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The Impact of M-learning and Problem-Based Learning Teaching Method on Students Motivation and Academic Performance

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The rapid advancement of information technology has significantly improved various facets of modern human existence. Despite the rapid progress in digital technology, there has been limited headway in utilizing technology to bolster mathematics education, particularly concerning problem-solving. This study aimed to evaluate the efficacy of M-learning and Problem-Based Learning (M-PBL) method in enhancing the motivation and academic performance of primary school students in mathematics. Employing an unequal-group quasi-experimental design, M-PBL method were developed based on M-learning Model, Problem-Based Learning Model, and Social Constructivism theories, resulting in 17 relevant activities for mathematics teachers. The effectiveness of these method was assessed through pre- and post-testing of an uneven control group, involving 64 Year 6 students from Johor Bharu district, Johor. Quantitative data, collected via questionnaires on student motivation and a mathematics academic performance test, were analyzed using SPSS. The results revealed significant differences in students' motivation and problem-solving skills after the implementation of M-PBL method compared to conventional approaches. This research highlights the positive impact of M-PBL methods on schools, curriculum developers, parents, and the overall mathematics teaching and learning process.

Keywords: virtual simulation, web-based application, multimedia, teaching, learning, m-learning, problem-based learning, students motivation, academic performance

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INTRODUCTION

The rise and progression of the Fourth Industrial Revolution mark a significant era, leaving a lasting impact on global technological and scientific advancements. This pivotal period signifies a substantial change in the interaction between societies and technology, characterized by the integration of advanced digital innovations, sophisticated automation, and seamless data exchange. (Bonfield et al., 2020) assert that this revolution symbolizes a transformative phase in human civilization and culture, closely tied to the advent of modern communication, technological applications, and information management. (Alaloul et al., 2020) elaborate that this fourth revolution diverges notably from its predecessors by seamlessly merging the biological, physical, and digital domains, spawning numerous new technologies that profoundly influence various disciplines.

In response to these transformative shifts, educators are encouraged to embrace technology as an essential tool for enhancing pedagogical practices (Jamaludin et al., 2020). Through effective utilization of technology, teachers not only improve teaching quality but also create a learning environment that caters to the dynamic needs of contemporary students. The breakdown of traditional boundaries ensures that knowledge delivery becomes flexible and immersive, extending beyond conventional classroom settings (Ehsanpur & Razavi, 2020). Additionally, the significant impact of technological advancements, exemplified by the Internet of Things (IoT) within the Fourth Industrial Revolution, has left a profound mark on both teaching approaches and students' learning behaviors. The strategic incorporation of online content systems, such as mobile learning (M-learning), significantly contributes to maintaining an advanced and responsive education system aligned with the digital age's demands (Qashou, 2021).

The primary objective behind implementing M-learning is to enhance students' motivation and engagement in specific fields of study (Chantaranima & Yuenyong, 2014). Learning applications on mobile devices encourage exploration of information from diverse perspectives, fostering the generation of new ideas among both teachers and students. Moreover, the adoption of this method notably impacts students' mathematical proficiency, fostering creative and critical thinking skills (Kamaghe et al., 2020). For instance, during the Movement Control Order (MCO) period, widely used learning applications like Google Classroom for information sharing, and Kahoot and Quizizz for assessments facilitated seamless teaching and learning at home, ensuring educational continuity despite challenges (Alsharida et al., 2021).

Despite the availability of various learning applications, the integration of technology in mathematics education, particularly in problem-solving, remains limited (Verschaffel et al., 2020). Teachers predominantly rely on one-way communication and existing resources, often employing uniform learning methods and top-down teaching approaches (Bakker et al., 2021). However, such practices should evolve, considering that contemporary students, classified as Generation Z, are adept in technology and seek interactive, collaborative, and experiential learning (Hamidi & Jahanshaheefard, 2019). Recognizing and addressing these preferences is crucial for educators to bridge the gap between traditional teaching methods and the technological inclinations of today's students.

To facilitate such changes, a transformation is necessary in mathematics education (Engelbrecht et al., 2020). This transformation aims to ensure that current students adapt alongside technological advancements. This study focuses on implementing new teaching method combining M-learning and Problem-Based Learning (M-PBL) for mathematics educators to enhance their practices. Following the implementation, it's essential to evaluate the effectiveness of M-PBL teaching method on students' motivation and academic performance in mathematical problem-solving. Using a quasi-experimental design with pre-and post-tests for non-equivalent groups enables assessing the teaching methods' efficacy. The insights gained from this evaluation offer practical implications for refining and advancing teaching practices in mathematics education, ultimately benefiting both educators and students in the evolving educational landscape.

M-Learning in Education

M-learning, an educational paradigm, underscores learning that transcends physical confines and offers a wide array of options to enhance teaching and learning within classrooms (Ally & Prieto-Blázquez, 2014). It involves the utilization of portable technologies such as mobile phones, laptops, and PDAs for educational purposes. While M-learning occurs within traditional learning settings, it sets itself apart by employing mobile devices as aids for learning. Numerous countries, including North Korea, the United States, Japan, Taiwan, Singapore, the European Union, and Australia, are adopting this approach in education (Oke & Fernandes, 2020). Prior research suggests that M-learning has a positive impact on classroom instruction (Vázquez-Cano, 2014).

The incorporation of M-learning can enrich student engagement, foster teamwork, and enhance social skills, creating an environment conducive to dynamic and productive discussions (Klimova, 2019). Additionally, integrating M-learning into classrooms can bolster student academic performance. This approach prioritizes aspects such as problem-solving, active learning, collaboration, project-based learning, and direct interaction with the real world (Barlovits et al., 2022). M-learning serves as an effective avenue for interaction and learning through mobile devices. The information-generating capabilities of mobile devices empower users to expand their knowledge (Zakaria et al., 2023). To facilitate learning beyond the conventional classroom setting, educators must harness technology both within and outside the school environment.

Problem Based Learning in Education

Problem-based learning (PBL) originated at McMaster University in Canada in 1969 and has since been widely adopted across diverse disciplines such as management, engineering, agriculture, and law. Howard Barrows, one of its early proponents, underscored its focus on learning activities geared towards tackling real-life challenges encountered in daily life. PBL encourages students to engage in critical thinking about real-world issues, positioning them at the core of the learning process (Ma & Lu, 2019). It epitomizes an instructional approach rooted in student-centered learning. The concept of PBL draws from various learning theories, including Schon Theory, which highlights reflection, Piaget Theory, Vygotsky, Lave, and Wenger's constructivism and social learning, and Kolb's experiential learning, all integrated to formulate the Problem-Based Learning Model (Cianciolo et al., 2016).

This method is often characterized as a form of instruction that empowers students to think critically and partake in self-directed learning (Kolmos, 2017). According to (Smith et al., 2022), this method is designed to assist students in addressing presented issues or problems through the utilization of a variety of learning tools. Teachers act as facilitators in the learning environment, offering guidance and presenting significant problems for students to grapple with. Consequently, students are tasked with actively exploring and considering various approaches to tackle the challenges posed by the teacher (Retscher et al., 2022). Furthermore, teachers must thoughtfully design their lessons and establish clear learning objectives to ensure that students can effectively address the problems or issues at hand. According to (Ota & Murakami-Suzuki, 2022), this method has the potential to enhance student motivation in learning, primarily due to its emphasis on collaborative activities, effective group communication, problem analysis, and knowledge acquisition to address challenges.

The M-PBL Teaching Activities

As part of the study's methodology, the researchers conducted comprehensive literature surveys focusing on theories and models supporting the study's constructs. The theoretical framework comprises three main components: the M-learning Model, Problem-Based Learning Model, and Social Constructivism Theory. Table 1 illustrates 17 relevant M-PBL teaching and learning activities suitable for mathematics teachers. The following summarizes the models and theory utilized in developing the combination of M-learning with Problem-Based Learning (M-PBL) teaching and learning activities.

1. M-learning Model: The study adopts Brown's (2005) M-learning model, emphasizing two key components: flexible learning and learning with electronic devices.
2. Problem-Based Learning Model (PBL): Wee's (2004) PBL Model is chosen for conducting problem-solving lessons. This model is preferred as it stems from a foundational paradigm, specifically Barrow's (1980) PBL Model. Wee's model offers various simple activities for teachers to understand and implement.
3. Social Constructivism Theory: The study incorporates Lev Vygotsky's 1978 theory of social constructivism, focusing on three components: active student learning, scaffolding, and the Proximal Development Zone (ZPD).

Table 1
The M-PBL teaching activities

No.	Activities
1	Teacher shares the learning objectives that the students need to achieve using the Telegram.
2	Teacher facilitates the formation of student groups based on different skill levels through Telegram.
3	Teacher assigns tasks (problems) for each group to solve via Telegram.
4	Teacher shares various stimulus materials encompassing different media forms through Telegram.
5	Teacher encourages each group to discuss the assigned tasks within the context of their daily lives via Telegram.
6	Teacher ensures each group comprehends and discusses the presented stimulus materials via Telegram.
7	Teacher allocates time for each group to explore various applications and learning media on mobile devices for generating solution ideas.
8	Teacher facilitates the sharing of acquired information among groups and with teachers via Telegram.
9	Teacher categorizes information gathered from each group based on preferences via Telegram.
10	Teacher guides each group in completing provided tasks via Telegram.
11	Teacher oversees each group as they share solution steps via Google Meet.
12	Teacher guides each group in reviewing selected solution steps via Telegram.
13	Teacher supervises each group as they present the final solution through various graphic media forms via Google Meet.
14	Teacher facilitates each group's conclusion of the learning process and their sharing of insights with teachers and other groups via Google Meet.
15	Teacher summarizes information obtained from each group via Google Meet.
16.	Teacher assigns quiz questions via the Quizizz application for students to respond to.
17.	Teacher wraps up the learning process via Google Meet.

METHOD

The methodology section will cover the specific approach taken to conduct the study. This will include a description of the research design, sample and sampling technique, research instrument, research procedure and data analysis.

Research Design

The researchers have adopted a quantitative method to evaluate the impact of combining M-learning and Problem-Based Learning (M-PBL) teaching method on student motivation and academic performance in mathematical problem-solving abilities. A quantitative method involves the systematic collection and analysis of numerical data to understand, elucidate, or forecast phenomena (Henson et al., 2020). This method employs statistical methodologies and structured tools like surveys, experiments, or standardized assessments for data collection, aiming to derive objective and broadly applicable conclusions that are statistically substantiated. Upon careful consideration, the researchers chose a quasi-experimental design incorporating pre- and post-tests for non-equivalent groups to collect data. This selection stemmed from the fact that the sample groups in this design were not procured through random selection processes (Allan & Skinner, 2020).

Sample and Sampling Technique

The study population comprised Year 6 students from primary schools within the Johor Bharu district. The selection of these Year 6 students was justified by their proficient mastery of problem-solving skills before transitioning to secondary education. For the experimental study, the sample was considered representative of the population when chosen according to the appropriate sampling design (Gopalan et al., 2020). Both the control and treatment groups consisted of the same student samples, with a minimum of 30 individuals in each group, meeting the required criteria for experimental design (Miller et al., 2020). Hence, existing classes in the school were utilized through a group sampling technique. According to (Okougbo et al., 2021), samples chosen through group sampling are pre-existing, eliminating the need for a sample selection procedure. However, efforts were made to ensure balance between the control and treatment group samples to mitigate threats of statistical regression. Therefore, academic performance analysis was conducted to ensure comparable achievements between both groups. Thus, the study encompassed a total of 64 Year 6 students from a school in the Johor Bharu district, with 32 students in the treatment group and another 32 students in the control group.

Research Instrument and Data Analysis

To assist researchers in obtaining the desired information, various research instruments were employed. These instruments included a questionnaire aimed at assessing students' motivation towards mathematics and an academic performance test focusing on mathematical problem-solving skills. The validity of each instrument was ensured by consulting at least four experts in the field of primary school mathematics education (Song et al., 2020). The research instruments utilized are summarized as follows:

Firstly, the questionnaire instrument. This tool was utilized to gather information on students' feelings, thoughts, attitudes, values, beliefs, personality, and behavior (Jain, 2021). A questionnaire regarding students' motivation towards learning mathematics was employed to assess changes in student motivation before and after the implementation of M-PBL teaching method. This motivation questionnaire was adapted from the Intrinsic Motivation Inventory (Ryan & Deci, 2000) and consisted of eighteen items, with six items each for interest, perceived choice, and usefulness constructs. It was deemed suitable for studies focusing on students' experiences with learning activities and experiments. Its reliability was determined through a pilot study, with all items exhibiting a Cronbach's alpha coefficient exceeding the value of 0.6 (Goni et al., 2020). Responses to the questionnaire were collected using a five-point Likert scale (1=strongly disagree; 5=strongly agree).

The researcher employed independent t-tests to assess potential differences in mean scores for students' motivation towards learning mathematics between groups. Mean score values were categorized into four groups: scores ranging from 1.00 to 2.33 were deemed low motivation, 2.34 to 3.67 were moderate motivation, and 3.68 to 5.00 were considered high motivation (Pallant, 2020). Assumptions for conducting independent t-tests included the requirement for the dependent variable to be normally or near-normally distributed within each group, and the data needed to exhibit homogeneity of variances (Miller et al., 2020). Consequently, Levene's test was conducted ($p = 0.572$; >0.05), indicating homogeneity of data for students' motivation towards learning mathematics.

Secondly, the test question set. This test was administered to evaluate academic performance following exposure to a learning experience (Maciejewski, 2020). It was administered to students during both the pre-test and post-test phases. The academic performance test, focusing on problem-solving skills, comprised sixteen questions covering the four fundamental operations in mathematics (addition, subtraction, multiplication, and division). Examples of the questions are shown in Figure 1. The selection of these basic mathematical operations was justified as they form the cornerstone for developing students' mathematical thinking skills for effective application in daily life (MOE, 2017). The test was conducted formally and systematically using paper and pencil, with resulting scores presented in numerical form and converted into percentages. The construction of these questions involved collaboration between the researcher and mathematics teachers, referencing the Primary School Mathematics Curriculum and primary school mathematics textbooks. This collaboration included the creation of a test specification table, the development of question items aligned with the curriculum, and the review of the suitability and accuracy of each question item.

1. Table 1 shows the volume of water in three containers.

Drinks	***Volume* (mℓ)**
P	2 550
Q	2 950
R	2 125

Table 1

Find the difference between the most volume and the least volume of water, in mℓ?

A 8225 **C** 825

B 8250 **D** 8 250

2. Diagram 1 shows the number of mineral water in a box.

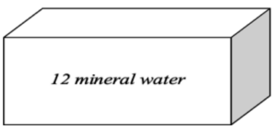

Diagram 1

How many boxes are required to fit in 16 548 bottles of mineral water?

A 1 379 **C** 198 574

B 1 479 **D** 198 576

Figure 1
Example of the questions

In this study, the independent t-tests were utilized to examine potential differences in mean scores for academic performance between groups. This test was suitable when the compared samples were not paired and the data were measured on a ratio or interval scale (Miller et al., 2020). Levene's test was performed ($p = 0.675$; >0.05), confirming homogeneity of data for academic performance in basic operations involving problem-solving skills in mathematics.

Research Procedure

The study was carried out between October 1 and November 15, 2023. It commenced with a pre-test administered to both the control and treatment groups to gauge students' existing knowledge. The instruments utilized for assessment included questionnaires and tests. Following the pre-test, the treatment group underwent instruction using M-PBL teaching method, as outlined in Table 1, while the control group received conventional instruction. Both teaching approaches spanned five weeks (Alemu, 2020). Throughout each session, the researchers actively observed, while teachers were entrusted with implementing the M-PBL teaching method autonomously. Subsequently, in the sixth week, a post-test and a motivation questionnaire were once again administered to measure changes in academic performance and motivation towards mathematics.

FINDINGS

The Difference in Mean Scores of Students' Motivation Towards Learning Mathematics Between Groups

The normality tests conducted using the Kolmogorov-Smirnov and Shapiro-Wilk tests for students' motivation towards learning mathematics suggest normally distributed data ($p>0.05$). The results reveal significant values of 0.315 for the control group and 0.112 for the treatment group in the pre-test. Additionally, the data also exhibit normal distribution in the post-test, with significant values of 0.226 for the control group and 0.115 for the treatment group. Consequently, all assumptions have been met to enable inferential statistics related to students' motivation towards learning mathematics.

Based on Table 2, an independent t-test was performed to assess the difference in mean scores of students' motivation towards learning mathematics between the group using the M-PBL teaching method and the group using conventional method. The results indicate a significant difference in students' motivation towards learning mathematics between the group using the M-PBL teaching method (mean=4.234, sd=0.275) and the group using the conventional method (mean=3.211, sd=0.501); $t(32)=8.628$, $p<0.001$). Thus, the null hypothesis can be rejected.

Table 2
Mean scores of students' motivation towards learning mathematics between groups

	Group	N	M	SD	t	Sig.
Motivation	Control	32	3.211	0.501	8.628	0.000
	Treatment	32	4.234	0.275		

The Difference in Mean Scores of Students' Academic Performance in Mathematics

The normality tests conducted using Kolmogorov-Smirnov and Shapiro-Wilk tests for students' academic performance in mathematics indicate normally distributed data ($p > 0.05$). In the pre-test, significant values of 0.083 for the control group and 0.050 for the treatment group were observed. Similarly, in the post-test, a normal distribution was evident, with significant values of 0.053 for the control group and 0.000 for the treatment group. Therefore, all assumptions have been satisfied to facilitate inferential statistics concerning students' academic performance in mathematics.

Referring to Table 3, an independent t-test was performed to assess the difference in mean scores of students' academic performance in problem-solving skills between the group using M-PBL teaching method and the group using conventional method. The results reveal a noteworthy difference in students' academic performance in problem-solving skills between the M-PBL group (mean=83.276, sd=12.163) and the conventional method group (mean=64.114, sd=21.765); $t(32)=7.983$, $p<0.001$). Consequently, the null hypothesis is rejected.

Table 3
Mean scores of students' academic performance in mathematics between groups

	Group	N	M	SD	t	Sig.
Academic Performance	Control	32	64.114	21.765	7.983	0.000
	Treatment	32	83.276	12.163		

DISCUSSION

The Difference in Mean Scores of Students' Motivation Towards Learning Mathematics Between Groups

Motivation plays a pivotal role in driving students towards the successful accomplishment of learning objectives. It is a multifaceted element that propels students into action, influencing their level of engagement and determination in the learning process (Poçan et al., 2023). The intrinsic motivation inherent in students serves as a foundational pillar that significantly shapes their learning experiences and academic achievements. In essence, intrinsic motivation represents the internal drive and genuine interest that students possess towards a subject or a learning activity. When this intrinsic motivation is cultivated, it becomes a powerful force, compelling students to actively participate in the learning journey (Laurens Arredondo & Valdés Riquelme, 2022). The pursuit of meaningful and enjoyable learning experiences is a key component in fostering and sustaining this intrinsic motivation. Learning environments that are conducive to exploration, curiosity, and discovery contribute significantly to the development of students' motivation to learn (Güler et al., 2022). Effective teaching strategies, interactive learning materials, and a supportive educational atmosphere contribute to the overall motivational climate. When students find the learning experience enjoyable and relevant to their interests, their motivation is further heightened (Rézio et al., 2022).

The study's findings demonstrate that the combination of M-learning with Problem-Based Learning (M-PBL) teaching method has a notable impact on boosting students' motivation in the context of learning mathematics, particularly for the treatment group. The results reveal that students exhibit a heightened level of motivation after engaging in the teaching and learning process facilitated by the M-PBL teaching method. This positive outcome can be attributed to the innovative fusion of M-learning with PBL method which collectively contribute to a transformative learning experience for students. The integration of M-PBL teaching method introduces a dynamic and interactive approach to mathematics education. The PBL method emphasises active problem-solving, critical thinking, and collaborative learning, fostering a deeper understanding of mathematical concepts (Munawaroh, 2021). The infusion of M-learning leverages the capabilities of mobile devices, allowing students to access educational content anytime and anywhere. The mobility aspect not only enhances accessibility but also introduces a degree of flexibility that aligns with the diverse learning preferences of students in the digital age (Moradi & Noor, 2022).

Furthermore, the M-PBL teaching method also makes the learning process more interactive and engaging. The continuous accessibility of learning materials through mobile devices ensures that students have the flexibility to engage with educational content beyond the confines of the classroom, promoting a more personalised and self-directed learning experience (Akti Aslan & Duruhan, 2021). This contrasts with conventional learning processes that often encourage passive, linear learning with a high dependence on the teacher. Conventional learning processes conducted continuously without the support of interesting learning materials cause students to easily become bored, leading to lower motivation (Farhan et al., 2021). Consequently, low motivation creates negative incentives and stimuli, hindering the successful achievement of learning objectives. Therefore, the application of the M-PBL teaching method aligns with the needs and requirements of contemporary students, who are frequently exposed to mobile devices. A reasonable explanation of this study's findings is that the implementation of engaging learning approaches tailored to students' preferences will shape positive student needs and enhance their motivation to learn (Haryani & Hamidah, 2022).

The Difference in Mean Scores of Students' Academic Performance in Mathematics

The research findings indicate that the combination of M-learning with Problem-Based Learning (M-PBL) teaching method is effective in enhancing students' academic performance in problem-solving skills. This is evident through the comparison of achievements between the group of students using the M-PBL teaching method and the group using conventional method, where the M-PBL group showed a significant improvement in post-tests. This demonstrates the successful application of the M-PBL teaching method in meeting the learning needs of students in this era. The heightened needs of students can stimulate their enthusiasm to achieve academic success. Therefore, cultivating positive needs is a learned behaviour through students' learning experiences in a positive classroom environment, contributing to improved academic achievements (Yimer, 2022).

The notable academic successes observed in students regarding mathematics can be attributed to the inherent potential of the M-PBL teaching method, which place a strong emphasis on fostering self-directed learning (Ehsanpur & Razavi, 2020). This pedagogical approach empowers students to take charge of their own learning, contributing to a more profound understanding of mathematical concepts throughout their educational journey. The integration of M-PBL teaching method into the learning environment facilitates a comprehensive approach, encouraging students to construct new knowledge through a dynamic process that involves critical thinking, motivation, self-directed learning, feedback, dialogue, explanation, questioning, contextual learning, experiments, and practical problem-solving in their daily lives (Astuti & Kim, 2020). The utilisation of mobile technology serves as a catalyst for this multifaceted learning experience, providing students with the means to engage in a process that builds upon their existing experiences (Adelabu et al., 2022). This, in turn, results in the enhancement of their academic achievements in mathematics, as they actively participate in a learning environment that is not only interactive but also closely aligned with real-life applications and problem-solving scenarios (Lebedeva et al., 2023).

At the same time, the M-PBL teaching method also provides opportunities for students to explore learning without time constraints or classroom settings (Amasha et al., 2020). Through these activities, students have an extended period to identify, gather, synthesise, and structure solution ideas obtained from various sources and learning media. Consequently, problem-solving learning becomes more meaningful to students (Panagiota Panteli & Panaoura, 2020). This indirectly has implications for students' academic achievements. However, this research finding contrasts with Bixler's study (2017), where exploration activities through iPads in mathematics learning did not impact students' academic performance. This discrepancy occurs because the time allocated for using mobile devices in learning is limited. Therefore, teachers need to ensure that students have sufficient time to access various learning resources for the purpose of seeking new information and ideas. Therefore, the use of M-PBL teaching method can increase students' academic performance in problem-solving skills.

CONCLUSION

In conclusion, the study's outcomes underscore the remarkable positive influence of integrating M-learning with the Problem-Based Learning (M-PBL) teaching method on students' motivation and academic performance in mathematics. The dynamic and interactive features inherent in the M-PBL teaching method contribute to a transformative learning experience, resonating with the preferences and needs of today's students. The infusion of mobile technology adds a layer of flexibility, accessibility, and personalization, fostering an environment conducive to self-directed learning and sustained motivation. Moreover, the impact of the M-PBL teaching method extends beyond the enhancement of academic performance. This approach stimulates a sense of exploration, encouraging students to venture beyond the confines of traditional classroom settings. The interactive nature of M-PBL facilitates an immersive learning experience, allowing students to delve deeper into problem-solving scenarios and real-world applications, thereby enriching their understanding of mathematical concepts. Despite these positive findings, the study has some limitations. The research was conducted within a specific educational context, which may limit the generalizability of the results to other settings. Additionally, the study primarily relied on quantitative data, which, while useful for measuring outcomes, may not fully capture the nuanced experiences of students and educators involved in the M-PBL approach. The sample size and demographic diversity of the participants may also restrict the applicability of the findings to broader populations. For future research, it is recommended to explore the long-term effects of M-PBL on student motivation and academic achievement to determine whether the observed benefits persist over time. Additionally, qualitative research methods, such as interviews and focus groups, could be employed to gain deeper insights into the experiences and perceptions of students and educators. In essence, the study demonstrates that the integration of the M-PBL teaching method is not merely a technological adaptation but a strategic pedagogical approach that aligns with the evolving educational landscape.

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