thinking skills (Annuha, 2024). Therefore, although there was improvement in the control group, a more interactive learning approach may be more effective in specific contexts.

Based on the research conducted, the experimental class that utilizes animated video media has proven to be more effective in improving the symbolic thinking skills of children aged 5-6 years compared to conventional methods that only use children's worksheets. The use of animated video media in the experimental class yields a significant difference in symbolic thinking skills, as it makes children more enthusiastic about listening to the material and is also more visually appealing. This result is reinforced by previous findings, which state that animated video media has very high feasibility for use as a learning medium for early childhood (I Gusti Agung Ayu Melia Swari & Didith Pramuditya Ambara, 2022). This study provides a positive understanding of learning through the use of animated video media in developing symbolic thinking in children aged 5-6 years. These results are particularly relevant for early childhood Education, as they highlight the importance of developing effective learning strategies through the use of technology.

Based on the explanation above, it is suggested that teachers can utilize the learning facilities provided by the school properly and have learning media that are not boring, which can boost children's motivation and enthusiasm. The sample used in this research is still minimal, so researchers anticipate that further studies will utilize a wider sample. Researchers also provide suggestions for further studies to explore the symbolic thinking of children aged 5-6 years in more depth, as this research has focused solely on symbolic thinking skills related to numerical symbols.

CONCLUSION

Based on the research results, it can be concluded that the use of animated videos has a significant impact on the symbolic thinking skills of children aged 5-6 years at Aisyiyah Bustanul Athfal Sumbergede Kindergarten. The difference in the average posttest scores between the control group and the experimental group supports this conclusion. The control group achieved an average pretest score of 18.8 and a posttest score of 25.9. The experimental group also had the same average pretest score, which was 18.8, but the average posttest score increased to 29.4. This average score shows that the experimental group experienced a more significant increase after receiving treatment with animated video media. This finding is reinforced by the results of the Independent Sample T-Test, which showed a p-value of 0.000 (<0.05), indicating a significant difference between the control group and the experimental group.

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