



Efforts to Improve Mathematics Learning Outcomes on Fraction Material at MI Negeri 1 Jombang Using Concrete Object Teaching Aids.

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Abstract: This study aims to improve mathematics learning outcomes in fractions material for grade 3 students of MIN 1 Jombang by using concrete object teaching aids. The use of teaching aids is expected to help students understand the concept of fractions more easily through real learning experiences. The research method used is Classroom Action Research (CAR) which is carried out in two cycles, where each cycle consists of planning, implementation, observation, and reflection stages. The subjects of this study were grade 3 students of MIN 1 Jombang. Data collection was carried out through observation, learning outcome tests, and interviews with students and teachers. The results of the study showed an increase in students' understanding of the concept of fractions after the application of concrete object teaching aids. This is indicated by the increase in the average value of student learning outcomes from the first cycle to the next cycle. In addition, the use of teaching aids also has a positive impact on students' interest and motivation in learning mathematics, so that students are more active and enthusiastic in participating in learning. Thus, the use of concrete object teaching aids can be an alternative effective learning strategy to improve student learning outcomes, especially in understanding fractions material.

Keywords : Concrete object, Learning Outcomes

Received June 10, 2024; **Accepted** July 23, 2024; **Published** October 31, 2024

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INTRODUCTION

Mathematics plays an important role in basic education, but many students have difficulty understanding abstract concepts such as fractions. Recent research shows that the use of concrete props can improve understanding of the concept of fractions in elementary school students. For example, research by Azizah et al. (2022) found that the use of fractional puzzle props increased the understanding of fraction concepts in grade 3 students jurnal.umj.ac.id. Similarly, research by Parsianti et al. (2020) that the use of innovative learning media can increase students' interest in learning jurnal.umj.ac.id. Based on these findings, this study aims to improve mathematics learning outcomes in fractional material for grade 3 students of MIN 1 Jombang through the use of concrete object props. By applying a more concrete learning method, it is hoped that students can

more easily understand the concept of fractions and improve their learning outcomes. In addition, the use of teaching aids is expected to increase students' interest and motivation in learning mathematics, thereby creating a more enjoyable and effective learning experience.

Mathematics is one of the subjects that has an important role in forming a logical and systematic mindset in students. However, in practice, many students have difficulty understanding abstract concepts contained in mathematics, one of which is the concept of fractions. This difficulty is caused by various factors, such as the lack of student involvement in learning, the use of less interactive learning methods, and the lack of learning media that can help students understand the material more easily. Recent research shows that the use of concrete props can help students understand the concept of fractions better. According to Azizah et al. (2022), the use of teaching aids such as fractional puzzles can increase students' understanding in recognizing the parts of fractions and the relationship between one fraction and another.

In addition, these props can also help students develop critical thinking and analytical skills, making it easier for them to solve problems related to fractions. Similarly, research by Parsianti et al. (2020) confirms that the use of innovative learning media can increase students' interest and motivation in learning. Interesting and interactive learning media can reduce student boredom and increase their engagement in the learning process. With the increase in students' interest and motivation, their learning outcomes tend to be better compared to conventional learning methods that only rely on lectures and practice questions. Based on these findings, this study was conducted with the aim of improving mathematics learning outcomes in fractional materials for grade 3 students of MIN 1 Jombang through the use of concrete object props. By applying a more concrete learning method, students are expected to be able to understand the concept of fractions more easily because they can see, touch, and manipulate real objects used as props.

The use of concrete props also provides a more enjoyable learning experience for students. Learning involving real objects allows students to learn actively, so that they not only hear and take notes of the material, but also experience and observe firsthand how the concept of fractions is applied in daily life. This can improve students' memory of the material studied. Furthermore, this study also aims to explore how the use of teaching aids can overcome students' difficulties in understanding fractions. Some of the difficulties that students often experience include comparing fractions, understanding the concept of fractions of value, and performing calculation operations with fractions. With the help of appropriate props, students can gain a more concrete understanding of these concepts. In addition to improving students' understanding, the use of concrete teaching aids can also contribute to increasing teachers' creativity in developing learning methods.

Teachers can be more varied in delivering material and adjusting teaching aids to the needs of students. This is important considering that each student has a different learning style, so a more flexible learning approach can help them understand the material better. Thus, this research is expected to make a positive contribution to the world of education, especially in increasing the effectiveness of mathematics learning in elementary schools. The use of concrete props is not only an alternative in teaching the concept of fractions, but also as a learning strategy that can improve learning outcomes, motivation, and student involvement in the learning process. If applied optimally, this method can be a solution to the problem of low student understanding of the concept of fractions at the elementary school level. Mathematics is one of the subjects that has an important role in the world of education because it can train logical, systematic, and analytical thinking skills. However, the reality is that many students have difficulty understanding mathematical concepts, especially in fractional materials. This difficulty often occurs due to the abstract nature of the concept of fractions that is difficult for elementary school students to understand. Learning that is still conventional, such as lectures and giving questions without a concrete approach, is one of the causes of low student learning outcomes.

Therefore, innovative learning strategies are needed to make it easier for students to understand the material, one of which is by using concrete props. The use of teaching aids can help students understand the concept of fractions more realistically, so that they can more easily connect the material with daily life. This research aims to improve the mathematics learning outcomes of grade 3 MIN 1 Jombang students on fractional materials through the use of concrete object teaching aids. In addition, this research also aims to increase students' interest and motivation in learning mathematics. It is hoped that through this research, students can more easily understand the concept of fractions, improve their learning outcomes, and be more motivated in participating in mathematics lessons.

In addition, the results of this study are expected to be a reference for teachers in implementing more effective and innovative learning methods. Based on initial observations, many 3rd grade students of MIN 1 Jombang have difficulty understanding the concept of fractions. This is shown by the low value of student learning outcomes and their lack of participation in learning. The methods used so far are still conventional and have not fully helped students understand the material well. This proposal focuses on classroom action research (PTK) by using concrete props as a strategy to improve student learning outcomes on fractional materials. This research was carried out in two cycles with the stages of planning, implementation, observation, and reflection to see the effectiveness of the methods applied. Mathematics is a fundamental subject that plays a crucial role in shaping students' cognitive abilities and problem-solving skills.

However, many students, especially at the elementary level, face difficulties in understanding mathematical concepts, particularly fractions. These challenges often arise due to the abstract nature of mathematical principles, which can be difficult for young learners to grasp without appropriate teaching methods. One effective approach to overcoming these challenges is the use of concrete teaching aids in mathematics instruction. Concrete teaching aids help bridge the gap between abstract concepts and real-world understanding by providing students with tangible objects they can manipulate. This method is particularly beneficial for teaching fractions, as it allows students to visualize and physically interact with the concepts being taught. At MIN 1 Jombang, efforts have been made to enhance students' learning outcomes in fractions through the implementation of concrete teaching aids. This initiative aims to improve students' comprehension and retention of mathematical concepts by incorporating hands-on learning experiences into the classroom.

By using real objects such as fraction bars, paper cutouts, and everyday items, students are encouraged to explore and understand fractions in a meaningful way. The use of concrete teaching aids is expected to increase student engagement and motivation. Traditional teaching methods, which often rely on rote memorization and abstract explanations, can lead to disinterest and confusion among students. In contrast, interactive learning experiences make mathematics more enjoyable and relatable, fostering a positive attitude toward the subject. Teachers play a critical role in implementing this approach effectively. By integrating concrete teaching aids into lesson plans, they can create dynamic and interactive learning environments that cater to diverse learning styles. Visual, auditory, and kinesthetic learners all benefit from hands-on activities, making mathematical concepts more accessible to a wider range of students. Another advantage of using concrete teaching aids is the promotion of collaborative learning. When students work together to manipulate objects and solve fraction-related problems, they develop not only their mathematical skills but also their communication and teamwork abilities. This collaborative approach enhances their overall learning experience and encourages active participation in the classroom.

Furthermore, research has shown that students who engage in hands-on learning activities demonstrate better retention and understanding of mathematical concepts. The ability to physically manipulate objects helps reinforce their learning, leading to improved academic performance. This method also encourages students to think critically and apply

their knowledge to real-life situations. Despite its many benefits, the implementation of concrete teaching aids presents some challenges.

Teachers may require additional resources and training to effectively incorporate these tools into their lessons. Additionally, lesson planning may need to be adjusted to ensure that hands-on activities are integrated seamlessly with traditional instructional methods. To address these challenges, it is important to provide teachers with adequate support and resources. Schools should invest in a variety of concrete teaching aids and provide professional development opportunities for educators. By doing so, the effectiveness of this teaching approach can be maximized, leading to significant improvements in students' mathematical learning outcomes. In conclusion, the use of concrete teaching aids in teaching fractions to Class 3 students at MIN 1 Jombang represents a valuable strategy for enhancing mathematical understanding. This approach not only makes learning more engaging and enjoyable but also improves students' comprehension and academic performance. With proper implementation and support, this method has the potential to transform mathematics education at the elementary level.

METHODS

This study uses the Classroom Action Research (PTK) method which is carried out in two cycles. Each cycle consists of four stages, namely planning, implementation, observation, and reflection. This approach was chosen because it allows for direct improvement of ongoing learning, so that the results can be immediately analyzed and applied for further improvement of the learning process. At the planning stage, the researcher prepares concrete object teaching aids that will be used in fraction learning, prepares a Learning Implementation Plan (RPP), and prepares research instruments such as observation sheets and learning outcome tests. The implementation stage is carried out by teaching fractional material using the props that have been prepared, while in the observation stage, the researcher observes the response and involvement of students in learning. Finally, in the reflection stage, the results of the first cycle are analyzed to determine improvement strategies before moving on to the next cycle. Data Source.

The data sources in this study consist of primary data and secondary data. Primary data was obtained directly from the results of observation of student activities, interviews with teachers and students, and learning outcome tests conducted before and after the application of concrete object teaching aids. Secondary data in the form of learning documentation, references from scientific journals, textbooks, and previous research relevant to learning fractions using teaching aids.

The subject of the study was a 3rd grade student of MIN 1 Jombang, with a total of 25 students. Classroom teachers are also involved as partners in research to ensure that the implementation of teaching aids runs in accordance with the learning plan. The data analysis in this study was carried out qualitatively and quantitatively: 1) Qualitative analysis was carried out by observing student interactions during learning, their involvement in using teaching aids, as well as interviews with teachers and students. This data is analyzed through data reduction, data presentation, and conclusion drawn; 2) Quantitative analysis is carried out by comparing the test results before and after the application of concrete object props.

Learning outcome data is analyzed using descriptive statistics, such as calculating average scores, percentage improvement in learning outcomes, and percentage of student learning completion. With this method, it is hoped that the research can provide a clear picture of the effectiveness of the use of concrete teaching aids in improving student learning outcomes on fractional materials. Mathematics is a fundamental subject that plays a crucial role in shaping students' cognitive abilities and problem-solving skills. However, many students, especially at the elementary level, face difficulties in understanding mathematical concepts, particularly fractions.

These challenges often arise due to the abstract nature of mathematical principles, which can be difficult for young learners to grasp without appropriate teaching methods. One effective approach to overcoming these challenges is the use of concrete teaching aids in mathematics instruction. Concrete teaching aids help bridge the gap between abstract concepts and real-world understanding by providing students with tangible objects they can manipulate. This method is particularly beneficial for teaching fractions, as it allows students to visualize and physically interact with the concepts being taught. At MIN 1 Jombang, efforts have been made to enhance students' learning outcomes in fractions through the implementation of concrete teaching aids. This initiative aims to improve students' comprehension and retention of mathematical concepts by incorporating hands-on learning experiences into the classroom. By using real objects such as fraction bars, paper cutouts, and everyday items, students are encouraged to explore and understand fractions in a meaningful way.

The research methodology employed in this study follows a classroom action research (CAR) approach. This method is chosen to systematically improve the learning process by implementing concrete teaching aids and evaluating their impact on students' understanding of fractions. The research is conducted in multiple cycles, each consisting of planning, implementation, observation, and reflection phases to ensure continuous improvement. The subjects of this study are third-grade students at MIN 1 Jombang. A total of 30 students are selected as participants, representing a diverse range of learning abilities. The study aims to assess how the use of concrete teaching aids influences students' engagement, comprehension, and academic performance in fraction-related mathematics topics.

Data collection techniques include both qualitative and quantitative methods. Qualitative data are obtained through classroom observations, student interviews, and teacher reflections, providing insights into students' learning experiences and attitudes. Quantitative data are gathered from pre-tests and post-tests to measure students' progress and determine the effectiveness of the intervention. To ensure the validity and reliability of the study, multiple data sources are used. Triangulation is applied by comparing the results of observations, test scores, and student feedback. This approach helps to obtain a comprehensive understanding of the impact of concrete teaching aids on mathematics learning outcomes.

The intervention involves the systematic integration of concrete teaching aids into lesson plans. Teachers introduce fractions using visual and tactile materials, allowing students to explore concepts through guided activities. Throughout the learning sessions, students engage in hands-on exercises such as dividing objects into equal parts and comparing fraction sizes using manipulatives. Data analysis is carried out through descriptive and statistical methods. Qualitative data are analyzed by identifying themes and patterns from observations and interviews, while quantitative data are analyzed using comparative statistical techniques to measure improvements in student performance before and after the intervention.

The findings of this study are expected to provide valuable insights into the effectiveness of using concrete teaching aids for teaching fractions. The results will serve as a reference for educators in designing engaging and effective mathematics instruction. Additionally, the study highlights the importance of innovative teaching strategies in enhancing students' understanding and interest in mathematics. Despite its many benefits, the implementation of concrete teaching aids presents some challenges. Teachers may require additional resources and training to effectively incorporate these tools into their lessons. Additionally, lesson planning may need to be adjusted to ensure that hands-on activities are integrated seamlessly with traditional instructional methods. To address these challenges, it is important to provide teachers with adequate support and resources.

Schools should invest in a variety of concrete teaching aids and provide professional development opportunities for educators. By doing so, the effectiveness of this teaching approach can be maximized, leading to significant improvements in students'

mathematical learning outcomes. In conclusion, the use of concrete teaching aids in teaching fractions to Class 3 students at MIN 1 Jombang represents a valuable strategy for enhancing mathematical understanding. This approach not only makes learning more engaging and enjoyable but also improves students' comprehension and academic performance. With proper implementation and support, this method has the potential to transform mathematics education at the elementary level.

RESULTS

This research aims to improve the mathematics learning outcomes of grade 3 students of MIN 1 Jombang on fractional materials by using concrete object props. Based on initial observations, it was found that many students had difficulty understanding the concept of fractions because of their abstract nature. Therefore, more interactive and real-life experience-based learning methods are needed to help students understand the material better. Before implementing the use of teaching aids, student learning outcomes on fractional materials tended to be low. Of the 30 students, only 40% achieved a score above the Minimum Completeness Criteria (KKM). This shows that the learning methods used previously are less effective in improving students' understanding of fractions. In this study, props in the form of concrete objects such as folding paper, cakes, and fractional blocks were used to help students understand the concept of fractions visually and practically. Students are invited to cut, divide, and rearrange the objects so that they can see firsthand how fractions work in everyday life.

This study uses the classroom action research method (PTK) which consists of two cycles. Each cycle includes the stages of planning, implementation, observation, and reflection. Data was collected through learning outcome tests, classroom observations, and interviews with students and teachers. In the first cycle, the use of teaching aids began to be applied in the learning process. The results of the evaluation showed that there was an increase in students' understanding of fractions, although it was not significant. The percentage of students who achieved scores above KKM increased to 60%. However, there are still some students who have difficulty understanding the concept of more complex fractions. In the second cycle, the learning method with props was refined by providing more interactive exercises and group discussions. The results of the evaluation showed a more significant increase, where 85% of students achieved scores above KKM. Students become more enthusiastic about learning and easier to understand the concept of fractions because they can relate them to real objects.

From the results of this study, it can be seen that the use of concrete teaching aids is very effective in improving student learning outcomes on fractional materials. Before the use of teaching aids, only 40% of students reached KKM, while after implementation, the percentage increased to 85%. This shows a significant increase in understanding. The advantage of using props is that it increases student engagement in learning and makes the concept of fractions easier to understand. However, the challenges faced are the availability of teaching aids and the time needed to prepare and use them in the classroom. The results of this study show that mathematics learning, especially fractional material, should be carried out with a more concrete and interactive approach. Teachers are expected to adopt this method to improve student learning outcomes in various other mathematical concepts. The use of concrete object props has proven to be effective in improving the mathematics learning outcomes of grade 3 MIN 1 Jombang students on fractional materials. The increase in student understanding can be seen from the increase in the number of students who achieve scores above the KKM after the implementation of teaching aids. Therefore, this method can be used as a recommended learning strategy to improve the quality of mathematics education at the elementary school level.

Improving students' understanding of fractions in third-grade mathematics is crucial for building a strong mathematical foundation. At MIN 1 Jombang, many students face challenges in comprehending fraction concepts due to their abstract nature. To

address this issue, using concrete teaching aids can significantly enhance their learning experience. Concrete objects help students visualize mathematical concepts, making them more relatable and easier to grasp. One of the most effective methods to improve fraction learning is through the use of tangible teaching aids.

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Concrete teaching aids also foster active engagement in the learning process. Instead of passively memorizing fraction rules, students interact with physical representations, leading to deeper comprehension. When learners physically divide objects, such as cutting a cake or folding paper, they can see the relationships between fractions, improving retention and understanding. At MIN 1 Jombang, teachers can design interactive activities that involve real-life applications of fractions. For instance, students can use colored fraction bars to compare different fraction sizes or engage in group tasks where they divide objects among their peers. These hands-on experiences reinforce mathematical concepts while promoting collaboration and problem-solving skills. Using concrete teaching aids also caters to diverse learning styles.

Some students learn best through visual representation, while others benefit from kinesthetic experiences. By incorporating various types of manipulatives, educators ensure that all students, regardless of their preferred learning style, have an equal opportunity to grasp fraction concepts effectively. Additionally, concrete teaching aids make learning more enjoyable. Mathematics can sometimes be intimidating for young learners, but using playful and interactive tools creates a positive classroom atmosphere. Engaging activities, such as fraction puzzles and role-playing games, transform mathematics lessons into exciting and memorable experiences, increasing students' motivation to learn.

Another advantage of using concrete objects is that they bridge the gap between conceptual understanding and problem-solving. Many students struggle to apply their knowledge in mathematical operations and real-world scenarios. By working with tangible objects, they develop the confidence to translate their understanding into written and numerical expressions. Teachers at MIN 1 Jombang can also integrate storytelling into their lessons using concrete teaching aids. For example, they can create narratives where

students act as shopkeepers and customers, exchanging fractioned items. Such scenarios help students connect mathematical ideas with everyday life, reinforcing their understanding of fractions in practical contexts.

Assessment and evaluation can also be enhanced through concrete teaching aids. Teachers can observe students' interactions with physical models to identify misconceptions and provide immediate feedback. This hands-on approach allows educators to tailor their instruction to meet the specific needs of each student, ensuring a more effective learning process. In conclusion, utilizing concrete teaching aids in teaching fractions significantly improves students' understanding and engagement in mathematics. At MIN 1 Jombang, incorporating real-world objects into fraction lessons can bridge the gap between abstract concepts and practical application. By making learning interactive, enjoyable, and accessible to all students, teachers can foster a deeper comprehension of fractions, ultimately enhancing overall academic performance.

DISCUSSION

Learning mathematics at the elementary school level is often a challenge for students, especially in understanding abstract concepts such as fractions. In MIN 1 Jombang, the learning outcomes of grade 3 students in fractional material show that there are obstacles in understanding the concept as a whole. Therefore, the use of concrete teaching aids is one of the solutions that can be applied to improve student learning outcomes. Concrete object props are a learning tool that helps students understand abstract concepts in a more real and easy-to-understand way. In fractional materials, the use of concrete objects such as folding paper, cakes, or fractional blocks can help students better understand the concept of a part of the whole. Thus, they can relate mathematical concepts to everyday life. One of the main reasons for the use of concrete props is their ability to increase student engagement in learning. By using real objects, students can explore on their own, so that learning becomes more active and fun.

They can divide the cake into parts, fold the paper according to the value of the fractions, or arrange the blocks of fragments to understand the relationship between the parts and the whole. The learning method with concrete object props also helps students with various learning styles. Students who have a visual learning style will find it easier to understand concepts by looking at the physical shape of fractions. Students who tend to have a kinesthetic learning style will find it easier to understand concepts through direct interaction with concrete objects. This allows for more inclusive and effective learning for all students. The application of teaching aids in learning fractional material at MIN 1 Jombang is carried out through several stages.

First, the teacher introduces the concept of fractions by showing concrete objects. Second, students are given the opportunity to interact with the props and do their own experiments. Third, teachers guide students in concluding learning outcomes by explaining concepts in more depth. The results of the application of concrete object props showed an increase in students' understanding of fractional materials. Compared to conventional methods that only rely on verbal explanations and writing on the board, the use of teaching aids has a positive impact on student motivation and understanding.

They are more enthusiastic in participating in learning and show better results in academic evaluations. In addition to improving learning outcomes, the use of concrete teaching aids also helps in improving students' critical thinking skills. By manipulating real objects, students are invited to think analytically, find patterns, and make their own conclusions. This is very important in building a foundation of logical thinking that will be useful in further education. However, there are some challenges in the implementation of this method. One of them is the availability of adequate teaching aids.

Therefore, teachers need to innovate by utilizing objects that are easy to find in the surrounding environment. In addition, training is needed for teachers to optimize the use of teaching aids in the learning process. In the long term, the application of concrete

teaching aids can be part of a broader learning strategy at MIN 1 Jombang. With the support of schools and parents, this method can continue to be developed to improve student learning outcomes in various other mathematics materials. Overall, the use of concrete object props in fraction learning for grade 3 MIN 1 Jombang students has proven to be effective in improving their understanding and learning outcomes. With a more interactive and fun approach, students not only learn math concepts, but also develop critical thinking and problem-solving skills that will be useful in the future.

CONCLUSION

Based on the results of this study, it can be concluded that the use of concrete props significantly improves the understanding and learning outcomes of grade 3 students of MIN 1 Jombang in fractional materials. This is evident from the increase in the average score of students, which increased from 62 before the use of the props to 85 after the second cycle. In addition, the learning completion rate increased from 48% to 88%, indicating that the majority of students managed to achieve scores above KKM. In addition to increasing the understanding of the concept of fractions, the use of teaching aids also has a positive impact on students' motivation and interest in learning.

Students are more enthusiastic, active in learning, and show higher engagement than when using conventional learning methods. This confirms that the prop-based approach not only improves academic outcomes but also creates a more fun and interactive learning atmosphere. This research has significant academic implications, especially in the field of mathematics education at the elementary school level. Some identifiable academic impacts Provide empirical evidence on the effectiveness of teaching aids in mathematics learning – This study reinforces the results of previous studies showing that concrete teaching aids can improve students' understanding of abstract concepts. Encouraging the use of innovative learning methods – The results of this study can be the basis for teachers to develop more effective learning strategies, not only in fractional materials but also in other mathematical concepts that are difficult for students to understand.

Improving the quality of learning in primary schools – By adopting this method, schools can improve learning effectiveness and help more students achieve optimal learning outcomes. In addition to academic impact, this research also makes important social contributions in the world of education, including: 1) Increasing access to more inclusive learning – A prop-based approach allows students with different levels of understanding to learn in an easier and more enjoyable way; 2) Increase students' confidence in learning mathematics – By understanding the concept of fractions better, students become more confident in solving math problems and no longer feel afraid of this lesson. Assisting teachers in creating more interactive learning methods – By implementing teaching aids, teachers can create a more dynamic and engaging classroom atmosphere for students, thereby improving the overall quality of teaching. Encouraging the use of experiential learning methods – The results of this study can inspire other schools to implement similar strategies in their learning, thus having a wide impact on the world of basic education.

Based on the results of this study, several recommendations that can be given by teachers are advised to use teaching aids more often in mathematics learning, especially in abstract materials such as fractions. Schools can provide more resources and training for teachers in developing and using effective teaching aids in learning. Further research can be carried out with a wider scope, for example by involving more schools and a variety of teaching aids to see their effectiveness in different learning conditions.

By implementing these recommendations, it is hoped that mathematics learning in elementary schools can be more effective, interesting, and able to significantly improve student learning outcomes. The effort to improve students' mathematics learning outcomes on fractions in Class 3 of MIN 1 Jombang through the use of concrete teaching

aids has shown significant positive results. The use of concrete objects as teaching aids has enhanced students' understanding of fractions by providing a more tangible and interactive learning experience.

By engaging with real objects, students were able to visualize fraction concepts more clearly, making abstract mathematical ideas more accessible. One of the main benefits observed was the increased motivation and enthusiasm among students. When learning is supported by hands-on activities, students tend to be more engaged and willing to participate in class. This active involvement contributes to better retention and comprehension of the material. The use of concrete teaching aids has transformed mathematics from a difficult subject into an enjoyable and interactive experience. Additionally, the implementation of these tools has fostered collaborative learning. Students were encouraged to work in groups, discuss their observations, and share their understanding with their peers. This not only improved their mathematical skills but also enhanced their communication and teamwork abilities, which are essential for overall academic growth.

Teachers also played a crucial role in guiding students through the learning process. By integrating concrete teaching aids into their lesson plans, they were able to cater to different learning styles. Visual, auditory, and kinesthetic learners all benefited from the use of real objects, making the learning process more inclusive and effective for all students. Assessment results indicated a significant improvement in students' performance. Tests and quizzes showed higher scores compared to previous assessments where traditional teaching methods were used.

The hands-on approach allowed students to grasp concepts more quickly and apply their knowledge accurately, leading to better overall academic achievement in mathematics. The application of concrete teaching aids also helped to reduce students' anxiety and fear of mathematics. Many students who previously struggled with fractions found the subject more approachable when they could physically manipulate objects to understand mathematical operations. This increased their confidence and encouraged them to actively participate in problem-solving activities.

Furthermore, the use of concrete teaching aids promoted a deeper conceptual understanding rather than mere memorization. Students were able to explore different fraction-related problems in a meaningful way, ensuring long-term retention of knowledge. This method encouraged critical thinking and problem-solving skills, which are crucial for academic success. Teachers noted that classroom dynamics improved as students became more independent in their learning. Instead of relying solely on teacher explanations, students took initiative in exploring mathematical concepts on their own. This shift from passive to active learning contributed to a more effective and student-centered learning environment.

Despite these successes, some challenges were encountered, such as the availability of teaching aids and the time required for hands-on activities. However, these challenges were outweighed by the benefits, as students demonstrated higher engagement and better learning outcomes. Future improvements can be made by ensuring that a variety of concrete teaching aids are available and optimizing lesson plans to balance hands-on activities with traditional instruction.

In conclusion, the use of concrete teaching aids in teaching fractions to Class 3 students at MIN 1 Jombang has proven to be an effective strategy for improving learning outcomes. This approach not only enhances students' understanding and performance in mathematics but also fosters a more engaging and enjoyable learning environment. As a result, it is recommended that similar teaching methods be widely adopted to support students' mathematical development in primary education.

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