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THE INFLUENCE OF DISCOVERY LEARNING METHOD ON THE ABILITY TO RECOGNIZE COLORS IN CHILDREN AGED 4-5 YEARS IN KINDERGARTEN NEGERI 04 SAMBELIA

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Abstract:
This research aims to determine the effect of the discovery learning method on color abilities in children aged 4 - 5 years old at TK Negeri 04 Sambelia. This type of research uses quantitative methods with pre-experimental research type one group pretest-posttest design. This research was carried out in four treatments. In each treatment there are stages, namely planning, implementation and evaluation. The subject of this research is group A2 of Kindergarten 04 Sambelia. The instrument used was a checklist sheet with observation data collection techniques. The use of the discovery learning method is able to improve children's cognitive abilities in recognizing colors in class A2 at TK Negeri 04 Sambelia. The child's ability to name, convey and group things as a manifestation of the child's familiarity with colors increases with each treatment. The results of the research in the t value table at the 5% significance level are 2.27. It is known that to is 20.95 > 2.27. Because to is greater than tt, the proposed hypothesis (ho) is rejected and the alternative hypothesis is accepted (ha). This research shows that there is an influence of the discovery learning method on the ability to recognize colors in children aged 4-5 years at TK Negeri 04 Sambelia.

Keywords: Recognizing colors, discovery learning method, early childhood.

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This research aims to determine the effect of the discovery learning method on color abilities in children aged 4 - 5 years old at TK Negeri 04 Sambelia. This type of research uses quantitative methods with pre-experimental research type one group pretest-posttest design. This research was carried out in four treatments. In each treatment there are stages, namely planning, implementation and evaluation. The subject of this research is group A2 of Kindergarten 04 Sambelia. The instrument used was a checklist sheet with observation

data collection techniques. The use of the discovery learning method is able to improve children's cognitive abilities in recognizing colors in class A2 at TK Negeri 04 Sambelia. The child's ability to name, convey and group things as a form of recognition of colors increases with each treatment. The results of the research in the t value table at the 5% significance level are 2.27. It is known that to is 20.95 > 2.27. Because to is greater than tt, the proposed hypothesis (ho) is rejected and the alternative hypothesis is accepted (ha). This research shows that there is an influence of the discovery learning method on the ability to recognize colors in children aged 4-5 years at TK Negeri 04 Sambelia.

Keywords: *Recognizing colors, Discovery Learning Method, Early Childhood.*

INTRODUCTION

Early Childhood is a period where children experience more rapid and fundamental growth and development that occurs at the beginning of their age. At this time, the developments that occurred showed a process in a more complex direction and could not be repeated (Khadijah, 2016). Early age is the most effective period for developing all aspects of children's development (Anggreani, 2015). According to Khaironi (2018) states that around 40% of human development occurs in early childhood. Therefore, the early years are considered so important that they are called *The Golden Age*.

Based on Minister of Education and Culture Regulation Number 137 of 2014, development according to age level includes 6 aspects, namely religious and moral values, language, physical motor, cognitive, social emotional and artistic. These aspects of development do not develop independently, but are interrelated with each other. Among the various aspects of development, an important aspect for the development of children's ability to recognize colors is cognitive development (Junita & Putrie, 2021).

Cognitive development is the ability that children have to understand things related to knowledge (Y. C. Dewi, 2023; Mifroh, 2020). This is because cognitive (mind) development aims to develop children's thinking abilities so they can process their learning results, find other ways to solve problems and help children improve their mathematical abilities. Before providing learning to children, of course we have to look at the abilities the child has. This ability possessed by children must be developed. One potential that can be developed is introducing colors to children.

Introducing colors to early childhood is an effort to develop children's cognitive aspects. Colors can grow children's brain nerves. In early childhood, the child's brain nerves can be connected optimally. In addition, if children can identify colors, children can stimulate their sense of sight, brain, and the ability to attract sensitivity that occurs because

the color of objects is directly or indirectly exposed to sunlight. Can be felt directly or indirectly by the eye (S. N. Dewi, 2018).

Color is an important component in life. Colors and emotions have a strong connection, colors are able to evoke certain energies and feelings, besides that they are also able to reveal a human's personality (Darmayanti et al., 2022). Therefore, introducing colors to children, especially children aged 4-5 years, is highly recommended so that children can know and differentiate between various colors and their complements. The colors that can be introduced to children are primary colors (red, yellow and blue) then secondary colors (green, purple and orange) and neutral colors (brown) to white and black (2018).

The introduction of colors in kindergarten should be oriented towards activities that support color recognition. It is well known that the way kindergarten children learn is by playing . Basically, the principle of early childhood learning is learning through play, because through play children can develop their potential, express their ideas and knowledge. The introduction given should be able to attract children's interest and also use methods that do not make children bored quickly. And familiarize children by providing activities using tools or media that can support the ability to know, differentiate and group colors and their complements.

The introduction to color that has been described above should be presented and be more meaningful and interesting for children. However, that hope was in stark contrast to reality. Based on the results of observations made by the researchers at TK Negeri 04 Sambelia on Monday 8 August 2022, several problems were found: *first* , children aged 4-5 years were found who were still unable to recognize colors, *second* children were still unable to name colors correctly, *third* children still hesitate and do not want to carry out the teacher's orders to point and group colors so the teacher must help.

From the results of observations in the learning process, the media used was less attractive, children were only given color knowledge using the lecture method and carrying out coloring activities. So children are not interested in learning. Children also often hesitate in naming some colors. In general, children enjoy being given a variety of colors. However, because the boring way of learning makes children less interested in learning. Learning media can make it easier for teachers in the teaching and learning process (Yustiqvar et al., 2019). Students will more easily understand the material when the teacher delivers it using learning media (Hadisaputra et al., 2019) ; (Y. C. Dewi, 2023).

S. N. Dewi, (S. N. Dewi, 2018) explains various color problems , where during the learning process students feel doubtful and do not heed what the teacher tells them to do, for example children do not want to mention when the teacher asks to group and convey the results of experiments on various colors until the child is still need help from the teacher. For color recognition skills, children are often unsure about naming the color that

corresponds to what is indicated, such as when the teacher points to a color and asks the child to answer, but instead the child gives a different answer or the wrong answer, such as saying that the orange indicated is yellow.

Based on the explanation above, it is clear that the color recognition that was carried out did not work as it should. The introduction that should be implemented must be able to improve children's ability to recognize colors, so that children can recognize colors, convey the results of experiments and group colors. One step that can be taken to improve the ability to recognize colors is through the *discovery learning method* .

Discovery is discovery or *inquiry* . Discovery means learning that is enhanced based *on* something meaningful. This method emphasizes the importance of structure or thinking about something and involves students actively in learning. According to Orim et al., (Orim et al., 2023) says that *discovery learning* is a learning activity that involves children in searching for and solving problems in order to develop children's knowledge and skills. Ayunda, (Ayunda, 2023) states that the *Discovery Learning learning model* is defined as a learning process that occurs when students are not presented with lessons in their final form, but through a process of discovery. The teacher plays a role as a guide by providing opportunities for students to learn actively, according to the teacher's opinion, they must be able to guide and direct students' learning activities according to the objectives.

According to Uno & Mohamad, (Uno & Mohamad, 2022) explains the *discovery learning method*, namely the learning process is said to be active and creative if students get the opportunity to discover a concept or theory in their experience of things found in their environment, the *discovery learning method* can also be said to change passive condition becomes active. When applying the *discovery learning* method , teachers will usually only provide a little direction and a few steps or instructions in the hope that students can learn actively on their own. However, this does not mean that teachers do not participate in the teaching and learning process at all, it is hoped that teachers will continue to provide direction and guidance so that students can understand the learning material. Through the discovery method, children can gain knowledge to improve their own ability to recognize colors.

METHODOLOGY

This research is a quantitative research experimental method in the form of *One Group Pretest-Posttest Design*. This research activity was carried out from August to September 2023 on students in group A2 of TK Negeri 04 Sambelia. This research uses a *One Group Pretest-Posttest Design*, where there is *a pretest* before treatment and *a posttest* after treatment.

In the initial stage, the researcher gave an initial test (*pretest*) to students with the aim of seeing the students' initial abilities. The next stage is for the researcher to provide treatment in the form of applying the *Discovery Learning model* in 4 meetings. In the final stage after giving treatment, the researcher gave a final test (*Posttest*) to students with the aim of seeing a comparison of learning outcomes between before being given treatment and after being given treatment (*Discovery Learning model*).

This research will be carried out at TK Negeri 04 Sambelia using quantitative research, experimental methods.

The research design that will be used in this research is *one group pretest-posttest design* . In this design, *a pretest is carried out* before treatment is carried out. The reason the author took this research was because he wanted to see appropriate or accurate results through several tests carried out, namely by having *a pre-test* (before treatment) and *post-test* (after treatment).

The location of this research was carried out in class A at TK Negeri 04 Sambelia for the 2023 academic year and the time for this research activity was in the odd semester of the 2023 academic year.

Population is an individual or the entirety of the objects to be studied that have certain characteristics or traits (Silaen et al., 2018). In this study, the population was all class A students at TK Negeri 04 Sambelia, totaling 45 students.

In this research, the sample that will be used in this research is the method of determining the sample based on certain considerations or standards (*Purposive Sampling*). The reason researchers use *Purposive Sampling techniques* is because not all samples have criteria that match the criteria being studied, by determining considerations or criteria that must be met by the samples used in this research . There are four groups in TK Negeri 04 Sambelia, namely A1, A2, B1 and B2. Based on my observations, in group A2 there were problems in recognizing colors in children . So the sample in this study was group A2, totaling 23 students.

The instrument in this research was used to see how much success using the *discovery method* had an impact on developing children's cognitive abilities. In this quantitative research, the instrument used is an observation sheet (*check list*) during the activity process. The observation sheet contains indicators on how to develop children's cognitive abilities through the use of *discovery learning methods* in color recognition. Researchers use observation guidelines, when researchers make observations so that the observations are more focused and measurable so that the data results that have been obtained are easy to process.

The data collection technique used in this research, researchers used data collection techniques through observation and documentation.

The data collected is the value of the first test and second test. The researcher's goal is to compare two values by asking whether there is a significant difference in the values. Testing for differences in values is only carried out on the average of the two values and to do this a technique called the t-test is used. After obtaining the percentage of answers, the answers were classified based on scientific approach categories.

RESULTS AND DISCUSSION

Research Result

Pretest Data Description

first sub indicator: 2 out of 23 children developed according to expectations in naming 5-7 kinds of colors fluently, precisely without teacher help, 10 children began to develop and 11 children did not develop in naming 5-7 kinds of colors fluently, precisely without help. Teacher. The *second* sub indicator: 3 children developed according to expectations in naming 5-7 kinds of colors, 11 children began to develop and 9 children had not yet developed in naming 5-7 kinds of colors. The *third* sub indicator: 5 children developed according to expectations in naming 3-4 kinds of colors, 14 children began to develop and 4 children did not develop in naming 3-4 kinds of colors.

fourth sub-indicator: 3 children developed according to expectations in not being able to name colors, 5 children began to develop and 15 children did not develop yet in not being able to name colors. The *fifth* sub-indicator: 1 child developed according to expectations in conveying the results of simple experiments correctly and fluently, 4 children began to develop and 18 children did not develop in conveying the results of simple experiments correctly and fluently. The *sixth* sub-indicator: 2 children developed according to expectations in conveying the results of simple experiments, 6 children began to develop and 15 children did not develop in conveying the results of simple experiments.

Seventh sub-indicator: 4 children developed according to expectations in conveying the results of simple experiments with teacher guidance, 8 children began to develop and 11 children did not develop in conveying the results of simple experiments with teacher guidance. The *eighth* sub-indicator is 4 children developing according to expectations in not being able to convey the results of simple experiments, 6 children starting to develop and 13 children not yet developing in not being able to convey the results of simple experiments. The *ninth* sub-indicator: 2 children developed according to expectations in grouping colors correctly, 7 children began to develop and 14 children had not yet developed in grouping colors correctly.

Tenth sub-indicator: 3 children developed according to expectations in grouping colors, 9 children began to develop and 11 children had not yet developed in grouping

colors. The *eleventh* sub-indicator: 6 children developed according to expectations in grouping colors with teacher guidance, 12 children began to develop and 5 children did not develop in grouping colors with teacher guidance. The *twelfth* sub-indicator: 6 children developed according to expectations in not being able to group colors, 5 children began to develop and 12 children did not develop yet in not being able to group colors.

Based on the description above, it can be concluded that of the 23 children, there are 4 children in the category developing according to expectations, 7 children in the category starting to develop and 12 children in the category not yet developing.

Based on the table above, it can be understood that in the pretest data there is not a single child in the very well developing category, 4 children with a percentage of 18% in the category developing as expected, 7 children with a percentage of 30% in the starting to develop category and 12 children with a percentage of 52% in the underdeveloped category.

Implementation of Treatment

After the researcher determines the research subject, the next step is to plan the treatment *that* will be given. The form of treatment *that* will be given is in the form of discovery activities. This *treatment* was carried out in 4 meetings.

The material provided is in accordance with the child's needs obtained from the *pretest results. The pretest* results illustrate that the ability to recognize colors at the age of 4-5 years is still relatively low, as there are still some children who cannot group objects based on color.

a. *Treatment* 1

1) Planning

At this planning stage, the researcher prepares a design that will be carried out to introduce color, so that the treatment *runs* smoothly and achieves results according to what is expected. In this *treatment* , researchers applied the *Discovery Learning method* to the ability to recognize colors in children aged 4-5 years. In carrying out the activities, the researcher made a lesson plan that was appropriate to the material, prepared the media, tools and learning materials that would be used, and made a sheet of student observation analysis results. This first *treatment* was carried out on August 7 2023, in the first *treatment* the children carried out color mixing activities.

2) Implementation

Before *the treatment is carried out* , the researcher first invites the children to pray by reading a short letter (Al-Fatihah, Al-Ikhlas and Al-Falaq) followed by singing. Check the child's attendance, then explain the topic and sub-topic that will be studied.

After introducing and explaining the topic, proceed to the activity that will be carried out, namely the discovery method with the following steps:

a) Understand children's needs
b) Selecting materials and choosing an introduction to the principles, meaning of concepts, as well as generalizing children's knowledge about colors.
c) Explain the children's tasks and the role of each child in the color mixing activity
d) Design and organize the class and the tools needed
e) Ensure children's understanding of a problem to be solved
f) Provide opportunities for children to make discoveries in color mixing activities
g) Guiding children and providing information if children need it.
h) Guide yourself with questions that lead to a learning process
i) Increase interaction between children and their friends
j) Guiding children to formulate and conclude something from their findings in mixing colors

3) Evaluation

Based on the researcher's observations in the first *treatment for the first* sub-indicator, 2 out of 23 children developed according to expectations in naming 5-7 kinds of colors fluently, precisely without teacher assistance, 10 children began to develop and 11 children did not develop yet in naming 5-7 kinds. colors smoothly, precisely without the help of a teacher. The *second* sub-indicator is 3 children developing according to expectations in naming 5-7 kinds of colors, 14 children are starting to develop and 6 children have not yet developed in naming 5-7 kinds of colors. The *third* sub indicator: 7 children developed according to expectations in naming 3-4 kinds of colors, 12 children began to develop and 4 children did not develop in naming 3-4 kinds of colors.

fourth sub-indicator: 3 children developed according to expectations in not being able to name colors, 16 children began to develop and 4 children did not develop yet in not being able to name colors. The *fifth* sub-indicator: 1 child developed according to expectations in conveying the results of simple experiments correctly and fluently, 3 children began to develop and 19 children did not develop in conveying the results of simple experiments correctly and fluently. The *sixth* sub-indicator is 1 child developing as expected in conveying the results of simple experiments, 6 children are starting to develop and 16 children have not yet developed in conveying the results of simple experiments.

Seventh sub-indicator: 4 children developed according to expectations in conveying the results of simple experiments with teacher guidance, 4 children began to develop and 15 children did not develop in conveying the results of simple

experiments with teacher guidance. The *eighth* sub-indicator is 4 children developing according to expectations in not being able to convey the results of simple experiments, 4 children starting to develop and 15 children not yet developing in not being able to convey the results of simple experiments. The *ninth* sub-indicator: 2 children developed according to expectations in grouping colors correctly, 7 children began to develop and 14 children had not yet developed in grouping colors correctly.

Tenth sub-indicator: 4 children developed according to expectations in grouping colors, 16 children began to develop and 3 children had not yet developed in grouping colors. The *eleventh* sub-indicator: 6 children developed according to expectations in grouping colors with teacher guidance, 15 children began to develop and 2 children did not develop in grouping colors with teacher guidance. The *twelfth* sub-indicator: 6 children developed according to expectations in not being able to group colors, 15 children began to develop and 2 children did not develop yet in not being able to group colors.

Based on the description of this first *treatment* , it can be seen that the ability to recognize colors in children aged 4-5 years is still low, where there are several children whose ability to recognize colors is still low. The evaluation results from this first *treatment* will be used as a basis for carrying out subsequent *treatments* .

b. *Treatment* 2

1) Planning

Treatment was carried out on Tuesday, August 8 2023, in the second *treatment* the children carried out the activity of sticking colored palms. Before carrying out this second *treatment* , the researcher first prepared the RPPH (Daily Learning Implementation Plan), tools and materials to support the activities to be carried out.

2) Implementation

Before carrying out the second *treatment* , the researcher first invited the children to pray, reading a short letter (Al-Fatihah, Al-Ikhlas and Al-Falaq) followed by singing. Check the child's attendance, then explain the topic and sub-topic that will be studied. After introducing and explaining the topic, proceed to the activity that will be carried out, namely the discovery method with the following steps:

a) Understand children's needs
b) Selecting materials and choosing an introduction to the principles, meaning of concepts, as well as generalizing children's knowledge about colors.
c) Explain the children's tasks and the role of each child in the activity of sticking colored palms
d) Design and organize the class and the tools needed
e) Ensure children's understanding of a problem to be solved

f) Provide opportunities for children to make discoveries in the activity of sticking colored palms
g) Guiding children and providing information if children need it.
h) Guide yourself with questions that lead to a learning process
i) Increase interaction between children and their friends
j) Guiding children to formulate and conclude something from their findings in sticking colored palms.

3) Evaluation

When the researchers evaluated the task-making activities carried out in the second *treatment* , based on the evaluation the researchers saw that the ability to recognize colors in children aged 4-5 years had begun to appear. However, there are still children who are not careful in carrying out the tasks given. Based on table 4.5, it was found that for *the first* sub-indicator 2 out of 23 children developed according to expectations in naming 5-7 kinds of colors fluently, precisely without teacher help, 10 children began to develop and 11 children did not develop in naming 5-7 kinds of colors correctly. smoothly, precisely without the help of a teacher. The *second* sub indicator: 3 children developed according to expectations in naming 5-7 kinds of colors, 18 children began to develop and 2 children had not yet developed in naming 5-7 kinds of colors. The *third* sub indicator: 15 children developed according to expectations in naming 3-4 kinds of colors, 6 children began to develop and 2 children did not develop in naming 3-4 kinds of colors.

fourth sub indicator: 7 children developed according to expectations in not being able to name colors, 14 children began to develop and 2 children did not develop yet in not being able to name colors. The *fifth* sub-indicator: 1 child developed according to expectations in conveying the results of simple experiments correctly and fluently, 3 children began to develop and 19 children did not develop in conveying the results of simple experiments correctly and fluently. The *sixth* sub-indicator: 2 children developed according to expectations in conveying the results of simple experiments, 8 children began to develop and 13 children did not develop in conveying the results of simple experiments.

Seventh sub-indicator: 4 children developed according to expectations in conveying the results of simple experiments with teacher guidance, 15 children began to develop and 4 children did not develop in conveying the results of simple experiments with teacher guidance. The *eighth* sub-indicator is 4 children developing according to expectations in not being able to convey the results of simple experiments, 14 children starting to develop and 5 children not yet developing in not being able to convey the results of simple experiments. The *ninth* sub-indicator: 4

children developed according to expectations in grouping colors correctly, 7 children began to develop and 12 children did not develop in grouping colors correctly.

Tenth sub-indicator: 6 children developed according to expectations in grouping colors and 17 children began to develop in grouping colors. In the *eleventh* sub-indicator, 8 children developed according to expectations in grouping colors with teacher guidance and 2 children began to develop in grouping colors with teacher guidance. The *twelfth* sub-indicator: 7 children developed according to expectations in not being able to group colors and 16 children began to develop in not being able to group colors.

Based on the description of this second *treatment* , it can be seen that there are 4 indicators that are understood by children, namely naming 3-4 kinds of colors with teacher guidance, grouping colors correctly, grouping colors and grouping colors with teacher guidance and there are still 8 sub-indicators that have not been achieved. then further *treatment is needed* .

c. *Treatment* 3

1) Planning

Before entering the classroom, the researcher first prepares a learning plan that will be implemented when carrying out the third *treatment* , such as preparing a RPPH (Daily Learning Implementation Plan), tools and materials to support the activities that will be carried out. In this third *treatment* , researchers carried out color blocking activities with tissue and will be carried out on Monday 21 August 2023.

2) Implementation

a) Understand children's needs
b) Selecting materials and choosing an introduction to the principles, meaning of concepts, as well as generalizing children's knowledge about colors.
c) Explain the children's tasks and the role of each child in the color obstacle activity with tissue
d) Design and organize the class and the tools needed
e) Ensure children's understanding of a problem to be solved
f) Provide opportunities for children to make discoveries in color obstacle activities with tissue
g) Guiding children and providing information if children need it.
h) Guide yourself with questions that lead to a learning process
i) Increase interaction between children and their friends
j) Guiding children to formulate and conclude something from their findings in color barriers with tissue

3) Evaluation

Based on the researcher's observations in the third *treatment for the first* sub-indicator, 4 out of 23 children developed according to expectations in naming 5-7 kinds of colors fluently, precisely without teacher help, 13 children began to develop and 6 children did not develop yet in naming 5-7 kinds. colors smoothly, precisely without the help of a teacher. The *second* sub indicator is 6 children developing according to expectations in naming 5-7 kinds of colors, 16 children are starting to develop and 1 child has not yet developed in naming 5-7 kinds of colors. The *third* sub indicator: 4 children developed very well, 17 children developed according to expectations and 2 children began to develop in naming 3-4 kinds of colors.

fourth sub indicator: 12 children developed according to expectations in not being able to name colors and 11 children began to develop in not being able to name colors. The *fifth* sub-indicator: 2 children developed according to expectations in conveying the results of simple experiments correctly and fluently, 3 children began to develop and 18 children did not develop in conveying the results of simple experiments correctly and fluently. The *sixth* sub-indicator: 4 children developed according to expectations in conveying the results of simple experiments, 16 children began to develop and 3 children did not develop in conveying the results of simple experiments.

seventh sub-indicator: 4 children developed according to expectations in conveying the results of simple experiments with teacher guidance and 19 children began to develop in conveying the results of simple experiments with teacher guidance. The *eighth* sub-indicator: 4 children developed according to expectations in not being able to convey the results of simple experiments and 19 children began to develop in not being able to convey the results of simple experiments. The *ninth* sub-indicator: 4 children developed according to expectations in grouping colors correctly, 17 children began to develop and 2 children did not develop in grouping colors correctly.

tenth sub-indicator: 3 children developed very well in grouping colors, 14 children developed according to expectations in grouping colors, and 6 children began to develop in grouping colors. In the *eleventh* sub-indicator, 17 children developed according to expectations in grouping colors with teacher guidance and 6 children began to develop in grouping colors with teacher guidance. The *twelfth* sub-indicator : 8 children developed according to expectations in not being able to group colors and 15 children began to develop in not being able to group colors.

d. *Treatment* 4

1) Planning

treatment was carried out on Saturday 26 August 2023, in the fourth *treatment* the children carried out coloring activities for whatever they liked. Before carrying out this fourth *treatment* , the researcher first prepared the RPPH (Daily Learning Implementation Plan), tools and materials to support the activities to be carried out.

2) Implementation

a) Understand children's needs
b) Selecting materials and choosing an introduction to the principles, meaning of concepts, as well as generalizing children's knowledge about colors.
c) Explain the children's tasks and the role of each child in relay ball activities
d) Design and organize the class and the tools needed
e) Ensure children's understanding of a problem to be solved
f) Provide opportunities for children to make discoveries in relay ball activities
g) Guiding children and providing information if children need it.
h) Guide yourself with questions that lead to a learning process
i) Increase interaction between children and their friends
j) Guiding children to formulate and conclude something from the results of their discoveries in relay balls

3) Evaluation

Based on the researcher's observations in this fourth *treatment , the researcher saw that for the first* sub-indicator, 4 out of 23 children developed according to expectations in naming 5-7 kinds of colors fluently, precisely without the teacher's help, 17 children began to develop and 2 children did not develop yet in naming 5-7 kinds of colors smoothly, precisely without the help of a teacher. The *second* sub indicator: 7 children developed according to expectations in naming 5-7 kinds of colors and 16 children began to develop in naming 5-7 kinds of colors. The *third* sub indicator: 7 children developed very well in naming 3-4 kinds of colors, 14 developed as expected and 2 children began to develop in naming 3-4 kinds of colors.

fourth sub indicator: 17 children developed according to expectations in not being able to name colors and 6 children began to develop in not being able to name colors. The *fifth* sub-indicator: 4 children developed according to expectations in conveying the results of simple experiments correctly and fluently, 17 children began to develop and 2 children did not develop in conveying the results of simple experiments correctly and fluently. The *sixth* sub-indicator: 4 children developed according to expectations in conveying the results of simple experiments and 19 children began to develop in conveying the results of simple experiments.

Seventh sub-indicator: 4 children developed according to expectations in conveying the results of simple experiments with teacher guidance and 19 children began to develop in conveying the results of simple experiments with teacher guidance. The *eighth* sub-indicator: 4 children developed according to expectations in not being able to convey the results of simple experiments and 19 children began to develop in not being able to convey the results of simple experiments. The *ninth* sub-indicator: 4 children developed very well in grouping colors correctly, 7 children developed as expected and 12 children began to develop in grouping colors correctly.

Tenth sub-indicator: 6 children developed very well in grouping colors, 15 children developed according to expectations and 2 children began to develop in grouping colors. The *eleventh* sub-indicator: 6 children developed very well in grouping colors with teacher guidance and 17 children began to develop in grouping colors with teacher guidance. The *twelfth* sub-indicator: 9 children developed according to expectations in not being able to group colors and 14 children began to develop in not being able to group colors.

Based on this fourth *treatment* , it can be seen that there has been an influence on the developing ability to recognize colors in children aged 4-5 years. It can be seen from all the indicators that have been achieved.

***Posttest* Data Description**

After all the activities were carried out, the children were re-evaluated to see the ability to recognize colors in children aged 4-5 years after being given discovery activities with coloring activities. Comparing the average value of the ability to recognize colors in children aged 4-5 years before and after being given discovery activities using different test analysis (*t-test*). This different test was carried out to see the significant influence of the ability to recognize colors in children aged 4-5 years.

Comparative data on the results of the ability to recognize colors in children aged 4-5 years, *pretest* and *posttest*

After the results of *the treatment* have been carried out four times, the next step is to analyze the data by carrying out statistical tests (t-test) to see the effect of applying the *discovery learning method* used in this research.

This was also carried out to see the effect after implementing the *discovery learning method* on the ability to recognize colors in children aged 4-5 years. *Pretest* data is carried out to see the initial results before a *treatment is implemented* , while data from *the posttest* is carried out to see the final results of a *treatment* that has been carried out **Hypothesis Testing**

Next, after the sample is normally distributed and has homogeneous variations, proceed with hypothesis testing using the t-test. This was used to see the effect after the

treatment was carried out. The t-test was carried out to see the effect of the *discovery learning method* on the ability to recognize colors in children aged 4-5 years. Please note first that the overall comparison of *pretest* and *posttest results is presented as follows:*

Based on the problem formulation, the hypothesis test is carried out using the "t" test. Before carrying out the "t" test, a calculation table is first created to obtain the "t" value as follows:

Table 4.13

Calculations to obtain "t" in order to test the truth of alternative hypotheses

No	Child Code	*Pretest*	*Posttest*	D	D^2
		Score	Score		
1	Alula	35	47	12	144
2	Agam	12	30	18	324
3	Alfi	31	47	16	256
4	Zaendi	12	30	18	324
5	Paradise	21	34	13	169
6	Patma	22	34	12	144
7	Kirana	14	34	20	400
8	Aliya	16	42	26	676
9	Science	14	35	21	441
10	Munip	13	34	21	441
11	Dana	12	32	20	400
12	Naura	12	31	19	361
13	Nurul	34	47	13	169
14	Zilpah	30	47	17	289
15	Fitri	21	32	11	121
16	Diamond	23	39	16	256
17	Patir	21	37	16	256
18	Rody	17	35	18	324
19	Azril	22	38	26	676
20	Adifa	16	38	22	484
21	Assyifa	14	31	17	289
22	Password	15	31	16	256
23	Nazinda	26	43	17	289
Amount		453	848	405	7,489

a. Find the mean of *the differences*

$M_D = \frac{\sum D}{N} = \frac{405}{23} = 17.60$

b. Look for a standard definition of *difference*

$SD_D = \sqrt{\frac{\sum D^2}{N} - \left(\frac{\sum D}{N}\right)^2}$

$SD_D = \sqrt{\frac{7.489}{23} - \left(\frac{405}{23}\right)^2}$

$SD_D = \sqrt{325{,}60 - (17{,}60)^2}$

$SD_D = \sqrt{325{,}60 - 309{,}76}$

$SD_D = \sqrt{15{,}84} = 3.979949748 = 3.97$

c. Find *the standard error of the mean difference* , using the formula

$SE_{MD} = \frac{SD_D}{\sqrt{N-1}} = \frac{3{,}97}{\sqrt{23-1}} = \frac{3{,}97}{\sqrt{22}} = \frac{3{,}97}{4{,}69} = 0.84$

d. Looking for $t_o = \frac{MD}{SE_{MD}} = \frac{17{,}60}{0{,}84} = 20.95$

The next step is to calculate df and db with the formula N-1 = 23-1 = 22. The researcher refers to the table of good "t" values at the 5% significance level, namely t $_{t.}$ 2.27. So it can be seen that (t_o) is greater than (t_t) namely 20.95 > 2.27 because (t_o) is greater than ($t_{t)}$ then the proposed null hypothesis ($h_{o)}$ is rejected and the alternative hypothesis is accepted (h_a), this means that there is an influence of the *discovery learning method* on the ability to recognize colors in children aged 4-5 years at TK Negeri 04 Sambelia.

In this research, the "t" value used is at a significance level of 5%. So, it can be concluded that the *discovery learning method* can influence children's ability to recognize colors.

Discussion

This research aims to determine the effect of the *discovery learning method* on the ability to recognize colors in children aged 4-5 years at TK Negeri 04 Sambelia. Based on the results of research conducted on group A2 at TK Negeri 04 Sambelia, data was obtained on the frequency of categories of *pretest* and *posttest scores* on the ability to recognize colors in children after early age for each indicator. It can be seen from the results of each data, namely *the pretest,* that there were no children in the very well developed category. Likewise, in the first *treatment* the child was still not in the very well developed category. In the second *treatment* , there were 4 children in the category of developing according to expectations and there were no children in the category of developing very well. In the third *treatment* , there were 4 children in the category developing as expected and there were

still no children in the very well developing category. In the fourth *treatment* there were 6 children in the category developing as expected and 4 children developing in the very well developing category, while *posttest data* showed that there were 16 children in the developing as expected category and 7 children developing very well.

Overall, of the 23 children, 7 of the 23 children from the final *posttest results* were in the very well developing category with a percentage of 20% and 16 children were in the developing category as expected with a percentage of 80%. This research was also accepted at a significance level of 5% after carrying out a normality test, homogeneity test, and t test, which means that there is an influence of the *discovery learning method* on the ability to recognize colors in children aged 4-5 years at TK Negeri 04 Sambelia.

The theory that supports the *discovery learning method* is effective in the ability to recognize colors in children aged 4-5 years, namely Purwaningrum (2016) says that *discovery learning* is a learning activity that involves children in searching for and solving problems in order to develop children's knowledge and skills. .

Discovery Learning learning model is defined as a learning process that occurs when students are not presented with lessons in their final form, but through a process of discovery (Kebudayaan, 2013). The teacher plays a role as a guide by providing opportunities for students to learn actively, according to the teacher's opinion, they must be able to guide and direct students' learning activities in accordance with the objectives.

Based on the explanation above, it can be concluded that the application of the *discovery learning method* in TK Negeri 04 Sambelia has achieved the goal of the ability to recognize colors in children aged 4-5 years.

The results of the research conducted by researchers are in line with research conducted by (Sari et al., 2016)" Application of the *discovery learning method* assisted by natural media to improve cognitive abilities in children" by 35% through the application of the *discovery method.* From the results of this research, it can be seen from the comparison of cycle I and cycle II, where the average cycle value for cycle I was 50% in the low category and there was an increase in cycle II of 89% in the high category. So it can be concluded that the application of *the discovery learning* method can improve children's cognitive abilities.

CONCLUSION

Based on the research and analysis that researchers have carried out regarding the influence of the *discovery learning method* on the ability to recognize colors in children aged 4-5 years at TK Negeri 04 Sambelia, it can be concluded that from the results of statistical testing of the alternative hypothesis (H_a) it is stated that there is an influence of the *discovery learning method* on the ability to recognize colors in children aged 4-5 years.

At the t value, the significance level is 5%, namely t_t 5% = 2.27, so it can be seen that t_o is greater than t_t , namely 20.95> 2.27. So the proposed null hypothesis is rejected, so there is a difference in the color recognition ability scores before and after the *discovery learning method is used* . The conclusion that can be drawn is that the *discovery learning* method influences the ability to recognize colors in children aged 4-5 years at TK Negeri 04 Sambelia, and can be used for further learning.

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