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DEVELOPMENT OF PROBLEM-BASED LEARNING INSTRUCTIONAL DESIGN TO IMPROVE THE PROBLEM-SOLVING ABILITY OF SMA NEGERI 3 LAMONGAN STUDENTS

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Abstract: Learning design is important in improving the quality of learning and students' learning experiences. However, in reality, many universities (especially in the field of Information Technology) have not developed structured learning designs, so the learning process becomes ineffective. The PBL approach is used because it encourages students to actively participate in solving real problems that are relevant to the learning material, which in turn will develop problem-solving skills, critical thinking, collaboration, and creativity. This approach is supported by constructivism and social cognitive theory, which emphasizes the active role of students in constructing their knowledge through interaction with learning content and social interactions. The results of the limited trial showed a significant increase in post-test scores compared to the pre-test, supporting the concept that active learning, as implemented in the PBL module, can improve student understanding. The process of developing and testing this module reflects a systematic and sustainable approach to designing effective instruction, with the potential to improve the quality of education in Indonesia.

Keywords: instructional design, PBL, student problem solving

INTRODUCTION

Education is an important indicator that determines the progress of a nation (Aziizu, 2015). Education is the main foundation in shaping the character and knowledge of the younger generation, playing an important role in preparing them to become qualified citizens and able to contribute to the progress of the nation. In the face of the demands of the ever-evolving times, education must be able to present an effective and relevant learning experience, in accordance with technological developments and social dynamics at the Senior High School (SMA) level. The learning process should focus on developing problem-solving skills, where students are trained to think critically and be able to face real challenges in daily life (Pusparini et al., 2018).

However, in its implementation, there is often a gap between the expected educational goals and the practice of learning in the field. Students often have difficulty developing deep problem-solving skills and thinking critically about the material. In response to this challenge, a more innovative and effective learning approach is needed to facilitate students in developing problem-solving skills in complex materials.

In this context, the Problem-Based Learning (PBL) approach emerges as a promising solution. Problem-Based Learning (PBL) is learning based on contextual problems, which requires investigation efforts to solve problems (Kurnia et al., 2018).

This Problem-Based Learning (PBL) learning model is a student-centered learning model by facing students with various problems faced in real life and students trying to solve

these problems. In this model, the lesson focuses on a problem that must be solved by students, so that students have the responsibility to analyze and solve the problem with their abilities, while the role of educators is only as a facilitator and provides guidance to students (Wena, 2009).

Problem-Based Learning (PBL) begins by directing students to contextual problems, directing students to be involved in the learning process, guiding each individual, and group, developing investigation results, presenting investigation results, analyzing and evaluating problem-solving results (Farisi et al., 2017).

Knowledge is not passively accepted by individuals but rather is the result of the activities of individuals who construct it through interaction with their environment. This indicates that the PBL approach, which encourages students to actively participate in learning and build their own knowledge, fits this theory.

In addition, the theory of Social Cognition, proposed by Walter Mischel, has a significant role in the analysis of student behavior transformation. This theory integrates learning principles from various sources, including elements of behavioral theories such as behaviorism, as well as aspects such as self-efficacy and examples that reflect social cognitive concepts (Tiara, 2022). This theory emphasizes how an individual's psychological character and attitudes are formed through interaction with the environment and social influences. The PBL approach, which allows students to participate in learning situations that mirror real-life situations, supports this concept. In the context of module development, Tyler's approach to assessment as an evaluation rather than a measurement is also relevant. Tyler emphasizes the importance of setting local educational goals that are relevant to the needs of the community, using a variety of evidence sources to assess student progress, and actively engaging teachers in curriculum planning (Wraga, 2017).

The Dick and Carey model, with its systematic steps in instructional design, can be an effective tool in implementing this approach. The Dick and Carey model is an Instructional design framework consisting of 10 steps, including identifying instructional objectives, Learning analysis, learning goal development, learning strategies, learning materials, formative evaluation, learning revision, and final evaluation (Muga et al., 2017). This model can help design effective PBL modules.

Using a strong theoretical framework and relevant approaches, this research aims to develop PBL-based modules. As an innovative solution to improve students' problem-solving skills in understanding and analyzing the ideas of the nation's founders about the foundation of the state. It is hoped that this research can make a positive contribution in overcoming learning challenges in high school.

METHOD

This research method uses Research and Development (R&D) which is the process or steps to develop a new product or improve an existing product. The research steps go through seven stages, namely, (1) analysis of potential and problems, (2) data collection, (3) product design, (4) design validation, (5) design improvement, (6) product testing, and (7) product revision (Ashoumi & Shobirin, 2019). Its use is directed so that a learning model can be generated to improve problem-solving skills.

The subject of this study is a student of class X-1 at SMA Negeri 3 Lamongan, which is located in East Java Province, Indonesia.

The Data Collection Technique in this Study involves a series of carefully designed stages to understand, develop, and test Problem-Based Learning (PBL)-based modules, as well as to evaluate their impact on students' problem-solving abilities.

RESULTS AND DISCUSSION

PBL Encourages students to actively participate in learning and build their knowledge, by the concept that knowledge is not received passively, but rather is the result of individual activities that build it through interaction with their environment (Suparlan, 2019).

The PBL approach is a teaching method that focuses on developing students' critical thinking skills as well as their ability to solve difficult and real-world tasks through problem-solving (Safithri et al., 2021).

The application of the Problem-Based Learning (PBL) learning model is an important step in a learning model that can increase students' interest in learning in problem-solving (Purwanto et al., 2016).

Based on the results of the study, it shows that Problem-Based Learning (PBL) influences problem-solving skills. This is because of the characteristics of the Problem-Based Learning (PBL) model which emphasizes the orientation of students' environmental problems to train in thinking and then solving problems and the syntax of Problem-Based Learning (PBL) can train to carry out the problem-solving process (Woa et al., 2018)

Students are taught using the Problem-Based Learning (PBL) model and have better problem-solving skills than learning using conventional models (Bakri et al., 2018). The Problem-Based Learning (PBL) learning model can improve problem-solving skills between students who get the Problem-Based Learning (PBL) and inquiry learning models, but there is no difference in problem-solving between the two models, but the attitude of students towards the application of the two models is well integrated (Nadhifah & Afriansyah, 2016).

The results of the limited trial showed a significant improvement in post-test scores compared to pre-test scores in most students. These results support the concept that active learning, such as that applied in PBL modules, can improve student comprehension. Constructivism and social cognitive theories also support this approach, which emphasizes the active role of students in building their knowledge through interaction with learning content and social interaction.

The application of the Problem-Based Learning (PBL) model can improve cognitive abilities higher than students who are taught conventionally (Kristinawati et al., 2018).

Based on the research conducted, the application of the PBL learning model can improve cognitive learning outcomes and can improve psychomotor learning outcomes (Rerung et al., 2017). This is strengthened by the research of Fauzan (2017), that the Problem-Based Learning (PBL) model can improve learning outcomes in the cognitive, affective, and psychomotor domains. The application of the Problem-Based Learning (PBL) learning model combined with Team Assisted Individualization (TAI) can improve student learning outcomes because the combination of this learning model is by the characteristics of students and students gain learning experiences, so that they can identify the problems presented in learning (Anisah et al., 2018).

This limited trial process also describes a systematic approach to the development and testing of PBL modules, It reflects the use of the Dick and Carey Model in designing effective instructions. This model provides a structured framework for detailing learning objectives,

developing learning strategies, and measuring their effectiveness. The Dick & Carey model is a learning system design model that has long been used to create effective, efficient, and engaging learning programs (Machsunah et al., 2023).

This model is based on. On a systems approach and incorporates various basic components in the design of learning systems, including analysis, design, development, implementation, and evaluation. This model was initially influenced by behavioristic learning theory, but later also incorporated cognitive elements in the learning and learning process. The results of this stage will be used to revise the modul if necessary, which is in line with the principles of continuous instructional planning.

CONCLUSION

The importance of education in shaping the character and knowledge of the younger generation, with the aim of preparing them to become responsible citizens with good personalities. However, the study also acknowledges that there is a gap between educational goals and actual teaching practices. To overcome this problem, this study proposes the development of a Problem-Based Learning (PBL) module specifically designed to improve students' problem-solving skills and critical thinking skills in understanding the basic ideas of the country's constitution.

The choice of the PBL approach is driven by its ability to encourage students' active participation in solving real-world problems related to the subject matter. This approach not only develops problem-solving skills, but also. Promotes critical thinking, collaboration, and creativity. This approach is in line with constructivist and social cognitive theories, which emphasize the active role of students in building. Their own knowledge through interaction with learning content and their peers.

The results of the limited trial showed a significant improvement in post-test scores compared to pre-test scores, reinforcing the belief that active learning, as facilitated by the PBL module, was effective in improving students' understanding of the subject matter. In addition, the study highlights the importance of continuous and systematic instructional design to address the gap between educational goals and practices in the classroom.

Ultimately, this proposed PBL module is a promising solution to the challenges of teaching critical subjects related to the country's constitution. This research aims to make a positive contribution not only to the learning experience of students at SMA Negeri 3 Lamongan, but also to the educational landscape in Indonesia more broadly. By promoting active learning, problem-solving skills, and critical thinking, these modules have the potential to improve overall. Quality education and empowering the younger generation with the skills and knowledge needed to thrive in an ever-changing world.

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