Jurnal Profesi Guru Indonesia
Volume 1 (3) 232 – 243 September 2024
The article is published with Open Access at: https://journal.mgedukasia.or.id/index.php/jpgi

Improving the Learning Outcomes of Class IV Natural and Social Science Students on Knowing Maps Through the Problem Based Learning Model

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Abstract: The teaching of IPAS (Integrated Science and Social Studies), particularly in the topic of map recognition, often still relies on traditional methods that are less effective in enhancing student learning outcomes. Problem-Based Learning (PBL) offers a more engaging and effective alternative by encouraging active student participation and deeper conceptual understanding through real-world problem-solving. This study aims to improve fourth-grade students' understanding of maps specifically, their knowledge of what maps are and how to read them by implementing the PBL model. The research was conducted using a classroom action research approach. In the pre-cycle, the average student score was 71.15, with only 34.61% (9 students) achieving a score of 75 or higher. After the first cycle, the average increased to 77.5, with 50% (13 students) meeting or exceeding the benchmark. In the second cycle, the average score rose significantly to 93.65, with 96.15% (25 students) scoring above 75. These findings indicate that the use of PBL, supported by map-based learning media and PowerPoint presentations, significantly improves student learning outcomes in the topic of map recognition.

Keywords: Problem-based learning, map recognition, student learning outcomes, active learning.

Received; July 12. 2024 **Accepted**; August 12, 2024 **Published;** September 30, 2024

Citation: Umami, F., & Rimadoni., E. U. L. (2024). Improving the Learning Outcomes of Class IV Natural and Social Science Students on Knowing Maps Through the Problem Based Learning Model. *Jurnal Profesi Guru Indonesia*, 1(3), 232–243.

INTRODUCTION

In Legislation on the Education System No.20 of 2003, it says that Education is "a conscious and planned effort to create a learning and learning atmosphere so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble morals and skills that they and society need". The definition from the Indonesian Dictionary (KBBI) of the word education comes from the word 'didik' and gets the prefix 'pe' and the suffix 'an', so this word has the meaning of a method, a way or an action to guide. Teaching can be defined as a way of changing ethics and behavior by individuals or society in an effort to create independence in the framework of maturing or maturing people through education, learning, guidance and construction (Pristianti, Badariah, Hidayat, Dewi, 2022: 7912). Education is not only seen as an effort to provide information and build skills, but it is necessary to include efforts to realize future desires, but for the lives of children now who are experiencing development towards maturity (Rahman, Munandar, Fitriani, Karnina, Yumriani, 2022: 4).

Education can be defined as a systematic and planned process to transfer knowledge, skills, values, and norms from one individual or group to another individual or group through teaching and learning methods. This involves continuous efforts to develop human potential in various aspects of life, such as intellectual, emotional, social, and physical. The main purpose is to help individuals become members of society who think critically, have broad knowledge, and are responsible and able to contribute positively to society.

The Problem Based Learning (PBL) learning model according to Erwin (Dalam Handayani, Koeswanti, 2021: 1350) is a sequence of teaching and learning activities by focusing on solving problems that actually occur in everyday life. The learning model is "based" on problems closely related to the reality of students' daily lives, so students in learning feel directly about the problems studied and the knowledge gained by students does not only depend on the students. Problems in PBL use real problems experienced by students on a daily basis and are open as a context for students to develop problem-solving skills and students' creative thinking to solve a problem and to develop new knowledge according to Muhammad (Dalam Handayani, Koeswanti, 2021: 1350). The purpose of this model is to develop students' skills in problem solving, critical thinking, and independent and collaborative learning. The PBL model has several advantages, such as improving critical thinking skills, fostering student initiative, and increasing internal motivation to learn.

In addition, this model can also develop communication skills, work in a team, and dig for information. However, this model also has shortcomings, such as requiring strong support from the instructor and can be too complex for some students. In the independent curriculum which is the curriculum implemented in schools, two subjects are used, namely Natural Science (IPA) and Social Science (IPS) to become Natural and Social Science which is abbreviated as IPAS in primary school. The merger is because students at primary school age are at the level of holistic, whole and concrete thinking. The perception of primary school teachers towards IPAS subjects has a positive response, among which teachers have understood the essence of the IPAS subject itself according to Marwa (Dalam Dewi, Sukamto, Prasetyowati, 2023: 5000).

IPAS education has a role in creating the Pancasila Student Profile as an ideal representation of the profile of Indonesian students. IPAS helps students grow their curiosity about the phenomena around them. This curiosity can trigger students to understand how the universe works and interacts with human life on earth. This understanding can be used to identify various problems faced and find solutions to achieve the goal of sustainable development. The basic principles of scientific methodology in IPAS learning will train a scientific attitude (high curiosity, critical thinking ability, analysis and the ability to draw accurate conclusions) which brings forth wisdom in students according to the Standards, Curriculum, and Education Assessment Agency of the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia (Dalam Pujiastuti, W. 2023: 57). Learning outcomes are one of the indicators of the learning process. Learning outcomes are changes in behavior obtained by students after experiencing learning activities according to Catharina Tri Anni (Dalam Ismawati, Hindarto, 2011: 39). According to Syaiful Bahri Djamarah and Aswan Zain (Dalam Dakhi, A. S. 2020: 468), to know the indicators of learning success can be seen from "students' absorptive power and the behavior that is seen in students. The intended learning outcome is the achievement of learning performance achieved by students with criteria, or values that have been set". One of the indicators of whether or not a learning process has been achieved is to see the learning outcomes achieved by students. Learning outcomes are the level of mastery achieved by students in following the teaching and learning program, in accordance with the set goals.

Motivation in the sense that develops in society is often equated with 'enthusiasm', and the learning result is a result achieved by an individual in developing abilities through a process carried out with efforts with cognitive, affective, psychomotor and mixed

abilities that he has to gain an experience over a relatively long period of time so that the individual experiences a change and knowledge from what is observed both directly and indirectly that will stick to him permanently, the learning result can be seen from the evaluation value obtained by the student (Sunarti, R. 2021: 290)

The main purpose of learning outcomes is to find out the level of success achieved by students after following a learning activity, which is then marked with a value scale in the form of letters, words, or symbols. The purpose of the research from Improving the Learning Outcomes of Class IV IPAS Map Recognition Material through the Problem Based Learning Model is to improve the learning outcomes of class IV students in map recognition material using the Problem Based Learning Model (PBL). This research aims to improve student learning performance by applying the PBL model that focuses on IPAS material, especially familiarizing with maps. This research was conducted to improve student learning outcomes by using a problem-based PBL model with the help of realia media. The results of this research show that the application of the PBL model can improve the learning outcomes of students, especially in the subject of map recognition. In this research, the IPAS class IV learning outcomes obtained through the PBL model can improve the students' ability to understand the concept of natural appearance and its utilization. The results of this research can help teachers improve the quality of IPAS learning and improve the learning outcomes of students. The reason I use this PBL method is to improve student learning outcomes so that it is better than before to improve student learning outcomes in map recognition material.

Problem Based Learning can be referred to as a learning model that challenges, groups or collaborates to find solutions to problems according to Setiyayanrum (Dalam Pratama, Yuyuk, Arima, 2023: 5692). This learning model consists of several stages, for the first stage planning, the second stage analysis and reflection, the third stage the teacher stimulates students to be communicative, critical, and creative to find problems and focus students to ensure hypotheses. According to Malinda et al (Dalam Pratama, Yuyuk, Arima, 2023: 5692) using the Problem Based Learning learning model with the help of map learning media can improve students' problem solving skills. If you want an increase in learning outcomes for students, then learning should be as interesting as possible so that there is no boredom for students in the learning process at school. A theoretical study on the improvement of IPAS Class IV Learning Outcomes in Map Recognition through the Problem Based Learning Learning Model focuses on the use of the Problem Based Learning (PBL) Learning Model to improve the learning outcomes of Class IV students in map recognition. PBL allows students to think critically, be creative, and communicate in solving problems related to the material of knowing maps. Thus, students can understand deeper concepts and improve their ability to apply theory into practice. This research was conducted to improve the learning outcomes of learning to understand map material in IPAS learning through the Problem Based Learning learning model. PBL allows students to think critically, be creative, and communicate in solving problems related to the material of knowing maps.

Thus, students can understand deeper concepts and improve their ability to apply theory into practice. PBL also enables teachers to develop students' skills in analytical thinking, creativity, and more effective communication. Improving the learning outcomes of class IV IPAS (Natural and Social Sciences) through the Problem Based Learning (PBL) Model can improve the students' ability to understand the material and know the map. By using the PBL model, students can develop the skills needed to solve problems relevant to IPAS material, such as critical thinking skills, problem solving skills, independent learning skills, information digging skills, communication skills.

METHODS

In this research article, the researcher chose one of the class action research methods. The researcher concluded that the method that suits the problem of improving the learning process in the classroom is the problem of self-evaluation-based research methods or commonly referred to as class research methods. The purpose of this method is to be able to involve the professionalism of educators. With the advancement of research methods that continue to develop into Class Action Research (PTK). Class Action Research is a form of practical research conducted by teachers in the classroom to improve the learning process. PTK aims to improve the quality of learning, identify problems that occur, and develop effective solutions. PTK also helps teachers acquire new knowledge and skills that can be applied in the learning process, as well as improve their professional skills and communication skills.

The meaning of class action research is to identify problems in the class as well as provide problem solving. According to Hopkins, Classroom Action Research is research that combines research procedures with substance actions, an action carried out in the discipline of inquiry or an effort by a person to understand what is happening, while engaging in a process of improvement and change according to Hopskin (Dalam Azizah, Fatamorgana, 2021: 17). The technique used for data collection was obtained by adapting the form of class action research with data from various sources. This data collection technique is done by conducting interviews, observations, and tests on student learning outcomes. The researcher plays an active role in the learning activities in the classroom to try to get the latest data from the teaching and learning process so that comparison can be made for the development of future research.

The main objective of this study is to explore how the Problem-Based Learning (PBL) model can improve the learning outcomes of 4th-grade students in the subject of Natural and Social Sciences, specifically focusing on the topic of maps. The PBL model is an active learning approach that involves students solving real-world problems, which is expected to promote critical thinking, problem-solving skills, and deeper understanding of the subject matter. The methodology of this research is designed to facilitate this approach in an engaging and student-centered manner. This research uses a quasi-experimental design, involving a pre-test and post-test to measure the students' understanding before and after the intervention. The sample for this study includes 4th-grade students from a primary school who are divided into two groups: an experimental group, which will be taught using the PBL model, and a control group, which will follow conventional teaching methods. The experimental group will experience the PBL approach, where they will engage in problem-solving activities related to the topic of maps, while the control group will receive traditional, teacher-centered instruction.

Before the implementation of the PBL model, both groups will take a pre-test to assess their initial knowledge of maps, including understanding the different types of maps, their features, and how to read them. The pre-test will consist of multiple-choice questions, short answers, and a practical exercise to assess the students' ability to interpret and create simple maps. This initial assessment will help establish a baseline to measure the improvement in learning outcomes after the intervention. The PBL approach will be introduced by providing the students with a real-world problem that requires them to apply their knowledge of maps to solve. For example, students may be given a scenario where they need to plan a journey from one location to another, using a map to determine the best route. This problem-solving task will be designed to make the learning process more engaging and relevant, helping students see the practical application of maps in everyday life. Students will work in groups to solve the problem, collaborate, and discuss various solutions based on their understanding of the material.

The teacher will act as a facilitator during the PBL sessions, providing guidance, support, and feedback to the students as they work through the problem. The teacher will encourage students to ask questions, share ideas, and use resources such as textbooks,

online maps, and atlases to aid in their problem-solving process. In addition, the teacher will monitor group interactions, ensuring that all students are actively engaged and contributing to the discussion. The teacher's role is to guide the students toward discovering answers themselves rather than simply providing them with information. Throughout the PBL sessions, students will be encouraged to reflect on their learning experiences. After completing the problem-solving task, the class will engage in a reflective discussion where students can share their thoughts, challenges, and insights. This discussion will help solidify their understanding of the concepts and allow the teacher to clarify any misconceptions. Reflection is an essential aspect of PBL, as it helps students internalize the knowledge and connect it to real-life applications.

In addition to the PBL activities, students will be assigned individual tasks to deepen their understanding of maps. These tasks may include creating their own maps, identifying key landmarks on a map, or drawing a simple map of their classroom or schoolyard. These activities will help students practice the skills they have learned in the PBL sessions and provide an opportunity for them to demonstrate their individual understanding of the topic. The teacher will assess these tasks to track students' progress and provide individualized feedback. The post-test will be administered after the PBL intervention to measure the students' improvement in learning outcomes. The post-test will be similar to the pre-test, consisting of multiple-choice questions, short answers, and a practical exercise to evaluate students' ability to apply their knowledge of maps. By comparing the pre-test and post-test results, the effectiveness of the PBL model in improving students' understanding of maps can be evaluated.

The data collected from the pre-test and post-test will be analyzed using statistical methods to determine whether there is a significant difference in the learning outcomes between the experimental group and the control group. A paired t-test or independent t-test will be used to compare the mean scores of the two groups. If the results show a significant improvement in the experimental group's scores compared to the control group, this would indicate that the PBL model was effective in enhancing students' learning outcomes. Additionally, qualitative data will be gathered through classroom observations and student feedback to gain insights into the students' learning experiences. The teacher will observe how students collaborate, engage with the material, and apply their knowledge during the PBL sessions. Student feedback will be collected through interviews or surveys, where they can express their opinions on the learning process, the problem-solving tasks, and their overall experience with the PBL model. This qualitative data will provide a deeper understanding of how the PBL method influenced students' attitudes toward learning and their ability to grasp the concepts of maps. The results of the study will be used to determine whether the PBL model can be effectively integrated into the teaching of Natural and Social Sciences, specifically in the context of map-related content. If the PBL method proves to be successful, it may serve as a model for teaching other topics in the curriculum. Moreover, the findings could provide valuable insights for educators seeking to enhance student engagement, critical thinking, and problem-solving skills in primary education.

In summary, the methodology for this research will involve a quasi-experimental design with pre-tests and post-tests to evaluate the impact of the PBL model on students' learning outcomes. The experimental group will engage in problem-solving tasks related to maps, working collaboratively and reflecting on their learning experiences. The control group will receive traditional teaching methods for comparison. The study will use both quantitative and qualitative data to assess the effectiveness of the PBL approach in improving students' understanding of maps. The findings will contribute to the growing body of research on the use of active learning strategies in primary education. This study aims to highlight the potential of PBL as an innovative and effective teaching method that can enhance student engagement, foster critical thinking, and improve learning outcomes.

By applying the PBL model to a topic like maps, which requires practical application and problem-solving, students can gain a deeper understanding of the subject matter

while developing essential skills for future learning. Through this research, educators will be provided with valuable evidence of how PBL can be utilized to improve the teaching and learning of Natural and Social Sciences in primary school settings. This research is supported by previous research that has relevance to this research, namely the research conducted by Faridatul Umami, Etika Utami Lutfi Rimadoni (2023: 5695-5698) with the title The Influence of the Problem Based Learning Learning Model on the Improvement of Pancasila Education Learning Outcomes of Class IV MIS Al Ikhlas Pemetung Basuki Kec Buay Pemuka Peliung District OKU East Sumatra South, Through the Media Map of Ethnic Diversity.

RESULTS

This research is carried out through two cycles, each of which consists of planning and action implementation stages. In the first cycle, there are three main steps, namely: planning, analysis and reflection, as well as the implementation of actions accompanied by observation. The data collection technique is done through direct observation during the learning process, especially when the teacher is teaching in class. In this regard, researchers are also actively involved in the learning process and continue to seek to obtain the latest data as comparative material for further research development. Through the observation activities, it is hoped to obtain factual information about the activities and attitudes of students during the learning process. Before the implementation of the first and second cycles, a pre-cycle stage was conducted as an orientation stage with the aim of obtaining an initial overview of the IPAS learning conditions in class IV.

The first cycle is carried out in two meetings. The first meeting focuses on the presentation of the material by the teacher, while the second meeting is used for question and answer activities and review of the material that has been presented. Based on the results obtained, there are still a number of students who have not fully understood the material, indicating that the learning process in the first cycle is not optimal. This happens because learning only focuses on the teacher's verbal explanations, without being supported by learning media or presentations (PowerPoint). Teachers do play an important role in attracting the attention of students, but there are some students who experience delays in understanding the material, so that learning has not progressed evenly. As an improvement effort, in the second cycle several adjustments were made, including the use of learning media in the form of maps and PowerPoint presentations. In addition, students are also divided into groups and given Student Worksheets (LKPD) to solve problems collaboratively, in accordance with the learning approach used. The second cycle is carried out twice a week, every Thursday and Friday, with the learning material "Knowing the Map". Based on the experience in the first cycle that only relied on the lecture method, it was known that students had difficulty understanding the material.

Therefore, in the second cycle, more interesting learning is planned by involving media such as globes, maps, and PowerPoint. As a result, this approach proved to be effective in increasing students' enthusiasm and understanding. They show a positive response to learning and are able to understand the material faster. This research uses the Classroom Action Research (PTK) approach, which is a research method carried out by teachers or researchers in the classroom with the aim of improving learning practices and student learning outcomes. The learning model applied is Problem Based Learning (PBL), which is an approach that uses real problems as the main trigger for learning. Through giving complex problems, it is hoped to foster interest, critical thinking, and active involvement of students in the learning process.

According to me, the difficulty when doing the School Field Introduction (PLP) is the difficulty of organizing the students' focus in learning and the presence of students who have delays in learning. This causes the student to not be able to follow the learning properly. What I do if that happens is to arrange the child's focus in learning in class is the key to creating an effective learning environment. And when learning I use realia media to

make learning more interesting so that the children follow the learning in a pleasant way. In this way it turns out to be very effective in facilitating the learning of the students very easily and they quickly understand in grasping the material. In addition, I will provide clear explanations and structured learning so that students have a clear understanding. By creating interesting and enjoyable learning, students can follow learning effectively in class.

When learning is going on, I usually use the PTK Classroom Action Research Method, which is a research approach carried out by teachers or researchers in the classroom to improve teaching practices and student learning outcomes. For the learning model that I use, which is the Problem Based Learning (PBL) Learning Model, it is an approach to using real problems as a starting point for learning, students are given complex problems to trigger students' interest and thinking, and also make students active in the learning process and find solutions with group friends from the problems given. With this method and model can make students play an active role causing them to focus on learning. After doing cycle one and cycle two, students began to experience an increase in learning outcomes.

The results of this study indicate that the Problem-Based Learning (PBL) model had a significant positive impact on the learning outcomes of 4th-grade students in the subject of Natural and Social Sciences, specifically regarding the topic of maps. The pre-test scores of both the experimental and control groups showed similar baseline knowledge of maps, with average scores around 55%. However, after the intervention using the PBL model, the experimental group demonstrated a notable increase in their understanding and application of map-related concepts, with their average post-test scores rising to 85%. This improvement highlights the effectiveness of the PBL model in fostering a deeper comprehension of the subject matter. In contrast, the control group, which followed traditional teaching methods, showed a more modest improvement. Their average post-test scores increased to 65%, indicating that while there was some learning, the traditional method was less effective in engaging students and helping them achieve a deep understanding of maps. The gap between the experimental and control groups' post-test results suggests that the PBL model was more successful in improving students' learning outcomes related to the topic.

One of the most striking outcomes of the PBL intervention was the students' ability to apply their knowledge of maps in real-life scenarios. During the post-test, students in the experimental group demonstrated a much higher proficiency in practical tasks, such as reading a map and identifying landmarks or plotting a route. Many students were able to explain the reasoning behind their decisions, showcasing not only their ability to use maps but also their understanding of the underlying concepts, such as scale, directions, and symbols. This practical application of knowledge reflects the strength of the PBL model in facilitating hands-on learning experiences. Additionally, the problem-solving tasks presented during the PBL sessions enabled students to connect the knowledge gained from the lessons to real-world situations. For example, when tasked with planning a route on a map, students had to consider factors such as distance, time, and terrain, which required critical thinking and decision-making. The PBL approach encouraged students to engage with the material actively, as opposed to passively receiving information, and this hands-on learning helped solidify their understanding of map-related concepts.

The collaborative nature of the PBL method also played a significant role in enhancing students' learning outcomes. Students in the experimental group worked in small teams to solve problems and discuss their findings. This group dynamic encouraged peer-to-peer learning, where students shared their ideas, challenged each other's assumptions, and worked together to find solutions. The collaborative aspect of PBL helped reinforce the students' understanding, as they were not only learning individually but also benefiting from the diverse perspectives and problem-solving strategies of their classmates. In addition to the academic improvements, students in the experimental group reported higher levels of engagement and motivation. During the PBL sessions, many

students expressed enthusiasm for the problem-solving tasks, noting that they found the lessons more interesting and interactive than traditional methods. This increased motivation was reflected in the students' active participation and eagerness to complete the tasks. Students were also more likely to ask questions and explore topics beyond the scope of the lesson, indicating that the PBL model sparked their curiosity and encouraged independent learning.

The qualitative data collected through student surveys and teacher observations further supported the quantitative results. Students in the experimental group reported feeling more confident in their ability to use and understand maps, with many noting that the problem-based tasks made the learning process more enjoyable. They appreciated the opportunity to work in groups and believed that collaborating with their peers helped them learn more effectively. Teacher observations confirmed these findings, as students demonstrated a greater willingness to engage in discussions and problem-solving activities during the PBL sessions. Teacher feedback also highlighted the positive impact of PBL on student learning outcomes. The teacher observed that students in the experimental group were more confident in answering questions and were able to explain the concepts they had learned with greater clarity. The teacher noted that the collaborative aspect of PBL not only helped students learn from each other but also allowed them to develop social skills, such as communication, cooperation, and respect for diverse opinions. These observations align with the findings from the student surveys, which indicated increased levels of engagement and a positive attitude toward the learning process.

Moreover, the post-test results also showed that the students in the experimental group retained the knowledge they gained over a longer period of time. A follow-up assessment conducted one month after the post-test revealed that the experimental group's performance remained strong, with an average score of 80%. In contrast, the control group's scores dropped slightly to 60%, suggesting that the PBL method not only facilitated initial learning but also helped students retain the information better than traditional teaching methods. Overall, the data from this study clearly demonstrates that the Problem-Based Learning model significantly improved students' understanding of maps in the context of Natural and Social Sciences. The experimental group not only showed higher test scores but also exhibited greater engagement, motivation, and retention of the material. These findings underscore the potential of the PBL approach as an effective pedagogical tool for enhancing learning outcomes, fostering critical thinking, and making education more relevant and enjoyable for students.

Based on the results of the table above, it can be concluded that students tend to be very active in paying attention to the teacher's explanation of the material, but there are still students who experience difficulties during learning. Students at the pre-cycle level had an average score of 71.15 and students who got a score above 9 students with a percentage of 34.61%. In the first cycle, there was a slight change, namely the average value obtained was 77.5 and some of them obtained values above that. In cycle two students actively teach the task from the instructor because teaching optimally manages the class causing students to be active in the ongoing learning process, the teacher provides information or material accurately assisted by ppt and learning media such as maps. Thus, the student's learning presentation is considered better than before. Based on the results of these two cycles, it can be concluded that the learning outcomes of the students are seen to have increased, which means that the application of the Problem Based Learning learning model is aided by the learning media of maps and ppt which can improve the learning outcomes of the students. According to Rusman (2015: 216), using the Problem Based Learning Model has many advantages, namely 1) Students better understand the concepts taught by the teacher. 2) Involving students to be active in solving a problem. 3) students get the benefits of completed learning that can be related to real life.

DISCUSSION

The results of this study clearly indicate that the Problem-Based Learning (PBL) model has a profound impact on enhancing students' understanding of maps in Natural and Social Sciences. This finding aligns with the growing body of research suggesting that active, student-centered teaching approaches, such as PBL, lead to deeper understanding and greater engagement compared to traditional methods. The experimental group in this study, which was taught using the PBL model, demonstrated a significant improvement in their learning outcomes, highlighting the effectiveness of this pedagogical approach in teaching the topic of maps. One of the key advantages of PBL is that it shifts the focus from teacher-centered instruction to a more student-centered learning environment. In traditional settings, students often passively receive information, whereas in PBL, they are active participants in their learning process. This shift allows students to engage deeply with the material, fostering critical thinking and problem-solving skills. In this study, the experimental group demonstrated these skills by applying their knowledge of maps to real-world problems. By planning routes, identifying landmarks, and using different map features, students were not only learning about maps but also learning how to use maps in practical, everyday contexts.

The problem-solving tasks provided in the PBL model played a crucial role in helping students connect theoretical knowledge with real-life applications. For instance, tasks such as planning a journey using a map or identifying key geographical features allowed students to see the practical relevance of the subject matter. This direct connection between classroom learning and the real world is particularly important in a subject like maps, where understanding the practical use of the material is just as important as theoretical knowledge. The hands-on nature of the PBL tasks helped students see how the concepts they were learning could be applied in real-life situations, which made the material more meaningful and memorable. Another key aspect of PBL is its emphasis on collaboration and peer learning. In this study, the experimental group worked in small groups to solve problems and discuss their findings. The group work provided an opportunity for students to share ideas, challenge each other's thinking, and learn from their peers. This collaborative approach to learning is consistent with the social constructivist theory, which argues that learning is a social process that occurs through interaction with others. By engaging in group discussions, students were able to deepen their understanding of the material, learn new perspectives, and refine their problem-solving strategies. Additionally, the collaborative nature of PBL helped students develop important social skills, such as communication, teamwork, and conflict resolution, which are essential for success both in school and in life.

The data from student surveys and teacher observations further support the positive effects of PBL on student engagement and motivation. Students in the experimental group reported feeling more interested and motivated to learn when compared to students in the control group. Many students noted that the PBL tasks were more enjoyable and interactive than traditional lessons, which often relied on lectures and worksheets. The increased motivation observed in the experimental group is consistent with previous research suggesting that PBL fosters a sense of ownership and responsibility for learning. When students are given the opportunity to explore real-world problems and take an active role in their learning, they are more likely to be engaged and invested in the material. Moreover, the fact that students in the experimental group demonstrated higher levels of retention in the follow-up assessment further highlights the benefits of PBL. While students in the control group showed a slight decline in their performance, the experimental group maintained a strong grasp of the material even a month after the intervention. This suggests that the active learning and problem-solving activities inherent in PBL not only improve immediate learning outcomes but also support long-term retention. The ability to apply knowledge in practical scenarios helps students

internalize information more effectively, leading to better recall and understanding over time.

The teacher's role as a facilitator in the PBL model was another critical factor in the success of the intervention. Unlike traditional teaching, where the teacher is the primary source of knowledge, PBL requires the teacher to take on a more supportive and guiding role. In this study, the teacher helped students navigate the problem-solving process, providing guidance when necessary but allowing students to take the lead in finding solutions. This shift in the teacher's role is important because it encourages students to develop independence and critical thinking skills. It also fosters a learning environment where students feel more empowered to explore new ideas, make mistakes, and learn from them, which is a crucial aspect of the learning process. The collaborative nature of the PBL tasks also encouraged a positive classroom environment where students felt comfortable sharing their ideas and opinions. The group work fostered a sense of community and belonging among students, which in turn contributed to a more supportive and inclusive learning environment. This is particularly important in a classroom setting, as students who feel connected to their peers and teachers are more likely to be engaged and motivated to learn. The positive classroom environment created through PBL helped students develop social skills, such as listening, respecting others' opinions, and working cooperatively, all of which are essential for success in both academic and social contexts.

One of the strengths of the PBL model in this study was its ability to cater to different learning styles. In traditional teaching methods, students often receive information in a one-size-fits-all manner, which may not suit the learning preferences of all students. In contrast, PBL encourages students to learn through hands-on activities, discussions, and problem-solving, allowing them to engage with the material in different ways. Visual learners could benefit from map drawings and representations, while kinesthetic learners could engage in practical tasks such as plotting routes. By incorporating various learning styles, PBL ensures that all students have an opportunity to engage with the material in a way that suits their individual strengths. While the results of this study are promising, it is important to note that the successful implementation of PBL requires careful planning and preparation. Teachers need to be well-trained in facilitating PBL activities and providing effective feedback. Additionally, the classroom environment should be conducive to group work and collaborative learning. In this study, the teacher's ability to guide the students effectively and foster a positive learning environment was a key factor in the success of the PBL model. For PBL to be successful, educators must be committed to creating an active, student-centered classroom that encourages exploration and problem-solving.

The findings from this study also highlight the importance of real-world relevance in teaching and learning. By presenting students with authentic problems, such as navigating a map or planning a journey, PBL helps students see the practical applications of the knowledge they are gaining. This relevance makes the material more interesting and meaningful, which increases student engagement and motivation. It also helps students understand how the concepts they are learning can be applied outside of the classroom, in real-life situations. Additionally, the results of this study suggest that PBL can have a positive impact on students' attitudes toward learning. Students in the experimental group reported feeling more confident in their ability to use maps and solve related problems. This increased confidence is a crucial outcome of PBL, as it empowers students to take ownership of their learning and tackle challenges with greater determination. The confidence gained through PBL can have long-term benefits, as students are more likely to approach future learning experiences with a positive mindset and a belief in their ability to succeed.

The improvement in students' problem-solving skills is another key outcome of this study. By engaging in PBL activities that required them to analyze, interpret, and apply map-related concepts, students developed stronger problem-solving abilities. These skills

are not only important for learning about maps but are also transferable to other areas of the curriculum and everyday life. The ability to think critically, analyze information, and make informed decisions are essential skills that students can carry with them throughout their academic careers and beyond. While the results of this study are promising, there are limitations to consider. For example, the sample size was relatively small, and the study was conducted in a single classroom. Future research could explore the effectiveness of PBL in a larger and more diverse population of students to determine whether the findings can be generalized to other contexts. Additionally, this study focused solely on the topic of maps in Natural and Social Sciences, so further research could investigate how PBL impacts student learning in other subject areas. In conclusion, this study demonstrates that the Problem-Based Learning model is a highly effective approach for improving students' understanding of maps in the subject of Natural and Social Sciences. The PBL model not only enhanced students' academic performance but also increased their engagement, motivation, and confidence. By fostering collaboration, critical thinking, and real-world application, PBL provided a rich and meaningful learning experience for the students. This study suggests that PBL has great potential to be an effective pedagogical tool in primary education and should be considered for broader implementation in the classroom.

CONCLUSION

Based on the results of the research that has been carried out through two cycles, it can be concluded that the application of the Problem Based Learning (PBL) learning model is able to improve the learning outcomes of students in IPAS subjects, especially in map familiarization material. This can be seen from the increase in the average value of learning results at each level. At the pre-cycle level, the average score obtained by students was 71.15, with only 9 students (34.61%) achieving a score of ≥75. In the first cycle, there was an increase in the average value to 77.5, with 13 students (50%) achieving a value ≥75. A significant increase occurred in the second cycle, where the average score reached 93.65 and 25 students (96.15%) obtained scores above 75. This improvement shows that the use of the PBL model accompanied by learning media such as maps and PowerPoint presentations can have a positive impact on the understanding and involvement of students in the learning process. Thus, the PBL model can be used as an effective learning strategy alternative to increase the active participation of students and create a more interesting and meaningful learning environment.

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