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Analysis of Outdoor Learning Model and Cognitive Learning Outcomes

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Abstract

This study aims to analyze the effect of an outdoor learning-based learning model on improving students' cognitive learning outcomes. The outdoor learning model is implemented through learning activities outside the classroom that link direct experience with the subject matter. The research method used was a quasi-experimental study with a pretest-posttest control group design. The research subjects consisted of high school students divided into two groups, namely the experimental and the control groups. Cognitive learning outcome data were collected through objective tests and analyzed using parametric statistical tests. The results revealed that there was a significant difference between the cognitive learning outcomes of students who participated in the outdoor learning model and those who used conventional learning. Therefore, the outdoor learning model can improve cognitive abilities and active student engagement in the learning process.

Keywords: *Learning, Outdoor, Cognitive Learning, Students*

1. INTRODUCTION

Education is essentially a process of developing students' potential, enabling them to think critically, creatively, and responsibly about their surroundings. In this process, learning plays a central role in achieving comprehensive educational goals. However, the reality on the ground shows that the learning process is still dominated by conventional, teacher-centered methods, resulting in suboptimal student learning outcomes and cognitive activities.

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One approach that can address this problem is outdoor learning, a learning model conducted outside the classroom, utilizing the environment as a learning resource. Through outdoor learning activities, students can directly experience the concepts being studied, fostering interest and developing critical thinking skills and conceptual understanding. This approach aligns with constructivist theory, which emphasizes the importance of direct experience in constructing knowledge.

Based on this description, research is needed to determine the extent of the outdoor learning model's influence on students' cognitive learning outcomes, particularly in the context of secondary school education. Problem Formulation

1. How is the outdoor learning model implemented in the learning process at school?
2. Is there a significant influence of the outdoor learning model on students' cognitive learning outcomes?
3. What are the differences in cognitive learning outcomes between students participating in the outdoor learning model and those participating in conventional learning?.

LITERATURE REVIEW

The outdoor learning model is a learning approach that emphasizes learning activities outside the classroom, utilizing the natural, social, and cultural environment as a learning resource. According to Priest (1986), outdoor learning provides hands-on experiences that enable students to construct knowledge through interaction with the real environment.

The cognitive domain is one of the main domains in Bloom's taxonomy, encompassing thinking skills ranging from remembering, understanding, applying, analyzing, evaluating, to creating (Anderson & Krathwohl, 2001). Cognitive learning outcomes are an important indicator of the success of the learning process because they reflect the extent to which students can understand and master the material being taught.

Outdoor learning activities can stimulate students' intellectual engagement through observation, exploration, and solving real-world problems. This aligns with Piaget's (1972) constructivist theory, which states that knowledge is constructed through direct experience and interaction with the environment. Research by Fägerstam and Blom (2013) also shows that students who participate in outdoor learning have higher levels of conceptual understanding and cognitive learning outcomes than students who learn conventionally.

2. METHOD

This study employed a quantitative approach with a quasi-experimental method. The design used was a Pretest-Posttest Control Group Design, with two groups: an experimental group and a control group.

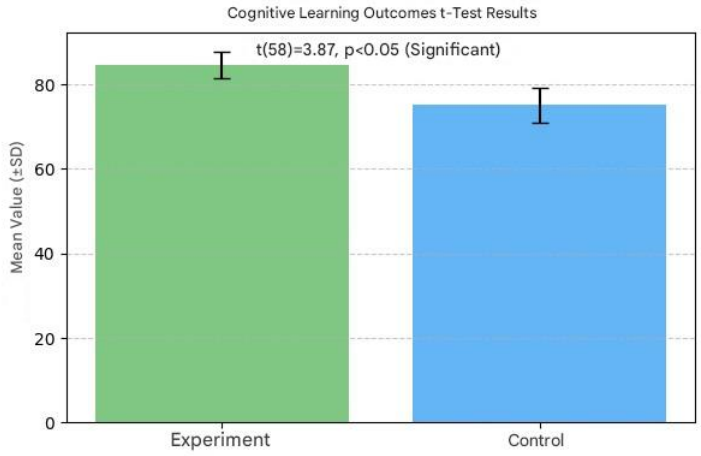
The study population was all eighth-grade students at a public junior high school in Tangerang Regency in the 2025/2026 academic year. The sample was drawn using a purposive sampling technique, with two classes (30 students each).

The research instrument was a 25-item multiple-choice objective test, which had been tested for validity and reliability. Data were analyzed using normality tests, homogeneity tests, and an independent t-test to compare cognitive learning outcomes between the experimental and control groups.

3. RESULTS AND DISCUSSION

The results showed that the average posttest score for the experimental group was higher than that of the control group. The independent t-test yielded a calculated t-value of 3.87 with a p-value of $0.001 < 0.05$, indicating a statistically significant difference in cognitive learning outcomes between students engaged in outdoor learning and those involved in traditional classroom settings.

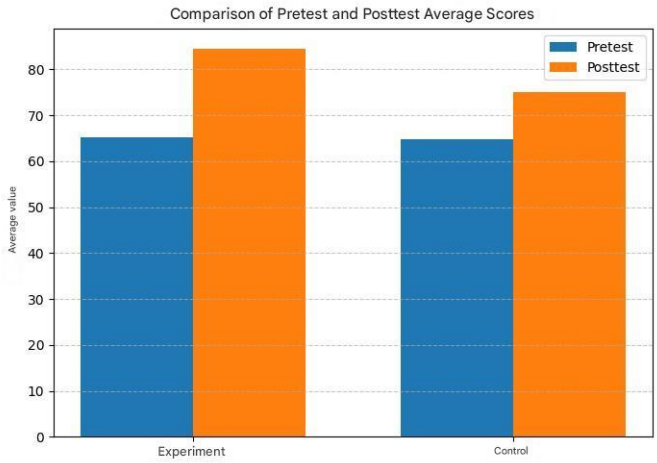
The results of the statistical test between the two groups can be seen in the following graph..



Graph 1. Results of the t-test of Cognitive Learning Outcomes

A p-value <0.05 indicates a significant difference between the cognitive learning outcomes of students in the experimental and control groups. Therefore, the research hypothesis is accepted: the outdoor learning model has a positive effect on cognitive learning outcomes.

The improvement in cognitive learning outcomes in the experimental and control groups before and after the learning process can be seen in the following graph.

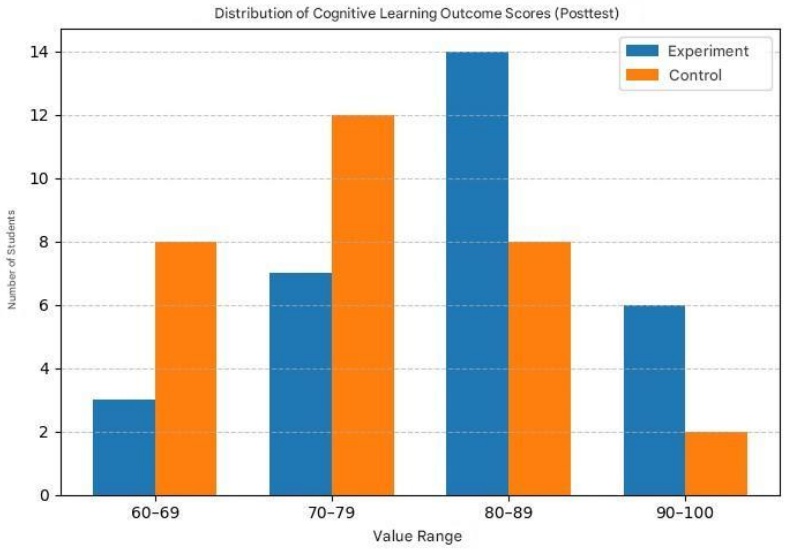


Graph 2. Comparison of Pretest and Posttest Average Scores

It can be seen that there was a significant increase in the experimental group after implementing outdoor learning, while the increase in the control group was smaller. It

indicates that the outdoor learning model is effective in improving students' cognitive understanding.

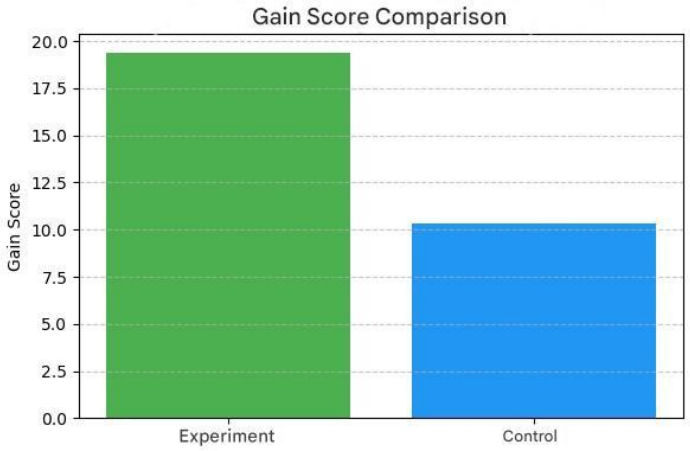
The distribution of student scores based on the posttest results for both groups can be seen in the following graph.



Graph 3. Distribution of Cognitive Learning Outcome Scores (Posttest)

Most students in the experimental group scored 80 or above, while the control group tended to score in the 70–79 range. It reinforces the finding that outdoor learning improves overall cognitive achievement.

The gain score can be calculated from the difference between the posttest and pretest averages, as shown in the following graph.



Graph 4. Comparison of Gain Score

The gain score of the experimental group was almost double that of the control group, demonstrating the effectiveness of outdoor learning in improving students' cognitive abilities.

This finding supports constructivist theory, which states that knowledge is built through direct experience. Outdoor learning provides concrete and meaningful experiences for students, thereby improving critical thinking skills and cognitive learning outcomes. Furthermore, outdoor activities also encourage active engagement, motivation, and positive social interactions among students.

4. CONCLUSION

Based on the research results, it can be concluded that the implementation of the outdoor learning model has a significant impact on improving students' cognitive learning outcomes. Outdoor learning provides direct experiences that strengthen conceptual understanding and increase student engagement in the learning process.

Recommendations include encouraging teachers to implement outdoor learning as an innovative and enjoyable alternative learning strategy. Schools should also support

outdoor learning by providing safe facilities and environments that are relevant to the subject matter.

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