

IMPLEMENTATION OF THE DISCOVERY LEARNING MODEL IN IMPROVING STUDENT LEARNING OUTCOMES

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Abstract

Education in the modern era requires innovation in the learning process in order to keep up with the rapid development of science and technology. The learning process is no longer teacher-centered but should encourage students to actively participate in constructing their own knowledge. One of the learning models that can be applied to improve student participation and learning outcomes is *discovery learning*. This model emphasizes the process in which students discover concepts through activities such as exploration, observation, data collection, analysis, and drawing conclusions. This article aims to examine the implementation of the *discovery learning* model in improving students' learning outcomes based on various literature sources and previous research findings. The method used in this study is a literature review by analyzing several books and scientific articles relevant to the topic. The results of the review indicate that *discovery learning* has a strong theoretical foundation and systematic stages, including stimulation, problem statement, data collection, data processing, verification, and generalization. The implementation of this model has been shown to increase students' learning activities, motivation, critical thinking skills, and conceptual understanding. In addition, several previous studies also demonstrate that the use of the *discovery learning* model can significantly improve students' learning outcomes because students are directly involved in the process of discovering knowledge. Therefore, the *discovery learning* model can be considered an effective alternative learning strategy to improve the quality of the learning process and students' learning outcomes.

Keywords: Discovery learning, learning model, learning outcomes, students, literature review.

INTRODUCTION

Today's education requires innovation in learning methods to keep pace with the rapid pace of scientific and technological advancement. This transformation requires the education system to produce individuals capable of critical thinking, innovation, effective communication, and problem-solving in everyday life. Therefore, the learning process in schools is not merely the presentation of information by teachers but must also provide proactive and meaningful learning experiences for students. Effective learning is expected to encourage students to be directly involved in the learning process, enabling them to construct knowledge independently.

According to Rusman (2017), in his book entitled "Learning and Teaching Oriented to Educational Process Standards," the learning process is a system developed to create a learning environment that allows for interaction between teachers, students, and various learning resources, so that learning objectives can be achieved effectively. Quality learning must be able to accommodate the various potentials, interests, and needs of students so that they can develop optimally.

However, in practice, many schools still use a traditional approach that places the teacher at the center of learning (teacher-centered learning). In this learning method, teachers tend to provide more explanations of the material, while students function only as listeners and recipients of information. This situation results in students participating less actively in the learning process, so their understanding of the subject matter is less than optimal. As a result, student learning outcomes often fall short of expectations. Therefore, a learning model is needed that can increase student engagement in learning activities. A student-centered learning model provides opportunities for students to actively participate in learning activities such as observing, asking questions, experimenting, analyzing, and communicating learning outcomes.

According to Majid (2017), in his book on Learning Strategies, learning that facilitates student engagement can support them in understanding concepts more deeply because students not only receive data, but also participate in the process of discovering and processing knowledge. One type of learning method that can be

applied to increase student participation is Discovery Learning. This method focuses on how students discover concepts through investigative activities, exploration, and analysis of an issue. In this approach, students are encouraged to actively seek information, process data, and draw conclusions from their discoveries. According to Hosnan (2016) in his work entitled Scientific and Contextual Approaches in 21st Century Learning, discovery learning is a learning method that allows students to discover concepts or principles themselves through an exploration process, so that the knowledge gained becomes more relevant and easier to remember.

Based on this explanation, the use of the discovery learning model is seen as a solution with the potential to improve the quality of the learning process and student achievement. In this model, students function not only as recipients of information but also as individuals actively involved in seeking and developing knowledge. Therefore, a literature review is needed regarding the application of the discovery learning model to improve student learning outcomes to provide a more comprehensive understanding of this model's effectiveness in the learning process.

DISCUSSION

A. Concept and theoretical basis of discovery learning

Discovery Learning is a teaching method that provides students with the opportunity to directly explore concepts, principles, and knowledge through a series of investigative activities. This method aligns with active learning, which places students at the center of the learning process, with the teacher acting as a facilitator, guide, and provider of direction. Therefore, students do not simply passively acquire information but participate in the pursuit of knowledge through meaningful activities.

According to Hendrizal (2021), in his book entitled *Discovery Learning*, this educational model is based on the assumption that understanding a concept generated through active student participation is far more solid and lasting than simply receiving explanations from a teacher. Hendrizal emphasizes that scientific discovery methods, including observation, experimentation, analysis, and reflection, motivate students to think critically and creatively in addressing the challenges they face. This approach allows students to internalize lessons, so that the learning process goes beyond mere memorization to involve the formation of deeper meaning in knowledge.

Meanwhile, Shilfia Alfity (2023), in her article entitled "Discovery Learning Models and Motivation in Learning," highlights the link between discovery learning and student motivation. Alfity explains that when learning tasks are designed in such a way that students have the freedom to find their own solutions, their internal motivation increases. This occurs because students find the learning process more engaging and relevant to their experiences, thus satisfying their curiosity and significantly increasing their engagement in learning.

Nur Sadikin (2020) explains in the *Discovery Learning Guidebook* that this approach is highly beneficial in honing problem-solving skills and learning independence. Sadikin states that through discovery experiences, students are taught how to identify problems, devise strategies for solving them, and draw conclusions from their explorations. This process indirectly supports students'

understanding of the steps of scientific thinking, which are essential skills in the academic and professional world.

From the theoretical basis that has been presented, it can be concluded that Discovery Learning is not just a method of delivering material, but rather a comprehensive learning strategy because it involves various aspects in the learning process: cognitive (understanding concepts), affective (motivation and perseverance), and psychomotor (direct practical activities).

B. Process and Stages of Implementing Discovery Learning

The Discovery Learning model has a structured flow of activities so that it provides clear guidance for students to carry out learning activities independently:

1. Stimulation (Providing stimulation)

Teachers provide stimuli in the form of real-life phenomena, provocative questions, or situations that stimulate students' thinking. Providing these stimuli is crucial for fostering students' initial curiosity.

2. Problem Statement (Formulation of the problem)

Students identify and formulate problems to be solved based on the given stimuli. At this stage, students are trained to think critically in observing learning phenomena.

3. Data Collection (Data collection)

Students gather information through experiments, observations, discussions, interviews, or the study of other relevant sources. This activity places students in an active role in gathering evidence.

4. Data Processing (Data processing)

Students analyze the collected data to identify patterns, relationships, and proposed solutions.

5. Verification (Proof)

Students verify their analysis results with available facts or theories. This stage helps students understand the relationship between hypotheses and empirical evidence.

6. Generalization (Draw a conclusion)

Students summarize their findings as learning concepts or principles.

7. According to Rusman (2017), in Learning and Teaching Oriented to Educational Process Standards, these stages are vital because they provide a systematic structure for the collective learning process in the classroom. Rusman argues that the steps in Discovery Learning encourage students to think from the concrete to the abstract, thus gradually deepening their understanding.

C. The Advantages of Discovery Learning in Improving Learning

Outcomes

Discovery Learning is a successful learning approach for improving learning outcomes because it encourages active student participation in learning activities. This model has been analyzed in detail by education experts in recent literature. Here are explanations of its advantages according to several education experts:

According to Trianto (2017), in the book Integrated Learning Model: Implementation of the 2013 Curriculum, Discovery Learning is a teaching approach that makes students the center of learning activities. By implementing this model, students participate in data collection and discovery, so they are not entirely dependent on explanations from the teacher. The ability to independently construct knowledge makes students more proactive and responsible for their learning process. In addition, according to Trianto (2017), also emphasizes that active student participation contributes to improved learning abilities, because students process information more deeply through research, discussion, and direct experience.

Suyatna & Hamalik (2020) also revealed that Discovery Learning plays a crucial role in improving higher-order thinking skills (HOTS). They argue that when students are challenged to find their own answers through exploration, they are trained to analyze problems, evaluate various solution options, and foster creativity in designing new concepts. Consequently, not only does

conceptual understanding improve, but also critical and creative thinking skills, which are key indicators of achieving meaningful learning.

Furthermore, according to Arends (2015) in his book *Learning to Teach* (latest translated edition 2019), one crucial element influencing learning outcomes is student motivation. Arends states that a learning approach that allows students to discover concepts independently can increase their intrinsic motivation, as they feel they have control over the learning process. Although this book is an adapted and reprinted version, the principles outlined are highly relevant to the Discovery Learning model, namely:

- Students are more motivated to learn when learning activities focus on them.
- Students tend to be more enthusiastic about finding solutions rather than simply receiving explanations.
- Learning achievement increases because student motivation also increases.

According to Sagala (2019), in his work "The Concept and Meaning of 21st Century Learning," Discovery Learning plays a role in helping students build a strong understanding through the process of reconstructing concepts based on their own experiences. Sagala also states that knowledge gained through active involvement tends to be more easily remembered over the long term, which then influences student achievement. Some of the key points Sagala expressed include:

- a) Learning that involves hands-on action makes concepts more meaningful, because students can see how the concepts function in the real world.
- b) Knowledge gained through one's own experience of discovery has a greater depth of value than information simply heard or read.

This aims to significantly improve learning outcomes, as students can connect new knowledge to their existing mental schemas.

Alwasilah (2021), also states that Discovery Learning not only serves to improve individual abilities but also encourages students to collaborate in teams. Discovery activities typically involve group interaction, distribution of

responsibilities for data collection, and collaboration in drawing conclusions. These activities strengthen social skills such as:

- Team collaboration,
- Effective communication,
- Understanding of different ideas.

Based on Alwasilah's opinion, it can be concluded that social skills are a crucial element of learning achievement required by today's students, especially when faced with complex and contextualized tasks. Overall, experts agree that Discovery Learning not only improves academic achievement but also develops thinking skills, motivation, and social skills that support long-term learning success.

D. Results of Previous Research Studies

Various studies indicate that the discovery learning methodology can improve student academic achievement. This approach emphasizes active student participation in the educational process through independent discovery of concepts through observation, data collection, information processing, and drawing conclusions. Therefore, the learning process is not solely focused on instruction from the teacher but also provides space for students to play an active role in discovering knowledge.

Research conducted by Beki Rahayu and Fitriyani (2022) confirms that the use of the discovery learning model can improve elementary school student learning outcomes in social studies. This study applied the Classroom Action Research (CAR) method, divided into two cycles. The findings of this study indicate that the average student learning performance score increased from 70.85 in the first cycle to 81.30 in the second cycle. This indicates that the use of the discovery learning model plays a role in facilitating students' understanding of the learning material more effectively, as they are actively involved in the process of exploring the scientific concepts being taught.

Another study conducted by Sari et al. (2022) found that discovery learning methods are effective in improving student achievement. Their findings indicate

that when students are actively involved in the learning process by discovering and exploring information, their conceptual understanding improves. This leads to improved student learning outcomes compared to traditional learning methods that focus more on teacher instruction.

On the other hand, a study conducted by Adi (2022) also demonstrated that the application of the discovery learning method can improve student achievement. The study explained that this learning model provides opportunities for students to actively participate in seeking and discovering information, thereby helping them better understand the subject matter. This approach makes the learning process more effective and meaningful for students.

Based on these various research findings, it can be concluded that the discovery learning model has a positive impact on improving student learning outcomes. This approach can encourage students to be more active in the learning process, develop critical thinking skills, and assist them in discovering learning concepts independently, thus improving their understanding of the material.

CONCLUSION

Based on the discussion of the concept, implementation stages, advantages, and results of previous research on the discovery learning model, it can be concluded that this model is an effective learning approach in improving the quality of the learning process and student learning outcomes. Discovery learning places students at the center of learning activities, enabling them not only to receive information but also to actively explore, understand, and develop knowledge independently. Through this exploration process, students can develop a deeper understanding of the material being taught.

In terms of concept and theoretical foundation, discovery learning is based on the belief that knowledge gained through discovery has deeper and more lasting meaning than knowledge gained solely through direct explanation from a teacher. In this approach, students are trained to carry out various scientific activities such as observing, asking questions, gathering information, analyzing data, and drawing conclusions from their learning experiences. Therefore, the learning process

focuses not only on mastering the material but also on developing critical thinking and creative skills, as well as problem-solving abilities.

Furthermore, discovery learning follows systematic steps that include providing stimulation, problem formulation, data collection, data processing, verification, and drawing conclusions. These stages provide opportunities for students to actively engage in every aspect of learning. Through this process, students can develop logical and systematic thinking skills in learning a concept. With direct student involvement in the learning process, their understanding of the material becomes deeper and more meaningful.

Based on the various expert opinions discussed above, discovery learning has several advantages in the educational process. This method has the potential to increase student participation in learning, foster curiosity, and enhance student motivation. Furthermore, this model can hone higher-order thinking skills, such as analysis, evaluation, and creativity. Furthermore, discovery learning can improve students' social skills through discussions, group collaboration, and communication when conveying findings obtained during the learning process.

The analysis of several previous studies also shows that the application of the discovery learning model has a positive effect on improving student learning outcomes. Research conducted by Rahayu and Fitriyani (2022), Sari et al. (2022), and Adi (2022) revealed that the use of the discovery learning model significantly improved conceptual understanding and student learning outcomes. This occurs because students are directly involved in the learning process, enabling them to independently discover learning concepts and connect them to their existing learning experiences.

Thus, it can be concluded that the discovery learning model is an effective alternative for implementation in the educational process at school. This model not only contributes to improving student learning outcomes but also develops various important skills such as critical thinking, creativity, independent learning, and the ability to collaborate with others. Therefore, the implementation of discovery learning is expected to support the creation of a more active, innovative, and meaningful learning process, thereby optimally achieving educational goals.

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