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The Influence of the Picture and Picture Type Cooperative Learning Model on the Color Recognition Ability of 4-5 Year Old Children

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Abstract. *This study aims to determine the effect of the picture & picture-type cooperative learning model on children's ability to recognize colors. This research is experimental research with a pre-experimental design which was carried out based on the pre-test and post-test stages. The research subjects were 21 children aged 4-5 years at Pertiwi Kindergarten 14.02.01 Prembun, Kebumen. The data collection method in this research uses observation and documentation. The data analysis technique in this research uses paired samples T-Test with a significance level 0.05. Color recognition using cooperative picture & picture types influences the color recognition ability of children aged 4-5 years. The ability to recognize colors in the pre-test shows that the ability to recognize colors is still low. Next, the children are given treatment in the form of a picture & picture-type cooperative learning model for 3 days, then the children are given the colors in the same picture again as a post-test. The results of the paired samples T-Test were 0.000 < 0.05, which means there was a change in the ability to recognize colors before and after the treatment in the form of a picture & picture type cooperative learning model.*

Keywords: *Picture , Picture Type Cooperative: Learning Model; Ability To Recognize Colors; Children Aged 4-5 Years*

1. INTRODUCTION

Early childhood education includes all efforts and actions taken by educators and parents to care for, nurture, and educate children. It creates an atmosphere and environment where children can explore experiences that provide opportunities for them to know and understand learning experiences obtained from the environment through repeated observing, imitating, and experimenting, which involves all of children's potential and intelligence.

Early childhood education is a form of education that lays the foundation for physical growth and development, both fine and gross motor coordination, intelligence in the form of thinking power, creativity, emotional intelligence, and spiritual intelligence, then socio-emotional in the form of attitudes and behavior and religion, language and communication, by the uniqueness and stages of development that are passed through by early childhood (Sujiono, 2014). Children are egocentric, have a natural curiosity, are social beings, rich in fantasy, have a short attention span, and are a very potential period for learning.

Children have 6 aspects of development, namely the development of values, religion, and morals, physical motor development, language development, cognitive development, social-emotional development, and artistic development. (Susanto, 2017)states that cognitive is a process of thinking, namely the ability of individuals to

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connect, assess, and consider an event or incident. Mental development is very necessary in early childhood because it is useful for developing knowledge, thinking skills, solving problems, and developing logical abilities in children. Piaget (Nainggolan & Daeli, 2021), cognitive is a person's ability to feel and remember and make reasons for imagination. (Pertiwi dkk., 2018)states that the cognitive development of early childhood can be developed through interactions that can be done by playing or with objects around.

One aspect of cognitive development includes the ability to recognize colors. Training children in recognizing colors by showing stimulation patterns to recognize, classify, and organize colored objects seen sequentially to produce the impression of color feelings, so that children can have the ability to recognize colors, both pointing, naming, and grouping colors. (Hendriati, 2015) explained that the ability to recognize colors is the child's ability to recognize colors by pointing, naming, and grouping the colors intended by the teacher through color recognition activities. Early childhood, consciously or unconsciously, definitely likes something bright, cheerful, and striking. As educators and parents, of course, you can guide and direct children to recognize colors. Introducing colors to children is a form of basic learning so that children are more sensitive to objects in their environment and optimize thinking patterns and creativity in children (Çiftci & and Bildiren, 2020)

The ability to recognize is very important for children's brain development. The ability to recognize colors can stimulate the sense of sight, stimulate the ability to recognize and express colors in the environment such as naming the colors of flowers, leaves, clothes, and so on correctly (Berk, 2018). The purpose of recognizing colors is as a basis for children's knowledge of further knowledge that will become a provision of knowledge for children. Color recognition is also inseparable from the sensing process, namely eyesight. Children see objects entering the eye through the eye lens, then received by the yellow spot, forwarded by the optic nerve (vision) to the central brain. Through the process of vision, these colors can stimulate the development of brain nerves, especially the brain nerves of early childhood who are just learning to recognize objects/colors (Dowd, 2018).

In the observation results, there were problems related to the ability to recognize colors. 6 children were not yet able to recognize colors and 15 children were already able to recognize colors, so only 71.4% of all children were able to recognize colors. Children who are not yet able to recognize colors are seen to show hesitation in carrying out teacher instructions when pointing, naming, and grouping colors. Children's ability to show

colors such as yellow is not yet compact, some show orange, and some show purple. Distinguishing blue and green, children still have difficulty showing it.

The problems experienced by children are caused by learning models that are less interesting and enjoyable. The learning model applied is the group learning model. The application of the group learning model in schools more often uses magazines according to the theme at the school, but an explanation is needed so that children better understand what the teacher is saying. In addition, in group learning, learning is more focused on knowledge of numbers and letters. The color recognition strategy only uses origami paper, coloring in magazines, and conversation/lecture methods. Given how important it is to recognize colors for children, the solution to the problem can introduce colors with fun and non-boring learning for children.

Fun and non-boring learning for children can use the experimental method. This is based on research (Syarifah, 2018) that the experimental method affects children's ability to recognize colors because with this method the teacher uses a strategy where children are allowed to conduct a simple experiment by giving treatment to something to observe the process and get results from the experiment. The result is that children can point, name, and group colors. The experimental group learned to recognize colors through the activity of mixing colors with water, while the second treatment learned to recognize colors through the activity of mixing colors with glue (finger painting).

In addition to using experimental methods in children's ability to recognize colors, there needs to be interesting learning models that can activate children in the learning process. One of the learning models that is an option used to recognize is the cooperative learning model, the picture & picture type. The cooperative learning model, the picture & picture type, is a learning model that uses the role of images that are paired or sorted into a logical sequence based on learning objectives (Harvey & Schnur, 2016). This learning model relies on images as the main factor in the learning process. Images are very important to use to clarify understanding so that children's knowledge and understanding become broader, clearer, and not easily forgotten.

Stated that the picture & picture-type cooperative learning model can be used by teachers as an effort to motivate children to learn with pictures and have fun so that it can affect children's cognitive development (Sari dkk., 2015). The picture & picture type cooperative learning model is the choice because it has characteristics including being active, innovative, and fun (Daswati, 2020) in learning to recognize colors in early childhood. With these characteristics, children do not forget their rights as children,

namely playing and having fun when learning to recognize colors using the picture & picture type cooperative learning model. The picture & picture-type cooperative learning model is very important in introducing colors to children. The pictures used are pictures that are recognized by children and are around them. The pictures that will be applied to the picture & picture-type cooperative learning model at the school are pictures of roses, pictures of the sky, pictures of grass/leaves, pictures of bananas, pictures of eggplants, and pictures of oranges. So, the use of images in learning can stimulate children to explore colors based on their sense of sight (Dowd, 2018).This is in line with research conducted by which shows that the picture & picture-type cooperative learning model affects color abilities in early childhood (Daswati, 2020). The picture & picture type cooperative learning model is one of the learning models for early childhood, where the child's learning process is directly involved in recognizing colors using images that aim to stimulate children in exploring colors for children. Based on these results, researchers want to know how the picture & picture type cooperative learning model influences the color recognition abilities of children aged 4-5 years. So to find out and prove, researchers will examine the effect of the color recognition abilities of children aged 4-5 years using the picture & picture type cooperative learning model.

2. METHODS

This study was conducted on children aged 4-5 years at Pertiwi Kindergarten 14.02.01 Prembun, Prembun Village, Prembun District, Kebumen Regency, Central Java in the odd semester of the 2020/2021 academic year. The type of research used in this study is pre-experimental design. The design used in this study is a one-group pretest-posttest design. Before conducting the research, instrument validation and instrument trials were carried out. The instrument trial serves to test the validity and reliability of the instrument that will be used in the implementation of the research with the aim that the instrument can be used to obtain the data needed for the research at Pertiwi Kindergarten 14.02.01 Prembun. This trial was carried out at Al Firdaus Karangsari Kindergarten, Kebumen. Instruments that have internal or rational validation have reflected what is measured and instruments that have external validation if the criteria in the instrument are arranged based on existing empirical facts. Validation of the instrument in the form of a test must meet construct validation and content validation. To test construct validation, expert opinions (professional judgment) can be used. After being tested on experts, it can then be tested and analyzed using item analysis, where item analysis is

carried out by calculating the correlation between the instrument item scores and the total score. Instrument validation was tested by lecturers who are experts in their fields, while the reliability test was carried out at Al Firdaus Karangsari Kindergarten, Kebumen on children with the same criteria, namely children aged 4-5 years. The results of the reliability test were calculated using the IBM SPSS 29 application. The study was conducted by giving pre-test questions to children then continued with treatment, and finally, the children were given post-test questions. The methods used to collect data in this study were observation and documentation methods. After the study was carried out, the researcher then analyzed the data using the One Sample T-Test.

3. RESULTS

Before conducting the research, a test validation is required, which must meet the constructs consulted with experts. After being tested on experts, the test is tested and analyzed using item analysis. Table 1 shows the recapitulation results of the validity test of the ability to recognize colors in children in the classroom using IMB SPSS Statistics 29 statistics.

Table 1. Validity Test Results

No Item	Pearson Correlation	Result
Item 1	848	Valid
Item 2	848	Valid
Item 3	816	Valid
Item 4	810	Valid

Furthermore, to test the reliability of the instrument in this study using the Cronbach's Alpha formula. At the Cornbach Alpha value if > 0.60, it is stated as reliable or consistent. Conversely, if the Cornbach Alpha value < 0.60, it is stated as unreliable or inconsistent.

Table 2 Results of the Reliability Test of Color Recognition Ability

Case Processing Summary

		N	%
Cases	Valid	21	100.0
	Excluded[a]	0	.0
	Total	21	100.0

Reliability Statistics

Cronbach's Alpha	N of Items
.846	4

Based on Table 2, the reliability test shows a value of 0.846. Referring to the decision-making value of Cronbach Alpha if > 0.60, it is stated as reliable or consistent. Conversely, if the Cronbach Alpha value is <0.60, it is stated as unreliable or inconsistent. In Table 2, the reliability test> 0.60 indicates that the data obtained is reliable, or the test that can be carried out can be referred back, because the results of the reliability test> 0.60. Table 2 shows the data from the reliability test of the ability to recognize colors in children aged 4-5 years.

The ability to recognize colors is the cognitive development aspect that all children must experience. The ability to perceive color can stimulate the vision of early childhood to see objects in the environment more sensitively. The use of color is closely related to imaginative and artistic abilities, in addition, color can hone children's abilities. Children who recognize colors between one color and another. The cooperative learning model of the picture & picture type as one of the stimulations used to overcome the problem of the ability to recognize colors. Before children receive treatment in the form of a cooperative learning model of picture & picture in their learning process, the teacher first measures initial abilities called a pre-test. Pre-test measurements are carried out using observation. The aspects measured are (1) showing primary and secondary colors, (2) mentioning primary and secondary colors, (3) grouping primary and secondary colors.

This study of the cooperative learning model type picture & picture treatment was carried out for 3 days alternately (1 day of treatment 2 days not given treatment, and so on until 3 days of treatment) with new pictures every day. At the time of treatment or treatment, children began to see changes in their ability to recognize colors. Some children improved in the aspect of showing primary and secondary colors, naming primary and secondary colors, and grouping primary and secondary colors according to the pictures provided. Some children only showed slight changes. The pre-test results (before being given treatment) on the cooperative learning model type picture & picture on Pertiwi Kindergarten children 14.02.01 Prembun aged 4-5 years obtained an average of 11.52. The post-test results (after being given treatment) of the cooperative learning model obtained an average of 14.24. Children's ability to recognize colors when showing, naming, and grouping primary and secondary colors increased by an average of 2.72 after being given treatment or treatment of the cooperative learning model type picture & picture.

The implementation of the cooperative learning model type picture & picture with image media has as many as 3 stages, namely showing primary and secondary colors, mentioning primary and secondary colors, and grouping primary and secondary colors according to the images provided. The activities carried out are that children are asked to pair the images according to the color sequence and stick them according to the images listed above. The implementation is carried out in teams/groups and children are allowed to work together. The images used in the implementation of the study include (red) pictures of roses, pictures of strawberries, (yellow) pictures of bananas, pictures of lemons, (blue) pictures of the sky, (green) pictures of grass, pictures of leaves, pictures of cucumbers, (orange) pictures of oranges, pictures of carrots, pictures, and (purple) pictures of mangosteens, and pictures of grapes. The final test or post-test is carried out after the children are given treatment, which is carried out on the last day of the study. The images used for the pre-test and post-test with the same colors (primary colors and secondary colors), so that researchers can find out how the ability to recognize colors changes before being given treatment with the cooperative learning model type picture & picture and after being given treatment.

This study uses an effectiveness test. The effectiveness test conducted is using the One Sample T Test. The following are the results of the T-Test based on two data, namely the pre-test and post-test values. Referring to the basis for decision making if the significance value is <0.05 then there is a difference in the results of the pre-test and post-test values in children, while if the significance value is> 0.05 then there is no difference in the results of the pre-test and post-test values carried out. The following are the results of the T-Test of two data, namely the pre-test and post-test values of the ability to recognize colors in children aged 4-5 years.

Table 3. One Sample T-Test Results

Paired Samples Test

		Paired Differences						
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
					Lower	Upper	df	Sig. (2-tailed)
Pair 1	Pre-Test Pos-Test	-0.65476	0.35774	0.07806	-0.81760	-0.49192	21	0.000

Based on Table 3, the T-Test test results show an effectiveness value of 0.000. Referring to the basis of decision making where if the significance value <0.05 then there is a difference in the results of the pre-test and post-test values, while if the significance value> 0.05, then there is no difference in the results of the pre-test and post-test values carried out by children after using the cooperative learning model type picture & picture.

4. DISCUSSION

The study aims to determine the effect of the cooperative learning model of the picture & picture type on the ability to recognize colors in children aged 4-5 years at Pertiwi Kindergarten 14.02.01 Prembun. Based on the results of the experimental research that has been conducted, there is an effect on the ability to recognize colors in children aged 4-5 years at Pertiwi Kindergarten 14.02.01. The results of the normality test in this study produced a significance value of 0.442. From the descriptive data, it can be concluded that the ability to recognize colors in children at Pertiwi Kindergarten 14.02.01 Prembun shows changes in the results of the post-test, namely the test carried out after being given color recognition treatment using the picture-picture type cooperative learning model.

The results of observations conducted from pre-test to post-test showed a difference in the ability to recognize colors in children aged 4-5 years at Pertiwi Kindergarten 02.14.01 Prembun. The test results showed an effectiveness value of 0.000, so the children experienced a difference in the ability to recognize colors after being given the cooperative learning model type picture & picture. In the pre-test observation, it was seen that the children's ability was still low in the ability to recognize colors in the mention of colors, there were still some who did not know and still needed guidance. Based on this, the researcher wanted to know how the influence of the cooperative learning model type picture & picture on children's ability to recognize colors. The cooperative learning model is a broader concept that includes all types of group work including forms directed by the teacher (Daswati, 2020). The cooperative learning model is a learning model where there are activities that involve social aspects and involve teamwork in the process of its activities. This teamwork influences the activeness of the child's learning itself. The learning activities carried out by teachers in cooperative learning are formed by being led and directed by the teacher

The picture & picture type cooperative learning model is a learning model that prioritizes cooperation in groups by using picture media that are paired or arranged into

a logical sequence (Hamdayama, 2014). The pictures used are the main factor in the learning process. In the learning process, the teacher has prepared pictures in the form of cards or large charts that will be used in the learning process. The picture & picture type cooperative learning model has characteristics including being active, innovative, and fun (Daswati, 2020) in learning to recognize colors in early childhood. With these characteristics, children do not forget their rights as children, namely playing and having fun when learning to recognize colors. The use of pictures is considered more fun and makes children focus on the pictures displayed or provided by the teacher.

Especially in pictures that use colors tend to increase children's interest in learning. Color recognition is part of cognitive development that must be developed since early childhood. Requires appropriate and precise stimulation so that its development can be achieved properly (Berk, 2018). Early childhood is expected to master various concepts of primary and secondary colors in five color variations (Harvey & Schnur, 2016). Color recognition is inseparable from the sensing process, namely eyesight. Children see objects (shapes and colors) entering the eye through the eye lens which is then received by the yellow spot forwarded by the optic nerve (vision) to the central brain and the vision process (color) can stimulate the development of brain nerves, especially the brain nerves of early childhood children who are just learning to recognize color objects in images (Daswati, 2020; Dowd, 2018). In addition, it can affect the ability to recognize colors.

Previous research on the picture & picture-type cooperative learning model can improve speaking skills and the ability to recognize number concepts. Speaking skills in previous studies were through children communicating verbally together by providing explanations about the picture, then composing sentences for communication purposes by conveying opinions related to the picture and composing sentences from 3 words to communicate the picture, where motivating in the form of praise or small gifts can have a positive effect on improving children's abilities. Praise is given so that children have the motivation to repeat the positive actions that they have done, and the learning process can run according to plan. In the picture & picture type cooperative learning model, in addition to being able to improve speaking skills and influencing the ability to recognize colors, this learning model can improve the ability to recognize number concepts. Getting to know the concept of numbers includes counting many objects from 1-10, making a sequence of numbers from 1-10 with objects, then imitating the number symbols from 1-10, and connecting the number symbols with objects from 1-10. In this learning, children

use number cards and picture cards, where children arrange number cards and picture cards together so that children become interested during the learning process. This also has a positive impact, namely that children become more enthusiastic during the learning process (Sari dkk., 2015).

In this study, the cooperative learning model of the picture & picture type of treatment was implemented for 3 days alternately (1 day of treatment, 2 days without treatment, and so on until 3 days of treatment) with new pictures every day. When the treatment was given, the children began to show changes in their ability to recognize colors. Some children improved in terms of showing primary and secondary colors, naming primary and secondary colors, and grouping primary and secondary colors according to the pictures provided. However, some children only showed slight changes. The pre-test results (before being given treatment) on the cooperative learning model of the picture & picture type for Pertiwi Kindergarten children 14.02.01 Prembun aged 4-5 years obtained an average of 11.52. The post-test results (after being given treatment) of the cooperative learning model obtained an average of 14.24. So the ability to recognize children's colors when showing, mentioning, and grouping primary and secondary colors increased by an average of 2.72 after being given treatment or treatment with the picture & picture type cooperative learning model.

The implementation of the cooperative learning model picture & picture with media

pictures as many as 3 stages, namely showing primary and secondary colors, mentioning primary and secondary colors, and grouping primary and secondary colors according to the pictures provided. The activities carried out were that children were asked to pair the pictures according to the color sequence and stick them according to the pictures listed above.

The implementation was carried out in teams/groups and children were allowed to work together. The pictures used in the implementation of the study included (red) pictures of roses, pictures of strawberries, (yellow) pictures of bananas, pictures of lemons, (blue) pictures of the sky, (green) pictures of grass, pictures of leaves, pictures of cucumbers, (orange) pictures of oranges, pictures of carrots, pictures, and (purple) pictures of mangosteens, and pictures of grapes.

The final test, or post-test, was carried out after the children were given treatment, namely on the last day of the study. The images used for the pre-test and post-test were the same colors (primary and secondary colors) so that researchers could determine how

the children's ability to recognize colors changed before and after they were given the picture-and-picture cooperative learning model treatment.

Stated that assessment is all forms of information collection by teachers, where teachers collect data about their students, analyze and synthesize it, interpret it, and use it in the classroom to make decisions (Ayuningsih dkk., 2022). So assessment is a decision about something based on a certain object with certain criteria. Assessment is carried out based on that the indicator of the ability to recognize colors is the child's ability to know colors by pointing, naming, and grouping colors that the teacher means through color recognition activities (Agusniatih & Manopa, 2019).

5. CONCLUSION

Based on the discussion of the results of the experimental research with a pre-experimental design, it can be concluded that there is an influence on the application of the cooperative learning model type picture & picture on the ability to recognize colors in children aged 4-5 years in Pertiwi Kindergarten 14.02.01 Prembun, Kebumen. The components of the material in learning the ability to recognize children's colors using the cooperative learning model picture & picture in children aged 4-5 years are in the form of showing primary and secondary colors, mentioning primary and secondary colors, and grouping primary and secondary colors. Things that researchers have done related to the ability to recognize colors using the cooperative learning model type picture & picture are: (a) Showing primary and secondary colors, mentioning primary and secondary colors and grouping primary and secondary colors according to the picture (b) Children are motivated to carry out learning activities actively in class so that children can understand the material directly (c) Cooperation between children and teachers is needed so that the learning model is carried out optimally.

6. LIMITATION

Limitations in the study still use pre-experimental design, which has weaknesses in terms of control over external variables. Furthermore, the study was only conducted in one research location, so the results of the study cannot be generalized to a wider population.

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