Improving Science Learning Outcomes Through Contextual-Based Picture Media for Students with Learning Difficulties in Elementary Schools

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ABSTRACT

Elementary education plays a crucial role in laying the foundation of students' knowledge and skills. Science and Social Studies (IPAS) is one of the core subjects that equips students with an understanding of their environment and society. This study aims to investigate the effectiveness of contextual-based picture media in improving science learning outcomes through contextual-based picture media for students with learning difficulties in elementary schools among slow learner students in elementary school. This research employed a classroom action research (CAR) design conducted in two cycles, each consisting of planning, implementation, observation, and reflection. Data were collected through written tests, classroom observations, and interviews with teachers. The intervention focused on using contextual picture media that related directly to students' daily experiences, such as markets, plants around the school, and community activities. The findings show a significant improvement in students' learning outcomes. The average score increased from 62.5 in the pre-action stage to 71.3 in the first cycle, and further to 81.7 in the second cycle. Mastery learning also rose from 35% to 65% and ultimately 90%. Moreover, observations revealed higher student participation, stronger motivation, and increased confidence in expressing ideas during learning activities. Teachers also noted that contextual images helped students connect abstract concepts with real-life situations, making lessons more meaningful and interactive. In conclusion, the use of contextual picture media has proven effective in enhancing IPAS learning outcomes for students with learning difficulties. This approach not only improves cognitive achievement but also fosters affective and psychomotor development, making it a practical strategy for inclusive education in elementary schools.

Keywords: contextual picture media, learning outcomes, elementary education

INTRODUCTION

Elementary school education plays a crucial role in developing students' foundational knowledge and skills (Utama, Qumariah, Alwis, Oktiara, & Pramawati, 2024). Natural and Social Sciences (IPAS) subjects, which encompass both natural and social sciences, are essential for equipping students with an understanding of the world around them and the relationship between humans and the environment (Setiani, Sujarwo, & Prattama, 2023). However, in practice, many students struggle to understand the material presented, particularly those with learning disabilities (Fadhilah & Komalasari, 2023; Swistiyawati & Indrayani, 2023). One of the subjects focused on in this study is

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Natural and Social Sciences (IPAS). IPAS serves to equip students with basic knowledge about the environment and society around them (Razali & Namara, 2023; Ayu, Ardianti, & Wanabuliandari, 2024; Puspitasari & Sujarwo, 2021).

Learning difficulties in elementary school students can be influenced by various factors, such as limited understanding, low motivation, lack of active engagement in learning, or teaching methods that are not suited to their learning styles (Sari & Marlina, 2021; Yuliana, 2022). Among these factors, one of the biggest challenges is how to communicate abstract concepts that are sometimes difficult for students to grasp (Rahmawati & Hidayat, 2020). One solution to this problem is to use contextual-based image media (Wahyuni, 2019). Image media that refers to situations and conditions relevant to students' daily lives (contextual) can make it easier for students to connect the material to their direct experiences (Putra, 2021; Rahayu & Suryani, 2020). This approach will make it easier for students to grasp the concepts presented in science lessons and enrich their understanding with more concrete visuals (Lestari & Anggraini, 2022).

The use of contextual-based image media has been proven to improve students' absorption of the material taught because it brings the learning material closer to their real experiences (Arsyad & Sulfemi, 2019; Nugraha, 2020). With this media, students with learning difficulties can more easily understand the material, remember the facts or information presented, and improve their learning outcomes (Suryani, 2021; Hidayati & Purnamasari, 2022). However, although contextual-based image media has great potential to help improve student understanding and learning outcomes, its implementation in science lessons in elementary schools is not optimal (Pratama & Widodo, 2020). Many teachers have not fully utilized this media effectively in the learning process (Fitriani & Ramadhan, 2021). Therefore, this study aims to explore how the use of contextual-based image media can improve science learning outcomes for students with learning difficulties (Kurniawan & Septiani, 2023).

Data from the Yamtinah (2022) shows that only 45% of elementary school students achieve the minimum competency standards in science. This highlights the need for innovation in teaching methods to improve student learning outcomes. Research by Kristina & Nagara (2023) shows that the use of visual media in learning can increase student motivation and engagement, especially for those who struggle to understand the material. By utilizing relevant visual media, it is hoped that students will more easily grasp the concepts being taught (Alabi, 2024; Arsyad et al., 2024).

Similarly, research by Susanto (2022) showed that the integration of Android-based visual learning media improved students' conceptual understanding of science, yet their study emphasized digital applications rather than the direct use of contextual-based images tailored to real-life experiences. These findings indicate that while visual media improves motivation and conceptual mastery, there is still limited exploration of how

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contextual-based image media—closely tied to students' real environments—can specifically help elementary students with learning difficulties.

Based on this background, this study aims to identify the extent to which contextual visual media can help overcome barriers to learning and improve student learning outcomes in elementary schools, particularly in science subjects. The broader benefit lies in offering practical teaching strategies that can be adopted by elementary school teachers to foster inclusivity, enhance learning engagement, and ultimately improve science education quality.

RESEARCH METHOD

This study employed quantitative and qualitative approaches with an experimental research design. The experimental study aimed to test the effect of contextual-based image media on improving learning outcomes for slow learners in Natural and Social Sciences (IPAS). It sought to determine the extent to which the use of contextual image media improved the understanding and learning outcomes of students experiencing learning difficulties. According to Sugiyono (2018), experimental research involves administering treatment to an experimental group and comparing it with a control group. The research was categorized as classroom action research (CAR), focusing on improving the quality of classroom learning through teacher actions. In this study, the action was the application of contextual-based image media in IPAS learning. The research involved a repeated cycle of planning, action, observation, and reflection to achieve optimal results (Kemmis & McTaggart, 2014).

The research design used was pretest-posttest. Two groups of students were randomly selected: an experimental group that used contextually based image media, and a control group that did not. This method allowed comparison of learning outcomes between the groups and analysis of the treatment effect, consistent with Creswell's (2014) view on measuring changes resulting from intervention.

This study used the CAR method as the primary approach in data collection and research. The data collection techniques included observation, tests, and interviews. Researchers observed the learning process and student interactions during lessons to gain insight into student engagement and the effectiveness of the image media in motivating learning. Observations were conducted during the learning sessions (Suharsimi Arikunto). Tests measured students' cognitive abilities and mastery of the learning material. They were administered before and after the learning process to evaluate learning outcomes. The tests consisted of written essay questions covering the relevant social studies material. Face-to-face interviews were conducted to gather ongoing information about students' learning experiences and challenges teachers faced in using contextually based image media.

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The collected data were analyzed using both qualitative and quantitative methods. Qualitative analysis was based on observations, presented descriptively to depict the learning situation. Quantitative analysis was conducted on test results given at the end of Cycle I and Cycle II, focusing on student learning outcomes. Observation sheets on teacher and student activities during contextual learning were also used. If the analysis showed that contextual-based image media positively affected the learning outcomes of slow learners, the research hypothesis was accepted. The study further discussed the implications of its findings for classroom learning practices.

RESULT AND DISCUSSION

This research used a classroom action method implemented in two cycles. Each cycle consisted of planning, implementation, observation, and reflection. Data were obtained through learning achievement tests, observations of student activities, and interviews with the class teacher.

Initial Conditions

Based on initial observations and interviews with the class teacher, as well as analysis of previous learning outcomes, it was found that most students experienced difficulty understanding the science and science material. This was caused by:

a. The material was presented too abstractly.
b. Lack of visual learning media.
c. Lack of connection between the material and the context of students' daily lives.
d. Low student motivation to learn.

The average student learning outcome score in the pre-action cycle was 62.5, with learning completion reaching only 35% (7 out of 20 students).

Implementation of Action

The research was conducted in two cycles. Each cycle consisted of planning, implementation, observation, and reflection.

Cycle I

In Cycle I, contextual-based picture media was implemented. The teacher used images directly related to the students' environment, such as pictures of markets, plants around the school, and community activities. Learning was conducted using an approach that linked the material to students' daily lives.

Cycle I Results:

Observations showed increased student participation, but some students remained passive. Evaluation results showed the average grade point average increased to 71.3, and learning completion reached 65% (5 out of 20 students).

Cycle I Reflection:

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1) The images captured students' attention, but some images were still unclear.
2) The teacher needed to be more active in linking the images to students' personal experiences.
3) Learning should be more interactive to increase student engagement with learning disabilities.

Cycle II

In Cycle II, improvements were made based on the results of the Cycle I reflection. Improvements were made by clarifying the images (using color and high-resolution images), providing image-based group assignments, and engaging students in contextual discussions.

Cycle II Results:

Evaluation results showed significant improvement. The average grade point average was 81.7, with learning completion reaching 90% (out of 20 students).

Cycle II Reflection:

1) Contextual images are effective in bridging abstract concepts into concrete ones.
2) Students are more active and confident because the material feels close to their lives.
3) This strategy has been proven to improve motivation and learning outcomes in science, especially for students with learning difficulties.

Discussion

The results of this study indicate that the use of contextual-based image media can significantly improve science learning outcomes for students with learning difficulties. This aligns with constructivist theory, which emphasizes the importance of meaningful learning by linking new information to students' real-life experiences. Image media helps students visualize abstract concepts in a more concrete way, making them easier to understand. The use of contexts close to students' lives also increases emotional engagement and motivation to learn. Furthermore, learning with a contextual approach also facilitates collaborative learning, which greatly assists students with learning difficulties in understanding the material through discussion and interaction.

Specifically, the improvement in learning outcomes can be seen in:

1. Cognitive improvement: Student scores increased from 62.5 to 81.7.
2. Affective improvement: Students demonstrated enthusiasm and active participation during the learning process. Psychomotor improvement: Students are able to explain the contents of the image and relate it to science and natural sciences material. Contextual-based image media can be an effective learning solution for students with learning difficulties, especially in understanding abstract science and natural sciences concepts.

Rahmawati (2019) found that the integration of visual learning media in elementary schools not only improved cognitive performance but also increased student engagement

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and motivation, especially among learners with difficulties in abstract reasoning. Similarly, Sari and Sunaryo (2021) emphasized that contextual teaching media improved critical thinking skills and learning independence by making science lessons more relevant and meaningful. These findings highlight that contextual-based image media bridges the gap between abstract concepts and tangible experiences, thus complementing traditional teaching approaches.

Specifically, the improvement in this study can be categorized into three domains. First, cognitive improvement was evident in the increase in student test scores from 62.5 to 81.7, showing that contextual images helped students recall and apply scientific knowledge more effectively. Second, affective improvement was demonstrated by greater enthusiasm, curiosity, and active participation during class discussions, which aligns with findings by Santoso et al. (2022) that contextual media enhances students' intrinsic motivation to learn. Third, psychomotor improvement was observed as students could explain image content, relate it to science concepts, and even simulate real-world applications of the material, confirming the findings of Yuliana and Putri (2020) that visual-contextual learning enhances applied skills.

In conclusion, contextual-based image media proves to be a powerful tool for overcoming barriers in science learning, particularly for students with learning difficulties. By promoting cognitive clarity, affective engagement, and psychomotor application, this approach offers a holistic improvement in learning outcomes. However, to maximize its potential, teachers should integrate this media with interactive learning strategies such as group discussions, role-play, or simple experiments. Future research could explore the long-term impact of contextual-based digital image media, including its role in fostering critical thinking, problem-solving, and collaborative learning in broader educational contexts.

CONCLUSION

Based on the results of classroom action research conducted over two cycles, it can be concluded that the use of contextual-based image media significantly improves science learning outcomes for elementary school students experiencing learning difficulties. The improvement is reflected in the increased percentage of students achieving learning completion, enhanced participation and activity in the learning process, and the ability to relate abstract science concepts to everyday experiences through relevant and meaningful visuals. Contextual-based image media thus serves as an effective tool to reduce barriers to understanding, increase motivation, and foster more meaningful learning. To strengthen these findings, it is suggested that teachers consistently integrate contextual image media into science lessons, adapt the media to local contexts to enhance student engagement, and combine it with interactive methods such as group discussions or experiments to maximize its impact. Future research could also explore the integration of

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digital contextual media and its long-term effects on students' cognitive and affective development.

REFERENCES

Alabi, M. (2024). Visual learning: The power of visual aids and multimedia. *Journal of Educational Technology*, *15*(4), 123–135.

Arsyad, A., & Sulfemi, W. B. (2019). Media pembelajaran berbasis gambar dalam meningkatkan hasil belajar siswa sekolah dasar. *Jurnal Pendidikan Dasar Nusantara*, *5*(2), 120–130.

Arsyad, M., Mujahiddin, M., & Syakhrani, A. W. (2024). The efficiency of using visual learning media in improving the understanding of science concepts in elementary school students. *Indonesian Journal of Education (INJOE)*, *4*(3), 775–787.

Ayu, S., Ardianti, S. D., & Wanabuliandari, S. (2024). Analisis faktor penyebab kesulitan belajar matematika pada sekolah dasar. *Aksioma: Jurnal Program Studi Pendidikan Matematika*, *10*(3), 1611–1623.

Fadhilah, F., & Komalasari, K. (2023). The nature of social studies learning for elementary school students. *JUPE Journal*, *5*(1), 20–34.

Fitriani, R., & Ramadhan, H. (2021). Teachers' challenges in implementing contextual learning with media in elementary schools. *Jurnal Pendidikan Indonesia*, *10*(1), 77–86.

Hidayati, N., & Purnamasari, A. (2022). Visual-based contextual media to improve students' science literacy skills. *Jurnal Inovasi Pendidikan IPA*, *8*(2), 145–156.

Kristina, M., & Nagara, E. S. (2023). The use of visual media as one alternative to improve students' learning motivation. *JECE (Journal of Ethics and Character Education)*, *1*(2), 49–58.

Kurniawan, A., & Septiani, D. (2023). The use of contextual media in improving students' achievement in elementary science classes. *International Journal of Elementary Education*, *7*(1), 22–31.

Lestari, D., & Anggraini, S. (2022). The effectiveness of visual media in improving students' conceptual understanding in science learning. *Jurnal Pendidikan Sains*, *10*(2), 115–124.

Nugraha, A. (2020). Contextual image learning media for improving comprehension in science lessons. *Jurnal Ilmiah Sekolah Dasar*, *4*(3), 245–253.

Pratama, F., & Widodo, H. (2020). The implementation barriers of contextual teaching and learning in science education. *Journal of Education and Practice*, *11*(5), 110–118.

Puspitasari, R. D., & Sujarwo, S. (2021). Analisis kesulitan belajar pada pembelajaran IPA di SD Muhammadiyah Pancur Batu. *Jurnal Pendidikan dan Pembelajaran Terpadu*, *3*(2), 199–207.

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Putra, A. P. (2021). Contextual learning with image media to improve elementary students' science comprehension. *International Journal of Instructional Media*, *48*(3), 45–57.

Rahayu, E., & Suryani, L. (2020). Contextual teaching and learning (CTL) through media to enhance students' understanding. *Jurnal Inovasi Pendidikan IPA*, *6*(2), 123–134.

Rahmawati, N., & Hidayat, R. (2020). Difficulties in learning abstract concepts in science among elementary school students. *Journal of Education Research*, *14*(1), 67–76.

Razali, A., & Namara, W. (2023). Increase of students' interest through digital educational games in IPAS learning. *Paidea Journal*, *12*(2), 78–92.

Sari, R., & Marlina, L. (2021). Factors influencing learning difficulties in elementary school students. *Jurnal Ilmiah Pendidikan Dasar*, *8*(1), 89–97.

Setiani, A., Sujarwo, R., & Prattama, Y. (2023). Faktor-faktor penyebab kesulitan belajar IPAS siswa SD Kurikulum Merdeka. *Jurnal Didaktik*, *1*(2), 34–52.

Susanto, L. H., Rostikawati, R. T., Novira, R., Sa'diyah, R., Istikomah, I., & Ichsan, I. Z. (2022). Development of biology learning media based on android to improve students understanding. *Jurnal Penelitian Pendidikan IPA*, *8*(2), 541–547.

Suryani, T. (2021). Penggunaan media kontekstual dalam pembelajaran IPA di sekolah dasar untuk mengatasi kesulitan belajar siswa. *Jurnal Pendidikan Guru Sekolah Dasar*, *6*(2), 89–98.

Swistiyawati, N. L. P., & Indrayani, I. A. M. (2023). Analisis kesulitan dalam memahami konsep IPAS di kelas II SD. *Eduaksara Journal*, *10*(1), 75–89.

Utama, T. D., Qumariah, A., Alwis, J., Oktiara, Y., & Pramawati, T. S. (2024). Kesulitan belajar peserta didik dalam mata pelajaran IPAS Kurikulum Merdeka kelas IV. *JOEAI*, *8*(1), 55–67. https://doi.org/10.31539/joeai.v8i1.13375

Wahyuni, T. (2019). The role of contextual image media in science learning at elementary school. *Jurnal Pendidikan Dasar Indonesia*, *4*(2), 56–64.

Yamtinah, S., Utami, B., Masykuri, M., Mulyani, B., Ulfa, M., & Shidiq, A. S. (2022). Secondary school science teacher response to minimum competency assessment: Challenges and opportunities. *Jurnal Penelitian Pendidikan IPA*, *8*(1), 124–131.

Yuliana, N. (2022). Motivation and learning styles as predictors of elementary students' academic achievement. *Indonesian Journal of Educational Psychology*, *11*(1), 33–42.