



The Role of Two-Dimensional Instructional Media in Improving Elementary School Students' Conceptual Understanding

Intan Ardian Wardhani^{1*}, Merista Ayu Az-zahra², Muhammad Ardiansyah³,
Surayanah⁴

Universitas Negeri Malang, Malang, Indonesia

intan.ardian.2501516@students.um.ac.id¹,

merista.ayu.2501516@students.um.ac.id²,

muhammad.ardiansyah.2501516@students.um.ac.id³, surayanah.fip@um.ac.id⁴

ABSTRACT

Keywords:

2D Learning Media;
Conceptual
Understanding;
Elementary School;
Visual Media;
Learning Outcomes

This study aims to analyze the role of two-dimensional learning media in improving elementary school students' conceptual understanding. Using a qualitative literature review approach, the study examines relevant journals, books, and scientific articles. The findings indicate that two-dimensional media, including images, diagrams, and animations, help visualize abstract concepts, increase students' interest and motivation, and improve learning outcomes. The review shows that these media are particularly effective in mathematics and science learning while also enhancing student engagement. However, their effectiveness depends on teachers' competence in selecting and implementing appropriate media, as well as the availability of supporting facilities. Challenges such as limited resources and insufficient teacher skills remain. Therefore, integrating two-dimensional learning media systematically through teacher professional development and improved educational facilities is essential to maximize students' conceptual understanding.

Received: 14-04-2026

Revised: 25-05-2026

Accepted: 21-06-2026



This is an open-access article under the CC-BY-SA license.

A. Introduction

In the era of 21st-century learning, the ability to understand concepts has become one of the key competencies that students must possess. Various educational reports indicate that learning focused solely on memorization has not been effective in fostering deep conceptual understanding. Therefore, the use of visual learning media has become one of the strategies widely developed to improve the quality of learning in elementary schools.

Conceptual understanding is one of the primary goals of learning in elementary school because it serves as the foundation for students to build more complex knowledge at subsequent educational levels. Students with a strong conceptual understanding are not only able to recall information but can also explain, connect, and apply the concepts they have learned in various situations. From the perspective of Piaget's theory of cognitive development, elementary school students are in the concrete operational stage; therefore, the learning process will be more effective if abstract concepts are presented through concrete experiences or visual representations (Surayanah et al., 2025). Therefore, learning that is solely focused on memorization has the potential to hinder the development of deep conceptual understanding (Kharismayanda et al., 2025).

However, various studies indicate that elementary school students' conceptual understanding remains relatively low. According to Piaget's theory of cognitive development, elementary school students are in the concrete operational stage and therefore require visual representations to understand abstract concepts. This difficulty is evident in students' inability to connect concepts to real-life situations, solve contextual problems, or restate the material they have learned. This situation is often caused by the predominant use of lecture-based methods, a lack of active student engagement in learning, and the suboptimal use of instructional media capable of bridging abstract concepts to make them more concrete. As a result, the learning process tends to be teacher-centered and fails to provide meaningful learning experiences for students (Gampu & Ambarita, 2025).

With the advancement of educational technology, the use of instructional media has become one of the alternatives for improving the quality of learning. Instructional media serve as tools that facilitate the delivery of information, making the material easier for students to understand. One type of media widely used at the elementary school level is two-dimensional (2D) instructional media,

such as pictures, illustrations, posters, diagrams, infographics, and 2D animations (Ni'mah et al., 2023). Research by (Silvia et al., 2025) indicates that the use of fraction block media has a significant impact on elementary school students' ability to understand mathematical concepts. These results indicate that media that present concepts visually and concretely can help students understand abstract material more effectively. Such media present information visually, thereby helping students grasp concepts that are difficult to observe directly. Additionally, visual media can enhance students' attention, motivation, and engagement during the learning process (Syamsurijal et al., 2023).

Various previous studies have demonstrated the effectiveness of two-dimensional instructional media in supporting learning in elementary schools. (Haryanti, 2021) found that the use of two-dimensional media can improve students' understanding of mathematical concepts related to plane figures. A study by (Sugitra et al., 2022) showed that 2D cartoon animations based on contextual learning are effective in helping students understand abstract mathematical concepts. Furthermore, (Yuliati & Handayani, 2023) reported that 2D animation media in elementary school thematic learning has a very high level of feasibility and is capable of increasing student engagement in learning. Other research findings also indicate that visual media and 2D animations contribute to increased learning motivation, learning outcomes, and student participation in the learning process.

Nevertheless, most previous studies have focused on the development of specific media or on testing the effectiveness of 2D media in specific subjects and learning contexts. Studies that comprehensively analyze the role of two-dimensional instructional media in enhancing elementary school students' conceptual understanding based on various research findings remain relatively limited. Furthermore, previous research has tended to highlight the success of using 2D media without thoroughly examining the various challenges and obstacles teachers face in implementing it in elementary school settings (Wibowo et al., 2025).

Given these circumstances, a literature review is needed to synthesize various research findings regarding the role of two-dimensional instructional media in enhancing elementary school students' conceptual understanding. This review is important to obtain a more comprehensive picture of the benefits, forms of implementation, and various challenges associated with the use of 2D media in instruction. The results of this review are expected to provide a theoretical

contribution to the development of research on instructional media and serve as a practical reference for teachers in selecting and developing media appropriate for the characteristics of elementary school students. Previous studies, including the research by (Silvia et al., 2025) have demonstrated that the use of visual and concrete instructional media can enhance elementary school students' conceptual understanding. However, these studies generally focus on specific types of media and specific subjects. Therefore, further research is needed to integrate various research findings to gain a more comprehensive understanding of the role of two-dimensional instructional media in enhancing elementary school students' conceptual understanding.

In addition to failing to integrate various research findings on two-dimensional learning media, previous studies have also not provided an overview of the factors that determine the success of implementing such media in various elementary school learning contexts. Therefore, a more comprehensive synthesis is needed to serve as a foundation for the development of teaching practices.

Consequently, this study aims to analyze the role of two-dimensional learning media in enhancing elementary school students' conceptual understanding based on various published research findings, as well as to identify the challenges and opportunities for its implementation in the learning process.

B. Method

This study employs a qualitative approach using the literature review method (library research). The qualitative approach was chosen because this study aims to gain an in-depth understanding of the phenomenon through descriptive data in the form of words, rather than numbers. According to Lexy J. Moleong, qualitative research is research that aims to understand the phenomena experienced by subjects holistically and described in words within a natural context (Zaini et al., 2023). Furthermore, Sugiyono states that qualitative research is used to investigate natural conditions with the researcher serving as the key instrument, and data analysis is inductive in nature, emphasizing meaning over generalization (Hadisaputra, 2021).

The method used in this study is a literature review, which is a data collection technique involving the examination of various written sources such as books, scientific journals, and articles relevant to the research topic. The

literature review was conducted systematically through the process of searching for, collecting, and analyzing various relevant references. Literature review research allows researchers to build a comprehensive theoretical understanding based on various previous research findings (Ultavia et al., 2023).

The research data consists of secondary data obtained from scientific journal articles, reference books, and relevant academic publications. The literature was collected through searches of the Google Scholar and Garuda databases, as well as various national and international journals, using the keywords “two-dimensional learning media,” “visual media,” “conceptual understanding,” and “elementary school.” The criteria for the literature included: (1) discussing two-dimensional learning media at the elementary school level, (2) published between 2021 and 2026, and (3) available in full text. Literature that did not align with the research focus or had limited discussion was not included in the analysis.

Data analysis was conducted using content analysis. The analysis stages included the identification and selection of articles, data reduction, grouping of findings by theme, interpretation of results, and drawing of conclusions. Through these stages, various findings from 36 articles were synthesized to identify the role of two-dimensional learning media in enhancing elementary school students’ conceptual understanding, the factors influencing the effectiveness of their use, and the various challenges faced in their implementation.

C. Result and Discussion

1. The Relationship Between 2D Media and Conceptual Understanding

Two-dimensional learning media play a crucial role in helping to visualize abstract concepts, particularly in elementary school mathematics. Through the use of pictures, diagrams, and other visual elements, concepts that were initially difficult to grasp concretely can be presented in a more tangible and easily understandable form for students. This allows students to connect symbolic information with visual representations, thereby making the thinking process more focused and meaningful. The study also demonstrated that the use of two-dimensional media can significantly improve student learning outcomes, indicating an increase in conceptual understanding after students receive visual aids during the learning process. Consequently, 2D media not only serve as tools

for delivering content but also as a means of bridging abstract concepts to make them more concrete and thus easier for students to understand (Haryanti, 2021).

Research findings from (Irawati et al., 2024) indicate that the use of visual-based learning media, including two-dimensional (2D) media, plays a significant role in enhancing students' focus and interest in learning. This is evident from the clear difference between students who learn using visual media and those who use conventional methods, with students who receive instruction aided by visual media demonstrating higher levels of interest and engagement. 2D media can present information in an engaging and easily understandable way, thereby keeping students' attention more focused throughout the learning process. This increased focus has a direct impact on the growth of students' interest in learning, as they find the learning experience more enjoyable and less monotonous.

2D media offers significant advantages over conventional methods in the learning process. Its use can tangibly improve student achievement, transform abstract material into something clearer and more engaging, and address the boredom that often arises from monotonous traditional approaches. Furthermore, this medium sparks students' enthusiasm, self-confidence, and creativity, making learning more dynamic, interactive, and less teacher-centered (Ermawaty & Pratiwi, 2025).

2D media, such as two-dimensional animated videos, enhance elementary school students' understanding through concrete visualization mechanisms that address difficulties with abstract thinking by presenting abstract information in the form of real objects that can be seen and observed directly. In science classes – for example, when teaching the water cycle – 2D animations clearly and sequentially visualize dynamic processes such as evaporation, transpiration, condensation, precipitation, and infiltration, allowing students who are able to solve logical problems based on concrete information to internalize concepts more easily. Furthermore, this medium integrates visual, text, and audio elements to cater to various learning styles (visual, auditory, audiovisual), capture students' attention, reduce boredom, and make learning more interactive and enjoyable (Hapsari, 2025)

2. Analysis and Discussion

Various studies have shown that two-dimensional (2D) learning media have a fairly high level of suitability and effectiveness for use in the learning process. One study conducted by (Yuliati & Handayani, 2023) revealed that 2D

animation media developed for thematic learning in first-grade elementary school classes falls into the “highly suitable” category, both in terms of content and media presentation, with a suitability score exceeding 80%. These findings demonstrate that 2D media are not only visually appealing but also capable of effectively supporting the learning process in a manner that aligns with students’ needs.

Furthermore, research on the development of 2D animated media for early childhood through elementary school education indicates that this medium can help students adapt to the learning process. This is because its presentation integrates images, text, and audio in a cohesive manner, making the material easier to understand. On the other hand, research on the use of 2D animated cartoons in mathematics instruction also found that this medium is effective as a tool for contextual learning for elementary school students, as it connects the material to situations that are more relevant to their daily lives (Sugitra et al., 2022).

There is a need to develop instructional media capable of redirecting students’ attention toward more meaningful learning activities. Such media should be designed to be as engaging as possible so that they can capture students’ attention while also increasing their interest in learning. The more engaging the instructional media used by teachers, the higher students’ motivation to learn will be. There is a need to develop interactive learning media tailored to the characteristics of elementary school students. Media that combine visual, text, and audio elements can serve as effective learning tools, as they help improve students’ understanding and have a positive impact on their learning outcomes (Setya Dewi & Ganing, 2022).

Conceptual understanding is a crucial aspect of learning, particularly at the elementary school level. The use of 2D media can help students grasp concepts because the material is presented visually and in a more concrete manner. In mathematics instruction, for example, context-based 2D animations can make it easier for students to understand abstract concepts by linking them to situations relevant to their daily lives. In addition, visual media and interactive multimedia also help clarify the presentation of material, so that students do not merely memorize but truly understand what they are learning. This is in line with the characteristics of elementary school students, who still rely heavily on visual cues in their thought processes (Sugitra et al., 2022).

Elementary school students generally are still at the concrete operational stage of thinking; therefore, when studying abstract material, effective instruction and the use of appropriate media are necessary to minimize the occurrence of misconceptions (Maisarah et al., 2023). A good and meaningful understanding of concepts can support the success of the learning process, as it directly influences improvements in students' learning outcomes. Learning outcomes themselves serve as a key indicator of how effectively the learning process has been implemented (Purwanti et al., 2024).

The use of two-dimensional (2D) learning media has been shown to have a positive impact on students' learning outcomes. This is evident from various studies, one of which examined the application of Montessori-based 2D media and showed an improvement in science learning outcomes among third-grade elementary school students after the media was used in the learning process. This improvement is closely linked to the role of the media, which engages students more actively and helps them understand the material more clearly (S.M.W. et al., 2023).

On the other hand, the use of visual media in Civic Education (PPKn) instruction also yielded similar results, with a significant improvement in student learning outcomes. Presenting material through visuals makes it easier for students to remember information and understand the connections between the concepts they are learning. This indicates that visual media serve not only as teaching aids but also as tools that can strengthen students' thinking processes (N. A. Putri et al., 2024)

Therefore, the use of 2D media not only improves the learning process in the classroom but also has a tangible impact on improving students' learning outcomes. Media presented in an engaging manner and tailored to students' characteristics can help them learn more effectively and achieve more optimal results.

During the learning process, some students tend to lose focus and become drowsy. This is evident from the number of students who frequently yawn, a trend supported by the results of a motivation survey indicating that their level of motivation to learn remains low. This condition arises from a sense of boredom that sets in during learning activities (Farizi et al., 2023).

Motivation plays a very important role in the learning process. When learning proceeds smoothly, students tend to participate more actively,

thereby enabling learning objectives to be achieved. Students who are motivated to learn will demonstrate dedication and enthusiasm in participating in learning activities, thereby increasing their chances of achieving optimal results. Conversely, students who lack motivation tend to feel bored and uninterested during the learning process (Gusniwati, 2022).

Learning motivation is one of the key factors influencing the success of the learning process. Without motivation, students tend to be less engaged in learning activities. In line with the views of (Rakhmawati & Halwa, 2025), the use of 2D media can be one strategy to boost student motivation, particularly through visually appealing and easy-to-understand presentations. For example, the use of 2D animated videos in learning can create a more enjoyable and less monotonous learning atmosphere. Students become more interested in participating in the learning process because the material is presented in a more lively and interactive way, so they are less likely to get bored during learning activities.

Furthermore, the development of visual-based digital media has also been shown to increase students' interest and motivation to learn. This occurs because learning becomes more varied and is not limited to the same old methods. With this variety in the presentation of material, students are more engaged in the learning process from start to finish. This is an important consideration, given that elementary school students tend to become easily bored when learning is conducted solely through lectures without the support of engaging media (Sasongko et al., 2024).

In classroom learning activities, two-dimensional (2D) media can be utilized in various forms, depending on the learning objectives and the type of material being presented. Teachers play a crucial role in selecting and adapting these media to make learning more engaging and less monotonous. When used appropriately, 2D media can help students understand the material more easily because the presentation is clearer and more concrete (Panjaitan et al., 2025).

In reading lessons in the early grades of elementary school, for example, teachers can use 2D animated videos to introduce letters, syllables, and even simple words. Through moving images accompanied by sound, students not only see the shapes of letters but also hear how they are pronounced. This makes the learning process more engaging and helps students remember and

understand the material, as it involves multiple senses simultaneously in the learning process (Rakhmawati & Halwa, 2025)

In addition, the learning environment becomes more enjoyable, making students more enthusiastic about participating in lessons. In Pancasila and Civic Education (PPKn) classes, 2D media such as images or illustrations can also be used to help students understand the symbols of Pancasila. With clear and engaging visuals, students can more easily recognize each symbol and its meaning. The use of images can also help students connect the material to their daily lives, making the learning experience feel more relatable and meaningful (S. A. A. Putri et al., 2025).

Meanwhile, in mathematics education, 2D cartoon animations can be used to explain abstract concepts. For example, when teaching arithmetic operations or plane figures, teachers can present simple animations that depict real-life situations. In this way, students do not merely view numbers or shapes in the abstract but also understand their application in daily life. This helps students grasp the taught concepts more easily (Sugitra et al., 2022)

From these examples, it is evident that 2D media offers the advantage of flexibility in its application. This medium can be applied to various subjects and tailored to the learning needs of the classroom. When used appropriately, 2D media not only helps students understand the material but also enhances their interest in learning and creates a more active and enjoyable learning environment.

3. Challenges and Obstacles Faced

Advances in the digital age have fundamentally transformed various aspects of life, including education. The use of digital learning media in elementary schools is increasingly important for improving the quality of teaching and student participation (Sabita & Permata, 2024). However, in practice, the implementation of two-dimensional learning media at the elementary school level often faces various obstacles. Various challenges arise as teachers attempt to integrate this technology into the curriculum (Yunusman, 2023). Teachers frequently encounter difficulties that hinder the teaching-and-learning process from being optimal. One of the main issues is the lack of teachers' expertise in developing such media. Many educators are not yet proficient in designing appropriate visuals, creating engaging layouts, or aligning the media with learning objectives. This indicates that the use of

instructional media requires teachers' creativity, supported by effective classroom management skills, given the diversity of students' personalities and learning needs (Numertayasa & Citrawati, 2026). Time constraints further exacerbate the situation, often leading to haphazard preparation of instructional media.

The next challenge is the lack of facilities available at schools. Not all schools have adequate facilities and infrastructure to support the use of instructional media. The scarcity of such resources—such as projectors, illustrated posters, and teaching aids—limits teachers' creativity in presenting material in a more engaging and interactive way for students. One factor hindering the use of instructional media is limited funding. Limited funding within schools also has an impact, making it more difficult and slowing down the availability of learning media (Sirait & Oktaviani, 2022). For example, there may be a shortage of printing equipment, supporting materials, or ready-made visual media. These conditions force teachers to work harder or even forgo the use of media entirely in the learning process.

These limitations often have a direct impact on the quality of learning that takes place in the classroom. Inadequate facilities make learning less engaging and enjoyable, and a lack of qualified teachers and training results in teaching strategies that are less creative and varied (Ritonga et al., 2025). Teachers who lack access to supporting facilities tend to rely solely on lectures or verbal explanations without the aid of visual media. As a result, the material presented becomes less engaging and difficult for students to understand, especially when it comes to abstract concepts. This causes students to quickly become bored, struggle to focus, and lack the motivation to actively participate in classroom activities (Fahira, 2025). Furthermore, limited facilities also restrict the variety of media that can be used, making learning monotonous and failing to provide a meaningful learning experience for students.

Additionally, the mismatch between media and content is a common issue. The media used sometimes do not support learning objectives or are not appropriate for students' level of understanding. This can cause students to become confused and fail to grasp the material properly. The choice of media must be tailored to students' learning needs and aligned with the core competencies to be achieved (Widyawati, 2025). Therefore, careful attention must be paid to the selection of media to ensure it aligns with the content of the material and student needs.

Another challenge is the lack of creativity in the use of instructional media. In some cases, teachers have already used two-dimensional media, but its use remains ineffective. The media is used merely as a supplement without any interaction that actively engages students. As a result, the media does not have a significant impact on students' understanding. The use of instructional media should enhance students' understanding and stimulate their interest in learning throughout the learning process (Munawaroh & Irianto, 2026).

Given these various challenges and obstacles, efforts are needed from both teachers and school administrators to improve the quality of two-dimensional instructional media use. Teachers need to develop their ability to create and use media more creatively, while schools need to provide support in the form of adequate facilities so that the learning process can run more optimally. With adequate resources, schools can create a comfortable learning environment to optimally support students' learning process, while also enabling teachers to deliver material to the fullest extent possible – as teacher performance plays a key role in determining a country's educational quality (Sujarno et al., 2025).

D. Conclusion

Based on the results of a literature review of 36 scientific articles, it can be concluded that two-dimensional learning media play an important role in improving elementary school students' conceptual understanding. These media help students visualize abstract concepts in a more concrete way, thereby facilitating the process of understanding the material in accordance with the cognitive developmental characteristics of elementary school students. In addition, various studies show that the use of two-dimensional learning media also contributes to increased learning motivation, student engagement in learning, and learning outcomes in various subjects. However, the effectiveness of its use is influenced by teachers' competence in designing and utilizing the media, as well as the availability of supporting facilities and infrastructure at school.

The findings of this study reinforce the importance of using visual media as a learning strategy that supports the development of students' conceptual understanding. Practically, the results of this study can serve as a reference for teachers and schools in selecting, developing, and optimizing the use of two-dimensional learning media that align with students' characteristics and learning objectives. Theoretically, this study provides a synthesis of various research

findings regarding the role of two-dimensional learning media in enhancing elementary school students' conceptual understanding.

This study has limitations because it employs a literature review method; therefore, the findings depend on the quality, scope, and characteristics of the articles analyzed. Therefore, future research is recommended to conduct empirical studies, such as experiments or field research, to test the effectiveness of various types of two-dimensional learning media across different subjects, grade levels, and school contexts, as well as to examine their integration with digital technology in supporting 21st-century learning.

References

- Amananda, N., Fatmaryanti, S. D., & Anjarini, T. (2025). Analisis Keterampilan Guru dalam Mengadakan Variasi Media Pembelajaran IPA di Sekolah Dasar. *Borobudur Educational Review*, 5(1), 70–79. <https://doi.org/10.31603/bedr.13312>
- Ermawaty, S., & Pratiwi, V. U. (2025). Penggunaan Media Pembelajaran “Puppet” untuk Meningkatkan Kemampuan Bercerita Peserta Didik Sekolah Dasar. *Jurnal Didaktika Pendidikan Dasar*, 9(1), 331–352. <https://doi.org/10.26811/didaktika.v9i1.1627>
- Fahira, F. U. (2025). Ketimpangan Fasilitas Pembelajaran terhadap Proses Belajar Madrasah di Pasuruan. *Maliki Interdisciplinary Journal (MIJ)*, 3, 458–470.
- Farizi, K. A., Rusyati, L., Sriwulan, W., & Hakim, M. I. (2023). Penggunaan Media Ajar Gambar 2D Untuk Meningkatkan Motivasi Belajar Peserta Didik Pada Topik Ekologi. *Edu-Sains: Jurnal Pendidikan Matematika Dan Ilmu Pengetahuan Alam*, 12(1), 33–43. <https://doi.org/10.22437/jmpmipa.v12i1.26426>
- Gampu, G., & Ambarita, M. R. (2025). Analisis Kesulitan Belajar Siswa Sekolah Dasar pada Materi Pecahan. *Pedagogik Journal of Islamic Elementary School*, 8(1), 398–406. <https://doi.org/10.24256/pijies.v8i1.7387>
- Gusniwati. (2022). Pengaruh Pembelajaran Berbantuan Komputer Dan Perbedaan Motivasi Belajar Terhadap Hasil Belajar Fisika Siswa SMAN 5 Palu. *Edu-Sains*, 11(1). <https://doi.org/https://doi.org/10.22437/jmpmipa.v11i1.10555>
- Hadisaputra, P. (2021). *Penelitian Kualitatif*.
- Hapsari, A. P. (2025). *Pengaruh Media Video Animasi Dua Dimensi (2D) Terhadap Hasil Belajar IPAS Materi Siklus Air*. 4(1), 226–236.
- Haryanti, W. (2021). *Pengaruh Media Dua Dimensi terhadap Pemahaman Konsep*

- Matematika pada Materi Bangun Datar Siswa Kelas IV D Negeri 09 Seluma*. 2016.
- Irawati, Daulay, M. I., & Witarsa, R. (2024). Pengaruh Media Audio Visual Terhadap Minat Dan Kemampuan Menulis Siswa Kelas Iv Sd Negeri 20 Tebun. *JICN: Jurnal Intelek Dan Cendikiawan Nusantara*, 1(5), 7580–7589.
- Kharismayanda, M., Ketaren, M. A., Rahmawati, S., Nabilla, Rahmadani, P. S., Fadhilah, N. A., & Wenni, S. (2025). *Strategi Efektif dalam Meningkatkan Pemahaman Konsep Dasar Matematika Siswa Sekolah Dasar*. 4(2023), 1080–1085.
- Maisarah, Ayudia, I., Prasetya, C., & Mulyani. (2023). Analisis Kebutuhan Media Digital Pada Pembelajaran IPA di Sekolah Dasar. *Jurnal Pengajaran Sekolah Dasar*, 2(2023), 48–59.
- Munawaroh, F., & Irianto, A. (2026). Pengaruh Media Pembelajaran Papan Pancasila terhadap Pemahaman Siswa Materi Mengenal Lambang Sila Pancasila Fase A Sekolah Dasar. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 11(1). <https://doi.org/https://doi.org/10.23969/jp.v11i01.43013>
- Ni'mah, F., Fajrie, N., & Kurniati, D. (2023). Kemampuan Pemahaman Konsep Melalui Model Mind Mapping Berbantu Media Visual Siswa Sekolah Dasar. *PENDASI: Jurnal Pendidikan Dasar Indonesia*, 7(2), 310–320.
- Numertayasa, I. W., & Citrawati, N. K. W. (2026). *Tantangan Guru Dalam Pembelajaran Di Kelas Rendah Di SD Negeri 5 Nongan*. 7(1), 1–13. https://doi.org/https://doi.org/10.56667/de_journal.v7i1.2025
- Panjaitan, E. D., Sitohang, S., & ... (2025). Pengaruh Media Gambar Terhadap Hasil Belajar PKn Siswa Kelas II SD Negeri 098166 Perumnas Batu VI. *Innovative: Journal Of ...*, 5.
- Purwanti, P., Diana, R., Mulyadin, M., Yusup, F., & Fauzi, R. N. (2024). Penggunaan Media Augmented Reality dalam Pembelajaran IPA untuk Meningkatkan Pemahaman Konsep. *Jurnal Informatika Dan Teknologi Pendidikan*, 4(2), 67–73. <https://doi.org/10.59395/jitp.v4i2.98>
- Putri, N. A., Fadillah, D. R., Madiun, K., Timur, J., Semi, K., & Madiun, K. (2024). Penerapan Media Bergambar Untuk Meningkatkan Hasil Belajar Siswa Kelas 2 SD pada Materi Simbol-Simbol Pancasila. *Jurnal Media Akademik (JMA)*, 2(12).
- Putri, S. A. A., Koesmadi, D. P., & Nur'afiffah, U. U. (2025). Pengaruh Penggunaan Media Saku Norma Terhadap Hasil Belajar Pendidikan Pancasila materi norma Kelas IV Sd Negeri Girikerto 2. *Jurnal Ilmiah Global Education*, 6(3), 1567–1574. <https://doi.org/10.55681/jige.v6i3.3865>
- Rakhmawati, D., & Halwa, A. (2025). Penerapan Teknologi Digital Berbasis Video Animasi 2D pada Siswa SDN 02 Pancurendang. *Science and Technology: Jurnal Pengabdian Masyarakat*, 2(2), 109–117.

<https://doi.org/10.69930/scitec.v2i2.375>

- Ritonga, R., Sari, A. K., Sagala, A. A., Bakti, M. A., Yunanda, A. F., & Amelia, C. S. (2025). *Dampak Keterbatasan Sumber Daya terhadap Kualitas Pembelajaran di Sekolah Dasar*. 3(3), 793–799. <https://doi.org/https://doi.org/10.61722/jssr.v3i3.4982>
- S.M.W., S. K., Wardana, L. A., & Hattarina, S. (2023). Penerapan Media Pembelajaran 2 Dimensi Berbasis Montessori Untuk Meningkatkan Hasil Belajar Mata Pelajaran IPA Kelas 3 Di SDN Kalisalam 1 Kabupaten Probolinggo. *Jurnal Pendidikan, Sains Dan Teknologi*, 2(1), 61–66. <https://doi.org/10.47233/jpst.v2i1.661>
- Sabita, A. C., & Permata, S. D. (2024). *Analisis Hambatan dan Peluang dalam Mengimplementasikan Media Pembelajaran di Sekolah Dasar Pada Era Digital*. 1(2), 121–126.
- Sasongko, A. T. E., Wijaya, W., & Aziz, R. A. (2024). Perancangan Media Pembelajaran Bahasa Indonesia untuk Anak Sekolah Dasar. *Intechno Journal (Information Technology Journal)*, 6(1), 19–26. <https://doi.org/10.24076/intechnojournal.2024v6i1.1691>
- Setya Dewi, I. G. A. B., & Ganing, N. N. (2022). Multimedia Interaktif Berbasis Game Edukasi Dua Dimensi Pada Muatan Bahasa Inggris Materi Pengenalan Kosa Kata. *Jurnal Penelitian Dan Pengembangan Pendidikan*, 6(1), 81–87. <https://doi.org/10.23887/jppp.v6i1.45896>
- Silvia, Kesumawati, N., & Sari, E. F. P. (2025). *Efektivitas Media Blok pecahan Dalam Meningkatkan Pemahaman Konsep Pecahn Pada Siswa Sekolah Dasar: Analisis Berdasarkan Gender*. 10(September).
- Sirait, E. Y., & Oktaviani, C. (2022). Problematika Kurangnya Media Pembelajaran di Sekolah. *KATALIS: Jurnal Penelitian Kimia Dan Pendidikan Kimia*, 5(2), 27–31. <https://doi.org/10.33059/katalis.v5i2.6734>
- Sugitra, K., Wiarta, I. W., & Ganing, N. N. (2022). Media Pembelajaran Kartun Animasi 2D Berorientasi Kontekstual Learning pada Mata Pelajaran Matematika. *Journal for Lesson and Learning Studies*, 5(1), 96–105. <https://doi.org/10.23887/jlls.v5i1.45491>
- Sujarno, A., Khomsinnudin, & Dawam, A. (2025). Manajemen Sarana dan Prasarana Sekolah dalam Menunjang Kinerja Guru di SD Negeri 01 Penawar Rejo. *RIGGS: Journal of Artificial Intelligence and Digital Business*, 4(4), 6699–6707. <https://doi.org/10.31004/riggs.v4i4.3913>
- Surayanah, Luky, Z. S., & Thohir, M. A. (2025). Pengaruh Model Think Pair Share terhadap Efikasi Diri dan Keterampilan Berpikir Kritis Materi Panca Indra Siswa Kelas IV Sekolah Dasar. *Jurnal Pendidikan Dasar Flobamorata*, 6(2), 329–343.

- Syamsurijal, S., Sabillah, B. M., Hakim, U., & Irsan, I. (2023). Relevansi Penggunaan Metode Ceramah pada Pembelajaran Di Sekolah Dasar Di Era Digital. *Edukatif: Jurnal Ilmu Pendidikan*, 5(4), 1758–1767. <https://doi.org/10.31004/edukatif.v5i4.5495>
- Ultavia, A., Jannati, P., Malahati, F., Qathrunnada, & Shaleh. (2023). Kualitatif: Memahami Karakteristik Penelitian sebagai Metodologi. *Jurnal Pendidikan Dasar*, 11(2). <https://doi.org/https://doi.org/10.46368/jpd.v11i2.902>
- Wibowo, S., Surayanah, Yuniawatika, Syawaludin, A., Listiawan, D., Farizza, R. Al, & Kurnia, I. (2025). Proyek Media Pembelajaran Matematika Berbasis Augmented Reality Berbantuan Assembler Edu bagi Guru SD. *Jurnal Pengabdian Pendidikan Masyarakat (JPPM)*, 6(2).
- Widyawati, S. (2025). 5 Kesalahan Penggunaan Media Pembelajaran yang Malah Membingungkan Guru. S2 Pendidikan Dasar FIP UNESA.
- Yuliati, T., & Handayani, T. (2023). Efektifitas Media Pembelajaran Animasi 2D Pada Buku Tema 5 Kelas 1. *ZONAsi: Jurnal Sistem Informasi*, 5(2), 287–300. <https://doi.org/10.31849/zn.v5i2.14185>
- Yunusman, H. (2023). Problematika Guru dalam Pengembangan Teknologi dan Media Pembelajaran. | *ANTHOR: Education and Learning Journal*, 2, 840–846.
- Zaini, P., Saputra, N., Abdullah Lawang, K., & Susilo, A. (2023). *Metodologi Penelitian Kualitatif*.