

Enhancing Grade 5 Student Geography Skills and Learning Achievement: A Problem-Based Learning Approach

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Abstract

This study explores the potential of Problem-Based Learning (PBL) in primary school education and investigates its impact on geography skills, learning achievement, and satisfaction. The purpose of the study is to assess the effectiveness of PBL as a student-centered approach in enhancing learning outcomes. The participants consisted of 43 grade 5 students from schools in Thailand, selected through cluster random sampling. The study employed geography skill and learning achievement assessments, along with satisfaction surveys, as research instruments. The results revealed significant improvements in participants' geography skills and learning achievement, with high levels of satisfaction reported. These findings highlight the effectiveness of PBL in primary school education and underscore the importance of implementing student-centered approaches. Further research is recommended to examine the long-term effects and sustainability of PBL implementation in primary school settings, promoting ongoing advancements in educational practices.

Keywords: PBL, geography, primary school education

1. Introduction

Primary school education provides an opportune time for learners to explore and discover the world around them (Kapur, 2021). Among the various subjects covered during this crucial phase, geography stands out as a fundamental discipline. The study of geography plays a pivotal role in developing a deep understanding of the Earth's physical features, human-environment interactions, and the interconnectedness of global societies. For grade 5 students, aged around 11 years, geography education holds immense importance in both their academic journey and their broader life experiences (The Ministry of Education, 2008). It equips them with essential skills such as spatial awareness, critical thinking, and cultural competence, enabling them to navigate the complexities of the modern world. Recognizing its significance, geography has become a vital component of primary education curricula worldwide (Martin, 2012).

Despite the importance of geography education in fifth grade, possible challenges and obstacles can impede students' effective learning of this subject (Gokce, 2009; Kaya, 2018; Weiss, 2017). The students in the primary school age may have difficulty with abstract concepts such as map reading, spatial relationships, and the interpretation of geographic data. Complex terminology and immense amounts of information may overwhelm them, resulting in disinterest and limited comprehension. In addition, traditional teaching methods that rely heavily on memorization by rote and inert learning fail to spark students' curiosity and critical thinking abilities. As a result, students may view geography as a dull and monotonous subject, hindering their motivation to partake actively in the learning process. In addition, limited exposure to real-world applications and hands-on experiences may hinder their ability to apply theoretical knowledge to real-world scenarios. These obstacles highlight the need for innovative strategies that address the specific educational requirements of fifth-grade students and foster their enthusiasm for geography (Weiss, 2017).

At a contextual level, Thailand faces specific challenges in effectively teaching geography in primary school education. One prominent issue is the lack of inherent interest among primary school students in this subject. The traditional teaching approach, which relies heavily on teacher-based lecturing, often fails to capture students' attention and make the learning experience engaging (Intarong & Tempuim, 2012). As a result, students may struggle to develop a genuine curiosity and enthusiasm for geography. Furthermore, the disconnection between theoretical knowledge and real-life applications poses a significant hurdle. For instance, students may learn about different types of rocks in their textbooks but rarely have the opportunity to encounter them in their

immediate surroundings. Consequently, they may struggle to grasp the practical significance of geological concepts and fail to recognize how these rocks are utilized in various industries or everyday life. This lack of experiential learning and practical application inhibits the holistic understanding and meaningful engagement of grade 5 students in the field of geography.

Given the aforementioned challenges in teaching geography in primary school education in the Thai context, there is a pressing need for innovative pedagogical approaches that can foster active engagement, critical thinking, and meaningful connections between theoretical knowledge and real-life contexts. Problem-based learning (PBL) emerges as a promising educational strategy to address these challenges. PBL is an instructional approach that centers on real-world problem-solving and active student participation (Hung et al., 2019). It involves presenting students with authentic, complex problems that require them to investigate, analyze, and propose solutions collaboratively (Barell, 2006; Boud & Feletti, 2013). By immersing students in problem-solving scenarios, PBL not only promotes a deeper understanding of geographical concepts but also cultivates essential skills such as critical thinking, problem-solving, communication, and collaboration. Therefore, the current study employed the principles of problem-based learning as the foundation for the presented solution, recognizing its potential to address the specific challenges faced in geography education in Thailand.

2. Literature Review

2.1 Geography Skills

Geography skills for primary students encompass various essential aspects. Firstly, observation skills play a key role, allowing students to keenly observe and explore their surroundings, including natural features, human activities, and spatial relationships. Additionally, students learn to interpret geographical data, such as maps, graphs, and charts, to understand patterns, trends, and relationships within the Earth's physical and human landscapes. They also develop an understanding of basic geographical techniques and tools, such as compasses, scales, and legends, which aid in map reading and navigation. Furthermore, students are introduced to the use of technology in geographical studies, learning to utilize digital resources, online maps, and geospatial technologies to gather information and enhance their understanding of the world. These foundational geography skills provide primary students with the necessary knowledge and tools to explore and comprehend their immediate environment, fostering a sense of curiosity, spatial awareness, and a basic understanding of geographical concepts.

2.2 Defining PBL

Problem-based learning (PBL) can be defined as a method of instruction that requires students to actively engage in solving real-world cases, mirroring the challenges encountered by practitioners. As Borrows (1986) suggests, PBL prompts learners to tackle problems similar to those they face in professional contexts. By engaging in inquisitive and self-directed learning processes, as highlighted by Frerejean et al. (2019), students construct their knowledge through various problem-solving activities. This approach emphasizes the practical application of classroom knowledge to prepare students for real-world problem-solving. As emphasized by Kim et al. (2019), PBL particularly emphasizes the development of critical thinking and problem-solving skills, as learners grapple with authentic problems. In essence, problem-based learning fosters a student-centered environment, where learners take an active role in constructing knowledge, collaborating with peers, and developing essential skills necessary for addressing authentic challenges. Therefore, problem-based learning can be understood as an instructional approach that nurtures critical thinking, problem-solving abilities, and the application of acquired knowledge in real-life contexts.

2.3 Theoretical Aspects of PBL

In detail, PBL encompasses various theoretical aspects that contribute to its effectiveness as an instructional approach. From a cognitive perspective, PBL promotes deep learning by challenging students to explore complex problems, analyze information, and apply their existing knowledge to real-life situations (Barell, 2006). It encourages active engagement, critical thinking, and problem-solving skills, fostering a deeper understanding of the subject matter. Moreover, PBL emphasizes the collaborative aspect of learning, where students work together in teams to solve problems (Hung et al., 2019). Collaborative problem-solving not only enhances social skills, communication, and teamwork but also exposes students to diverse perspectives and encourages the exchange of ideas. In the PBL classroom, the role of the teacher shifts from being the primary source of knowledge to that of a facilitator and guide (Boud & Feletti, 2013). The teacher provides guidance, scaffolds learning, and supports students in their problem-solving processes. Students, on the other hand, take on an active role in constructing knowledge, seeking information, and sharing their insights with peers. They develop

autonomy, self-directed learning skills, and the ability to transfer knowledge to real-world contexts. Thus, PBL nurtures a student-centered learning environment that empowers learners to become active participants in their education.

2.4 Elements of PBL

Scholars have extensively discussed the components of problem-based learning (PBL) (e.g., Cho et al., 2021; Nelson, 2010; Sockalingam, 2010). Synthesizing previous studies, the key elements of PBL can be summarized as the integration of genuine and student-related problems, collaboration among students, the cultivation of self-regulation and reflection, the establishment of a learner-centered environment, the facilitation of teachers' roles, and the implementation of fair and authentic evaluation methods.

2.4.1 The Use of Genuine and Student-Related Problems

In problem-based learning (PBL), the emphasis is placed on presenting students with authentic problems that closely mirror real-world situations and challenges. These problems are carefully designed to be relevant and meaningful, drawing connections to the context in which the students will eventually apply their knowledge and skills. Unlike traditional textbook exercises or artificially simplified scenarios, authentic problems in PBL are intentionally complex and open-ended. They do not have straightforward or predetermined solutions, requiring students to delve into the problem, analyze multiple perspectives, and explore various potential approaches. This encourages students to think critically and creatively, as they must exercise their problem-solving abilities, engage in inquiry, and generate innovative ideas. By grappling with authentic problems, students develop essential skills such as analytical thinking, decision-making, and adaptability, all of which are vital in real-world scenarios where solutions are rarely clear-cut. PBL thus provides fertile ground for students to apply their knowledge and skills in meaningful ways, fostering their ability to address complex challenges they may encounter beyond the classroom.

2.4.2 Collaborative and Student-Centered Learning Environments

Problem-based learning (PBL) is an instructional approach that encourages collaboration, self-regulation, and reflection among students, creating a learner-centered environment. In a PBL setting, students work together in teams to solve authentic, ill-structured problems. Through collaboration, they engage in active discussions, share diverse perspectives, and collectively explore possible solutions. Furthermore, PBL promotes self-regulation by requiring students to take responsibility for their learning. They set goals, plan their work, monitor their progress, and adjust it as needed. Additionally, PBL encourages reflection, as students regularly reflect on their learning experiences, evaluate their strategies, and identify areas for improvement. This reflective practice enhances students' ability to think critically, analyze their thinking processes, and make connections between theory and practice.

2.4.3 Teachers' Facilitator Role

Problem-based learning (PBL) requires teacher facilitation. Facilitators promote student learning in many ways. Teachers guide students through the PBL process by explaining the problem, providing resources, and answering questions. They provide solutions to keep pupils on track. Teachers also encourage teamwork, critical thinking, and creativity. They create a secure area for pupils to discuss, share, and ask questions. In addition, productive conversation is encouraged to ensure all students have a voice. In PBL, Teachers' main role is to enable students to own their learning, explore their potential, and acquire essential academic and personal skills.

2.4.4 Fair and Authentic Evaluation

Authentic evaluation methods are an essential component of problem-based learning (PBL), as they serve to assess students' performance and understanding based on real-world criteria and standards. In PBL, traditional modes of evaluation such as standardized tests or rote memorization assessments are replaced with assessments that mirror real-life applications. This approach ensures that students' knowledge and skills are measured in contexts that closely resemble the challenges they will face beyond the classroom. By using authentic evaluation methods, PBL promotes the application of knowledge and skills to practical scenarios. Students are assessed on their ability to solve complex, ill-structured problems, make informed decisions, and effectively communicate their ideas. This form of assessment captures not only the content knowledge but also the process and application of learning.

2.5 Empirical Studies on PBL

Previous studies have extensively explored the use of problem-based learning (PBL) in primary school education, highlighting its benefits for students in the elementary grades (Ahdhianto & Istiq'faroh, 2022; Aidoo et al., 2016;

Crowley, 2015; Fadilla et al., 2021; Lin, 2015; Mulyanto et al., 2018; Pebriana & Disman, 2017; Theabthueng et al., 2022; Zejnilagić-Hajrić et al., 2015). The results of the previous studies demonstrated that PBL positively impacts various learning components, including students' learning achievement, thinking skills, learning skills, and learning attitudes. The results of these studies have encouraged further exploration of the effects of PBL on different subjects taught in primary schools. Notably, while there is limited research on PBL's application in geography, considering its importance in students' future learning and everyday life, investigating the effectiveness of this instructional method in the context of geography becomes a significant area of interest. Thus, the present study aims to examine the effectiveness of PBL as the main principle in the design of a learning management plan for developing grade 5 primary school students' geography skills, enhancing their learning achievement in geography, and fostering their overall learning satisfaction.

3. Methodology

3.1 Research Design

The research was designed using a one-group experimental design to investigate the effects of problem-based learning (PBL) on geography skills, learning achievement in the geography subject, and students' learning satisfaction in the Thai context. This design involved a single group of participants who were exposed to the PBL approach as the main instructional method. The research aimed to examine the impact of PBL on these three key areas of interest. To gather data, various measures were employed, including assessments to evaluate students' geography skills and learning achievement in the subject. Additionally, surveys or questionnaires were administered to assess students' perceptions of their learning experience and satisfaction with the PBL approach. The research design allowed for the exploration and analysis of the potential effects of PBL on geography-related outcomes, providing valuable insights into the effectiveness and benefits of implementing PBL in enhancing students' geography skills, improving their learning achievement in the subject, and fostering their overall learning satisfaction.

3.2 Participants

The participants in this study consisted of 43 grade 5 students from a public school in Thailand. The selection of participants was conducted using a cluster random sampling method, with multiple sections of the grade participating. The average age of the participants was 11 years old. These students were enrolled in the general social studies course, with geography as the main content area for the semester during which data collection took place. Throughout the semester, the participants engaged in a PBL-based learning management plan focused on local geography. The specific geographical content of the study centered around the phenomenon of an extinguished fire mountain, particularly exploring the characteristics and significance of fire rock. The students actively participated in the problem-solving activities, investigations, and discussions related to this geographical topic.

3.3 Research Instruments

3.3.1 Problem-Based Learning Management Plan

The main instrument utilized in this study was a problem-based learning (PBL) based learning management plan specifically designed to teach grade 5 students about the basic knowledge of fire rock and the geography of an extinguished fire mountain which is the a part of local geographic content—the main contain of the course participants took during the data collection. The learning management plan aimed to develop the students' geographic skills, including observation skills, interpretation of geographical data, geographical techniques and tools, and the use of technology in geography studies.

The learning management plan spanned a duration of 14 class hours, with each sub-lesson plan comprising a series of PBL activities tailored to enhance the students' understanding of the geographical content and foster their geographic skills. The PBL activities incorporated various approaches, such as hands-on experiments, group projects, and the utilization of technology. After assigning the students into groups of 6, the class activities started by raising a real-ife problem related to fire rock or the extinguished fire mountain. For example, the problem involves a scenario where the local community is facing the challenge of preserving the geological heritage of the fire mountain while ensuring sustainable development. This problem prompted students to investigate the geological features, consider the environmental and cultural impacts, and propose solutions or recommendations to address the issue. Another activity involved using technology, such as online mapping tools or geospatial data, to explore the geographical context of the fire mountain to present the solution to the problems.

The learning management plan was evaluated by a panel of five experts consisting of scholars in education and

professional geography teachers. The evaluation process aimed to assess the quality and effectiveness of the plan in achieving its intended goals. The experts' evaluation confirmed the quality of the learning management plan ($\bar{x} = 4.69$), indicating that it was well-designed and effective in developing the students' geographic skills, as well as facilitating their understanding of fire rock geography and the geography of the extinguished fire mountain.

3.3.2 Geography Skill Test

The geographic skills test used in this study consisted of eight items and was designed to assess students' abilities in observation skills, interpretation of geographical data, geographical techniques and tools, and the use of technology in geography studies. The test format involved written responses, where students were required to demonstrate their proficiency in applying these skills to problem-solving tasks. To establish the content validity of each test item, an Inter-Observer Consistency (IOC) test was conducted involving a panel of five experts. The experts demonstrated a high level of agreement (IOC = 1.0) in assessing the relevance and appropriateness of each test item. The test was evaluated using a rubric scoring system, with a maximum score of 3 for each item. Two items were included for each content area, resulting in a total of 8 items and a maximum total score of 24. The test demonstrated appropriate difficulty levels ($p = 0.50-0.80$) and discrimination indices ($d = 0.22-0.48$), indicating that the items effectively differentiated students with varying levels of geographic skills. The reliability of the test was assessed using Cronbach's alpha coefficient, which yielded a value of 0.75, indicating internal consistency.

3.3.3 Learning Achievement Test

The learning achievement test used in this study aimed to assess participants' knowledge of local geography, specifically focusing on fire rock and the geography of the extinguished fire mountain. The test consisted of 30 multiple-choice items, which covered various aspects of the geographic content. The items were designed to measure participants' factual knowledge, comprehension, and application of geographical concepts. The experts demonstrated a high level of agreement (IOC = 0.6–1.0) in assessing the relevance and appropriateness of each test item. The test demonstrated good difficulty levels ($p = 0.51-0.76$) and discrimination indices ($b = 0.27-0.49$), indicating its ability to differentiate between participants with varying levels of knowledge. The test exhibited good internal consistency, with a reliability coefficient of 0.73 (Cronbach's alpha), indicating its reliability in assessing participants' learning achievement in local geography.

3.3.4 Participants's Satisfaction Questionnaire

The satisfaction questionnaire used in this study consisted of 15 items, focusing on three key aspects: problem-based learning activities, learning materials, and the learning environment. Each aspect was represented by five items, and participants were asked to rate their level of satisfaction using a 5 Likert scale. The questionnaire aimed to assess participants' perceptions and satisfaction regarding the quality, relevance, and effectiveness of problem-based learning activities, the suitability and usefulness of learning materials, and the overall learning environment. The content validity of the questionnaire was established through an Inter-Observer Consistency (IOC) test involving a panel of experts, who demonstrated a high level of agreement (IOC = 0.6–1.0) on the relevance and appropriateness of the items. The questionnaire exhibited good discrimination indices ($d = 0.26-0.92$), indicating its ability to differentiate between participants' satisfaction levels across the measured aspects. The reliability of the questionnaire was high, with a Cronbach's alpha coefficient of 0.89, indicating strong internal consistency.

3.4 Data Collection and Data Analysis

In this one-group experimental design, the data were gathered both during and after students participated in the learning management. The data collection took place in the second semester of the 2022 academic year. While participants learning, the activity scores earned in each sub-lesson plan were collected. After the treatment, the geography skills test, learning achievement, and participants' satisfaction questionnaire were administered.

In terms of data analysis, the effectiveness of the learning management plan was assessed using the effectiveness index, which considered both process effectiveness (E1) and product effectiveness (E2). Process effectiveness was determined by the percentage of participants' scores in completing the activities, while product effectiveness was determined by the percentage of participants' scores in the post-test assessment. Both E1 and E2 were required to exceed the criteria of 80/80. The participants' geography skills and learning achievement were evaluated using a one-sample t-test with a criterion of 80, assessing whether their performance reached the desired threshold. Participants' satisfaction was assessed using descriptive analysis of their responses to the satisfaction questionnaire. These data analysis methods allowed for a comprehensive evaluation of the learning

management plan's effectiveness, participants' geography skills, learning achievement, and satisfaction levels.

4. Results

4.1 The Effects of PBL on Participants' Geography Skills

Table 1. Students' geography skills after learning with the PBL learning management plan

Geography skills	N	Fullmark	\bar{X}	%	S.D.	t	Sig.
Observation	43	6	5.26	87.60	1.05	2.85	0.0034*
Interpretation of geographical data	43	6	5.09	84.88	1.17	1.64	0.0542
Geographical techniques and tools	43	6	5.21	86.82	1.44	1.86	0.0347*
The use of technology in geography studies	43	6	5.30	88.37	0.96	3.42	0.0007*
Overall	43	24	20.86	86.92	2.77	3.93	0.0002*

That the participants' geography skills were assessed using a one-group sample t-test and compared to the predetermined criteria of 80% (19.2). Additionally, within each skill, a criterion of 80% (4.8) was utilized. The findings reveal that the overall participants' geography skill score differed significantly from the predetermined criteria, with a p-value of 0.0002, suggesting a notable difference in their performance.

In detail, the participants' performance varied across different geography skills. They demonstrated a significant difference from the criteria in observation ($p = 0.0034$), geographical techniques and tools ($p = 0.0347$), and the use of technology in geography studies ($p = 0.0007$). However, the Interpretation of geographical data skill showed a marginally significant difference but did not meet the predetermined criteria. These findings highlight specific areas of strength and areas that require further improvement in the participants' geography skills.

Based on these results, it can be inferred that the participants' overall geography skills fell short of the predetermined criteria. However, the participants demonstrated significant variations across different skills. Notably, their performance in Observation and the use of technology in geography studies was significantly different from the expected criteria, suggesting areas of strength. On the other hand, the interpretation of geographical data skill showed a marginally significant difference, indicating the need for further improvement. These findings highlight the importance of targeted interventions and additional support to enhance the participants' geography skills, particularly in areas where they exhibited lower performance.

4.2 The Effects of PBL on Participants' Learning Achievement

Table 2. Participants' learning achievement compared to the criterion

Learning achievement	N	Fullmark	\bar{X}	%	S.D.	t	Sig.
Post-test	43	30	25.00	85.13	3.46	1.89	0.033*

The participants' learning achievement was evaluated by conducting a one-sample t-test on their post-test scores, with a predetermined criterion of 80% of the full mark (30). The results revealed that the average score of the students ($\bar{x} = 25$, $S.D = 3.46$) was significantly different from the criteria, $t = 1.89$, $p = 0.033$. These results imply that the learning management plan implemented in the study had a positive effect on enhancing the participants' learning achievement in the topic being assessed.

4.3 The Effectiveness of the Learning Management Plan

Table 3. The effectiveness index of the PBL learning management plan

Effectiveness	Full mark	\bar{x}	S.D.	Percentage
Process effectiveness (E_1)	100	83.32	3.76	83.32
Product effectiveness (E_2)	100	85.13	11.55	85.13
The effectiveness index (E_1/E_2) = 83.32/85.13				

The data demonstrates the effectiveness of the PBL (Problem-Based Learning) learning management approach on the participants' geography learning achievement. Specifically, the process effectiveness (E_1), measured by the average score of students in class assessments, was 83.32, accounting for 83.32% of the maximum score of 100 ($E_1 = 83.32$). Similarly, the learning management outcome effectiveness, representing the overall

performance of students at the end of the process, was 85.13, which accounted for 85.13% of the maximum score of 100 ($E_2 = 85.13$). Consequently, the effectiveness index of the treatment was calculated as $83.32/85.13$ ($E_1/E_2 = 83.32/85.13$), surpassing the determining criteria of 80/80. These results indicate a positive effect of the PBL learning management approach on participants' geography learning achievement.

4.4 Satisfaction with the PBL Learning Management Plan

Table 4. Participants' satisfaction with the PBL learning management plan

Satisfaction Aspects	\bar{x}	S.D
PBL learning activities	4.50	0.62
Learning material	4.57	0.58
Learning environment	4.52	0.6
Overall	4.53	0.6

The study yielded significant findings regarding the participants' satisfaction with the implemented learning management plan. The overall satisfaction level was found to be remarkably high ($\bar{x} = 4.53$, S.D = 0.6). In terms of specific aspects, the participants reported a high level of satisfaction with the PBL learning activities ($\bar{x} = 4.50$, S.D = 0.62), indicating a positive reception and engagement with the problem-based learning approach. Additionally, the participants expressed very high levels of satisfaction with the learning material ($\bar{x} = 4.57$, S.D = 0.58) and the learning environment ($\bar{x} = 4.52$, S.D = 0.6). These results suggest that the participants found the learning material to be highly effective and the learning environment to be conducive to their learning experience. Overall, the findings demonstrate a strong level of satisfaction among the participants with the implemented learning management plan, indicating its positive impact on their learning journey.

5. Discussions

The results of the study demonstrate the positive effects of PBL (Problem-Based Learning) as the guiding principle in a learning management plan. PBL was found to enhance participants' geography skills and learning achievement while also eliciting high levels of satisfaction. Building upon these findings, the following discussion will delve into the benefits of PBL in primary school education, the advantages of PBL in teaching geography, and an examination of the learning satisfaction experienced by grade 5 students.

The results of this study align with previous research studies (Ahdhianto & Istiq'faroh, 2022; Aidoo et al., 2016; Crowley, 2015; Fadilla et al., 2021; Lin, 2015; Mulyanto et al., 2018; Pebriana & Disman, 2017; Theabthueng et al., 2022; Zejnilagić-Hajrić et al., 2015) that have highlighted the benefits of PBL in primary school education. PBL fosters active and engaged learning experiences, promoting critical thinking, problem-solving skills, and collaborative teamwork. These outcomes are particularly beneficial for students at the elementary school level due to their cognitive development and curiosity-driven learning. PBL provides a meaningful and contextualized approach to learning, encouraging students to explore real-life problems, make connections to their own experiences, and actively construct knowledge. This student-centered and inquiry-based approach aligns well with the developmental needs and learning styles of primary school students.

The incorporation of PBL in teaching geography has demonstrated numerous advantages. PBL offers a platform for students to connect classroom knowledge with real-world problems and situations. In this study, students engaged in solving problems related to fire rock preservation and cultural heritage in their city. By actively applying geography concepts to address these challenges, students developed critical thinking skills and gained a deeper understanding of the subject matter. This finding is consistent with previous research by Mulyanto et al. (2018) and Fadilla et al. (2021), which emphasized that PBL stimulates thinking skills and enhances learning achievement and geography skills. The authentic and problem-solving nature of PBL in geography education contributes to a more meaningful and relevant learning experience for students.

Lastly, the high level of satisfaction expressed by grade 5 students with the PBL approach in this study can be attributed to several factors. Firstly, PBL fosters active student engagement and empowers students to take ownership of their learning. This sense of autonomy and involvement in the learning process may enhance motivation and satisfaction among students. Additionally, PBL promotes collaboration and teamwork, allowing students to work together, share ideas, and learn from one another. This social interaction and support contribute to a positive and enjoyable learning environment. Furthermore, the application of PBL to real-life problems and the relevance of the learning content to students' lives can enhance their sense of achievement and satisfaction. Overall, the findings suggest that PBL's student-centered and interactive nature resonates well with grade 5

students, leading to high levels of learning satisfaction.

6. Conclusion

In conclusion, this study employed a one-group experimental design to investigate the effectiveness of a learning management plan utilizing the PBL (Problem-Based Learning) approach in primary school education of grade 5. The results revealed positive effects on participants' geography skills, learning achievement, and overall satisfaction with the implemented approach. The findings supported previous research highlighting the benefits of PBL in primary school education and its effectiveness in teaching geography.

The implications of this study are significant for educators and policymakers. The positive outcomes observed in participants' geography skills and learning achievement suggest that incorporating PBL into primary school curricula can enhance students' critical thinking, problem-solving abilities, and engagement in the learning process. This study provides valuable insights into the potential of PBL as an effective instructional approach in primary school education, specifically in the context of teaching geography.

For future research, it is recommended to conduct comparative studies with control groups to further investigate and validate the effectiveness of PBL compared to traditional teaching methods. Additionally, exploring the long-term effects and sustainability of PBL implementation in primary school settings would provide a deeper understanding of its lasting impact on students' learning outcomes and skills development. Further investigations could also focus on optimizing the design and implementation of PBL strategies tailored to different subject areas and grade levels.

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