

Discovery Learning Model: Concepts, Implementation, and Current Research Trends

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ABSTRACT

This study discusses the *Discovery Learning learning model* that emphasizes the active learning process where students independently discover concepts and principles through the stages of problem orientation, data exploration, information processing, verification, and reflection. This model is based on the principles of constructivism and student-centered learning, thereby increasing engagement and in-depth understanding of concepts. The advantages of *Discovery Learning* are the development of critical thinking skills, creativity, learning independence, and student learning motivation. This study uses a literature review method by analyzing relevant indexed scientific literature. The results of the study show that the implementation of *Discovery Learning* is effective in improving the quality of learning, but requires teacher readiness and careful planning. The latest trends also incorporate digital technology to enrich the student discovery process.

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INTRODUCTION

Learning is a fundamental process in education that has the main goal of equipping students with knowledge, skills, and attitudes that can support academic success and character development. In this modern era, the learning paradigm has undergone a significant transformation, moving from a conventional teacher-centered model to a more learner-centered and active learning model. This new paradigm is very important considering the demands of the industrial revolution 4.0 and Society 5.0 which require graduates not only to master theory, but also to be able to think critically, creatively, and independently in solving complex problems (OECD, 2018).

In the context of active learning, *Discovery Learning* has emerged as one of the most relevant learning models because it focuses on the process of exploration, discovery, and management of information by students independently. This model was

introduced by Jerome Bruner (1961) which is based on the theory of constructivism, which is that knowledge is actively constructed by individuals based on experience and interaction with their environment. In this way, learners are no longer passive recipients of information, but rather inventors who actively explore and build their own understanding.

The implementation of *Discovery Learning* in Indonesia is becoming increasingly crucial with the enactment of the Independent Curriculum which encourages project-based learning innovation and student independence. This model is also believed to increase critical power and creativity, as well as strengthen long-term memory because learning happens through one's own experiences.

However, despite having many advantages, the implementation of *Discovery Learning* also faces various challenges, ranging from teacher readiness, longer

learning duration, to uneven supporting facilities and infrastructure. Therefore, a comprehensive study of the concepts, implementations, and latest research trends related to Discovery Learning is needed as a basis for the development of effective and adaptive education in the current digital era. The main purpose of this article is to fully and systematically outline the Discovery Learning learning model, including the basic concepts, implementation process, advantages and disadvantages, the role of technology, and the latest research developments in this field. Thus, this article is expected to be a useful reference for education practitioners, researchers, and policymakers in improving the quality of learning.

METHODS

This research is a literature review that focuses on the synthesis and critical analysis of various relevant scientific sources related to the Discovery Learning learning model. This study is an analytical descriptive that outlines the concepts, implementations, advantages, weaknesses, and current trends based on evidence from the scientific literature.

Primary data sources are taken from articles from reputable indexed scientific journals with a focus on education and learning psychology, research reports, scientific books, and education policy documents. Selection criteria include: Studies that contain the basic definitions and theories of Discovery Learning, empirical research that evaluates the learning outcomes of this model, studies that discuss implementations, challenges, and solutions, articles related to technological innovations in Discovery Learning, recent studies and reviews in the last 10 years to keep the data up-to-date.

The analysis was carried out by reviewing and grouping the literature based on the main themes according to the research framework: basic concepts, implementation, advantages and disadvantages, and the latest

developments. The literature synthesis is arranged narratively with critical discussion to produce a comprehensive and integrative understanding.

RESULTS AND DISCUSSION

The Discovery Learning model is a learning approach that emphasizes the process of finding knowledge independently by students. This process begins by presenting a challenging problem to stimulate students' curiosity. Furthermore, students collect data through observation, experiments, or literature studies. The data obtained is then processed and analyzed to find patterns or principles. After that, students conclude their findings and communicate them to friends or teachers as a form of reflection. For example, in a physics lesson, students can investigate the phenomenon of light refraction by experimenting using water and glass, and then deduce the law of refraction.

This model is based on the principle of active engagement, where students become the main actors in the learning process. In addition, this learning is based on constructivism, where students build their own understanding based on learning experiences. The problems raised are authentic and relevant to real life, so learning becomes more meaningful and contextual. Teachers play the role of facilitators, not direct informers, but guide when students face difficulties.

The advantage of Discovery Learning lies in its ability to increase learning independence, critical and creative thinking skills, and a deeper understanding of concepts. Because students discover the material they learn on their own, it is easier to remember information in the long run. This model also arouses interest and motivation in learning because students are directly involved in the process of seeking knowledge.

However, this model also has challenges, such as requiring longer time, uneven readiness of teachers and students,

and limited learning facilities. To overcome this, teachers need to take part in training, utilize technology such as simulations or learning videos, and develop systematic learning scenarios. The formation of heterogeneous study groups can also help less active students to be involved in the learning process.

The role of digital technology is critical in optimizing Discovery Learning. Interactive simulations, augmented reality (AR), and virtual reality (VR) can help students understand concepts that are visually abstract. The use of digital learning platforms such as LMS also supports collaboration, discussion, and monitoring of student development. In fact, with the help of artificial intelligence (AI), materials can be personalized according to the learning needs of each student.

Recent research shows the trend of Discovery Learning development towards integration with other methods such as Problem-Based Learning (PBL) and blended learning. This approach has also begun to be applied to various levels of education and across subjects. In addition, the use of big data and learning analytics is starting to be used to assess the effectiveness of learning and provide more accurate feedback. All of this shows that Discovery Learning continues to evolve as an adaptive and relevant learning strategy in the modern learning era.

CONCLUSION AND SUGGESTION

Based on a comprehensive discussion of the Discovery Learning learning model, it can be concluded that this model emphasizes an active and independent learning process, where students discover their own knowledge through the stages of orientation, exploration, data processing, verification, and reflection. Discovery Learning is rooted in the principles of constructivism and a student-centered learning approach, so that it can increase student engagement and deepen understanding of concepts. The main advantage of this model lies in the development of critical thinking skills,

creativity, and learning independence, while encouraging students' motivation and interest in learning. Although there are challenges in implementation, such as the need for longer time, diverse teacher readiness, and limited resources, these obstacles can be overcome through continuous teacher training, the use of digital technology, and the implementation of inclusive learning strategies. The role of digital technology such as interactive simulations, e-learning platforms, augmented reality (AR), virtual reality (VR), and data analysis further enriches the learning process and supports the effective implementation of Discovery Learning in the modern era. Recent research trends show that this model continues to evolve through integration with technology, the development of hybrid learning, artificial intelligence (AI)-based personalization, and differentiation strategies to accommodate students' diverse abilities and learning styles.

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