PAEDAGOGIA
Jurnal Penelitian Pendidikan
http://jurnal.uns.ac.id/paedagogia

DOI : 10.20961/Paedagogia.V27i3.96104
Vol. 27, No. 3, 2024, pp. 462-469
p-ISSN 0126-4109
e-ISSN 2549-6670

Identifying Issues and Contexts: Obstacles for TPE Students in Designing Problem-Based Learning

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Keywords: *Contextual Issues, Problem-Based Learning, Teacher Professional Development, Teacher Professional Education, Teacher Training*

Article history
Received: 9 September 2024
Revised: 24 October 2024
Accepted: 25 October 2024
Published: 31 October 2024

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doi: 10.20961/paedagogia.v27i3.96104

Abstract: Problem-Based Learning (PBL) is widely recognized as an effective approach to developing students' critical thinking and problem-solving skills. However, its implementation often encounters significant challenges, particularly in teachers' ability to identify relevant contextual issues. This study investigates the perceptions and challenges faced by students in the Teacher Professional Education (TPE) Program in selecting and designing contextual issues for PBL. Using a sequential exploratory mixed-method design, the research began with a qualitative phase analyzing student assignments, followed by a quantitative phase involving questionnaires to assess perceptions and influencing factors. Results revealed that most TPE students have not yet fully developed the ability to select appropriate issues to serve as contexts in PBL. 90% of participants found it "Difficult" to identify relevant issues, while only 10% considered it "Easy." Among the factors contributing to these difficulties, limited knowledge of relevant issues (30%) was the most significant, followed by a lack of understanding of PBL concepts (23%) and difficulty connecting theory to practice (18%). Other barriers included limited access to resources (13%), time constraints (8%), and other minor reasons (8%). These findings emphasize the importance of structured and practical training programs to enhance teachers' competence in identifying contextual issues for PBL. The study concludes with recommendations for designing intensive professional development programs and highlights the need for further research with larger and more diverse samples to validate these findings.

How to cite: Nurhamzah, Rahman, A. A., Nurdiyansyah, R., Fikri, M., Nasrudin, D. & Ramdani, Z. (2024). Identifying Issues and Contexts: Obstacles for TPE Students in Designing Problem-Based Learning. *PAEDAGOGIA*, *27*(3), 462-469. doi: 10.20961/paedagogia.v27i3.96104

INTRODUCTION

Education that focuses on developing critical thinking and problem-solving skills has become one of the most widely implemented approaches in modern curricula. One model that supports the achievement of this goal is Problem-Based Learning (PBL)(Suparman et al., 2021; Anggraeni et al., 2023; Yu & Zin, 2023; Abidin & Sulaiman, 2024). PBL provides students with the opportunity to engage in real-world problem-solving, enabling them to connect theory with practice, which not only enhances conceptual understanding but also develops practical skills in the context of everyday life (Hudha et al., 2023; Dewi et al., 2023). This type of learning is expected to foster a proactive attitude and analytical abilities in students, equipping them to tackle the challenges they face in their surroundings.

Despite its growing popularity, the effective implementation of PBL remains a significant challenge, especially in the context of teacher education. One critical issue lies in the ability of educators to identify and select contextual problems that are relevant, engaging, and educationally meaningful. This challenge is particularly urgent for in-service teachers enrolled in Teacher Professional Education (TPE) programs, as their ability to design effective PBL scenarios directly impacts the quality of their future teaching practices. Research shows that the success of PBL is closely tied to the relevance and complexity of the problems presented to students (Gallagher, 2023; Gonzalez-Argote & Castillo-González, 2024). However, many in-service teachers struggle to balance these elements, often selecting issues that are either too

abstract, overly simplistic, or disconnected from students' realities. This gap highlights a pressing need to investigate the factors influencing in-service teachers' ability to select appropriate contextual issues for PBL and to develop strategies for addressing these challenges.

Several studies have been conducted to explore the challenges in selecting relevant issues for PBL. Research by Groenewald et al. (2023) shows that teaching involving contextual issues can enhance student interest and understanding in learning. The study by Nguyen et al. (2024) highlights the importance of aligning the proposed problems with students' knowledge and skill levels. However, existing research often overlooks the unique challenges faced by in-service teachers, leaving a gap in understanding how these future educators navigate the process of identifying and integrating contextual problems into their teaching. This gap is especially critical in teacher education, where the ability to design effective PBL scenarios is a core competency.

This research aims to address these gaps by focusing specifically on in-service teachers in TPE programs. The objectives of this study are threefold: (1) to explore the ability of in-service teachers to select relevant and engaging issues for PBL, (2) to identify the key factors influencing their problem-selection process, and (3) to provide practical recommendations for improving PBL implementation in teacher education. By achieving these objectives, this study seeks to enhance the preparedness of in-service teachers and contribute to the broader goal of improving educational practices. The novelty of this study lies in its focus on the perspectives and challenges of in-service teachers, a population that has received limited attention in previous research on PBL. Additionally, this research is significant because it directly addresses the current challenges in teacher education, offering insights that can help bridge the gap between theory and practice. By equipping in-service teachers with the skills needed to design effective PBL scenarios, this study contributes to the development of more effective teaching strategies and better learning outcomes for students.

METHOD

Research Methods and Design

This study employed a mixed-methods approach with a sequential exploratory design (Figure 1), where the qualitative phase was conducted first to explore the data, followed by the quantitative phase (Creswell & Clark, 2017). The sequential exploratory design was chosen to ensure that the in-depth qualitative findings informed the subsequent quantitative phase, creating a comprehensive understanding of the research objectives.

Figure 1. Sequential exploratory design (https://catalyst.harvard.edu/)

In the qualitative phase, data were collected through document analysis of TPE students' assignments in designing PBL lessons (Morgan, 2022). This analysis aimed to identify patterns, themes, and challenges faced by students in selecting contextual issues for PBL. Categories such as issue relevance, complexity level, and connection to the educational context were chosen based on their alignment with previous research (Bijsmans & Versluis, 2020; Thomassen & Stentoft, 2020; Gallagher, 2023; Nguyen et al., 2024), which highlights their critical role in effective PBL implementation. The document analysis process included gathering assignment documents, grouping them based on these categories, and conducting an in-depth analysis of elements that reflected students' thinking processes (Armstrong, 2021).

Once the qualitative phase was completed, the quantitative phase involved distributing a questionnaire to students to measure their perceptions and the factors influencing the selection of issues in PBL. The questionnaire development was informed by findings from the qualitative phase, ensuring

coherence between the two stages. The quantitative data collected were analyzed and interpreted by connecting them to the qualitative findings to provide a comprehensive understanding of the challenges in selecting contextual issues for PBL. Figure 1 illustrates the research stages, beginning with qualitative data collection and analysis, followed by questionnaire development, quantitative data collection, and integration of findings. This diagram visually clarifies the sequential exploratory design and the interplay between qualitative and quantitative phases.

Participant

The participants in this study were 20 students from the Teacher Professional Education (TPE) program, majoring in Islamic Religious Education for In-Service Teachers. These participants were selected based on their active engagement in designing PBL scenarios as part of their coursework. This sample size was deemed appropriate for the study's exploratory nature, as it allowed for in-depth qualitative analysis and the generation of insights applicable to similar contexts (Creswell & Clark, 2017). Table 1 provides detailed characteristics of the participants, including gender, educational level, and teaching experience, highlighting their diversity and relevance to the study. This diversity enriched the findings by offering multiple perspectives on the challenges of designing PBL scenarios.

Table 1. Participant

Characteristic	Number of Participants	Percentage
Gender: Male	7	35%
Gender: Female	13	65%
Educational Level: Elementary	15	75%
Educational Level: Junior High	2	10%
Educational Level: Senior High	3	15%
Teaching Experience: 5–10 years	4	20%
Teaching Experience: >10 years	16	80%

The selection criteria ensured that participants represented a wide range of teaching contexts, making the findings more credible and applicable. Their extensive teaching experience and diverse educational backgrounds were crucial for understanding the challenges and nuances of PBL design.

Instrument

The research instruments were tailored to the two phases of the sequential exploratory design. In the qualitative phase, the main instrument was the document analysis of TPE students' assignment responses. These documents were analyzed to identify patterns, themes, and challenges in selecting contextual issues for PBL. Assignments were categorized based on relevance, complexity, and connection to the educational context, guided by theoretical frameworks and prior studies (Gallagher, 2023). The choice of these categories was justified by their consistent emphasis in the literature on effective PBL design. In the quantitative phase, a questionnaire was used to collect data on students' perceptions and the factors influencing their design process. The questionnaire was validated through expert review and a pilot study involving five participants, ensuring its reliability and relevance. It included 20 structured statements with a Likert scale to measure perceptions of PBL, factors influencing issue selection, and challenges encountered.

Data Processing and Analysis

Data processing and analysis in this study were conducted in stages, adhering to the sequential exploratory approach. In the qualitative phase, data from students' assignment responses were analyzed using thematic analysis. This process involved several steps: thoroughly reading the collected documents, identifying emerging themes or patterns, grouping the data into relevant categories (e.g., issue relevance, complexity level, and connection to the educational context), and interpreting the findings (Gallagher, 2023). These qualitative results then served as the foundation for developing the questionnaire in the quantitative phase. Quantitative data obtained through the questionnaire were processed using descriptive statistical analysis to describe the distribution of perceptions and the factors influencing students in selecting contextual issues. Subsequently, the quantitative findings were interpreted by linking

them to the earlier qualitative findings, aiming to provide a more comprehensive understanding of the challenges in selecting contextual issues for PBL. This approach ensures consistency between the two phases of analysis, resulting in in-depth and reliable findings.

RESULT AND DISCUSSION

Students' Ability to Selecting Issues

The ability of students to select issues as contexts for PBL was examined through the qualitative analysis of their teaching module documents. This analysis focused on four key criteria: (1) the clarity and accuracy in outlining the PBL syntax, (2) the integration of the selected issue within the problem orientation phase to establish relevance and context, (3) the provision of supporting learning resources such as videos, images, or other relevant materials to enhance engagement and understanding, and (4) the relevance of these resources to the chosen issue and its alignment with the educational objectives. The findings from the analysis of documents submitted by 20 participants are summarized in Table 2, providing a comprehensive overview of their performance in aligning selected issues with the PBL framework.

Table 2. Students' Ability in Selecting Issues

No.	Data	Level	Topic	Findings			
				Syntax	Context	Source	Relevancy
1	EA	Elementary	Q.S. Al-Ikhlas	No	No	Yes	No
2	ES	Elementary	Q.S. Al-Ma'un	Yes	No	Yes	No
3	EY	Elementary	Q.S. Al-Ikhlas	No	No	No	No
4	EYa	Elementary	Q.S. Al-Ma'un	Yes	No	No	No
5	EUM	Elementary	Arabic Alphabet	Yes	No	No	No
6	EP	Elementary	QS. Al Hujurat 13	No	No	No	No
7	FI	Elementary	Q.S. Al-Ma'un	Yes	Yes	Yes	Yes
8	ESW	Elementary	QS. Al Hujurat 13	No	No	Yes	No
9	EN	Elementary	The Pillars of Faith	Yes	No	No	No
10	ESM	Elementary	Asmaulhusna	Yes	No	Yes	No
11	EANH	Elementary	Almsgiving (Zakat)	Yes	Yes	Yes	Yes
12	ES	Elementary	Asmaulhusna	No	No	Yes	No
13	EPR	Junior High	Asmaulhusna	Yes	No	Yes	No
14	F	Senior High	Dakwah, Khutbah, Tabligh	Yes	No	No	No
15	EI	Junior High	Asmaulhusna	No	No	Yes	No
16	EM	Primary	Q.S. Al Hujurat 13	No	No	Yes	No
17	EJJ	Senior High	Asmaulhusna	Yes	No	No	No
18	EL	Senior High	Riya', Sum'ah, Takabbur, Hasad	Yes	No	No	No
19	EUH	Elementary	Belief in the Prophets	Yes	No	No	No
20	EK	Elementary	Belief in the Prophets	Yes	No	No	No

The document analysis indicates that the majority of TPE students have not yet fully developed the ability to select appropriate issues to serve as contexts in PBL. Based on Table 1, 65% of the students wrote a complete PBL syntax, but only 10% were able to present a suitable context. On the other hand, 50% of the students provided learning resources for their students. Still, only 20% of these resources were considered relevant to the topic or the teaching of Islamic Religious Education (PAI) material. Only a small number of students successfully selected issues that combined social relevance, alignment with learning objectives, and the potential to stimulate critical thinking among students. These findings are corroborated by the questionnaire results, which captured their perceptions regarding the challenges of identifying relevant issues for PBL, as shown in Figure 2.

Figure 2. Students' Perceptions Regarding the Search for Relevant Issues

These findings reflect a significant challenge in mastering the skill of selecting relevant issues for PBL. The ability to choose the right issue is a crucial aspect of PBL, as the selected issue must motivate students, be relevant to their life context, and challenge them to think critically and creatively (Lismaya, 2019; Almulla, 2020). The inability of the majority of students to select the appropriate issue may be due to a lack of practical experience in designing authentic PBL. Many students may not fully understand how an issue can serve as an effective context for facilitating the achievement of learning objectives. As a result, students' self-confidence in designing PBL is low, as shown in Figure 3.

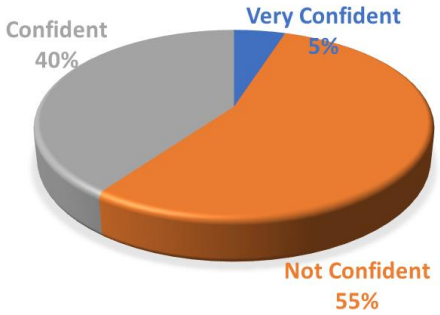

Figure 3. Students' Self-Confidence in Designing PBL

The pie chart in Figure 3 illustrates the self-confidence levels of teachers in designing PBL. The data reveals that a significant proportion, 55%, of teachers feel "Not Confident" in designing PBL, suggesting a notable gap in their perceived readiness or ability to implement this pedagogical approach. Meanwhile, 40% of teachers are "Confident," indicating a moderate level of assurance in their skills. However, only 5% of teachers feel "Very Confident," highlighting the need for targeted professional development to bolster teachers' competencies and confidence in creating effective PBL frameworks. This finding aligns with research that emphasizes the importance of professional training to enhance teachers' proficiency in innovative teaching methods (Prasetyono et al., 2021). Addressing this disparity is crucial for fostering the successful implementation of PBL in classrooms.

Reasons for Difficulty in Finding Relevant Issues

The low ability of TPE students to identify relevant issues related to PBL is caused by several factors, as shown in Figure 4. The data obtained reveals several key factors contributing to the low ability of TPE students to identify relevant issues for PBL. A total of 23% of students identified a lack of understanding of the basic concepts of PBL as the primary obstacle. This indicates that students have not fully grasped how PBL should be applied in their teaching practices (Oktaviana et al., 2024). Another significant factor is the limited knowledge of students regarding relevant issues or topics, which accounts for 30%. This limitation makes it difficult for students to select the correct issues for PBL. Additionally, 13% of students face challenges in accessing the resources needed to explore issues in depth, while 18% struggle to connect the theory they have learned with real-world practice. Finally, time constraints also play a role, with 8% of students reporting difficulties in finding and analyzing issues due to limited time. Other unspecified factors contribute 8% to these difficulties. Overall, the data indicates that a combination of a lack of conceptual understanding, limited knowledge, and constraints in resources and time are the

main barriers preventing students from identifying relevant issues for PBL.

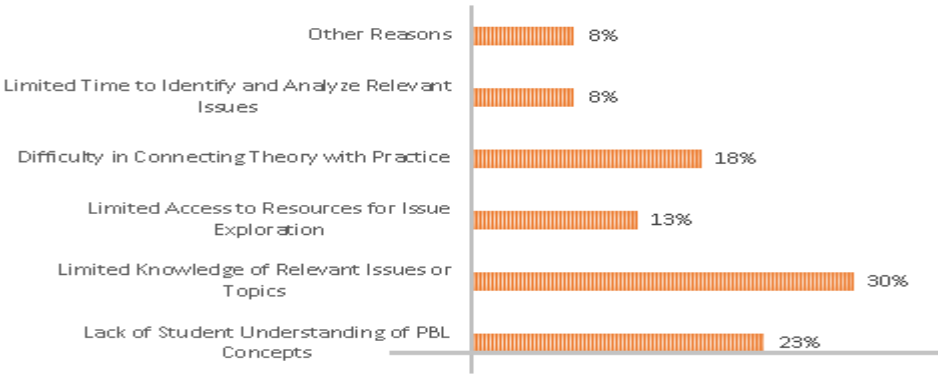

Figure 4. Reasons for Difficulty in Finding Relevant Issues

Implications for Policy

The findings of this study highlight the importance of policies that support intensive training for teachers in selecting the appropriate issues for PBL. The selection of relevant and contextual issues is a crucial initial step in designing effective problem-based learning (Tan, 2021; Boss & Krauss, 2022). However, the study reveals that most TPE students still face difficulties in selecting suitable issues that are not only engaging but also align with learning objectives. This indicates that the current training may not sufficiently equip teachers with the practical skills required to assess and choose issues that are appropriate for students' contexts and the competencies they aim to develop. Therefore, educational policies should encourage the development of a more comprehensive teacher training curriculum that includes practical exercises in selecting contextual issues relevant to students' lives and aligning these issues with broader learning goals. Such training should be supplemented with real-life case studies and direct experiences to better prepare teachers for similar challenges in the field. This approach will help ensure that teachers are better equipped to design PBL experiences that are both meaningful and effective in meeting students' educational needs.

Moreover, the findings regarding the low self-confidence of students in designing PBL highlight the need for policies that promote the enhancement of teachers' skills in effectively designing PBL. Designing PBL requires a deep understanding of how to structure activities that foster critical thinking and student collaboration, as well as how to link selected issues with measurable learning objectives (Seibert, 2021). Teachers need to know the concepts of PBL and possess practical skills in managing and evaluating PBL. The current training programs may not fully address these needs, leaving many teachers still struggling to design and implement PBL effectively. Therefore, educational policies should establish professional development programs focused on practical and applicable skills for learning design. These programs could include workshops, mentoring, and simulation-based training to help teachers refine their skills in designing effective and relevant problem-based learning experiences. By fostering these practical skills, teachers will be better equipped to create PBL activities that engage students and promote deeper learning.

CONCLUSION

This study reveals that TPE students still struggle to select appropriate issues and design effective PBL. The qualitative phase findings show that most students cannot select relevant and in-depth contextual issues that could effectively facilitate PBL. The implications of these findings emphasize the importance of educational policies that support intensive teacher training, particularly in selecting relevant issues and designing more effective PBL. Therefore, the recommendation of this study is the need to strengthen practical and continuous training for teachers in designing PBL, with a focus on selecting contextual issues and creating deeper learning designs. The limitation of this study lies in the small number of participants, which means the results may not be fully generalizable to a larger population. Further research with a broader sample and contextual variation is necessary to expand these

findings.

ACKNOWLEDGMENTS

The author thanks the Faculty of Tarbiya and Teacher Training, UIN Sunan Gunung Djati Bandung, for providing financial assistance under reference number 931/Un.05/III.2/KP.00.3/11/2024.

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