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Improving Second-Grade Students' Mathematics Learning Outcomes on Picture Diagram Material through Picture-Based Media at Public Elementary School 018 Bukit Sembilan

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Abstract:

Mathematics learning is a structured process in which students acquire learning experiences through systematically planned instructional activities. This study was conducted in response to students' low interest and engagement in the mathematics learning process. The purpose of this research was to improve students' understanding of picture diagram material in mathematics through the use of picture-based media. The study employed a Classroom Action Research (CAR) design conducted in two cycles at Public Elementary School 018 Bukit Sembilan, focusing on second-grade mathematics instruction using visual media. Data were collected through achievement tests administered at the end of each learning cycle to measure students' learning outcomes. The results indicated that the use of picture media significantly improved students' mathematics learning outcomes. At the initial stage, the average student score was 70, with only 5 out of 18 students achieving the minimum mastery criterion (KKM = 75). After the implementation of colorful star picture media in Cycle I, the average score increased to 81, with 12 students meeting the KKM. In Cycle II, the average score further increased to 91, and all 18 students achieved mastery. These findings demonstrate that the use of visual media is effective in improving mathematics learning outcomes and enhancing students' engagement and interest in the learning process.

Keywords:

Visual media, learning motivation, mathematics learning.

Abstrak:

Pembelajaran matematika merupakan proses terstruktur yang memberikan pengalaman belajar kepada siswa melalui kegiatan pembelajaran yang direncanakan secara sistematis. Penelitian ini dilakukan sebagai respons terhadap rendahnya minat dan keterlibatan siswa dalam proses pembelajaran matematika. Tujuan penelitian ini adalah untuk meningkatkan pemahaman siswa terhadap materi diagram gambar dalam pembelajaran matematika melalui penggunaan media gambar. Metode yang digunakan dalam penelitian ini adalah Penelitian Tindakan Kelas (PTK) yang dilaksanakan dalam dua siklus di SDN 018 Bukit Sembilan, dengan fokus pada pembelajaran matematika kelas II menggunakan media visual. Pengumpulan data dilakukan melalui pemberian tes hasil belajar kepada siswa pada akhir setiap siklus pembelajaran untuk mengetahui capaian nilai siswa. Hasil penelitian menunjukkan bahwa penggunaan media gambar secara signifikan dapat meningkatkan hasil belajar matematika siswa. Pada tahap awal, nilai rata-rata siswa hanya mencapai 70, dengan 5 dari 18 siswa yang memenuhi Kriteria Ketuntasan Minimal (KKM = 75). Setelah penerapan media gambar bintang berwarna pada siklus I, nilai rata-rata siswa meningkat menjadi 81, dengan 12 siswa mencapai KKM. Pada siklus II, nilai rata-rata siswa kembali meningkat menjadi 91, dan seluruh siswa (18 orang) telah mencapai KKM. Simpulan dari penelitian ini menunjukkan bahwa penggunaan media visual efektif dalam meningkatkan hasil belajar matematika serta meningkatkan keterlibatan dan minat siswa dalam proses pembelajaran.

Kata Kunci:

Media gambar, motivasi belajar, pembelajaran matematika.

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Institut Agama Islam Negeri Madura, Indonesia**INTRODUCTION**

Mathematics is a fundamental subject in elementary education because it plays a vital role in developing students' cognitive abilities, particularly in logical thinking, analytical reasoning, and problem-solving skills (Nurfadhillah et al., 2021). Through mathematics learning, students are expected not only to master numerical operations but also to understand concepts deeply and apply them in meaningful situations encountered in daily life. Therefore, the ultimate goal of mathematics education is to equip students with both conceptual understanding and practical skills that support lifelong learning (Muhsetyo, 2021).

One essential aspect of mathematics learning is the development of mathematical connection skills, which refer to students' ability to relate mathematical concepts to one another, link mathematics with other subject areas, and apply mathematical ideas to real-life contexts. These skills enable students to see mathematics as an integrated body of knowledge rather than as isolated formulas or procedures. Although every student possesses mathematical connection skills, the level of mastery varies significantly. Students with well-developed mathematical connections tend to understand learning materials more holistically, retain concepts for longer periods, and demonstrate greater flexibility in applying mathematical knowledge to solve problems.

Despite its importance, mathematics is frequently perceived as a difficult and abstract subject by students, especially at the elementary school level. This perception arises largely because mathematics relies heavily on symbolic language, including numbers, symbols, and diagrams, which can be challenging for young learners who are still in the concrete operational stage of cognitive development. Nevertheless, symbolic language is indispensable in mathematics because it allows complex ideas to be represented concisely, systematically, and logically (Hastuti, 2019). The challenge for educators lies in bridging the gap between abstract symbols and students' concrete ways of thinking.

In practice, many elementary school students experience difficulties in understanding mathematics lessons that involve abstract representations, such as picture diagrams. Picture diagrams are intended to support comprehension by

visualizing data or relationships; however, without appropriate instructional strategies and media, students may struggle to interpret them meaningfully. This situation was observed in the mathematics learning process of second-grade students at SDN 018 Bukit Sembilan. Initial observations revealed that students showed low interest and limited engagement during mathematics lessons involving picture diagram material. Many students appeared passive, hesitant to participate, and reliant on teacher explanations rather than actively constructing understanding.

Data collected during the pre-cycle phase further confirmed this condition. Out of 18 second-grade students, only five students successfully achieved the Minimum Mastery Criterion (KKM) of 75, while the remaining 13 students did not meet the expected learning outcomes. This low level of achievement indicates that the instructional approach used in the classroom had not yet facilitated optimal understanding of the material. One contributing factor identified by the researchers was the use of learning media that were less effective and insufficiently engaging for students at the elementary level.

Learning quality is closely related to students' learning outcomes. When instruction is delivered through monotonous methods and limited media, students tend to lose motivation, become disengaged, and experience difficulties in understanding abstract concepts. Consequently, instructional innovation is essential in mathematics learning, particularly at the elementary level, where students require concrete, visual, and interactive learning experiences. Effective learning management supported by appropriate learning media can create a meaningful learning environment that enhances students' motivation and academic achievement.

Learning media serve as tools that help teachers convey instructional content more clearly and efficiently. Well-designed media can transform abstract mathematical concepts into concrete representations that are easier for students to understand. According to Cahyati and Rhosalia (2020), learning media that are engaging and aligned with students' needs can significantly increase learning motivation. In addition, teaching aids play a crucial role in improving the effectiveness and fluency of the learning process, especially in mathematics instruction, where students often face conceptual difficulties (Riki & Sutisna, 2020). Learning media also facilitate the learning process by helping students interpret information more practically and meaningfully (Wahab, 2021).

One type of learning media that is particularly suitable for teaching picture diagram material is image-based media. Image media are visual learning tools that utilize

pictures, colors, and graphics to present information in an attractive and concrete manner. Through image-based media, students can visualize mathematical concepts more clearly and feel as though they are observing real situations rather than abstract representations. In elementary education, visual media are especially important because they align with students' cognitive development, which still relies heavily on concrete experiences.

In the learning process, media function as an integral component that fosters interaction between teachers and students, thereby creating a more dynamic and reciprocal learning environment (Akrim, 2021). Previous studies support the effectiveness of image media in mathematics learning. Winarto et al. (2023) reported that the use of image-based media can enhance students' mathematical understanding and increase their interest and engagement in learning activities. These findings suggest that selecting appropriate visual media can help students comprehend mathematical concepts more easily and meaningfully.

Based on the theoretical and empirical considerations above, it is evident that improving mathematics learning outcomes requires the integration of effective instructional strategies and appropriate learning media. Therefore, this study focuses on implementing image-based media to improve mathematics learning outcomes on picture diagram material for second-grade students at SDN 018 Bukit Sembilan. This research was conducted using Classroom Action Research, aiming to refine instructional practices and enhance students' understanding, engagement, and achievement in mathematics learning.

METHOD

This study employed the Classroom Action Research (CAR) method based on the Kemmis and McTaggart model, which is widely used to improve the quality of classroom learning through reflective and cyclical actions. Classroom Action Research is defined as a systematic inquiry conducted by teachers in their own classrooms to enhance instructional practices and learning outcomes through planned actions, observation, and reflection (Arikunto, 2021). The research was implemented in two cycles, each consisting of four stages: planning, action, observation, and reflection.

The primary data collection technique used in this study was a written test designed to measure students' understanding of mathematics learning, specifically on picture diagram material using picture-based media. The test consisted of descriptive

questions aligned with the indicators of basic competencies in data presentation material and was administered at the end of each cycle to assess students' cognitive learning outcomes (Sutoyo, 2021; Agustina et al., 2021). In addition to the written test, students were asked to complete Student Worksheets (LKPD) to support the assessment of learning outcomes and to evaluate students' understanding during the learning process. Therefore, students' test scores served as the primary data, while observation results and LKPD outcomes functioned as supporting data.

Data analysis in this study employed a combination of quantitative descriptive analysis and qualitative reflection. Quantitative analysis was conducted by calculating students' scores and learning achievement levels in each cycle, which were then compared with the results from the previous cycle to identify improvements in learning outcomes. Qualitative analysis was derived from observation data, which were used to reflect on students' learning behaviors, engagement, and responses to the use of picture media during the instructional process. This combined analysis technique was chosen because it provides a more comprehensive and accurate interpretation of the learning process and outcomes.

The research was conducted at SDN 018 Bukit Sembilan, Bangkinang District, Kampar Regency, from May 8 to May 15. The focus of the study was mathematics learning on picture diagram material using picture media as instructional support. The research subjects consisted of 18 second-grade students, including 12 male students and 6 female students. Two research cycles were implemented to ensure the effectiveness of the selected learning media and to observe consistent improvements in students' learning outcomes.

RESULTS AND DISCUSSION

This section presents and discusses the results of the classroom action research conducted to improve second-grade students' mathematics learning outcomes on picture diagram material through the use of picture-based media. The findings are described systematically across three stages, namely the pre-cycle, Cycle I, and Cycle II, to illustrate changes in students' learning outcomes and learning processes following the implementation of instructional improvements.

Pre-Cycle Results of Students' Mathematics Learning Outcomes on Picture Diagram Material

The results of the study indicate that the use of visual media in mathematics instruction, specifically diagrams, for second-grade students at SDN 018 Bukit Sembilan significantly improved student learning outcomes in each cycle. In the pre-cycle activities, the average student score was only 70 out of a total of 18 students. Of all the students in the class, only five scored above the minimum completeness criteria (KKM). Therefore, learning outcomes in the pre-cycle stage were still very low. The test results for the first cycle are presented in Table 1 below.

No.	Name	Learning outcomes	Learning completion
1	Andrew Tama Ziliwu	70	Incomplete
2	Arga Putra Alrfi	70	Incomplete
3	Bintang Berlian	65	Incomplete
4	Calya Assyifatu Haifa	70	Incomplete
5	Galih Desnet Maulana	70	Incomplete
6	Khanaya Wahyuni	75	Complete
7	M.Sunanda	65	Incomplete
8	M.Alhafiz	80	Tuntas
9	M.Baihaqi Al Azam	65	Incomplete
10	M.Fazila Fajri	70	Incomplete
11	M.Rasyid Al Arif	75	Complete
12	Melisa Calista	60	Incomplete
13	Najwa Putri Davinda	80	Complete
14	Prasista Cahya	70	Incomplete
15	Salsabila	80	Complete
16	Shakila Tri Azzahra	60	Incomplete
17	Raditia	65	Incomplete
18	Wahyu Saputra	70	Incomplete
	Average	70	

Table 1. List of Pre-Cycle Scores for Second-Grade Students at SDN 018 Bukit Sembilan

Table 1 presents the pre-cycle mathematics learning outcomes of second-grade students at SDN 018 Bukit Sembilan on picture diagram material. The results show that students' scores ranged from 60 to 80, with an average score of 70, which is below the established Minimum Mastery Criterion (KKM) of 75. Of the 18 students, only five students achieved scores meeting or exceeding the KKM, while the remaining 13 students were categorized as incomplete. This distribution indicates that the majority of students had not yet mastered the picture diagram material during the pre-cycle stage.

The low learning outcomes observed in the pre-cycle stage indicate that the learning process had not effectively supported students' understanding of picture diagram material. Learning activities were predominantly conducted using conventional teaching methods with minimal integration of visual learning media. Consequently, students experienced difficulties in interpreting diagram-based information, which requires the ability to connect abstract mathematical concepts with concrete

representations. This situation led to passive learning behavior, limited student participation, and low learning motivation, ultimately affecting students' learning outcomes.

From a cognitive development perspective, second-grade elementary school students are generally in the concrete operational stage, as proposed by Piaget, in which children understand concepts more effectively when learning involves concrete objects and visual representations rather than abstract verbal explanations (Piaget, 1971; Santrock, 2011). Mathematical concepts such as picture diagrams require students to interpret visual data and recognize relationships between quantities, which can be challenging when instruction does not provide adequate visual support. As a result, reliance on teacher-centered explanations alone may hinder students' ability to construct meaningful understanding.

In addition, Bruner's theory of representation emphasizes that effective learning occurs through a progression from enactive (action-based), iconic (image-based), to symbolic (abstract) representations (Bruner, 1966). During the pre-cycle stage, the absence of image-based learning media limited students' engagement in the iconic representation phase, which is essential for understanding diagrammatic material. Consequently, students struggled to transition from concrete experiences to abstract mathematical symbols, leading to low achievement levels. Furthermore, learning motivation theory suggests that engaging instructional media play a crucial role in increasing students' attention and interest in learning (Hamalik, 2011). The lack of attractive visual media in the pre-cycle stage contributed to low student involvement and suboptimal learning outcomes.

Based on these theoretical perspectives, the findings of the pre-cycle stage confirm that inadequate learning media and teacher-centered instruction significantly contributed to low student achievement in mathematics. Therefore, instructional improvement through the use of engaging and concrete learning media—particularly picture-based media—is necessary to facilitate students' conceptual understanding and active participation in the learning process. Based on these results, the researcher concludes that mathematics learning on picture diagram material at SDN 018 Bukit Sembilan had not yet met the criteria for effective learning. This conclusion formed the basis for implementing instructional actions in Cycle I, which aimed to improve students' mathematics learning outcomes through the integration of picture media.

Students' Mathematics Learning Outcomes on Picture Diagram Material in Cycle I

In Cycle I, visual media were implemented in the learning process, specifically through the use of colorful star images to support students' understanding of picture diagram material in Grade II at SDN 018 Bukit Sembilan. The use of visual media encouraged students to become more actively involved in learning activities and resulted in improved learning outcomes compared to the pre-cycle stage, during which instructional media had not yet been optimally utilized. At the end of Cycle I, 12 out of 18 students successfully met the Minimum Mastery Criterion, with an average score of 81. The detailed results of students' learning outcomes in Cycle I are presented in Table 2 below.

No.	Name	Learning outcomes	Learning completion
1	Andrew Tama Ziliwu	80	Complete
2	Arga Putra Arfi	70	Incomplete
3	Bintang Berlian	70	Incomplete
4	Calya Assyifatu Haifa	80	Complete
5	Galih Desnet Maulana	80	Complete
6	Khanaya Wahyuni	70	Complete
7	M.Sunanda	65	Incomplete
8	M.Alhafiz	85	Complete
9	M.Baihaqi Al Azam	70	Incomplete
10	M.Fazila Fajri	75	Complete
11	M.Rasyid Al Arif	80	Complete
12	Melisa Calista	85	Complete
13	Najwa Putri Davinda	85	Complete
14	Prasista Cahya	80	Complete
15	Salsabila	85	Complete
16	Shakila Tri Azzahra	70	Incomplete
17	Raditia	70	Incomplete
18	Wahyu Saputra	80	Complete
	Average	81	

Table 2. Cycle I Score List of Grade 2 Students at SDN 018 Bukit Sembilan

Table 2 presents the mathematics learning outcomes of second-grade students at SDN 018 Bukit Sembilan in Cycle I following the implementation of picture-based media using colorful star images. The results indicate that students' scores ranged from 65 to 85, with an average score of 81, exceeding the established Minimum Mastery Criterion (KKM) of 75. Of the 18 students, 12 students achieved scores that met or exceeded the KKM, while six students remained in the incomplete category. Compared to the pre-cycle stage, this finding reflects a substantial increase in the number of students achieving mastery, indicating improved understanding of picture diagram material.

The improvement in learning outcomes in Cycle I demonstrates the effectiveness of visual learning media in supporting students' comprehension of diagram-based mathematical concepts. From a cognitive learning perspective, visual media play a critical role in facilitating information processing and organization. Dual Coding Theory posits that learning becomes more effective when information is presented through both

verbal and visual channels, enabling learners to construct stronger and more meaningful mental representations (Paivio, 1986). In this study, the use of colorful star images helped students visualize abstract diagram concepts, thereby reducing cognitive load and enhancing conceptual understanding.

These findings are also consistent with Piaget's theory of cognitive development, which explains that elementary school students at the concrete operational stage learn more effectively when abstract concepts are supported by concrete and visual representations (Piaget, 1971; Santrock, 2011). By integrating picture-based media, students were able to associate numerical data with visual symbols, which improved their ability to interpret picture diagrams. This approach minimized students' dependence on teacher explanations and encouraged more active engagement during the learning process.

Furthermore, the results align with Bruner's theory of representation, which emphasizes that effective learning progresses through enactive, iconic, and symbolic stages (Bruner, 1966). The implementation of picture media in Cycle I strengthened the iconic stage of learning, allowing students to transition more smoothly from concrete experiences to symbolic mathematical understanding. As a result, students demonstrated increased motivation, participation, and achievement in mathematics learning.

Based on the results of Cycle I, the researcher concludes that the integration of picture-based media had a positive impact on students' mathematics learning outcomes on picture diagram material. The increase in both the average score and the number of students achieving the KKM indicates that visual media effectively supported students' understanding of abstract mathematical concepts. However, since six students had not yet reached mastery, further instructional refinement was required. Consequently, improvements in instructional strategies and media utilization were planned for Cycle II to ensure more equitable learning outcomes across all students.

Students' Mathematics Learning Outcomes on Picture Diagram Material in Cycle II

In Cycle II, students' mathematics learning outcomes showed a significant improvement. At this stage, more varied visual media were implemented in the learning process, including fruit images to support students' understanding of picture diagram material in Grade II at SDN 018 Bukit Sembilan. The use of more diverse and contextual images increased students' engagement and interest in learning, which

positively impacted their learning outcomes. As a result, all 18 students successfully achieved scores above the established Minimum Mastery Criterion (KKM), indicating that none of the students remained in the incomplete category. This finding demonstrates that the use of picture-based media was effective in improving students' mathematics learning outcomes on picture diagram material. The detailed results of students' learning outcomes in Cycle II are presented in Table 3 below.

No.	Name	Learning outcomes	Learning completion
1	Andrew Tama Ziliwu	90	Complete
2	Arga Putra Arfi	95	Complete
3	Bintang Berlian	90	Complete
4	Calya Assyifatu Haifa	100	Complete
5	Galih Desnet Maulana	100	Complete
6	Khanaya Wahyuni	90	Complete
7	M.Sunanda	85	Complete
8	M.Alhafiz	100	Complete
9	M.Baihaqi Al Azam	80	Complete
10	M.Fazila Fajri	90	Complete
11	M.Rasyid Al Arif	95	Complete
12	Melisa Calista	90	Complete
13	Najwa Putri Davinda	100	Complete
14	Prasista Cahya	80	Complete
15	Salsabila	100	Complete
16	Shakila Tri Azzahra	90	Complete
17	Raditia	85	Complete
18	Wahyu Saputra	90	Complete
	Average	91	

Table 3. List of Grade 2 Students' Cycle II Scores

Table 3 presents the mathematics learning outcomes of second-grade students at SDN 018 Bukit Sembilan in Cycle II following the implementation of more varied and contextual picture-based media. The data show that students' scores ranged from 80 to 100, with an average class score of 91, which is well above the established Minimum Mastery Criterion (KKM). All 18 students achieved scores meeting or exceeding the KKM, indicating 100% mastery at the class level. This result demonstrates a substantial improvement compared to both the pre-cycle and Cycle I stages and confirms the effectiveness of picture-based media in enhancing students' understanding of picture diagram material.

The significant improvement in students' learning outcomes in Cycle II reflects the effectiveness of integrating varied and contextual visual media into mathematics instruction. From the perspective of Dual Coding Theory, learning is optimized when information is presented simultaneously through verbal explanations and visual representations, allowing students to process information through multiple cognitive channels (Paivio, 1986). The use of fruit images as visual representations in Cycle II helped students more easily interpret diagrammatic data, strengthening their conceptual understanding.

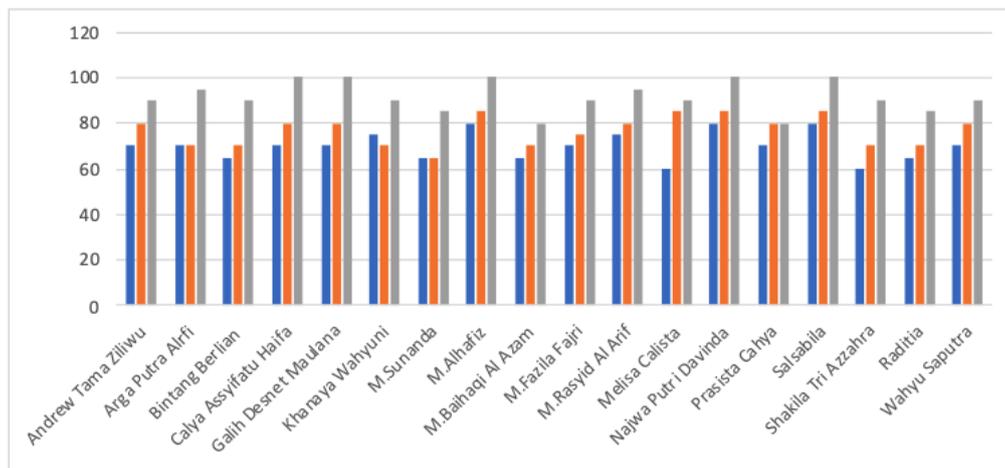
This finding is also consistent with Piaget's theory of cognitive development, which posits that children in the concrete operational stage learn most effectively when abstract concepts are presented through concrete and observable representations (Piaget, 1971; Santrock, 2011). By employing familiar and meaningful images, such as fruits, students were able to relate mathematical concepts to real-life contexts, thereby enhancing comprehension and retention.

Furthermore, Bruner's theory of representation emphasizes that meaningful learning occurs when instruction supports the transition from enactive and iconic representations to symbolic understanding (Bruner, 1966). In Cycle II, the strengthened use of iconic representations through diverse visual media facilitated students' progression toward symbolic mathematical reasoning. This instructional approach also aligns with constructivist learning theory, which asserts that students actively construct knowledge when they are engaged in meaningful and context-rich learning experiences (Fosnot, 2013).

In addition, learning motivation theory highlights that attractive and varied instructional media can significantly increase students' attention, interest, and engagement in learning activities (Hamalik, 2011). The increased student enthusiasm observed in Cycle II supports this theoretical view, as students became more actively involved and confident in interpreting picture diagrams, which directly contributed to improved learning outcomes.

Based on the results of Cycle II, the researcher concludes that the use of varied and contextual picture-based media was highly effective in improving second-grade students' mathematics learning outcomes on picture diagram material at SDN 018 Bukit Sembilan. The achievement of 100% mastery and a high class average score indicates that students were able to understand and apply mathematical concepts more effectively when learning was supported by concrete and meaningful visual representations. Therefore, the researcher considers that the instructional objectives of this classroom action research were successfully achieved in Cycle II, and no further corrective actions were required. The findings also suggest that picture-based media can be recommended as an effective instructional strategy for teaching picture diagram material in elementary mathematics classrooms.

The following is a comparison chart of student scores to clarify student progress in each cycle. The comparison of test results for each cycle is shown in Figure 1 below.



Student Score Comparison Diagram (Pre-Cycle, Cycle I, and Cycle II)

Note:

Blue (Pre-Cycle)

Orange (Cycle I)

Grey (Cycle II)

Figure 1. Student Score Comparison Diagram in Each Cycle

Figure 1 illustrates a comparison of students' mathematics learning outcomes across the pre-cycle, Cycle I, and Cycle II stages. The diagram shows a consistent upward trend in student scores from one cycle to the next. In the pre-cycle stage, many students had not yet achieved the Minimum Mastery Criterion (KKM). However, after the implementation of picture-based visual media in Cycle I, there was a noticeable increase in the number of students who met the KKM. This improvement became more pronounced in Cycle II, where all students successfully achieved scores above the KKM. Overall, the figure demonstrates that students' learning outcomes improved progressively in each cycle following the integration of visual learning media.

The improvement pattern shown in Figure 1 confirms the effectiveness of visual media in enhancing students' mathematics learning outcomes. From a cognitive learning perspective, visual media help learners process information more efficiently by providing concrete representations of abstract concepts. According to Dual Coding Theory, learning is strengthened when information is presented through both verbal and visual channels, as this allows learners to form richer mental representations and improves retention (Paivio, 1986). The consistent increase in student scores across cycles supports this theoretical framework.

These findings are also aligned with constructivist learning theory, which emphasizes that students actively construct knowledge through meaningful learning experiences supported by appropriate learning tools (Fosnot, 2013). By using visual media such as pictures and diagrams, students were able to connect mathematical concepts with real-life contexts, making learning more meaningful and accessible.

The results of this study are consistent with the findings of Winarto et al., who reported that the use of interactive visual media and instructional videos significantly improved elementary students' understanding of mathematical word problems and increased their learning motivation. Similarly, Fitri (2023) defines innovative learning media as new concepts, practices, or tools that can enhance the quality of instruction. The present study supports this view, as the integration of picture-based media created a more engaging learning environment that positively influenced students' achievement.

In addition, research conducted by Nurfadhillah et al. (2021) emphasizes the importance of selecting appropriate learning media in mathematics instruction at the elementary level. Their study recommends the use of concrete media (realia) and visual media to determine which types of media are most effective for students' understanding. The findings of the current study reinforce this recommendation, demonstrating that visual media play a significant role in improving students' comprehension and learning outcomes in mathematics.

Based on the comparison of student learning outcomes across all cycles, the researcher concludes that the use of picture-based visual media was highly effective in improving mathematics learning outcomes at SDN 018 Bukit Sembilan. The consistent increase in scores from the pre-cycle stage to Cycle II indicates that visual media not only enhanced students' understanding of picture diagram material but also increased their interest and active participation in the learning process. Therefore, the researcher asserts that selecting and utilizing appropriate visual learning media is a crucial factor in improving the quality of mathematics instruction and student achievement in elementary schools.

CONCLUSION

This study demonstrates that the use of picture-based media in mathematics learning significantly improves the learning outcomes of second-grade students at SDN 018 Bukit Sembilan. The findings show a consistent increase in students' average scores across the research cycles, from 70 in the pre-cycle, with only 5 out of 18 students achieving the Minimum Mastery Criterion (KKM), to 81 in Cycle I, with 12 students achieving the KKM, and reaching 91 in Cycle II, where all students successfully met the KKM. These results indicate that the systematic integration of image media effectively supports students' understanding of picture diagram material.

In addition to improving academic achievement, the use of image-based media also enhanced student engagement, motivation, and active participation in the learning

process. Visual representations helped students connect abstract mathematical concepts with concrete and familiar contexts, making learning more meaningful and accessible. Therefore, image media not only function as instructional aids but also serve as effective tools for fostering an active and student-centered learning environment.

Based on these findings, this study suggests that the effective and innovative use of learning media, particularly visual media, can significantly contribute to improving the quality of mathematics instruction and student learning outcomes in elementary schools. The results of this research are expected to serve as a reference for teachers and educational institutions in designing more engaging and effective learning experiences that align with students' developmental characteristics.

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