The Use of Multiplication Wheel Media in Learning Mathematics to Improve Counting Abilities

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Abstract: This study aims to improve students' creativity in learning mathematics, especially in multiplication material, by utilizing innovative media called Kincir Pintar Perkalian. This media is designed to help students understand the concept of multiplication in a more fun and interactive way. This study uses the Classroom Action Research (CAR) method, which consists of two cycles. Each cycle includes planning, implementation, observation, and reflection stages. The study's first cycle results showed that the average student score reached 70, with a 60% success rate achieving the Minimum Completion Criteria (KKM). However, there was a significant increase after improvements and adjustments were made in the second cycle. The average student score increased to 82, with a 90% success rate achieving the KKM. This study's results prove that using multiplication wheel media improves students' understanding of multiplication. Interesting visualizations and interactive learning methods make students more motivated to learn. In addition, a creative and fun approach helps students understand multiplication better. With the increase in learning outcomes, this media improves students' numeracy skills and stimulates their creativity. Therefore, the Smart Multiplication Wheel is recommended as an innovative learning media in Elementary Schools to support the development of students' creativity and numeracy skills in mathematics.

Abstrak: Penelitian ini bertujuan untuk meningkatkan kreativitas siswa dalam pembelajaran matematika, khususnya pada materi perkalian, dengan memanfaatkan media inovatif bernama Kincir Pintar Perkalian. Media ini dirancang untuk membantu siswa memahami konsep perkalian dengan cara yang lebih menyenangkan dan interaktif. Penelitian ini menggunakan metode Penelitian Tindakan Kelas (PTK) yang terdiri dari dua siklus. Setiap siklus meliputi tahapan perencanaan, pelaksanaan, observasi, dan refleksi. Pada siklus pertama, hasil penelitian menunjukkan bahwa rata-rata nilai siswa mencapai 70, dengan persentase ketercapaian Kriteria Ketuntasan Minimal (KKM) sebesar 60%. Namun, setelah dilakukan perbaikan dan penyesuaian pada siklus kedua, terdapat peningkatan yang signifikan. Rata-rata nilai siswa meningkat menjadi 82, dengan persentase ketercapaian KKM sebesar 90%. Hasil penelitian ini membuktikan bahwa penggunaan Kincir Pintar Perkalian efektif dalam meningkatkan pemahaman siswa terhadap perkalian. Visualisasi menarik dan metode pembelajaran yang interaktif membuat siswa lebih termotivasi untuk belajar. Selain itu, pendekatan yang kreatif dan menyenangkan membantu siswa memahami konsep perkalian dengan lebih baik. Dengan adanya peningkatan hasil belajar, media ini tidak hanya meningkatkan keterampilan berhitung siswa tetapi juga merangsang kreativitas mereka. Oleh karena itu, Kincir Pintar Perkalian direkomendasikan sebagai media pembelajaran inovatif di Sekolah Dasar untuk mendukung pengembangan kreativitas dan keterampilan berhitung siswa dalam matematika.

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A. Introduction

Education is the pillar of the nation, and education is a basic human need. A conscious effort to spread cultural heritage from one generation to another is known as Education (Rahman et al., 2022; Biesta, 2022). Education is also a learning activity that allows students to understand and apply all the knowledge they gain from life experiences or classroom learning activities. In other words, education is a humanizing activity, referred to as humanism (Rahman & Amalia., 2019). Education, especially in schools, is crucial in making the nation's life intelligent. Its implementation is not something that can be considered simple. One form of implementation of education in the formal sphere is elementary school.

Elementary School (SD) education is the main stage in student education. This is the first formal education intended to prepare students' essential potential to start education at a higher level, giving them a firm grip and ability to interact in the social environment of society (Mubin & Aryanto, 2024; Hidayati et al., 2014). Therefore, learning in Elementary School must be done as well as possible. One of the subjects taught in Elementary School is mathematics.

According to Susanti (2020), mathematics is a discipline that studies patterns, shapes, structures, changes, and space. In addition, mathematics is also related to logic in understanding patterns, levels, quantities, and other concepts related to large numbers, such as algebra, analysis, and geometry. By studying mathematics, students can develop critical thinking skills in solving various problems in everyday life. In line with this opinion, Susilawati et al (2021) stated that mathematics learning in schools aims to equip students with skills in facing and solving life's problems.

Facts on the ground show that many students still have difficulty in calculating (Rakhmawati & Mustadi, 2022; Jaelani & Zabidi, 2020). They often experience obstacles when solving problems given by the teacher. According to Sari (2024), difficulties in mathematics can occur when someone does not remember one or more conditions of a concept. This indicates that students' understanding of mathematical material is still lacking. A lack of mastery of concepts causes these difficulties. In addition, students also often make mistakes in solving problems, such as not understanding symbols, place values, and calculations; using inappropriate processes; and unclear writing that is unreadable (Alawiyah et al., 2022; Jarmita, 2015; Putri & Roesdiana, 2023).

Based on observations from one elementary school, it was found that the limited ability to calculate multiplication material in grade III impacted the students' low learning outcomes. Learning methods that only rely on lectures and textbooks are less effective in developing their understanding. In addition, teachers' lack of innovation in developing teaching materials and the minimal use of learning media, especially in mathematics, make students quickly bored.

This can reduce their interest in learning and impact academic achievement. One solution that can be applied to overcome this problem is using the Multiplication Wheel learning media. This media is designed to increase students' creativity in understanding the

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concept of multiplication through an interactive approach. By adapting the concept of a windmill that can be rotated, this media provides a more enjoyable and engaging learning experience for children. In addition, the visual aspect of the Multiplication Wheel helps students understand multiplication material more quickly, so it is expected to increase their creativity, learning motivation, and understanding of the concepts taught.

Therefore, teachers must create and develop engaging and memorable learning methods for students to better understand basic mathematical concepts. One effort can be made to design and use educational game tools, such as number wheels, in the mathematics learning process. Windmill media is media in the form of images or caricatures that are useful in learning activities because they make multiplication material easy to understand and enjoyable and can be captured quickly by students.

Windmill media is one of the best solutions to overcome the problem of student learning outcomes in multiplication material (Susanti, 2020; Tamba et al., 2024). This statement is also supported by Ziah et al (2025), who explain that increasing student creativity in mathematics learning can be achieved through innovative and creative educational media.

The multiplication wheel game can help students improve their arithmetic skills. This learning media contains instructive elements that aim to shape children's emotional and cognitive perspectives, especially in arithmetic skills. Thus, the number wheel is redesigned so that it is easier for children to recognize and is presented as a fun game. The multiplication wheel game is one of the games that can help students improve their arithmetic skills.

The number wheel game is a learning media with instructive components that foster a child's emotional and cognitive perspective, especially the capacity to count. As a result, the number wheel is redesigned to make it easier for children to recognize numbers and is presented as a game. Based on the description above, the researcher is interested in conducting a study entitled "Using Multiplication Wheel Media in Mathematics Learning to Improve Arithmetic Skills in Grade 3 Students.

B. Method

This study applies the Classroom Action Research (CAR) method, which educators or researchers use to understand the learning process in the classroom and evaluate the impact of the actions implemented on students. CAR aims to overcome learning obstacles and improve the teaching and learning process (Rahayu, 2020; Pasaribu, 2022; Pauziah et al., 2023). In the 2024/2025 academic year, this study was conducted at SD Negeri 5 Metro Timur with 10 grade 3 students as research subjects. As shown in Figure 1, this study adopts the CAR model from Kemmis and McTaggart, which includes the stages of planning, implementation, observation, and reflection.

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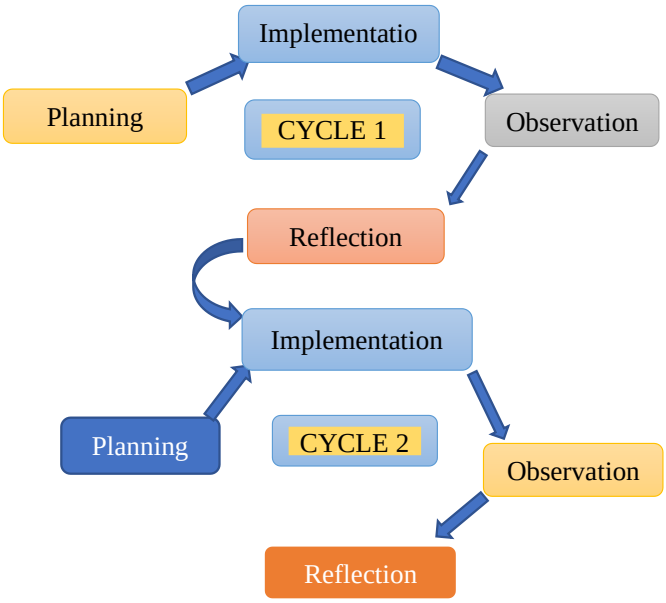

Figure 1. Classroom Action Research Implementation Design

This study combines qualitative and quantitative methods to improve students' numeracy skills using multiplication wheel media in mathematics learning. Qualitative methods are used to understand the dynamics of learning in the classroom. In contrast, quantitative methods play a role in analyzing changes in students' understanding and performance before and after applying the media. With this approach, the study aims to provide a more comprehensive picture of the effectiveness of multiplication wheel media in improving students' numeracy skills.

This study applies various data collection techniques to obtain accurate and in-depth data. Researchers and observers initially observed the learning process using multiplication wheel media. These observations cover various aspects, such as interactions between teachers and students, the level of student involvement in learning, and the effectiveness of multiplication wheel media in helping students understand the concept of multiplication.

In addition to observations, interviews were also conducted with teachers and students to gain deeper insight into their learning experiences. These interviews focused on students' understanding before and after using the multiplication wheel media, as well as their opinions about the benefits of the media in supporting the learning process. With this technique, the study can dig deeper into students' difficulties and the effectiveness of the methods teachers apply.

The next stage in this study was a direct trial with students to measure the effectiveness of using the multiplication wheel media. The trial was conducted by giving a series of questions related to the concept of multiplication to students before and after learning using the media. The results of this trial were analyzed to see the extent to which students' numeracy skills had improved after learning based on the multiplication wheel media.

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This study focused on 3rd-grade students in semester I at SD Negeri 5 Metro Timur. Data were collected through a test method using an instrument in the form of fill-in-the-blank questions at the end of each learning cycle. This method aims to objectively measure student development and compare their learning outcomes at various stages of the study, starting from the pre-cycle, cycle I, to cycle II.

Data analysis in this study was conducted using qualitative and quantitative approaches. The study's success was measured based on student learning achievement, especially in meeting the Minimum Completion Criteria (KKM). A method is successful if 80% or more students achieve a KKM score 75 with a minimum class average of 80. With this approach, the study can provide more valid conclusions regarding the effectiveness of the multiplication wheel media in improving students' numeracy skills. The results of the study showed that the use of the demonstration method with the multiplication wheel media positively impacted students' understanding. Students showed a significant increase in their numeracy skills, as seen from the tests conducted during the study. Thus, this study confirms that using interactive and engaging learning media can improve students' learning achievement, especially in mathematics learning at the elementary school level.

C. Result and Discussion

Result

This study was conducted in two cycles, including several important stages: planning, implementation, observation, and reflection. Each cycle was systematically designed to examine the effectiveness of using multiplication wheel media in learning for grade 3 students. The main objective of this study was to improve students' numeracy skills by applying engaging and interactive media.

The results obtained from this study showed a significant increase in students' numeracy skills after using the multiplication wheel media. This media helps students understand the concept of multiplication more efficiently and improves their skills in solving various problems related to the material. The increase in students' abilities can be observed by developing their understanding of the concept of multiplication in more depth. In addition, students become more confident in solving multiplication problems, which reflects the effectiveness of using the multiplication wheel media as a learning aid in the classroom.

1. Cycle 1:

Cycle 1 Design

The research design in cycle I was carried out in three meetings. Each meeting was arranged systematically to ensure the smooth implementation of the research. The meeting was held on November 24-26, 2024. This activity was carried out sequentially according to the predetermined schedule so that all stages of the research could run smoothly.

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a. Planning

In the planning stage, the researcher prepares an action plan to be implemented. This plan includes several planning documents that serve as guidelines in the learning process. One important document prepared is the Learning Implementation Plan (RPP). In preparing the RPP, the researcher integrated multiplication wheel media as a learning aid. In addition, the researcher also set clear learning objectives to improve students' mathematical arithmetic abilities.

b. Implementation

On November 24, 2024, the teacher carried out learning by the Learning Implementation Plan (RPP) that had been prepared. In this learning process, the teacher used the multiplication wheel media to help students understand the concept of multiplication of integers. The activity began with routines such as lining up, praying, taking attendance, singing the national song, and providing apperception related to the study material. In the core learning session, the teacher explained the concept of multiplication and how to calculate it using the multiplication wheel media. This media is used to make it easier for students to understand multiplication patterns in a more interactive and fun way. However, on the first day of learning, only four students managed to answer the questions asked by the teacher.

Because the learning outcomes on the first day had not reached the expected indicators, learning activities continued the next day, November 25, 2024. The initial activities remained the same: following the RPP using the multiplication wheel media. The main focus of learning that day was to train students to understand better the use of the media in multiplying integers. During the learning process, the teacher assessed the student's ability to answer the questions given. The results showed an increase, where seven students answered the questions well and fluently. Although there was an increase in the number of students who understood the material, the learning target had not yet been fully achieved. Therefore, the teacher planned to hold a pre-test the next day to measure students' understanding further.

On November 26, 2024, after the learning process, the teacher conducted a pre-test to evaluate the improvement of students' understanding. This pre-test aims to determine the extent to which students can understand and apply the concept of multiplication after using the multiplication wheel media in learning. With this evaluation, the teacher can determine the following steps to improve learning effectiveness and ensure all students achieve optimal understanding.

c. Observation

Observations in this study were conducted for three days in cycle I, right at the beginning of the implementation of learning activities. Observations aim to directly observe the learning process, especially when using the clock wheel as an aid. In this stage, the

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teacher acts as an observer who records various aspects of student interaction with the clock wheel. Observations include how students use the clock wheel to understand the concept of time, how they solve problems related to learning materials, and how they respond or react to using the aid.

In addition, observations also include aspects of students' understanding of the concept of time in more depth. The teacher assesses how students can recognize, interpret, and apply the concept of time in various learning situations. This is done to determine the effectiveness of using the clock wheel in improving students' understanding of time.

d. Reflection

In cycle I, the results of the evaluation and observation showed that many students still had difficulty remembering and answering questions given by the teacher. This difficulty can be seen from the low response of students during the question-and-answer session and their inability to repeat the material that has been taught. This is an important concern in the learning process, especially in understanding concepts related to time units. One of the main factors that causes student difficulties is the lack of concentration during the learning process.

Many students are easily distracted, so focusing on the primary study material is difficult. As a result, their understanding of the concept of time units is limited and not optimal. This factor must be addressed immediately so that learning can run more effectively and students can understand the material better. To overcome this problem, the teacher designed additional strategies to increase learning effectiveness. This strategy includes using more interactive methods, variations in the delivery of material, and providing more intensive exercises to familiarise students with the concepts taught. Thus, it is hoped that students can better understand the material and be able to answer the questions given better.

Although the multiplication wheel media has been applied as a learning aid, some students still have difficulty understanding the concept of multiplication. This can be seen from the evaluation results at the end of cycle I, where the average student score reached 70, but some students still had not reached the Minimum Completion Criteria (KKM) set, which was 75. This low achievement indicates that improvements are needed in the learning approach so that students can better understand the material. As a step for improvement, the teacher will provide a more detailed explanation of the multiplication concept and more precise guidance in using the multiplication wheel media. Thus, students can better understand how the media works and apply it to solve multiplication problems. The evaluation of Cycle I learning will be presented in more detail in the table below as a basis for improvement in the next cycle.

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Table 1. Results of Cycle 1 - Use of Multiplication Wheel Media

No	Student Name	Final score	Achieved KKM (≥75)
1	Student 1	75	Yes
2	Student 2	80	Yes
3	Student 3	65	No
4	Student 4	60	No
5	Student 5	70	No
6	Student 6	75	Yes
7	Student 7	85	Yes
8	Student 8	90	Yes
9	Student 9	50	No
10	Student 10	78	Yes

Average Cycle 1 Value: 70
Percentage of Students Achieving KKM: 60% (6 out of 10 students)

Cycle 2:
Cycle II Design

In the implementation of cycle II, activities were carried out for three meetings. The meetings took place from November 29 to December 1, 2024.

Each meeting in cycle II was designed to achieve the learning objectives that had been set. During the implementation, various strategies were applied to increase the effectiveness of the activities.

a. Planning

In the first stage, a review of the results of the cycle one reflection was conducted to identify various aspects that still need to be improved. This evaluation includes an analysis of the effectiveness of the learning strategies that have been implemented, student responses to the methods used, and obstacles that arise during the learning process. Reviewing this reflection's results gives a clearer picture of what needs to be improved so that the next learning cycle runs more optimally. After identifying the aspects that need to be improved, the next step is to rearrange the learning plan. This preparation focuses on improving teaching strategies, adjusting more effective methods, and strengthening material still poorly understood by students.

In addition, this re-planning also needs to consider a more innovative approach to make the learning process more enjoyable and more manageable for students to understand. In preparing an updated learning plan, focusing on the improvements that have been identified is important. These improvements can include improving how the material is delivered, increasing interaction between teachers and students, and adjusting to the needs of students. Thus, it is hoped that there will be an increase in effectiveness in the learning process so that learning objectives can be achieved better.

In addition to improving the pedagogical aspect, attention must be paid to the readiness of the learning media, in this case, the windmill media. This media must be in

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optimal condition to be appropriately reused in the following learning cycle. If there is damage or deficiency in the media, repairs or replacements must be made not to hinder the learning process. By ensuring that all aspects have been improved, both in terms of learning planning and media readiness, it is hoped that the next learning cycle can run more effectively. The evaluation and reflection that have been carried out are an important basis for improving the quality of learning. Thus, the learning process can take place better, provide a more meaningful experience for students, and achieve optimal results per the goals set.

b. Implementation

On November 29, 2024, the teacher carried out learning activities with the Learning Implementation Plan (RPP) that had been prepared. The learning aims to improve students' understanding of the concept of multiplication of integers. In its implementation, the teacher uses various strategies and learning media so students can more easily understand the material. One of the media used in this learning is the multiplication wheel. This media was chosen because it is effective in helping students understand the concept of multiplication visually and interactively.

With this tool, students are expected to be more interested and motivated in participating in learning. Learning activities begin with several routine activities, such as lining up, praying together, checking student attendance, singing the national song, and conducting an apperception regarding the multiplication of integers. This initial activity aims to create a conducive learning atmosphere and build student readiness before entering the core stage of learning. In the core stage, the teacher begins to explain the concept of multiplication using the multiplication wheel media. Students are invited to actively participate in this activity by trying to understand and answer the questions given. However, on the first day of implementation, only six students could answer the questions correctly.

Seeing that the results did not meet the learning targets, the activities continued the next day, November 30, 2024. The initial activities were carried out on the second day as before. However, in the core stage, the teacher provided additional explanations and motivation so students better understood the concepts. In addition to providing more in-depth explanations, the teacher made assessments based on the student's ability to answer questions well and smoothly.

The results of the second day's learning showed increased student understanding. The number of students who could answer questions correctly increased to ten people. On December 1, 2024, the teacher conducted a post-test to measure how much students' understanding had increased after using the multiplication wheel media in mathematics learning. This test aims to evaluate the effectiveness of the learning methods used and to determine the development of students' numeracy skills after participating in learning for several days.

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c. Observation

Observations were conducted for three days in cycle II at the beginning of the implementation of the activity. This activity aims to observe the learning process and identify various aspects of student involvement in learning. In this observation, the teacher focused on increasing student participation and understanding of time. Student participation is one of the leading indicators of learning success, and understanding the concept of time is measured through various activities carried out during the learning process.

In addition, the teacher also recorded the results of direct observations that occurred during learning. These notes include various obstacles students face in understanding the material and the strategies or solutions applied to overcome these obstacles. Thus, this observation not only functions as a monitoring tool but also as a basis for evaluation for improving the learning process in the future.

d. Reflection

Based on the evaluation results conducted through assessment and observation in cycle II, there was an apparent increase in students' understanding and learning outcomes in mathematics, especially in the material of multiplication of integers. This increase occurred due to the use of multiplication wheel media applied during learning. In addition, the teacher also asked for feedback from students to find out how their experiences were during the learning process in cycle II.

In general, the assessment showed that the method applied successfully improved students' understanding and collecting feedback helped the teacher find out how effectively the method was received and understood by students.

Table 2. Results of Cycle 2 - Use of Multiplication Wheel Media

No	Student Name	Final score	Achieved KKM (≥75)
1	Student 1	80	Yes
2	Student 2	85	Yes
3	Student 3	75	Yes
4	Student 4	82	Yes
5	Student 5	90	Yes
6	Student 6	85	Yes
7	Student 7	80	Yes
8	Student 8	88	Yes
9	Student 9	80	Yes
10	Student 10	95	Yes

Average Cycle Value 2: 82
Percentage of Students Achieving KKM: 90% (9 out of 10 students)

The observations in cycle II showed a significant increase in student understanding. Students who previously had difficulty understanding the concept of multiplication are

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now starting to show positive developments. This indicates that the approach used in cycle II has succeeded in overcoming the obstacles experienced by students in understanding multiplication material.

One of the main factors that supports this increase in understanding is the use of multiplication wheel media. This media has been proven to attract students' attention and make them more interested in participating in learning. With the help of multiplication wheels, students can remember and visualize multiplication results more quickly, making it easier to understand the concepts being taught.

In addition to increasing interest in learning, using multiplication wheel media also plays an important role in deepening students' understanding of the material being studied. Students who previously found it difficult can now more easily understand how the concept of multiplication works. This creates a more effective and enjoyable learning environment for students.

Based on the results of observations and assessments, it can be seen that there was an increase in the average score of students, which reached 82. Most students also managed to meet the Minimum Completion Criteria (KKM) that had been set. This achievement shows that the learning approaches and strategies applied in cycle II provide satisfactory results and positively impact students' understanding and ability to master the concept of multiplication.

Discussion

The study results showed that using multiplication wheel media in mathematics learning significantly positively impacted the numeracy skills of grade 3 students, especially in multiplication. Multiplication wheel media is a tool that makes it easier for students to understand mathematical concepts, especially multiplication, more visually and interactively. This shows that media use in learning can significantly influence students' understanding of the material.

Several factors that influence the success of using this multiplication wheel media are visualization and student involvement. This media provides a clear visual depiction of the relationship between numbers in the multiplication process, which makes it easier for students to understand the concept of multiplication more concretely. In addition, student involvement in turning the multiplication wheel also plays an important role. Students find it easier to understand the concepts being taught when actively involved in this activity. At the same time, passive involvement also helps deepen that understanding even though they do not directly participate in the physical process.

In addition, interesting learning methods also contribute to increasing students' learning motivation. Interactive multiplication wheel media makes students more interested in mathematics material and reduces anxiety or stress that often hinders learning. Interest in this learning media positively impacts a more enjoyable learning atmosphere so students can achieve better learning outcomes. Thus, choosing the right media is key to increasing the effectiveness of mathematics learning.

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Third, more focused mentoring also contributed significantly. In the second cycle, intensive mentoring was given to students who were having difficulties so that they had the opportunity to ask questions and clarify things that they did not understand. This mentoring helped them understand the concept of multiplication better and improve their arithmetic skills. Finally, activities with multiplication wheels directly train students' arithmetic skills in an engaging and applicable context. This activity helps students hone their imagination and makes remembering multiplication results more straightforward and efficient. With these various benefits, using multiplication wheels is an effective method to improve students' arithmetic skills. The results of this study are in line with the opinion of Jazariyah et al (2021), who explained that educational game tools in the form of number wheels were designed by considering the needs in the field, especially in providing media that can help children practice their counting and arithmetic skills. In addition, students can also recognize colours and numbers in the multiplication wheel game. Through this game, students gain more information so that their knowledge and understanding are more affluent and deeper. Moreover, it trains students to focus or concentrate. Focus and concentration help children in the future (Sundari & Zahro, 2021).

The implementation of mathematics learning activities in grade 3 at SD Negeri 5 Metro Timur is when the bell rings before learning activities begin in the classroom. The grade 3 teacher asks all students to line up before the class. After finishing, they enter the classroom and begin learning activities, with the teacher greeting them and praying together as the class leader leads. The teacher then records the students' attendance and asks how they are and their mood. Before starting the lesson, the teacher holds a warm-up in the form of a multiplication game on the mathematics subject using the teaching aids that have been prepared. Students are asked to come forward individually to try the teaching aids. After the game is finished, the teacher continues by explaining the material discussed in the previous week, namely compound multiplication.

To remind the material that was delivered last week, the teacher gave a math problem of stacked multiplication on the board then the students were ordered to come forward one by one to work on the problems that the teacher had written on the board. Here, the teacher not only ordered his students to come forward to work on the problems but also guided and guided the students to work on the problems, especially for students who did not yet understand stacked multiplication or who had forgotten about the material that had been taught last week or students who were slow to understand the material or even some students did not understand at all from the material that had been delivered last week. The lesson ended, and the teacher closed the learning by praying together, led by the class leader. Before going home, the teacher gave questions about multiplication to the students, and those who managed to answer the questions correctly were allowed to go home first. Using multiplication windmill media in mathematics learning can improve arithmetic skills in grade 3. This statement is supported by the research conducted by Sari (2024), which showed that activities at SD Negeri Kereng Bangkirai went well, as indicated by most students' understanding of the concepts conveyed through windmill teaching aids. Students

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seemed enthusiastic and happy when learning to use the tool. Meanwhile, at MIS Fathul Iman, almost all grade 1 students overcame boredom thanks to the windmill teaching aids. They also actively answered during the learning process.

D. Conclusion

The study results can conclude that using the Multiplication Wheel media can significantly improve students' arithmetic skills in mathematics learning, especially in multiplication material. This media offers an enjoyable learning experience through interactive visualization, making it easier for students to understand the concept of multiplication and increase their motivation to learn.

This study suggests that students use the multiplication wheel media in mathematics learning because it has been designed to be practical and easy to use. In addition, teachers can also use it when students start to lose interest in learning in class because this media can help increase their learning motivation. Thus, the classroom atmosphere becomes more enjoyable, and the learning process can occur more effectively.

Suggestions are also given for further research, especially in improving the shortcomings found in this study. Many other media can still be developed to handle similar problems, allowing further exploration to support teachers and students in overcoming learning challenges. Thus, the results obtained are expected to be more optimal than before. This research will be a reference for further research.

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