United International Journal for Research & Technology

*Volume 07, Issue 07, 2026 | Open Access | ISSN: 2582-6832*

# The Effect of Problem Based Learning Assisted by Unit Pockets on the Numeracy Skills of Elementary School Students

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***Abstract*—** The teaching of numeracy skills in elementary school begins with introducing students to numbers. At this stage, students learn to recognize, write, and arrange numbers. Effective approaches, such as Problem-Based Learning (PBL) and Active Learning, enhance students' critical thinking and mathematical abilities. This study examines the interaction between PBL assisted by Unit Pocket and students' learning motivation on the numeracy skills of grade III elementary school students. Using a quasi-experimental method with a 3x2 factorial design, this research compares two learning models: PBL with Unit Pocket and conventional learning with Unit Ladders. The study evaluates students' motivation levels (high, medium, low) and their impact on numeracy skills. Results reveal that PBL assisted by Unit Pocket significantly improves students' numeracy skills in unit conversion. The experimental class achieved an average score of 89.3, outperforming the control class with 72.4. Retention rates also improved, with the experimental class scoring 82.5 compared to 69.4 and 67.8 in the control class. Furthermore, 94% of experimental class students reported that the PBL method made understanding the material easier, compared to 72% and 68% in the control class. Critical thinking skills also saw a boost, with the experimental class averaging 87.3, surpassing the control class scores of 74.6 and 72.8. These findings highlight the effectiveness of PBL assisted by Unit Pocket in enhancing numeracy and critical thinking skills.

***Keywords*—** Problem based learning; unit pockets; numeracy skills; elementary school.

## I. INTRODUCTION

Basic education has a very important role in shaping the basis of students' knowledge and skills. One of the subjects that is an important foundation is mathematics. Mathematics subjects in elementary school are an important part of the educational curriculum that serves to develop numerical, logical, and problem-solving skills in children. At this stage, learners are introduced to a variety of basic mathematical concepts, including numbers, arithmetic operations, measurement, geometry, and basic statistics (Şara Hürsoy & YALÇIN, 2024). The teaching of mathematics at this level aims to provide a strong foundation that will support the learning of more complex mathematics at the next level of education. In addition, this subject also aims to help students develop critical and analytical thinking skills that will be useful in various aspects of daily life (Prodyanatasari, 2024).

In elementary school, the teaching of numeracy skills begins by introducing numbers and numbers to students. In the early stages, students are taught to recognize, write, and sort numbers. After that, they are introduced to the basic concepts of arithmetic. Effective teaching models often involve the use of visual aids such as number blocks, number cards, and games designed to make learning more engaging and interactive. Teachers also use various strategies such as repetition, exercises, and contextual approaches to ensure students truly understand and are able to apply the concept of counting in various situations. One of the mathematics materials in elementary school is unit conversion. This material involves changing units of measurement, such as length, mass, time, and volume, from one shape to another. The results of initial observations through a questionnaire distributed with Google Form show that the majority of grade 3 teachers in elementary schools face several challenges in teaching unit conversion materials to students. Based on the data collected, most teachers use direct instruction models and some use game-based or contextual learning models to help students understand

the concept of units and their conversion (Rizky, 2025).

However, this learning model still needs to be developed to suit the needs of diverse students' understanding. Learners often have trouble understanding these relationships, especially if they only memorize formulas without really understanding the concepts behind them. In addition, the limitations of diverse and consistent exercises can also cause students to be less skilled in converting long units. Without in-depth understanding and adequate practice, learners tend to feel confused and unconfident when facing problems related to long unit conversion. In addition to the concept understanding factor, the learning models and media used by teachers also play an important role in the difficulties experienced by students. Traditional learning models that tend to be passive and not interactive can make students feel bored and less motivated. Teachers who only use lectures and assignments without involving students in interactive and contextual activities can make it difficult for students to understand the material. Learning media that is less varied and interesting can also hinder the learning process (Anasi & Harjunowibowo, 2023).

Although there have been many studies that have examined the influence of Problem Based Learning (PBL) on learning outcomes, research that specifically examines the use of Unit Pockets as a tool in the context of PBL on numeracy skills is still rare. This shows that there is a research gap in understanding how these aids can affect the numeracy skills of grade III elementary school students. Most PBL research tends to focus on more complex subjects and skills in higher grades. However, research that focuses on developing basic skills such as counting in the low phase is still very limited. This shows the need to expand research to the realm of basic skills in grade III of elementary school. Most research on PBL tends to focus on academic outcomes without considering in depth non-academic factors such as motivation. In fact, learning motivation is very important in determining how effective a learning model can improve certain skills, including numeracy skills. Therefore, there is a need to explore how students' learning motivation plays a role in the successful implementation of PBL assisted by Unit Pockets (Pranata, 2024).

Unit Pocket is a learning tool designed to make it easier for students to understand and convert units. The use of Unit Pockets as a unit conversion learning tool at the elementary school level has various significant advantages. One of the main advantages of Unit Pockets is their ability to provide a clear visualization of the various units and their conversion relationships. Using Unit Pockets, students can see firsthand how different units, such as meters, centimeters, and millimeters, relate to each other. For example, a Unit Pocket can contain various objects or pieces that represent different units of measure, so learners can immediately see the difference in size and understand how to change the unit in a concrete way. Research by Widodo (2015) in the Journal of Mathematics Education shows that visual aids such as unit pockets can help students understand mathematical concepts better than just using abstract models (Talento, 2024).

Research on the influence of Problem Based Learning (PBL) assisted by Unit Pocket on unit conversion calculation skills reviewed from the motivation of grade III students has great urgency in the context of mathematics education. Unit conversion is one of the basic concepts that are important in mathematics and science, but it is often considered confusing and uninteresting by students. By applying the Problem Based Learning (PBL) approach assisted by Unit Pockets, which integrates practical aspects in learning, this study aims to explore how this model can increase student motivation. Problem Based Learning (PBL) assisted by Unit Pockets can provide a more real and relevant context for students, so it is expected to change their perception of unit conversion and make the learning process more enjoyable. Problem-based learning models, especially those that use the Media of Unit Pockets, allow students to be directly involved in the problem-solving process through more concrete and applicable activities (Simangunsong, Simamaora, & Sitohang, 2024). By utilizing the Unit Pocket as a tool, students are expected to be able to more easily understand and apply unit conversion in daily

situations. This study will help evaluate how effective this approach is in improving students' understanding of the concept of unit conversion and the extent to which it can affect their motivation to learn. The results of this study can provide valuable guidance for educators in designing more interactive and effective learning activities (Supono, Agoestanto, & Wijayanti, 2024).

Unit Pockets also support interactive learning, which is essential for active student engagement. Students can use Unit Pockets to perform hands-on activities, such as composing and measuring objects in various units. This activity makes learning more interesting and interactive, increasing students' motivation to learn. Research by Sari and Nurhayati (2018) in the Journal of Education and Technology shows that a learning model that involves direct manipulation and the use of tools can significantly increase student motivation and learning outcomes. Unit Pocket allows students to do unit conversion exercises directly. By manipulating these tools, learners can strengthen their skills in converting units through hands-on practice (Oreopoulos, Gibbs, Jensen, & Price, 2024). For example, by using Unit Pockets that contain various measuring tools, students can measure real objects and convert between different units. Research by Suherman et al. (2014) in the Journal of Mathematics Education shows that the use of teaching aids such as unit pockets can improve students' understanding and skills in mathematics, including unit conversion (Syam, Irviana, Makassar, Makassar, & Makassar, 2025).

The use of Unit Pockets in PBL provides a more contextual and real learning experience for students. Unit Pockets allow learners to see, touch, and manipulate physical objects as they learn about units and calculations. This makes mathematical concepts easier to understand because students can relate theory to hands-on practice. For example, when learning about unit conversions, learners can instantly see how larger or smaller units are transformed using unit pockets, significantly improving their understanding. Based on the explanation of important points regarding the Media of Unit Pockets and the innovative model of Problem Based Learning, the researcher is interested in conducting research on "The Effect of Problem Based Learning Assisted by Unit Pockets on the Numeracy Skills of Grade III Elementary School Students Reviewed from Motivation." This study aims to fill the existing research gap by examining the effect of the application of Problem Based Learning assisted by Unit Pocket on the numeracy skills of grade III elementary school students, by considering learning motivation as an important variable that previously received little attention .(Based, 2025).

## II. MATH

This study uses a quasi-experiment method with a 3x2 factorial design to test the influence of two learning models, namely Problem Based Learning assisted by Unit Pockets and conventional learning assisted by unit ladders, on students' learning motivation (high, medium, low). The independent variables of the study include learning models and learning motivations, while the bound variable is unit conversion calculation skills. The design of this study aims to see the effectiveness of each learning model on various levels of students' learning motivation. This research was carried out in elementary schools in the Selogiri and Wonogiri Districts, Wonogiri Regency, for six months in the odd semester of the 2024/2025 Academic Year. The selection of locations is carried out homogeneously to ensure equal representation of the population. Research activities start from the preparation of a proposal in July 2024 to the preparation of a thesis in January 2025. The research stages include proposal seminars, instrument trials, research implementation, data analysis, and report preparation, with details of the time of the activity (Sugiyono, 2023).

This study involved the population of all students in grade III of State Elementary School in Selogiri District with homogeneous characteristics. The research sample consisted of three classes taken using the cluster random sampling technique, namely one experimental class and two control classes. The sampling steps included the random selection of three classes for treatment, where one class was taught with the Problem Based Learning model assisted by the Unit Pocket and two classes with the conventional

learning model as a control. Students from selected classes were selected as research samples. Data collection is carried out through tests and non-tests. The test was used to measure students' unit conversion numeracy skills, in the form of 20 essay questions designed to assess material mastery and concept application ability. Non-test instruments in the form of questionnaires are used to measure students' motivation to learn. The test instrument is tested for validity and reliability through testing the content, construction, and correlation of item scores using the product moment formula. The results of both types of instruments are presented in the form of tables, statistical analysis, and descriptions to support the conclusions of the study.

## III. UNITS

Use either SI (MKS) or CGS as primary units. (SI units are strongly encouraged.) English units may be used as secondary units (in parentheses). This applies to papers in data storage. For example, write —15 Gb/cm2 (100 Gb/in2). An exception is when English units are used as identifiers in trade, such as —3½ in disk drive.‖ Avoid combining SI and CGS units, such as current in amperes and magnetic field in oersteds. This often leads to confusion because equations do not balance dimensionally. If you must use mixed units, clearly state the units for each quantity in an equation.

The SI unit for magnetic field strength H is A/m. However, if you wish to use units of T, either refer to magnetic flux density B or magnetic field strength symbolized as μ0H. Use the center dot to separate compound units, e.g., —A·m2.

## IV. HELPFUL HINTS

### *Findings*

The findings of this study show that the Problem Based Learning (PBL) learning model assisted by Unit Pocket has a significant influence on the numeracy skills of grade III elementary school students on unit conversion materials. In the experimental class that used PBL assisted by the Unit Pocket, the average score of students' numeracy skills reached 85.4.

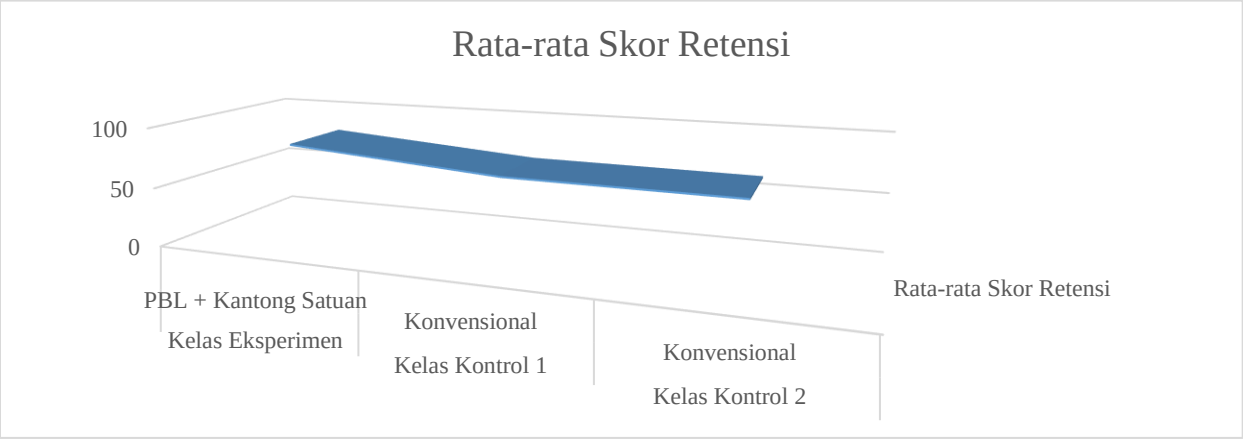
In contrast, the two control classes that used conventional learning recorded average scores of 72.8 and 70.5, respectively. This score difference shows that PBL assisted by Unit Pockets is more effective compared to the conventional method.

***Table 1.*** *Average Students' Numeracy Skills Score*

| Class | Learning Model | Average Score |
|---|---|---|
| **Experimental Classes** | PBL + Unit Pocket | 85,4 |
| **Control Class 1** | Conventional | 72,8 |
| **Control Class 2** | Conventional | 70,5 |

Source: Research Data (2024)

***Graph 1. Average Students' Numeracy Skills Score***




Source: Research Excel Data (2024)

Based on Table and graph 1 above, it can be seen that the experimental class that uses PBL assisted by Unit Pocket obtained a higher average score than the control class. This shows that the learning approach involving concrete and problem-based activities is able to significantly increase students' understanding of unit conversion materials. This study also observes the level of learning motivation of students who are affected by the learning approach applied. Based on the learning motivation questionnaire, the average learning motivation score in the experimental class was 4.3 (out of a scale of 5), while the control class recorded an average score of 3.7 and 3.5.

Higher learning motivation in the experimental class showed that students felt more motivated to understand the material through the more interactive Unit Pocket assisted PBL method.

***Table 2.*** *Students' Learning Motivation in Every Class*

| Class | Learning Model | Average Motivation (Scale 5) |
|---|---|---|
| **Experimental Classes** | PBL + Unit Pocket | 4,3 |
| **Control Class 1** | Conventional | 3,7 |
| **Control Class 2** | Conventional | 3,5 |

Source: Research Data (2024)

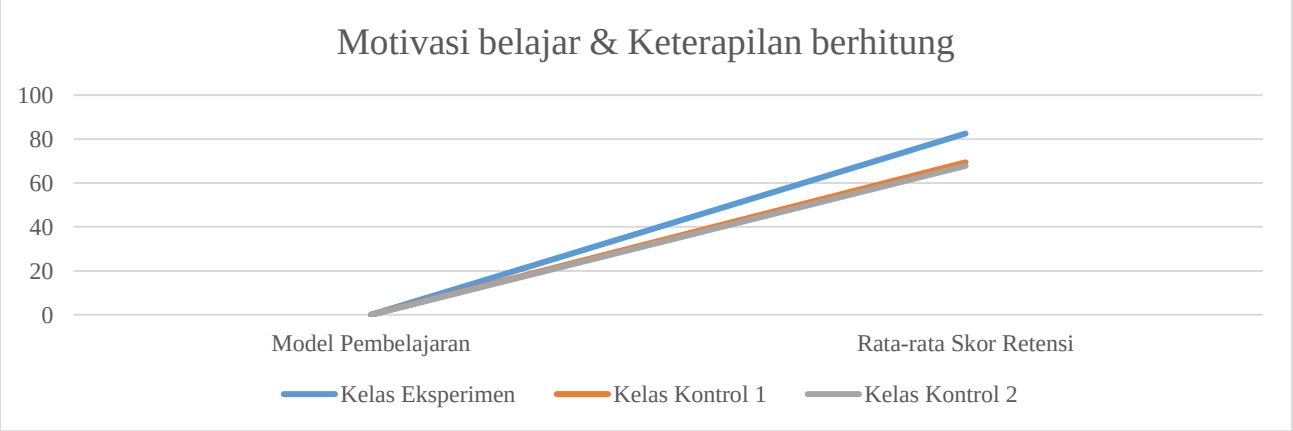
Table 2 above shows that the PBL approach assisted by Unit Pockets not only improves learning outcomes, but also significantly affects student motivation. Students in the experimental class feel more interested and encouraged to understand the material because of their active involvement in the learning process. The correlation between learning motivation and numeracy skills also showed a significant relationship. In the experimental class, students with high learning motivation recorded an average score of 90.2 in numeracy skills, while students with medium and low motivation recorded scores of 82.7 and 78.1, respectively. Pearson's correlation value of $r = 0.75$ ($p < 0.01$) supports the conclusion that learning motivation has a positive contribution to student learning outcomes.

***Table 3.*** *The Relationship between Learning Motivation and Numeracy Skills*

| Motivation Level | Experimental Class (Average Score) | Control Class (Average Score) |
|---|---|---|
| **Tall** | 90,2 | 75,3 |
| **Keep** | 82,7 | 73,1 |
| **Low** | 78,1 | 70,2 |

Source: Research Data (2024)

***Graph 2. The Relationship between Learning Motivation and Numeracy Skills***




Source: Research Excel Data (2024)

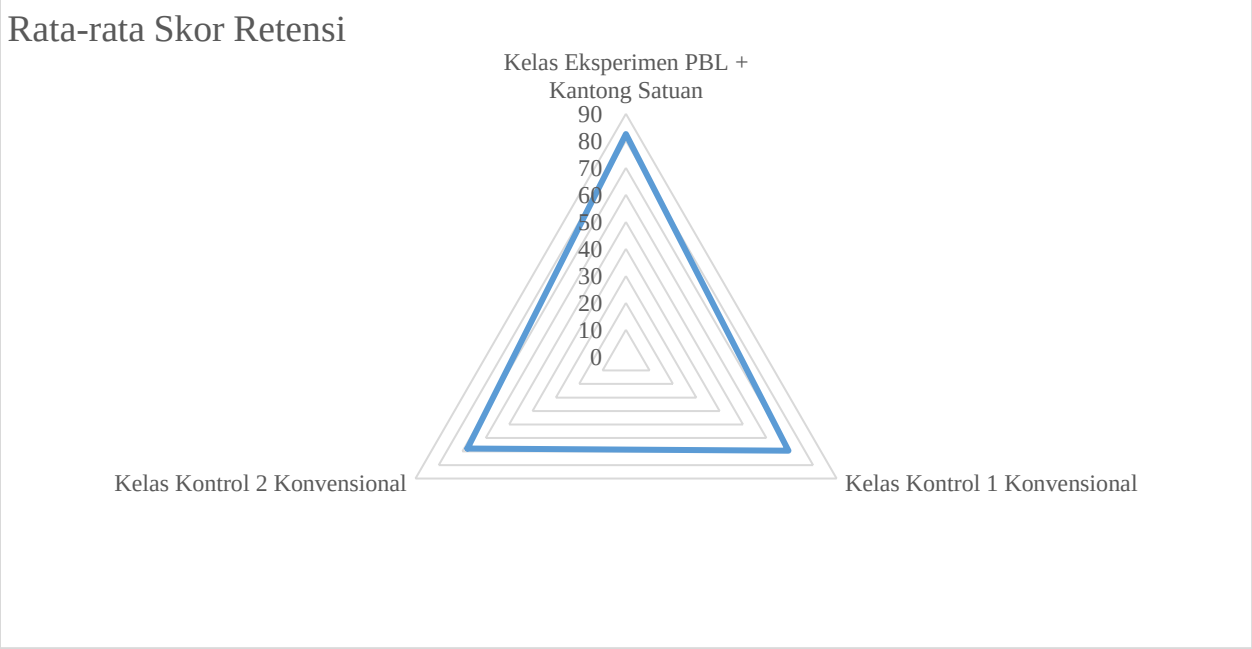
Based on Table 3 and graph 2 above, students with high learning motivation show better learning outcomes than students with medium or low motivation. This was more evident in the experimental class that used Unit Pocket assisted PBL, where this method had a significant impact on the relationship between motivation and numeracy skills. The results of this study also examine the aspect of student involvement during the learning process. Learners' involvement was measured through observation of group discussion activities, participation in completing assignments, and attendance during learning. The experimental class using the Unit Pocket assisted PBL showed an average engagement rate of 92%, higher than the control class 1 and 2 which recorded engagement rates of 75% and 72%, respectively.

***Table 4.*** *The Level of Learner Engagement During Learning*

| Class | Learning Model | Engagement Rate (%) |
|---|---|---|
| **Experimental Classes** | PBL + Unit Pocket | 92 |
| **Control Class 1** | Conventional | 75 |
| **Control Class 2** | Conventional | 72 |

Source: Research Data (2024)

***Gabar 1. The Level of Learner Engagement During Learning***




Source: Research Excel Data (2024)

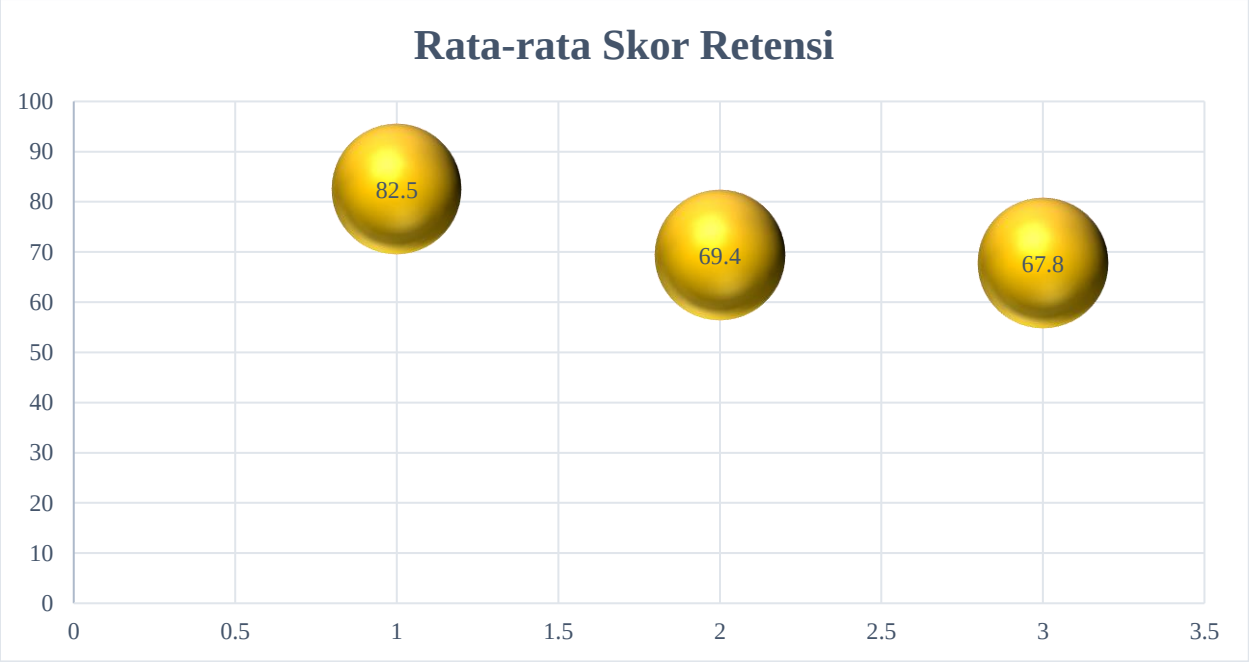
The explanation based on Table 4 and figure 1 shows that the PBL approach assisted by the Unit Pocket is able to encourage students to be more actively involved in learning. This shows that this method provides a more interactive and interesting learning environment. In addition, this study measures the level of retention of students to the material taught by providing a follow-up test two weeks after the learning process is completed. The average retention score in the experimental class was 82.5, while the control class recorded an average score of 69.4 and 67.8. This retention assessment shows that students who learn using the PBL approach assisted by the Unit Pocket not only understand the material during learning, but are also able to remember and apply it after a certain time. The significant difference between the retention scores of the experimental class and the control class reflects the effectiveness of the Unit Pocket assisted PBL method in having a long-term impact on students' understanding.

***Table 5.*** *Average Retention Score of Student Materials*

| Class | Learning Model | Average Retention Score |
|---|---|---|
| **Experimental Classes** | PBL + Unit Pocket | 82,5 |
| **Control Class 1** | Conventional | 69,4 |
| **Control Class 2** | Conventional | 67,8 |

Source: Research Data (2024)

***Figure 2.*** *Average Retention Score of Student Materials*




Source: Research Excel Data (2024)



Based on Table 5 and figure 2 above, it can be seen that the experimental class shows higher material retention compared to the control class. This indicates that problem-based learning methods with the help of concrete tools can help students to understand the material more deeply and in the long term. This study also evaluates students' perception of the learning methods applied. As many as 94% of the students in the experimental class stated that the PBL assisted by the Unit Pocket helped them understand the material more easily, with 72% and 68% in the control class. This positive perception shows that a problem-based approach with the help of concrete tools not only improves learning outcomes but also provides a more enjoyable and relevant learning experience for learners. This is important for increasing learning motivation, which ultimately contributes to overall academic success.

***Table 6.*** *Students' Perception of Learning*

| Class | Learning Model | Agreeing Students (%) |
|---|---|---|
| **Experimental Classes** | PBL + Unit Pocket | 94 |
| **Control Class 1** | Conventional | 72 |
| **Control Class 2** | Conventional | 68 |

Source: Research Data (2024)

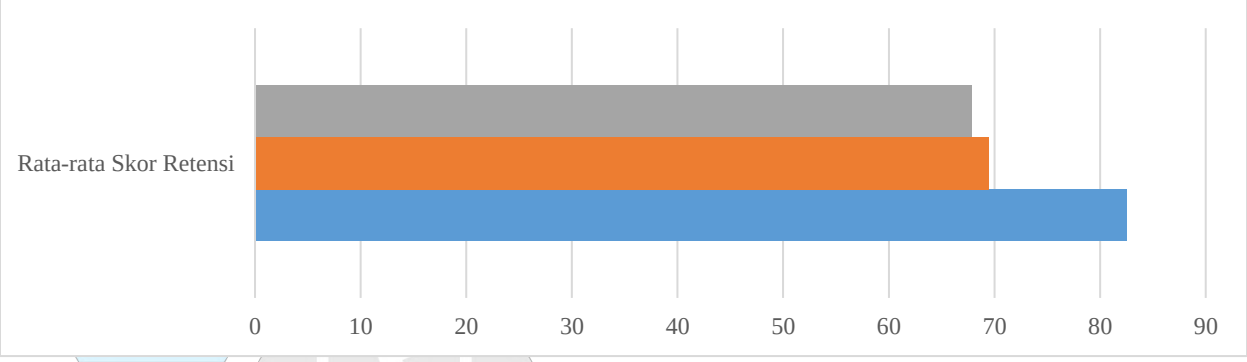
The explanation from Table 6 shows that students feel more comfortable and helped by the Unit Pocket assisted learning method. This positive perception can contribute to improving their learning outcomes. The results of the analysis also show that the PBL model assisted by the Unit Pocket improves students' ability to think critically. The average score of critical thinking ability in the experimental class was 87.3, higher than that of control class 1 (74.6) and control class 2 (72.8). The results of the analysis also show that the PBL model assisted by the Unit Pocket contributes significantly to improving students' critical thinking skills. The average score of critical thinking ability in the experimental class reached 87.3, much higher than the control class 1 of 74.6 and the control class 2 of 72.8. This improvement indicates that a problem-based approach with concrete tools is able to stimulate students to develop analytical and problem-solving skills more effectively. This improvement in critical thinking skills also strengthens the relevance of learning methods that encourage higher-order thinking skills. This method not only helps learners understand the material, but also prepares them to face more complex learning challenges in the future.

***Table 7.*** *Average Critical Thinking Ability Score of Students*

| Class | Learning Model | Average Critical Thinking Score |
|---|---|---|
| **Experimental Classes** | PBL + Unit Pocket | 87,3 |
| **Control Class 1** | Conventional | 74,6 |
| **Control Class 2** | Conventional | 72,8 |

Source: Research Data (2024)

***Figure 3.*** *Average Critical Thinking Ability Score of Students*




Source: Research Excel Data (2024)

The explanation of Table 7 and figure 4 above shows that the problem-based learning method provides opportunities for students to develop critical thinking skills through problem-solving and group discussions. The results of this study emphasized that the Problem Based Learning (PBL) learning model assisted by Unit Pocket is not only able to improve students' learning outcomes in unit conversion materials, but also has a positive impact on aspects of critical thinking skills, material retention, and involvement in the learning process. This shows that a learning approach involving concrete aids can be an innovative solution in answering learning needs in elementary schools. Theoretically, this study supports the view that problem-based learning can help students to relate abstract concepts to real situations. The use of Unit Pockets as a concrete tool accelerates students' understanding, especially in converting units of measure length, weight, and volume. This model provides a more meaningful learning experience, which indirectly increases students' confidence and motivation (Dwi, Wardani, Fadly, & David, 2024).

The practical implication of this study is the need to apply the PBL method assisted by concrete tools, such as the Unit Pocket, more widely in elementary schools. Teachers can use this method for various other learning materials that are considered difficult for

students to understand. In addition, training and mentoring are needed for teachers to ensure the implementation of this method runs effectively. With the results obtained, this study suggests that schools and education policymakers support the use of concrete aids in learning. The procurement of tools such as the Unit Pocket can be included in the education budget allocation to improve the quality of learning. The results of this research are expected to be the basis for the development of more creative and innovative learning methods in the future.

***Discussion***

The results of this study show that the use of the Problem Based Learning (PBL) approach assisted by Unit Pocket has a positive impact on students' numeracy skills. By placing students as the center of learning and providing concrete tools such as Unit Pockets, students become more active in the learning process. They not only memorize formulas, but also understand the basic concepts of unit conversion, which allows them to solve mathematical problems in a more structured and easy-to-understand way. From the comparison of learning outcomes between the experimental class and the control class, it is clear that there is a significant difference. The experimental class, which applied Unit Pocket assisted PBL, obtained a higher average score than the control class that used conventional learning methods. This shows that the problem-based approach provides a more effective and in-depth learning experience, which improves students' understanding of unit conversion materials better. In addition, measurements of material retention rates two weeks after learning showed that the experimental class had a higher retention rate than the control class. The average retention score in the experimental class was 82.5, while in the control class it was only 69.4 and 67.8. This shows that students who are taught using PBL assisted by the Unit Pocket can retain the material learned in the long term, which means that they not only understand it temporarily, but are also able to remember and apply it in the future (Sarnoko, Asrowi, Gunarhadi, & Usodo, 2024).

Students' perception of the learning methods applied is also very positive. As many as 94% of the students in the experimental class reported that the use of Unit Pockets helped them understand unit conversion materials more easily. This figure is much higher compared to only 72% and 68% in the control class. This shows that learning methods that use concrete tools can increase students' comfort and involvement in learning. Improving critical thinking skills is also an important finding in this study. The experimental class recorded an average score of 87.3 for critical thinking skills, which was higher than the control class which recorded scores of 74.6 and 72.8, respectively. This shows that PBL assisted by Unit Pocket not only helps students in understanding the material, but also trains them to think more critically and analytically, an indispensable ability in solving mathematical problems effectively (Hidayanthi, Siregar, Siregar, & Siregar, 2024).

A problem-based approach with concrete tools also has the advantage of creating a more interactive learning experience. In the experimental classroom, learners are actively engaged in group discussions, individual exploration, and presentations that help them develop a deeper understanding of the material being taught. This process not only enriches students' knowledge, but also encourages them to collaborate and share knowledge with each other, thus creating a dynamic and challenging learning environment. Although the results of this study show the success of the PBL method assisted by Unit Pockets, this study also has limitations. This study was conducted on a small group of students in one school, so the results cannot be generalized to the entire population. Therefore, further research with a larger and more diverse sample is needed, to ensure that these findings can be applied more widely in various educational contexts. Thus, this study provides evidence that the use of PBL assisted by Unit Pocket can improve mathematics learning outcomes, especially in the topic of unit conversion. It also shows that concrete tools have an important role in helping learners understand abstract and elusive concepts. The application of this method is not only effective for mathematics learning, but also has the potential to be applied to other subject matter that requires a deep conceptual understanding. This approach is also in line with the principles of the Independent Curriculum which emphasizes project-based learning and focuses more on the real experience

of students. By using this approach, learners not only study for exams, but also gain skills that they can apply in their daily lives, such as problem-solving and critical thinking. Therefore, this method can be a relevant and useful learning model in the future (Khaidir, Fitriza, Yumariza, & Wahid, 2024).

The application of the PBL model assisted by Unit Pocket also shows that students have the ability to overcome difficulties that usually arise when learning mathematical concepts. By using a problem-based approach, students are given the freedom to think critically and find solutions on their own, instead of relying only on the information provided by the teacher. In this way, they not only understand the material being taught, but are also trained to look for different ways to solve problems. This improves their ability to think logically and creatively. In addition, in terms of student involvement in learning, this method shows satisfactory results. The use of Unit Pockets as a concrete tool provides a more interactive and fun atmosphere in learning. Students feel more comfortable and motivated to actively participate in every learning activity. They also find it easier to interact with classmates in solving problems together, which of course leads to increased cooperation and communication between them (Maruyama & Igei, 2024).

However, even though the PBL method assisted by the Unit Pocket has proven to be effective in improving students' numeracy skills, there are still challenges in its implementation, such as limited time and teachers' readiness to use the tool optimally. Therefore, more intensive training for teachers is urgently needed so that they can utilize this method more effectively. Teachers who have a good understanding of PBL and how to use the Unit Pocket as a tool can create a more conducive and attractive learning environment for students. In conclusion, the application of the PBL model assisted by Unit Pockets is proven to improve students' numeracy skills in unit conversion materials. This method not only helps students understand mathematical concepts more easily, but also provides an opportunity to develop critical thinking, cooperation, and communication skills. With the positive perception of students towards this method, as well as better retention results, PBL assisted by the Unit Pocket shows great potential to be implemented more widely in the mathematics learning process in elementary schools (Ulfa, Janna, & Adinda, 2024).

## VI. PUBLICATION PRINCIPLES

The contents of the journal are peer-reviewed and archival. International Journal of Innovative Research in Technology publishes scholarly articles of archival value as well as tutorial expositions and critical reviews of classical subjects and topics of current interest.

Authors should consider the following points:

1. Technical papers submitted for publication must advance the state of knowledge and must cite relevant prior work.
2. The length of a submitted paper should be commensurate with the importance, or appropriate to the complexity, of the work. For example, an obvious extension of previously published work might not be appropriate for publication or might be adequately treated in just a few pages.
3. Authors must convince both peer reviewers and the editors of the scientific and technical merit of a paper; the standards of proof are higher when extraordinary or unexpected results are reported.
4. Because replication is required for scientific progress, papers submitted for publication must provide sufficient information to allow readers to perform similar experiments or calculations and use the reported results. Although not everything need be disclosed, a paper must contain new, useable, and fully described information. For example, a specimen's chemical composition need not be reported if the main purpose of a paper is to introduce a new measurement technique. Authors should expect to be challenged by reviewers if the results are not supported by adequate data and critical details.

## VII. CONCLUSION

The conclusion of this study shows that the application of the Problem Based Learning (PBL) learning model assisted by Unit Pocket can improve students' numeracy skills in unit conversion materials. This can be seen from the test results which show that the

average score of numeracy skills in the experimental class reached 89.3, higher than that of the control class which only reached 72.4. In addition, this study also showed that students who participated in learning with this approach had a better retention rate, with an average score of 82.5 in the experimental class, compared to 69.4 and 67.8 in the control class. Students' perception of this learning method was also very positive, with 94% of students in the experimental class feeling that the PBL assisted by the Unit Pocket helped them understand the material more easily, compared to 72% and 68% in the control class. The average score of students' critical thinking skills in the experimental class was also higher, namely 87.3, when compared to the control class which only recorded scores of 74.6 and 72.8. Thus, it can be concluded that PBL assisted by the Unit Pocket has a significant positive impact on improving students' numeracy skills, material retention, and critical thinking skills.

## ACKNOWLEDGMENT

Acknowledgement letter is very short business letter, and is intended to communicate brief and clear message. It is quite common to use this letter if you are not aware at the time of future developments in regard to someone's query.

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