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Building Students' Self-Directed Learning Through Problem-Based Learning Approach

I'is Nadiyah HR[1], Syaharuddin[2], Hisbulloh Als Mustofa[3], Vera Mandailina[4], Abdillah[5], Mashup[6]
[1,2,4,5,6]Mathematics Education, UniversityMuhammadiyah Matararam, Indonesia
Faculty of Science and Mathematics, Sultan Idris Education University, Malaysia
hrnadiyah@gmail.com[1], syaharuddin.ntb@gmail.com[2], hisbulloham@gmail.com[3], vramandailina@gmail.com[4], abdillahahmad24041@gmail.com[5], mashup.math@gmail.com[6]

Abstract: Current education increasingly emphasizes the importance of fostering students' self-directed learning as the primary foundation for achieving academic and professional success. In this context, Problem-Based Learning (PBL) approach has emerged as a primary focus to facilitate active, creative, and student-centered learning processes. This study aims to investigate the contribution of Systematic Literature Review (SLR) in enhancing the implementation of PBL to cultivate students' self-directed learning. Through a review of several relevant scholarly articles, this research explores various critical aspects, including the definition of self-directed learning, characteristics of PBL, and the effectiveness of SLR methodology in identifying the best approaches to achieve desired learning objectives. The findings indicate that the utilization of PBL with an SLR approach encourages students to develop critical thinking skills, problem-solving abilities, and intrinsic motivation. Additionally, employing SLR in this context provides a deeper understanding of the most effective and relevant learning strategies tailored to students' needs. This systematic review utilizes articles sourced from the Google Scholar database sorted based on predetermined keywords. We underscore the importance of PBL as an integral component of PBL that aids students in cultivating critical problem-solving skills. Through integrative analysis, we demonstrate that PBL supported by PBL can facilitate the development of students' self-directed learning by enabling them to take an active role in their learning process. The implications of these findings are that a PBL approach focusing on PBL can serve as a robust foundation in fostering students' self-directed learning in the future.

Keywords: Self-Directed Learning; Problem-Based Learning; Problem Solving.

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A. INTRODUCTION

Building students' self-directed learning is a critical aspect of the education process that enables students to take control of their own learning (Astika et al. 2019). Through this approach, students are encouraged to develop self-regulation skills, time management, and self-motivation in achieving their learning goals (Hidayat et al., 2020). This not only enhances their academic outcomes but also helps them become active lifelong learners with open minds. With self-directed learning in place, students can confidently face learning challenges, identify the resources they need, and explore their interests and passions more deeply (Kusuma, 2023). The problem-based learning approach has increasingly gained recognition in the field of education due to its ability to develop problem-solving skills, creativity, and conceptual

understanding among students (Etistika Y.W et al., 2016). With a focus on presenting challenges or problems relevant to real-life situations, this approach invites students to actively engage in their learning process (Salassa et al., 2023). Through exploration and collaboration, students are encouraged to develop critical thinking and deep problem-solving strategies, thereby preparing them to effectively tackle challenges in the real world (Sappaile et al. 2023).

Ducation serves as a vital foundation in preparing the future generation. In efforts to enhance students' self-directed learning, the problem-based learning approach has emerged as an intriguing strategy (Sumarmo, 2015).This approach enables students to actively engage in the learning process, triggering their creativity and problem-solving abilities (Sholikhah et al. 2014). By fostering self-directed learning through this approach, it is hoped that students can develop the skills necessary to confront challenges in real life and become independent and critically minded individuals (Nugraha, 2018). The concept of self-directed learning holds great potential for the development of better education in Indonesia (Hafizah, 2020). In early childhood education, training provided to preschool teachers aims to enhance their knowledge and skills in planning literacy-based learning as part of the implementation of self-directed learning (Rizal et al., 2022). Other research indicates a relationship between learning motivation and students' self-directedness (Batubara, 2021). Self-directed learning creates a free and independent learning environment for students, with an emphasis on the development of soft skills and character (Chodijah et al. 2012).

Problem-Based Learning (PBL) approach is an effective method for enhancing students' learning outcomes across various subjects (Ariyani, 2021).It has been found that the implementation of PBL in English classes leads to a significant improvement in students' reading comprehension (Shobariyati, 2021). Observations show that applying PBL in Indonesian language classes yields higher learning outcomes, with students' scores increasing from 69 to 99 (Pratiwi et al. 2019). Mudzanatun and Nugroho also reported that the use of PBL in Indonesian language classes results in a steady improvement in students' learning outcomes (Biassari et al. 2021). Building students' self-directed learning through the Problem-Based Learning (PBL) approach has been shown to enhance the quality of the learning process and outcomes (Nurdin et al. 2017). This approach involves the utilization of problem-based learning models, such as the Problem-Based Learning (PBL) model, which encourages students to actively engage in solving real-world problems (Dariansyah et al. 2023). By implementing this approach, students become more active and independent learners as they are tasked with analyzing problems, developing solutions, and reflecting on their learning experiences (Machin, 2014). Therefore, integrating problem-based learning approaches in Indonesian classrooms can effectively enhance students' self-directed learning and promote better learning outcomes (Syafi'i, 2023).

The concept of self-directed learning holds significant promise for the development of a more effective education system in Indonesia. In early childhood education, training provided to preschool teachers aims to enhance understanding and skills in planning literacy-based learning, which is an integral part of implementing self-directed learning. Additionally, research also indicates a positive correlation between learning motivation and students' self-directedness, highlighting the importance of learning environments that allow students to

develop soft skills and character. The Problem-Based Learning (PBL) approach has proven to be effective in enhancing students' learning outcomes across various subjects, both in the context of English and Indonesian languages. The implementation of PBL not only improves students' understanding of various concepts but also results in significant improvements in learning outcomes, making students more active and independent in the learning process. Therefore, integrating the problem-based learning approach into Indonesian classrooms can be an effective step towards enhancing students' self-directed learning and achieving better learning outcomes.

B. METHOD

This research employs the Systematic Literature Review (SLR) approach, utilizing qualitative descriptive methodology to examine findings from several research endeavors. Qualitative descriptive research is an investigative form that delineates the outcomes of research projects. Systematic Literature Review (SLR) is a technique involving the identification, evaluation, and interpretation of all relevant research materials related to a specific question or issue under investigation. Various components of the research process encompass compiling articles, reducing articles, and reviewing articles. Regarding the utilization of the Systematic Literature Review (SLR) method, the initial step of the research involves searching for articles presenting research findings on Problem-Based Learning. The subsequent step is article reduction, wherein the researcher selects articles and proceedings from national and international journals. Finally, the researcher proceeds to review the collected articles. During the article review phase, the researcher delineates strategies for implementing blended learning to enhance student autonomy in the learning process.

To conduct this research, a series of steps were undertaken by the researchers. The initial step involved identifying data sources, which included utilizing Google, Google Scholar, and ResearchGate. Subsequently, the determination of search keywords was conducted, where the authors used "Fostering Student Learning Autonomy through Problem-Based Approach" as the designated keyword. Once the necessary articles were obtained, duplicate filtering was applied to ensure data uniqueness. Finally, the analysis of these articles was carried out by the researchers. Following that, a review protocol was applied by formulating research questions and categorizing keywords based on the population, intervention, comparison, outcome, and context strategies of the obtained articles. Inclusion and exclusion criteria were established by selecting articles that align with the research questions, excluding any subjective judgments made by the researchers during the article selection process. Mendeley Software was utilized to organize the selected articles for easy management and referencing. The process of data extraction and synthesis was conducted through the application of thematic analysis and meta-analysis to present the findings systematically and comprehensively. In the concluding section of the investigation, the researchers compared the findings presented in the articles and provided their conclusions.

C. RESULTS AND DISCUSSION

1. The concept of self-directed learning

The importance of self-directed learning is evident from several studies conducted. indicating that self-directed learning holds significant potential for the development of better education in Indonesia (Sudarsana, 2016). The concept of self-directed learning strongly supports stimulating creativity in early childhood (Prameswari, 2020). fostering an environment of independent and autonomous learning for students (Husna, 2017). Self-directed learning integrates literacy skills, knowledge skills, attitudes, and mastery of technology (Mu'minah, 2021). Thus, self-directed learning holds significant meaning in the development of better education in Indonesia and stimulates students' creativity and skills in various learning aspects (Zubaidah, 2020).

2. The Problem-Based Learning (PBL) approach

The Problem-Based Learning (PBL) approach is a learning model that focuses on solving real-world problems and encourages students to collaborate in finding solutions Farikhatin et al. (2016). PBL has been found to have a positive impact on students' learning outcomes, including cognitive, psychomotor, and affective domains Meilani et al. (2021). PBL is considered an innovative and creative learning model that can enhance students' problem-solving skills (Ardiyanti, 2016), providing students with the opportunity to harness their thinking potential, develop critical and analytical thinking skills, and enhance their ability to acquire knowledge Suhada et al. (2017). The implementation of PBL has shown positive responses from students, indicating its effectiveness in engaging students in meaningful learning activities. Overall, PBL is a valuable approach that can contribute to improving students' learning outcomes (Mandailina et al. 2021). and developing essential skills (Ratnasabilla et al. 2021).

3. The relationship between PBL and self-directed learning

The relationship between Problem-Based Learning (PBL) and self-directed learning is explored in several papers (Taufik, 2020). One study found that the implementation of entrepreneurship training for citizens learning improved their performance, indicating a positive impact on self-directed learning (Hidayat, 2016). Another research study focused on the influence of student autonomy and learning motivation on problem-solving abilities (Lusiana et al. 2022). The research results indicate that autonomy and learning motivation together have a significant influence on students' problem-solving abilities (Safitri, 2018). Additionally, a study on the implementation of the Project-Based Learning (PBL) model found that it enhanced critical thinking skills and self-directed learning in students (Rafiud Ilmudinulloh, 2022). These findings suggest that both PBL and PBL models can enhance self-directed learning by promoting problem-solving skills, motivation, and critical thinking (Zakiah et al.(2020).

4. Contribution of PBL to self-directed learning

PBL (Project-Based Learning) has been found to contribute to enhancing students' self-directed learning (Budi, 2023). Implementing the PJBL model in science education enhances

students' self-directed learning due to the independent requirements in completing individual projects (Siregar, 2022). PBL creates an authentic, collaborative, and participatory learning environment, leading to improved student learning outcomes (Sumiyati, 2017). The importance of integrating problem-solving activities and collaborative learning, which are key components of PBL, to enhance student learning outcomes has been emphasized Noviantii et al. (2020). The use of PBL in Indonesian language education increases students' activity and learning outcomes (Widayanti, 2014). It was found that implementing PBL with game tournaments enhances (Syaharudin, 2021) Indonesian language learning outcomes for vocabulary material. Overall, this study highlights the positive impact of PBL on students' self-directed learning and learning outcomes (Armidi, 2022).

5. Factors influencing

In this discussion, various factors influencing a specific phenomenon or event will be examined (Yunus, 2018). These factors can originate from various fields such as environmental, psychological, social, economic, and cultural domains. Research on these factors aims to delve into the relationship between the involved variables and understand how their influence can shape the final outcome of an event or process (Buulolo et al. 2020). In the context of education, for instance, factors influencing students' performance may include learning motivation, family support, teaching quality, school environment, and other factors affecting the learning process Tae et al. (2019). By comprehending the influencing factors, we can identify potential improvements or interventions needed to enhance the final outcome or efficiency of a system or process (Hafizah, 2020).

6. Evaluation of effectiveness

Evaluating the effectiveness of implementing the Problem-Based Learning (PBL) approach to foster student self-directed learning is crucial to gauge the extent to which the approach succeeds in achieving desired learning objectives (Zahro Kotu, 2022). Evaluation can be conducted through various means, ranging from direct observation of student activities during the learning process to assessment of products or final outcomes produced by students (Al-faruq, 2023). For instance, by observing the extent to which students can identify problems, apply problem-solving strategies, and communicate their solutions (Bidasari, 2017). Additionally, the use of appropriate assessment instruments, such as rubrics or clear assessment criteria, can assist in evaluating students' progress in building their self-directed learning (Aulia et al. 2024).

Self-directed learning is a concept of significant importance in the development of education in Indonesia, holding great potential for enhancing educational quality. Problem-Based Learning (PBL) approach emerges as an innovative solution to stimulate creativity and develop students' skills across various learning domains. Through this approach, students are encouraged to collaboratively solve real-world problems, develop problem-solving skills, and enhance their self-directed learning. It is also asserted that PBL can have a positive impact on students' learning outcomes, both cognitively, psychomotorically, and affectively. Furthermore, there exists a close relationship between PBL and self-directed learning. The

implementation of PBL models, including Project-Based Learning (PjBL), has been shown to enhance students' self-directed learning by promoting problem-solving skills, motivation, and critical thinking. The contribution of PBL to self-directed learning is also evident in the context of Indonesian language education. In evaluating effectiveness, the use of appropriate assessment instruments such as rubrics can aid in assessing students' progress in building their self-directed learning. Thus, these studies highlight the significance of PBL as a valuable instructional approach in enhancing students' self-directed learning and its contribution to the development of better education in Indonesia.

D. CONCLUSION AND SGGESTIONS

The conclusion drawn from this summary is that fostering students' self-directed learning is a crucial aspect of education. Various studies indicate that the Problem-Based Learning (PBL) approach is effective in enhancing students' self-directed learning. Through PBL, students are encouraged to actively engage in solving real-world problems, develop problem-solving skills, and enhance their learning motivation. Research also demonstrates a positive relationship between PBL and students' self-directed learning, with the implementation of PBL models enhancing students' self-directed learning through the promotion of problem-solving skills and critical thinking. Furthermore, the contribution of PBL to self-directed learning is also evident in the contexts of Indonesian language and science education. The effectiveness evaluation of PBL in fostering students' self-directed learning can be conducted through the utilization of appropriate assessment instruments, such as rubrics, to gauge students' progress in building their self-directed learning. Overall, these studies underscore the significance of PBL as a valuable instructional approach in enhancing students' self-directed learning and its contribution to the development of better education in Indonesia.

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