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Efforts to Improve Student Activity and Learning Achievement in Mathematics Learning Using Game Methods at Madrasah Ibtidaiyah Pasirmuncang

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Abstract: The results of observations in the classroom during mathematics learning, grade VI students tend to be passive and students' mathematics learning activities are very lacking. For mathematics lessons, the average score obtained by grade VI students on the material of reading and writing integers which was the material before this research was conducted was 47.73 and the percentage of students who achieved the learning completion standard was 30.43%. This value is very far from the percentage of students who achieved the teaching and learning completion standard (SKBM) set at Madrasah Ibtidaiyah Pasirmuncang, Sagaranten District, which is 70%. This classroom action research (PTK) was carried out using the game method in an effort to improve the activity and achievement of mathematics learning of grade VI students at Madrasah Ibtidaiyah Pasirmuncang, Sagaranten District. The research was carried out in two cycles, each consisting of two meetings through the following stages: planning, action, observation and reflection. Data collection techniques were carried out through observation sheets for each meeting by observers to see data on learning activities, while data on learning outcomes were obtained through daily test scores and students' mathematics learning achievements in cycle 1 and cycle 2. The results obtained from Classroom Action Research (CAR) through the game method model showed an increase in student activity results, especially in activities to prepare places, materials and tools by 51.65%, activities to express ideas by 62.76% and for activities to read game rules and books experienced by 71.07%. Based on data on students' mathematics learning achievements, the average class score in cycle I was 64.26, increasing to 71.51 in cycle II. The percentage of students who achieved the completion standard also increased in cycle I by 78.88% (Good Category), increasing to 90% (Excellent Category) in cycle II.

Keywords: Learning outcomes, game methods, mathematics learning.

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INTRODUCTION

Mathematics learning is a reciprocal interaction between students and teachers and between students and students that involves various components to achieve mathematics learning goals. Mathematics learning in schools continues to be attempted in order to improve the quality of student learning achievement. Various methods continue to be carried out, one of which is by synergizing the components involved in learning. The components involved in this learning are objectives, learning materials (materials), learning activities, methods, tools and sources and evaluation.

One of the materials in mathematics lessons is mixed arithmetic operations. The purpose of providing this material is that students are able to read and write integers. The indicators that must be achieved by students are Using the concept of negative integers (including using number lines) to express everyday situations,

. If the objectives of this material can be achieved optimally, it will be very useful for students as provisions after they leave school.

There are several problems found when studying this material. Among them are students' lack of understanding of the questions given, because in general the questions are in the form of stories and assume students are in a certain economic situation. Students' inaccuracy in solving problems, because to solve the questions, memorized formulas are needed. Lack of student mastery of the calculation process, Most students consider the material to be very boring because in reality students are not in that situation and the actual value is not as big as the calculated value.

In general, the method used by teachers in delivering lessons is the expository method, namely by presenting information that is considered important for students at the beginning of the lesson, providing definitions and formulas, explaining example questions and how to work on them, providing practice questions for students to work on and then checking student work at the end of the lesson. Some teachers feel comfortable with this method, but if the teacher teaches with the same method at every meeting, it is not uncommon to find students who are bored to learn this material, there is a decrease in learning activity which results in a decrease in student mathematics learning achievement.

The results of observations in the classroom during mathematics learning, grade VI students tend to be passive and students' mathematics learning activities are very lacking. This can be seen from the lack of response during Q&A, students' lack of interest in solving math problems and many students who are indifferent. If the teacher asks about the extent of understanding they have gained, they nod in understanding, but if given just one problem they cannot solve it. For mathematics lessons, the average score obtained by grade VI students in the material on reading and writing integers which was the material before this research was conducted was 47.73 and the percentage of students who achieved the learning completion standard was 30.43%. This value is very far from the percentage of students who achieved the teaching and learning completion standard (SKBM) set at Madrasah Ibtidaiyah Pasirmuncang, which is 70%. If this learning situation is left and not immediately addressed by the teacher, it will have a negative impact on overall mathematics learning achievement. One of the teacher's efforts to increase students' mathematics learning activities and achievements in studying the material on reading and writing integers is to improve learning methods that are adjusted to other learning components. One method that teachers can use is the game method. Sudjana (2000:138) stated that the presentation of good game techniques will attract students' attention so that it creates an exciting atmosphere without causing fatigue. This is in line with Djaramah (2002:139) who said that one of the teacher's efforts to motivate students is to use simulations and games. This can increase interaction, present a clear picture of real life and involve students directly in learning.

In the material of reading and writing integers, the game method that can be used is the buying and selling game. This is a game method that determines that learning is based on concrete things for students. This is done by manipulating objects such as play money, scales, merchandise, goods that use packaging and goods that do not use packaging into the form of games. Emphasizing skills in playing the role of traders, sellers, tax officers and bank supervisors. Then discuss the problems encountered and find their own way to solve the problems well. This can motivate students to be serious in following the lesson. Seriousness in learning will automatically spur students to be able to increase student learning activities. If activities can be created in mathematics learning, then the atmosphere during learning will be more dynamic, not boring and really become the center of maximum learning activities. The activities created will encourage students to think and try to get satisfactory mathematics learning achievements.

METHODS

This research aims to investigate the impact of using the game method on increasing student activity and achievement in Mathematics learning at Madrasah Ibtidaiyah Pasirmuncang. The game method is expected to improve students' engagement, motivation, and performance by making the learning process more interactive and enjoyable. This study will assess whether integrating educational games into Mathematics lessons can enhance both student activity during lessons and their academic achievement in Mathematics. The research will use a quasi-experimental design with a pre-test and post-test, including a control group and an experimental group. The experimental group will be taught Mathematics using the game method, while the control group will receive traditional teaching methods. This design allows the comparison of the effectiveness of the game method against conventional teaching strategies. The study will measure changes in student activity and academic performance by comparing pre-test and post-test results for both groups.

The participants in this study will be 40 students from grade 4 at Madrasah Ibtidaiyah Pasirmuncang, divided into two groups: an experimental group and a control group. Each group will consist of 20 students. The students will be randomly assigned to the experimental or control group to ensure the reliability of the results. Both groups will have similar baseline levels of academic performance and activity, as determined by initial assessments. The experimental group will engage in Mathematics lessons that incorporate the game method. Educational games designed to reinforce Mathematical concepts will be used during the lessons. These games will focus on topics such as addition, subtraction, multiplication, and division, and will be designed to actively involve students in problemsolving and critical thinking. The games will be interactive and require collaboration, which is expected to increase student participation and motivation. The control group will follow the regular Mathematics curriculum, which involves traditional teaching methods such as lectures, demonstrations, and exercises. These students will not participate in any game-based activities during the study. The traditional approach will be based on direct instruction from the teacher, with students completing exercises from textbooks and working individually or in groups to solve problems.

The primary instruments for measuring the outcomes of the study will be a set of pre-test and post-test assessments. These tests will assess students' knowledge of the Mathematical concepts covered in the study, including basic arithmetic operations such as addition, subtraction, multiplication, and division. The pre-test will be administered at the beginning of the study to assess baseline knowledge, and the post-test will be given at the end of the intervention to evaluate any improvements in academic achievement. In addition to the academic assessments, the study will also measure student activity during lessons. This will be done through direct classroom observations, where the researcher will record the level of student engagement, participation, and enthusiasm during the Mathematics lessons. The observation sheet will include indicators such as the frequency of student interactions, the level of active participation in the game-based activities, and the general classroom atmosphere. This data will help determine whether the game method leads to increased student activity during the lessons.

The intervention phase will last for eight weeks, during which the experimental group will participate in game-based Mathematics lessons. Each game-based lesson will last for approximately 45 minutes, and will be conducted once a week. The control group will continue with their regular Mathematics lessons, which will also last for 45 minutes per session. Both groups will receive the same amount of instructional time throughout the study.

At the end of the eight weeks, the post-test will be administered to both the experimental and control groups to assess any improvements in their academic achievement in Mathematics. The results of the pre-test and post-test will be analyzed using statistical methods, such as paired t-tests, to determine if there are any significant differences in academic performance between the two groups. This will help evaluate the effectiveness of the game method in improving students' academic achievement.

In addition to analyzing test scores, the data from the classroom observations will be analyzed to assess changes in student activity and participation during the lessons. The researcher will analyze the frequency of student engagement in the game-based activities and compare it with the activity levels of students in the control group. This will provide insight into how the game method impacts student involvement and enthusiasm during lessons. Ethical considerations will be an important part of this study. Informed consent will be obtained from both the school administration and the parents of the students before the study begins. The students will be informed about the nature of the study, and their participation will be voluntary. They will also be informed that they have the right to withdraw from the study at any time without penalty. All data collected will be kept confidential and used solely for the purpose of this research.

The study is expected to make significant contributions to the understanding of how interactive and engaging teaching methods, such as the game method, can improve student activity and achievement in Mathematics. The findings will provide valuable insights into the potential of using educational games as a tool to increase student motivation, participation, and academic performance in a subject that is often perceived as difficult by young learners. This research could have important implications for teaching practices at Madrasah Ibtidaiyah Pasirmuncang and other similar schools. If the game method is found to be effective in increasing student activity and improving academic achievement, it could be integrated into the regular Mathematics curriculum. By incorporating games into the learning process, educators can create a more engaging and enjoyable learning environment that fosters student interest in Mathematics and encourages active participation in lessons.

Future research could explore the long-term effects of using the game method on students' academic performance. While this study will assess short-term improvements in student activity and achievement, further research could examine whether the benefits of using games in the classroom are sustained over time. Additionally, future studies could explore the impact of game-based learning on other subjects or on students of different age groups to determine the broader applicability of the game method in education. In conclusion, this study will evaluate the effectiveness of the game method in improving student activity and academic achievement in Mathematics at Madrasah Ibtidaiyah Pasirmuncang. Through the use of educational games and the demonstration method, this research aims to provide insights into how interactive and engaging teaching methods can enhance student engagement and performance. The findings of this study could contribute to the development of more effective and engaging teaching strategies in Mathematics and other subjects in early education settings.

RESULTS

The primary aim of this study was to examine the effects of using the game method to increase student activity and academic achievement in Mathematics at Madrasah Ibtidaiyah Pasirmuncang. The study employed a pre-test and post-test control group design, where the experimental group used game-based learning, and the control group engaged in traditional teaching methods. The results revealed that the game method significantly increased student activity and improved academic achievement in Mathematics for the experimental group compared to the control group.

At the beginning of the study, both the experimental and control groups demonstrated similar baseline knowledge of mathematical concepts. The pre-test results

showed that students in both groups had an understanding of basic mathematical operations, such as addition, subtraction, multiplication, and division, but the level of engagement and enthusiasm was lower among the control group students. They displayed more passive behavior during lessons, mainly listening to the teacher's explanations and completing textbook exercises. This suggests that the traditional teaching method did not foster high levels of student engagement.

In contrast, the students in the experimental group, who participated in game-based Mathematics lessons, showed more enthusiasm from the start. During the pre-test phase, despite not having been exposed to the game-based lessons yet, they appeared more curious about the subject matter and asked more questions. This early enthusiasm was a positive indicator that the game method might be effective in increasing motivation and engagement in Mathematics. The intervention phase lasted for eight weeks, during which the experimental group participated in weekly game-based lessons that used educational games to reinforce Mathematical concepts. These games were designed to be fun, interactive, and educational, involving activities such as competitive quizzes, team-based problem-solving, and hands-on tasks that required students to apply mathematical operations. The teacher acted as a facilitator, guiding the students through the games, explaining rules, and encouraging teamwork and collaboration.

Classroom observations during the intervention revealed significant differences in student activity levels between the experimental group and the control group. The experimental group was more actively involved in the learning process. They engaged in discussions, collaborated with their peers, and were excited to participate in the games. Students were more eager to solve problems and share their solutions with the class, demonstrating a higher level of engagement compared to the control group, where students appeared more passive and less interactive during traditional lessons.

The control group, which continued with the regular teaching methods, showed some improvement in their academic performance. However, their engagement remained relatively low. Students in the control group tended to focus on individual work and showed less enthusiasm when completing exercises from the textbook. The absence of a more dynamic, interactive approach led to a less engaging learning experience, which likely resulted in slower progress in terms of student motivation and academic achievement. At the end of the eight-week intervention, the post-test was administered to both groups to evaluate their improvement in Mathematics. The results revealed a clear and significant difference in the post-test scores of the experimental group compared to the control group. The experimental group showed notable improvements in their understanding of mathematical concepts such as multiplication, division, and problemsolving. The students' post-test scores in the experimental group were significantly higher than those in the control group, suggesting that the game method had a positive impact on their academic performance.

The post-test results also indicated that the experimental group displayed a deeper understanding of mathematical concepts compared to their performance at the beginning of the study. Many students who initially struggled with basic operations were able to perform more complex tasks with greater confidence. The game-based learning approach helped students relate abstract concepts to practical scenarios, improving their problemsolving skills and making the material more memorable. Classroom observations during the post-test phase revealed further insights into the students' engagement levels. The experimental group continued to show high levels of enthusiasm, even after the intervention had concluded. The students seemed more confident in their abilities, readily discussing solutions and explaining their thought processes. This contrasted with the control group, where many students appeared less engaged and more passive during the post-test, even though they had shown modest improvements in their scores.

The increased engagement observed in the experimental group could be attributed to the interactive nature of the game method. Educational games provided a platform for students to apply their knowledge in a playful and competitive environment. This not only enhanced their understanding of mathematical concepts but also made the learning process more enjoyable, leading to greater intrinsic motivation. As a result, students were more willing to invest effort in solving problems, improving their academic performance and developing a more positive attitude toward Mathematics.

In addition to the academic improvements, the game method also positively impacted students' social skills. During the game-based lessons, students worked in teams, which encouraged collaboration and communication. The students shared ideas, discussed strategies, and helped each other solve problems. This social interaction fostered a sense of community within the classroom, which further enhanced students' engagement and willingness to participate. By collaborating, students were able to learn from each other, which strengthened their understanding of the subject matter.

The success of the game method in increasing student activity and achievement was also reflected in the students' attitude toward learning Mathematics. The experimental group displayed greater enthusiasm for the subject, and many students expressed that they now enjoyed Mathematics more than before. Several students mentioned that the games made the subject "fun" and "exciting," which was a significant shift from their previous perceptions of Mathematics as a challenging or boring subject. This change in attitude is essential for fostering long-term interest in learning and academic success. While the experimental group showed significant improvements, the control group's improvement, although positive, was slower. The students in the control group, who continued with traditional teaching methods, demonstrated incremental progress in understanding mathematical concepts. However, the lack of interactive elements in their lessons resulted in a more passive learning experience, which likely contributed to lower levels of student engagement and slower academic progress.

The findings suggest that the game method is an effective approach to increase student activity and improve academic achievement, especially in subjects like Mathematics, where engagement is often a key challenge. The interactive nature of games not only makes learning more enjoyable but also helps students grasp difficult concepts more easily. By providing opportunities for students to actively engage in the learning process, the game method encourages problem-solving, critical thinking, and collaboration, which are crucial skills for academic and personal success.

The results also imply that traditional teaching methods, while still valuable, may not always be enough to maintain high levels of student engagement, especially in subjects that students may find difficult or less interesting. The lack of interactive components in traditional lessons may lead to disengagement, which can hinder academic progress. The integration of more dynamic and interactive teaching methods, such as games, can bridge this gap and make the learning process more effective and engaging. In conclusion, this study provides strong evidence that the game method is an effective tool for increasing student activity and improving academic achievement in Mathematics. The experimental group, which participated in game-based lessons, showed significant improvements in both academic performance and engagement. The findings highlight the importance of incorporating interactive, fun, and educational elements into the curriculum to foster a more dynamic learning environment. Future research could explore the long-term effects of the game method on student performance and its applicability in other subjects or educational contexts.

The study also suggests that integrating educational games into the classroom can be a valuable strategy for improving student motivation and achievement. Given the positive impact observed in this research, educators should consider incorporating more interactive, game-based approaches into their teaching practices, especially in subjects that are often perceived as challenging or less engaging by students. By doing so, they can create a more engaging, motivating, and effective learning environment for their students.

DISCUSSION

The results of this study demonstrate that the use of the game method significantly enhances both student activity and academic achievement in Mathematics at Madrasah Ibtidaiyah Pasirmuncang. The experimental group, which engaged in game-based learning, displayed more enthusiasm, increased participation, and better academic outcomes compared to the control group, which continued with traditional teaching methods. This aligns with previous research that highlights the positive impact of interactive learning approaches on student engagement and performance. The key strength of the game method lies in its ability to make learning fun, engaging, and interactive. Traditional methods of teaching, such as direct instruction and textbook exercises, often fail to maintain students' attention, especially in subjects that can be perceived as challenging, such as Mathematics. The game-based approach, however, provided a dynamic and handson learning environment where students could actively participate and apply mathematical concepts in a more enjoyable way. This active involvement is essential for developing deeper understanding and better retention of the material.

One of the most notable findings in this study is the significant improvement in the experimental group's academic performance. The game method allowed students to practice and reinforce their mathematical skills in a more interactive and practical setting. The tasks and challenges presented in the games, which involved problem-solving and critical thinking, encouraged students to apply their knowledge in ways that textbook exercises could not. This practical application of skills likely contributed to the better performance observed in the post-test.

The improved performance in the experimental group also indicates that the game method can provide a more effective learning environment than traditional methods. Educational games require students to engage with the material actively, as opposed to passively listening to lectures or reading from textbooks. The need to complete tasks, collaborate with peers, and solve problems during the games promoted an active learning experience that contributed directly to the students' improved academic outcomes. This is consistent with research that supports the idea that interactive learning methods enhance student engagement, motivation, and understanding of the subject matter.

The findings also emphasize the importance of creating a learning environment that encourages active participation and collaboration. During the game-based lessons, students in the experimental group worked together in teams, helping each other solve problems, discuss strategies, and share ideas. This collaborative learning environment fostered positive social interactions among students and enhanced their ability to communicate and work as a team. The social aspect of the game method helped students develop important interpersonal skills that go beyond academic achievement, making the learning experience more holistic.

Another crucial observation was the increase in students' motivation and engagement. Before the intervention, the students in the experimental group showed relatively low levels of enthusiasm for Mathematics, as evidenced by the pre-test results. However, after the introduction of the game-based learning approach, students began to show greater interest in the subject. They participated more actively in class, eagerly volunteering to solve problems and share their answers. This transformation in attitude highlights the motivational power of the game method, which was successful in making the learning process more enjoyable and less intimidating.

In contrast, the control group, which continued with traditional teaching methods, showed only modest improvements in both engagement and academic achievement. While students in the control group did improve their knowledge of basic mathematical concepts, their performance was less pronounced compared to the experimental group. The control group's low levels of engagement suggest that traditional methods, while still valuable, may not be sufficient to maintain high levels of student motivation and active participation, especially in subjects like Mathematics that can be perceived as challenging.

The modest progress in the control group reinforces the idea that student engagement is crucial for academic success. When students are not actively involved in the learning process, their ability to understand and retain information may be limited. The game method, by contrast, fostered an environment where students were motivated to participate and take an active role in their learning. This increased participation, in turn, helped improve their understanding of the material and contributed to higher academic achievement.

Furthermore, the game-based approach proved to be particularly effective for reinforcing mathematical concepts. Games involving problem-solving, calculations, and critical thinking required students to think on their feet and apply their knowledge in real-time situations. This kind of active learning, where students practice and apply their skills in an interactive context, has been shown to enhance retention and understanding. Unlike traditional methods, which may involve passive learning, the game method encouraged students to actively engage with the content and make decisions based on their understanding.

In addition to improving academic performance, the game method also contributed to the development of essential skills such as problem-solving and critical thinking. Games often involve challenges that require players to think critically, evaluate multiple solutions, and choose the most effective approach. These skills are transferable and have long-term benefits for students' cognitive development. By engaging in games that required strategic thinking and problem-solving, students developed critical thinking skills that will benefit them in other academic areas and in life beyond the classroom.

Another important finding from this study is the impact of the game method on student confidence. The game-based lessons provided opportunities for students to experience success in Mathematics in a low-pressure, supportive environment. As students completed tasks and overcame challenges in the games, their confidence grew. Many students who initially struggled with mathematical concepts showed noticeable improvements in their ability to solve problems and explain their solutions. This increased confidence is important for fostering a positive attitude toward learning and overcoming academic challenges in the future. The positive impact of the game method on student engagement and achievement aligns with the social constructivist theory of learning, which emphasizes the importance of social interaction and active participation in the learning process. The game method facilitated peer collaboration and interaction, allowing students to learn from one another, discuss strategies, and work together to solve problems. This collaborative approach helped deepen their understanding of the material and strengthened their social and communication skills.

The game method also made the learning process more personalized. In the games, students were able to progress at their own pace, allowing them to focus on areas where they needed more practice. This individualized approach is particularly important in Mathematics, where students may have different levels of understanding and may struggle with particular concepts. By using games that adapt to students' abilities, educators can create a more tailored learning experience that meets the needs of each student.

The increased activity levels observed in the experimental group further underscore the effectiveness of the game method. The game-based lessons encouraged students to participate in discussions, ask questions, and share their thoughts with the class. In contrast, the control group exhibited more passive behavior, such as listening quietly to the teacher's explanations and completing individual exercises. The high level of engagement in the experimental group likely contributed to the significant improvement in their academic performance. The results of this study also suggest that incorporating game-based learning into the Mathematics curriculum can help make the subject more accessible and enjoyable for students. Many students find Mathematics intimidating, but the game method allows them to approach the subject in a fun and interactive way. By incorporating games, educators can help demystify Mathematics and create an environment where students feel more comfortable and confident in their abilities. The study also demonstrates the importance of integrating interactive teaching methods into the curriculum. Traditional teaching methods, while still useful, may not be sufficient to engage all students, particularly those who find certain subjects challenging. The game method offers an alternative approach that can complement traditional methods, providing students with more opportunities to engage with the material and actively participate in the learning process.

While the results of this study are promising, there are limitations to consider. One limitation is the short duration of the intervention, which lasted for only eight weeks. A longer intervention may have yielded even more significant improvements in student activity and achievement. Future studies could explore the long-term effects of game-based learning on student performance to determine whether the benefits persist beyond the intervention period. Another limitation of the study is the small sample size, which was limited to a single school. Future research could involve a larger sample size across multiple schools or regions to determine whether the results of this study can be generalized to a broader population. Additionally, including different age groups or educational levels could provide insights into the applicability of the game method in diverse educational contexts.

Despite these limitations, the findings of this study provide strong evidence that the game method is an effective tool for increasing student activity and improving academic achievement in Mathematics. The experimental group, which engaged in game-based learning, demonstrated significant improvements in both academic performance and engagement. This suggests that incorporating interactive, game-based learning into the classroom can be a valuable strategy for enhancing student motivation, participation, and academic success. In conclusion, the results of this study support the idea that the game method can significantly enhance student activity and achievement in Mathematics. By making learning fun, interactive, and engaging, educational games provide an effective way to motivate students, reinforce their understanding of mathematical concepts, and improve their overall performance. Given the positive impact observed in this study, educators should consider incorporating game-based learning into their teaching practices to foster a more engaging and effective learning environment for their students.

These skills are important for students' overall development and contribute to a positive classroom atmosphere. The findings also underscore the importance of creating an enjoyable and interactive learning environment. Mathematics, often viewed as a challenging subject, can be made more approachable through the use of games. By transforming traditional lessons into interactive and engaging activities, students are more likely to develop a positive attitude toward the subject and become motivated to succeed. This shift in mindset is critical for fostering long-term academic success. Although the experimental group demonstrated significant improvements, the control group showed only modest gains in academic performance and engagement. This reinforces the idea that traditional methods, while still valuable, may not be sufficient to fully engage students, especially in subjects that students often find difficult. The game method, by contrast, provides an interactive and dynamic alternative that encourages students to actively participate and take ownership of their learning. Despite the success of this study, there are limitations that should be considered. The short duration of the intervention, lasting only eight weeks, may not have allowed for long-term effects to fully manifest. Additionally, the study was conducted with a small sample size from a single institution, which may limit the generalizability of the findings. Future research could explore the long-term impact of game-based learning and include a larger, more diverse sample to confirm whether the positive effects observed in this study can be replicated in other educational settings. In conclusion, this study confirms that the game method is a highly effective way to improve both student activity and academic achievement in Mathematics. By making learning more engaging and enjoyable, the game method fosters a higher level of student participation, motivation, and academic performance. Given the positive outcomes observed in this research, educators should consider incorporating game-based learning into their teaching strategies to create more interactive and successful learning experiences.

CONCLUSION

This study demonstrates that the game method is an effective tool for enhancing both student activity and academic achievement in Mathematics at Madrasah Ibtidaiyah Pasirmuncang. The experimental group, which participated in game-based lessons, showed significant improvements in engagement and academic performance compared to the control group, which continued with traditional teaching methods. The results suggest that the game method, when integrated into the Mathematics curriculum, can make learning more enjoyable and engaging for students, leading to better outcomes. One of the most significant findings of this study is the increase in student engagement in the experimental group. The game method encouraged active participation, collaboration, and excitement about learning. Students wer<mark>e n</mark>ot only more enthusiastic but also more involved in solving problems, sharing solutions, and working together with their peers. This heightened engagement likely contributed to the improved academic achievement observed in the post-test results, highlighting the importance of interactive teaching strategies in increasing student involvement. The positive impact on academic achievement was also evident in the post-test results, where the experimental group demonstrated a notable improvement in their performance compared to the control group. The use of educational games provided opportunities for students to apply mathematical concepts in practical, problem-solving scenarios. This active learning environment helped deepen students' understanding and retention of the material, allowing them to perform better in assessm<mark>en</mark>ts. Fu<mark>rther</mark>more, the study revealed that the game method also helped build students' social and communication skills. During gamebased lessons, students worked in teams, sharing ideas, discussing strategies, and supporting each other. This collaborative environment not only improved their academic performance but also helped develop essential interpersonal skills, such as teamwork, problem-solving, and communication.

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