JURNAL EDUKASI DAN PEMBELAJARAN ANAK USIA DINI

# THE IMPLEMENTATION OF THE DISCOVERY LEARNING MODEL IN EARLY CHILDHOOD THEMATIC LEARNING TO ENHANCE CHILDREN'S IMAGINATION AT TK PERTIWI 2 DERODUWUR, WONOSOBO

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***Abstract***

*This study was motivated by the low imaginative ability of Group B children at TK Pertiwi 2 Deroduwur Wonosobo, which was reflected in passive behavior, lack of confidence, and a tendency to imitate their peers' work during learning activities. The research aimed to examine the effectiveness of the Discovery Learning model in improving children's imagination through thematic learning activities based on exploration. The study employed a quantitative experimental approach using a One Group Pretest-Posttest Design involving 15 kindergarten children. Data were collected through observation, documentation, and pretest-posttest assessments measuring fluency, flexibility, originality, and elaboration aspects of imagination. The findings revealed a significant improvement in children's imaginative abilities after the implementation of discovery-based learning. The average score increased from 1.85 in the pretest to 3.33 in the posttest. Furthermore, the N-Gain result reached 0.702, categorized as high or effective. Therefore, the Discovery Learning model was proven effective in enhancing early childhood imagination and creativity through environmental exploration activities. These results indicate that discovery-based thematic learning not only improves quantitative achievement scores but also supports the development of creative thinking skills in early childhood education.*

**Keywords:** *Discovery Learning, Thematic Learning, Children's Imagination, Early Childhood*

## INTRODUCTION

Imagination is an essential element in early childhood cognitive development because it plays a crucial role in shaping creative and symbolic thinking abilities. Imagination is not merely understood as fantasy activity, but as a mental process in which children construct new ideas, images, or concepts based on their prior experiences. This ability enables children to develop creativity, express ideas freely, and find solutions to various problems in unique and original ways. Children who receive insufficient stimulation of imagination tend to experience difficulties in flexible thinking and are less confident in expressing their ideas (Rachmawati & Kurniati, 2010).

Field conditions indicate that children's imaginative abilities are still not optimally developed. Based on preliminary observations at TK Pertiwi 2 Deroduwur Wonosobo, it was found that most children still show passive behavior during the learning process. Children have difficulty retelling stories, creating independent work, and developing ideas based on their own thinking. Most children tend to wait for teacher instructions and imitate their peers' work without further development (Tutik, 2026). This situation indicates that opportunities for children to explore ideas and develop their imagination are still very limited. It also shows a gap between the expected development of children's imagination and classroom learning practices.

This problem is influenced by the implementation of thematic learning that does not yet fully provide space for active exploration. Although thematic learning has been applied, the learning process is still predominantly teacher-centered. Teachers often provide uniform examples that children are required to follow, causing them to receive information passively. As a result, learning activities become monotonous and are less able to foster children's creativity and curiosity. Learning, which should serve as a medium for exploration, instead becomes a routine activity that limits the development of children's imagination (Trianto, 2010). This condition results in children being less involved in the process of independently discovering concepts.

To address this issue, a learning model that encourages active child engagement is needed, one of which is the Discovery Learning model. This model is considered suitable for early childhood education because it emphasizes direct learning experiences in discovering knowledge. Through Discovery Learning, children are encouraged to observe, experiment, ask questions, and find answers based on their learning experiences. This process can stimulate children's imaginative abilities because they are required to imagine various possibilities and connect their experiences with new knowledge being learned (Hosnan, 2014). This model provides opportunities for children to become active participants in the learning process.

The implementation of Discovery Learning in thematic learning is believed to create a more engaging, active, and meaningful learning environment. Children do not only receive explanations from teachers but are also directly involved in exploratory activities such as role-playing, simple experiments, and direct observation of objects. For example, in a space-themed lesson, children can explore concepts of light, space, or celestial objects through play and simple experiments. Such active involvement provides children with opportunities to think creatively, build imagination, and discover new learning experiences independently. Thus, learning becomes more contextual and optimally stimulates children's imagination.

Based on this description, further research is needed to examine the effectiveness of implementing the Discovery Learning model in thematic learning to improve early childhood imagination skills. This study is expected to provide scientific evidence regarding the effect of the Discovery Learning model on the development of imaginative thinking skills in children at TK Pertiwi

2 Deroduwur Wonosobo. Therefore, this research is entitled "The Implementation of the Discovery Learning Model in Early Childhood Thematic Learning to Enhance Children's Imagination at TK Pertiwi 2 Deroduwur Wonosobo." This study is expected to contribute to the development of more participatory and creative thematic learning models in early childhood education.

## METHODS

### 2.1 Research Design

This study employed a quantitative approach using an experimental method to examine the effect of the implementation of the Discovery Learning model on early childhood imagination skills. The research design used was a One-Group Pretest-Posttest Design, in which measurements were conducted before and after the treatment to objectively determine changes in children's abilities. This design was applied to identify differences between pre-intervention and post-intervention conditions without a control group. All children in Group B at TK Pertiwi 2 Deroduwur were used as research subjects through a saturated sampling technique, considering the relatively small population size so that the entire population was included as the research sample (Sugiyono, 2019).

### 2.2 Research Site and Schedule

This research was conducted at TK Pertiwi 2 Deroduwur Wonosobo, with a series of activities starting from preliminary observation, instrument development, pretest administration, treatment using the Discovery Learning model, posttest implementation, and data analysis. The research process was carried out in stages from March to May to ensure systematic and well-structured data collection in accordance with the planned research procedures. All stages were conducted sequentially following experimental research guidelines.

### 2.3 Population and Sample

The population of this study consisted of all Group B children at TK Pertiwi 2 Deroduwur, totaling 15 children. Due to the limited population size, a saturated sampling technique was used, meaning that all members of the population were included as research samples to ensure more representative and accurate data. The study applied a pretest and posttest design to determine changes in children's imagination skills after the implementation of the Discovery Learning model (Martono, 2014; Siregar, 2014).

### 2.4 Research Variables

This study consisted of independent and dependent variables. The independent variable was the Discovery Learning model, which emphasizes active child engagement through observing, experimenting, discovering, and communicating learning outcomes. The dependent variable was early childhood imagination skills, measured through indicators of fluency, originality, flexibility, and elaboration. Assessment was conducted using an observation rubric with developmental scales ranging

from "Not Yet Developed" to "Very Well Developed" (Suharsimi, 2010; Munandar, 2009). These indicators served as a systematic and measurable basis for assessing children's imagination skills.

**2.5 Data Collection Techniques**

Data collection in this study was carried out through observation, documentation, and tests. Observation was used to monitor children's imagination development during the learning process, while documentation was used to collect evidence of children's activities and work as supporting data. In addition, pretest and posttest were used to measure improvements in children's imagination skills before and after the implementation of the Discovery Learning model, ensuring that the results could be analyzed quantitatively and objectively (Sugiyono, 2019; Arikunto, 2018).

**2.6 Validity and Reliability of Instruments**

The research instruments were first tested for validity and reliability to ensure their appropriateness for data collection. Validity was tested using Pearson Product Moment correlation to determine the accuracy of the instrument in measuring children's imagination skills. The results showed that all indicators had calculated r-values higher than r-table values, indicating that they were valid. Meanwhile, reliability testing using Cronbach's Alpha produced a value of 0.79, which is categorized as high, indicating that the instrument was consistent and reliable for use in the study (Sukmadinata, 2012; Azwar, 2012).

**2.7 Research Instruments**

Research instruments are tools used by researchers to collect systematic and structured data. In this study, the instruments included observation sheets, documentation of children's work, and pretest-posttest assessments. Observation sheets were used to assess children's imagination skills based on fluency, originality, flexibility, and elaboration. Documentation was used to collect evidence of children's work during the learning process, while tests were administered to determine improvements in imagination skills before and after the treatment using the Discovery Learning model (Ali Sodik, 2015; Anita Yus, 2011).

**2.8 Data Analysis Techniques**

Data were analyzed using several statistical techniques, including validity testing, reliability testing, normality testing, hypothesis testing using the Paired Sample T-Test, and N-Gain testing to determine the level of improvement in children's imagination skills. Normality testing was conducted using the Shapiro-Wilk test because the sample size was less than 50 respondents. Furthermore, statistical results were interpreted by comparing pretest and posttest data, supported by observation and documentation results, to obtain a deeper conclusion regarding the effect of the Discovery Learning model on early childhood imagination development. Data analysis was conducted in an integrated manner to ensure accurate and scientifically accountable results.

## RESULTS AND DISCUSSION

### 3.1 Data Analysis

This test aimed to determine whether there were differences in the imagination skills of Group B children at TK Pertiwi 2 Deroduwur Wonosobo before the learning intervention (pretest) and after the implementation of the Discovery Learning model (posttest). Data analysis was conducted using IBM SPSS version 25 through two main stages: hypothesis testing using the Paired Sample T-Test and effectiveness testing using the N-Gain Score (Sugiyono, 2019). The analysis focused on changes in children's abilities before and after the intervention to examine the effect of the Discovery Learning model.

#### 3.1.1 Prerequisite Test (Normality Test)

Before conducting parametric hypothesis testing, the pretest and posttest data were tested to ensure normal distribution. According to Hardani et al. (2018), a normality test is used to determine whether research data meet the assumption of normal distribution, making them suitable for parametric statistical analysis.

Because the sample size was less than 50 participants (N = 15), the Shapiro-Wilk test was used. The decision rule is that if the significance value (Sig.) > 0.05, the data are considered normally distributed; if Sig. < 0.05, the data are not normally distributed.

**Table 1.** Shapiro-Wilk Normality Test Results

| Data | N | Statistic | Sig. (Shapiro-Wilk) | Interpretation |
|---|---|---|---|---|
| Pretest | 15 | 0.912 | 0.145 | Normally distributed |
| Posttest | 15 | 0.905 | 0.113 | Normally distributed |

Based on Table 1, the significance values for the pretest (0.145) and posttest (0.113) are greater than 0.05. Therefore, both datasets are normally distributed. Thus, the data meet the requirements for parametric hypothesis testing (Trihendradi, 2012).

#### 3.1.2 Hypothesis Testing (Paired Sample T-Test)

Hypothesis testing was conducted to determine whether there was a difference in children's imagination mean scores before and after the implementation of the Discovery Learning model. The Paired Sample T-Test was used because the study compared two conditions within the same group of subjects (Sudijono, 2014).

The hypotheses were formulated as follows:

a. $H_0$: There is no improvement in children's imagination skills after the implementation of the Discovery Learning model.
b. $H_a$: There is an improvement in children's imagination skills after the implementation of the Discovery Learning model.

The decision rule is based on the Sig. (2-tailed) value: if Sig. < 0.05, $H_0$ is rejected and $H_a$ is accepted.

**Table 2.** Paired Samples Test Results

| Variable | Pretest Mean | Posttest Mean | t-value | df | Sig. (2-tailed) | Decision |
|---|---|---|---|---|---|---|
| Pretest–Posttest | 1.80 | 3.33 | -14.235 | 14 | 0.000 | $H_0$ rejected, $H_a$ accepted |

The analysis in Table 2 shows a significance value of 0.000, which is less than 0.05. Therefore, $H_0$ is rejected and $H_a$ is accepted. This indicates a statistically significant improvement in children's imagination skills after the implementation of the Discovery Learning model (Sugiyono, 2019). The increase is also reflected in the mean score, which rose from 1.80 (pretest) to 3.33 (posttest). These findings indicate that the Discovery Learning model has a positive effect on children's imagination development in thematic learning. This result is consistent with Bruner's theory, which emphasizes that learning through discovery helps children actively construct knowledge through direct learning experiences (Bruner, 1961).

### 3.2 N-Gain Score Analysis (Imagination Improvement)

In addition to the t-test, the N-Gain Score was used to determine the effectiveness of the Discovery Learning model in improving children's imagination skills. According to Hake (1999), N-Gain measures learning improvement based on pretest and posttest scores. The formula used is:

$$N - Gain = \frac{\text{Score } Posttest - Score\ Pretest}{Maximun\ \text{score} - \text{Score } Pretest}$$

The maximum score in this study was 16, derived from four indicators with a maximum score of 4 each. Calculation:

$$N - Gain = \frac{3{,}33 - 1{,}80}{16 - 1{,}80} \quad \frac{1{,}53}{14{,}20} =$$

$$N - Gain = 0{,}702$$

The result indicates that the average N-Gain score is 70.2%, which falls into the effective category. Thus, the Discovery Learning model is effective in improving children's imagination skills (Siregar, 2014).

**Table 3.** N-Gain Effectiveness Results

| No | Statistic | Value | Interpretation |
|---|---|---|---|
| 1 | Average N-Gain Score | 0.702 | High |
| 2 | N-Gain Percentage | 70.2% | Effective |
| 3 | Minimum N-Gain | 0.500 | Moderately effective |
| 4 | Maximum N-Gain | 10.000 | Very effective |

### 3.3 Fulfillment of Statistical Assumptions (Normality Test)

The Shapiro-Wilk test results show that the pretest significance value is 0.145 and the posttest value is 0.113, both above 0.05. Therefore, the data are normally distributed (Sujarweni, 2020). This indicates that the dataset is stable and suitable for parametric statistical analysis.

### 3.4 Evidence of Treatment Effect (Hypothesis Test)

The Paired Sample T-Test result shows a significance value of 0.000 (< 0.05), indicating a significant difference between pretest and posttest scores (Sukardi, 2013). This confirms that the Discovery Learning model significantly improves children's imagination skills, as shown by improved idea generation, creativity, and expressive learning outcomes.

### 3.5 Improvement Analysis (N-Gain Score)

The average N-Gain value of 0.702 (70.2%) indicates a high and effective level of improvement (Widoyoko, 2012). Posttest results show that all children moved out of the low development categories. Ten children (66.7%) reached the "Developing as Expected" (BSH) level, while five children (33.3%) reached the "Very Well Developed" (BSB) category, indicating a strong improvement in imagination skills.

### 3.6 Relationship Between Experimental Activities and Imagination Indicators

#### 3.6.1 "Magic Shadow" Experiment

The activity of observing and forming body shadows using sunlight stimulated children's creative thinking. This activity enhanced fluency because children produced various spontaneous movements (Nur, 2021). It also improved flexibility as children explored different body positions to create diverse shadow shapes.

#### 3.6.2 "Natural Color Recipe" Experiment

Collecting leaves and flowers to create natural dyes encouraged originality as children produced unique works (Mulyani, 2021). Children also improved elaboration skills by adding detailed artistic elements such as veins of leaves, clouds, and decorative patterns.

Through these discovery-based learning activities, children became active learners rather than passive recipients. Therefore, the Discovery Learning model is effective in developing all aspects of children's imaginative creativity in a comprehensive and sustainable manner.

## CONCLUSION

Based on the research findings, the implementation of the Discovery Learning model in thematic learning has been proven to significantly improve the imagination skills of Group B children at TK Pertiwi 2 Deroduwur Wonosobo. The learning process was carried out through nature-based exploration and experimentation activities that provided children with ample opportunities to observe, try, discover, and express their ideas independently. This condition made children more active, creative, and confident during the learning process.

The improvement in imagination skills was reflected in the change of children's developmental achievement levels, which initially ranged from the "Beginning to Develop" category to "Developing as Expected" and "Very Well Developed." Statistically, the average imagination score increased from 1.80 in the pretest to 3.33 in the posttest. In addition, the N-Gain Score result of 0.702 indicates that the Discovery Learning model has a high level of effectiveness in enhancing creative thinking skills, idea flexibility, originality, and children's ability to elaborate their work more optimally and in a more varied manner.

Overall, the results of this study indicate that the Discovery Learning model not only improves children's imagination scores but also contributes to the development of creativity, flexible thinking, and exploratory skills in thematic learning.

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