Pedagogik Journal of Islamic Elementary School
Vol.8, No.2, hal.750-766
ISSN(E): 2615-3904
DOI : https://doi.org/10.24256/pijies.v8i2.7762
https://ejournal.iainpalopo.ac.id/index.php/PiJIES

Digital Media vs. Conventional Media: Effectiveness of Learning in Primary Education

Irfa'i Alfian Mubaidilla
Institut Agama Islam Nahdlatul Ulama Tuban, Indonesia
e-mail: mubaidillairfa@gmail.com

Abstract
The rapid development of information technology has transformed learning practices in elementary schools, shifting from predominantly conventional media to increased integration of digital media. This study comparatively analyzes the effectiveness of digital and conventional media in supporting elementary education. The research method employed in this study is the Systematic Literature Review (SLR), with data sources obtained through an article search on Google Scholar within the publication range of 2015-2025., restricted to SINTA indexed journal articles relevant to the topic. Thematic analysis identified the strengths, weaknesses, and integration potential of both media types. Findings reveal that digital media excel in delivering interactive, flexible, and visually engaging learning experiences, enhancing students' motivation and participation. Conversely, conventional media are more effective in fostering face to face interaction, social skills, and concrete learning experiences aligned with elementary learners' developmental stages. The study concludes that a strategic combination of digital and conventional media can optimize learning outcomes when adapted to learning objectives, student characteristics, and teacher competencies. The findings offer practical implications for educators and policymakers to design adaptive and context-specific learning strategies in the era of educational transformation.

Keywords: *digital media, conventional media, learning effectiveness, elementary school, systematic literature review*

Introduction

Education serves as the cornerstone for shaping character, intelligence, and essential life skills among future generations. In the era of globalization and rapid advances in information technology, education systems worldwide are confronted with both challenges and opportunities to innovate teaching and learning processes (Effendi & Wahidya, 2019). In the 21st century, critical thinking, creativity, collaboration, and digital literacy have become indispensable competencies for students to compete and adapt in an ever-changing world (Suryadi, 2019). Consequently, learning processes can no longer rely on a single approach or medium

but instead require the integration of multiple instructional media to enrich learning experiences.

The paradigm shift from traditional learning models to technology based learning has become a defining phenomenon in contemporary education (Mazaimi & Sary, 2023). Conventional learning media, such as printed textbooks, chalkboards, posters, and tangible teaching aids, have long been used at all educational levels, including elementary schools (Parisu, 2025). These media have proven effective in delivering learning materials due to their simplicity, ease of use, and independence from complex technological infrastructure. However, the emergence of digital media including interactive learning applications, educational videos, learning management systems (LMS), and internet-based resources has introduced new dimensions to educational practices. Digital media offer flexibility, accessibility, and engaging visual elements that have the potential to enhance students' motivation and participation.

This phenomenon raises a fundamental question to what extent can digital media replace or complement conventional media in improving learning effectiveness at the elementary level. This question is particularly relevant considering that learning at this stage is not solely focused on cognitive achievement but also on character building, learning habits, and social interaction skills. Excessive reliance on digital media, if not carefully planned, may reduce face to face interaction, weaken social skills, and foster dependency on technological devices (Harahap, 2022).

On the other hand, technological advancement is inevitable. In Indonesia, government policies such as the Merdeka Curriculum and school digitalization programs have encouraged teachers to integrate technology into teaching and learning. Various online learning platforms have been introduced and incorporated into classroom activities. The COVID-19 pandemic served as a turning point, accelerating the widespread adoption of digital media. Teachers and students were compelled to adapt to fully remote learning, heavily dependent on digital tools. Even after the pandemic subsided, the use of digital media in education has persisted and continues to evolve (Assya'bani & Majdi, 2022; Putra & Malini, 2022).

Nevertheless, practical realities reveal disparities in digital media utilization across elementary schools (Darmawan et al., 2025; Rahmasari et al., 2025). Factors such as inadequate infrastructure, limited digital literacy among teachers and students, and socio economic inequalities influence the effectiveness of digital media in teaching. In

certain regions, particularly rural areas, conventional media remain the primary choice due to limited internet connectivity and lack of supporting devices. This creates a dilemma for educators and policymakers: is digital media inherently more effective than conventional media, or should the two be strategically combined.

Theoretically, learning effectiveness can be measured by the extent to which educational goals are achieved, encompassing cognitive, affective, and psychomotor domains. Instructional media play a pivotal role in shaping these outcomes. According to Cognitive Theory, appropriately structured information presentation can optimize students' cognitive load and facilitate effective learning (Agustin et al., 2025). Digital media, with their interactive and multimodal capabilities, can support this process. Nonetheless, conventional media possess unique strengths in face-to-face contexts, enabling teachers to provide direct guidance, manage classroom dynamics, and foster emotional bonds with students.

In the context of elementary education, students are at the concrete operational stage of cognitive development, as described by Piaget, requiring tangible, contextual, and multisensory learning experiences. Physical teaching aids align well with this developmental stage, while digital media can complement these experiences through simulations, animations, and educational games. This suggests that the effectiveness of instructional media depends not solely on the type of media but also on its alignment with learning objectives, content characteristics, and learner profiles (Buchari, 2018).

The complexity deepens when considering the supporting factors of instructional effectiveness. Digital media require teachers to possess both technical skills and creativity in lesson design (Mubaidilla et al., 2025). Teacher competency is increasingly conceptualized through integrative models that emphasize not only subject knowledge and pedagogy but also the effective use of digital tools. For example is the TPACK framework (Technological Pedagogical content Knowledge) provides a robust theoretical lens to analyze teacher effectiveness in digital contexts (Ndongfack, 2015). It underscores that instructional quality depends on the intersection of three knowledge domains, are content, pedagogy, and technology.

Research consistently shows that teacher digital competencies (technical, pedagogical, and evaluative) strongly affect their ability to design meaningful learning environments (Nollmeyer & Baldwin, 2024). Instructional effectiveness with digital media is influenced not only by teacher technological skills but also by supporting

factors such as institutional support, professional development, and teacher pedagogical adaptability. This multi-dimensional view expands the notion of teacher competency beyond discrete skills to a systemic construct tied to learning outcomes.

Teachers accustomed to conventional media may need time and professional development to adapt, while conventional media must be innovated to remain relevant in the digital era. Without innovation, conventional media risk being perceived as outdated and less engaging for technology savvy students.

Previous research has extensively explored the strengths and limitations of both types of media. (Ani Daniyati et al., 2023) argued that media do not directly influence learning outcomes but rather serve as channels for delivering instructional messages. Conversely, (Agustira & Rahmi, 2022) emphasized the multimedia principle, which posits that combining text, visuals, and audio enhances conceptual understanding.

Their emphasis on combining text, visuals, and audio reflects Mayer's Cognitive Theory of Multimedia Learning (CTML), specifically the Multimedia Principle, which states that students learn better from words and pictures than from words alone (Aina & Aina, 2023). This principle stresses dual channel processing and reduced cognitive load, reinforcing how carefully designed multimedia can enhance conceptual understanding. However, much of the existing research focuses on specific educational levels or subjects, leaving gaps in understanding their application within Indonesian elementary school contexts.

The primary novelty of this systematic literature review (SLR) is situated in its focused synthesis of findings within the specific context of Indonesian elementary education. Unlike prior reviews that often address digital or conventional media in broader or more general educational settings, this study narrows its scope to the unique characteristics, challenges, and opportunities present in Indonesia's primary schools. Furthermore, the contribution of this research extends beyond descriptive mapping, as it proposes a strategic framework for media integration that is systematically derived from a comparative analysis of the strengths and limitations inherent in both conventional and digital learning media. This dual emphasis on contextual relevance and practical applicability underscores the originality of the study and highlights its potential to inform both educational policy and classroom practice.

Therefore, this study aims to analyze the comparative effectiveness of digital and conventional media in elementary school learning while simultaneously providing

practical recommendations for teachers, school leaders, and policymakers in designing adaptive, effective, and student-centered instructional strategies. In doing so, the research contributes theoretically to the body of knowledge on instructional media selection and practically supports evidence-based decision-making in classroom practice. Ultimately, this study seeks to bridge the gap between theory and practice in optimizing learning outcomes within Indonesia's elementary education system.

Research Method

A Systematic Literature Review (SLR) is a structured research method designed to identify, evaluate, and synthesize existing studies on a particular topic in a transparent and replicable manner. Unlike traditional narrative reviews, which may be more subjective, an SLR follows predefined protocols that reduce bias and ensure comprehensiveness. According to (Moulana, 2025; Sulaiman & Azizah, 2020), SLRs are particularly valuable in education and social sciences because they provide an evidence based synthesis that informs both theory and practice.

The process of conducting an SLR typically involves several stages: (1) planning the review, where research objectives and inclusion criteria are established; (2) conducting the review, which includes systematic searching, screening, and data extraction; and (3) reporting the review. This study employed a Systematic Literature Review (SLR) approach to synthesize existing evidence on the comparative effectiveness of digital and conventional media in elementary school learning.

The review was guided by the PRISMA framework to ensure transparency and rigor. Google Scholar was selected as the primary database, as it provides comprehensive indexing of both national and international journals, including those listed in SINTA. The search covered the period 2015–2025, ensuring the inclusion of contemporary studies. The search terms combined Indonesian and English keywords: "digital media", "conventional media", "learning effectiveness" and "elementary school."

To ensure relevance and quality, specific inclusion and exclusion criteria were applied: (1) Studies must discuss the implementation of digital and/or conventional media in the context of elementary school education and their influence on learning processes. (2) Only publications in Indonesian or English were included; other languages were excluded. (3) Only peer reviewed articles from reputable national and

international journals were considered. (4) Publications dated 2015–2025 were included. (5) Only studies conducted in elementary school contexts were selected; other educational levels were excluded and (6) Studies using qualitative or mixed methods approaches were considered to allow in depth thematic synthesis.

Data collection involved extracting information from each eligible article, including research objectives, methodological framework, key findings, and stated implications. A thematic analysis approach was employed, using open coding followed by axial coding to identify dominant themes, patterns, and knowledge gaps (Braun & Clarke, 2006). Coding was performed independently by researcher. To enhance reliability, an inter coder reliability check was conducted, with discrepancies resolved through crosscheck until consensus was reached. This process strengthened the validity of the identified themes.

The selection process reduced the dataset from 98 to 10 articles based on the application of these inclusion and exclusion parameters, alongside an assessment of methodological quality and relevance to the research objectives.

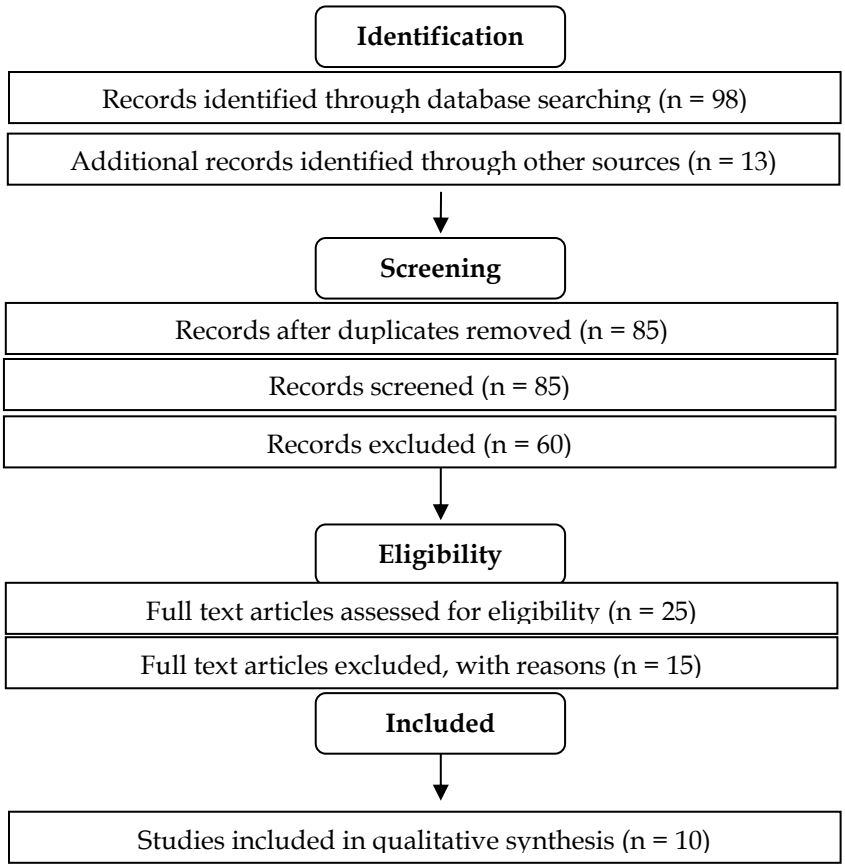

Figure 1 Flow Diagram of Literature Selection

Result and Discussion

Based on 10 studies was analyzed by researcher and out of the ten reviewed studies, seven articles highlight the effectiveness of specific digital media in enhancing primary education outcomes, consistently affirming their role in improving students scientific literacy, conceptual understanding, critical thinking, motivation, and digital literacy. For instance, interactive multimedia, 3D animated videos, flipbooks, digital comics, and Google Sites were reported to not only enrich comprehension but also foster engagement and moral development, thereby positioning digital media as a transformative force in science and environmental education.

In contrast, two articles specifically address teacher needs and challenges in integrating digital media, revealing persistent barriers such as limited technological familiarity, low confidence in utilizing digital tools, and competing curricular demands under the forthcoming Independent Curriculum. These studies also propose solutions, ranging from professional development workshops to collaborations between schools, universities, and community partners, underscoring that systemic support is as critical as individual teacher competence in sustaining effective media use.

Finally, one article explicitly compares conventional and digital learning media, concluding that while traditional tools (e.g., graphic and print-based media) remain valuable for certain contexts, digital platforms offer distinctive affordances such as overcoming spatial and temporal limitations that make them increasingly indispensable in the 21st century classroom. Taken together, the findings suggest a clear trajectory toward the integration of digital media, but also caution that its success depends on balancing technological innovation with pedagogical soundness and institutional readiness.

The following presents a summary of several previous studies that are relevant and serve as the foundation for composing this literature review. The table contains essential information from various studies published within the last ten years, focusing on the design of multimedia based learning media. This presentation aims to provide an overview of the authors and year of publication, research title, publisher, and research findings.

Table 1 Summary of research articles on the application of Media in learning in elementary schools

No.	Author	Research Title	Method	Research Findings
1.	(Hodaifah et al., 2025)	Implementation of Interactive Multimedia to Improve Science Literacy of Elementary School Students: Systematic Literature Review	The present research employs the Systematic Literature Review (SLR) approach to examine and synthesize a range of relevant studies concerning the application of interactive learning multimedia aimed at enhancing scientific literacy.	The findings indicate that the majority of studies affirm the positive impact of interactive multimedia on enhancing students' scientific literacy. This medium has been shown to strengthen conceptual understanding, foster critical thinking skills, and boost students' interest and motivation in learning. Furthermore, the integration of visual elements, animations, and simulations within multimedia serves to bridge students' challenges in comprehending abstract scientific concepts. Therefore, it can be concluded that interactive learning multimedia is generally effective and highly relevant in advancing the scientific literacy of elementary school students.
2.	(Khairiyah et al., 2025)	Systematic Literature Review: The Use of 3D Animated Videos for Environmental Hygiene Education	This study employs a qualitative Systematic Literature Review (SLR) method following the PRISMA protocol and bibliometric analysis using VOSviewer, based on 15 selected articles.	The findings show that 3D animated videos are effective in delivering environmental cleanliness concepts by attracting students' attention, improving comprehension, and encouraging active participation. Engaging visuals and contextual storytelling make 3D animation a medium capable of conveying moral and educational messages in a way that is easier for elementary students to grasp.
3.	(Salam et al., 2024)	Maximizing the Potential of Digital Learning Media in Primary Education: Insights from a Systematic Literature Review	This study adopts a Systematic Literature Review (SLR) approach by examining 34 journal articles published between 2020 and 2023.	The findings reveal that the integration of digital media in the learning process has been shown to effectively enhance students' academic achievement, affective development, language proficiency, critical thinking abilities, and knowledge acquisition. This research offers significant insights into optimizing the use of digital media to support learning in primary education settings.
4.	(Resti et al., 2024)	Utilization of Technology	The technique applied to collect	The findings of the study indicate that the use of technology-based

No.	Author	Research Title	Method	Research Findings
		Based Learning Media as a Tool to Enhance Digital Literacy Skills of Elementary School Students	information in this study is a literature review or library research, which involves gathering information from various sources such as books, scholarly journals, relevant literature, and other pertinent publications to support the research.	instructional media makes a significant contribution to the digital literacy of elementary school students.
5.	(Nengsih & Haryanti, 2024)	Systematic Literature Review: Digital Based Media in Science Learning at The Elementary School Level	This study employs the Systematic Literature Review (SLR) method. The research begins by reviewing and identifying the collected articles in a structured manner.	The analysis reveals that various types of digital learning media are utilized in science instruction at the elementary school level, including flipbooks, digital comics, e-scrapbooks, digital snakes and ladders, Google Sites, ethno-STEM, Quizwhizzer, interactive multimedia, and Instagram. Therefore, the integration of digital media into the science learning process can enhance the effectiveness and engagement of the lessons.
6.	(Yuniarti et al., 2023)	Conventional Media and Digital Media in Learning	The research adopts a literature study approach, conducted through an in-depth review of journals, books, and other relevant sources pertaining to conventional and digital learning media.	Based on the research findings, conventional learning media include graphic media, three-dimensional media, environmental utilization, and print-based media. In contrast, digital learning media encompass distance learning platforms, digital-based tools, language translation applications, and audio-visual or video-based instructional media. The study concludes that both conventional and digital learning media possess distinct characteristics, strengths, and limitations that differentiate one from the other.
7.	(Maisarah et al., 2023)	Needs Analysis of Digital Media in Science Learning at Elementary	This study employs a descriptive qualitative research design.	The research findings indicate that: (a) all respondents believe that teachers have a strong need for digital media; (b) the challenges in using digital media include:

No.	Author	Research Title	Method	Research Findings
		Schools	The data collection technique used in this research is a questionnaire distributed via Google Forms.	teachers being unfamiliar with and lacking confidence in using technology to deliver science lessons, teachers being unaware of the existence of web-based digital media, and both teachers and principals focusing on the upcoming implementation of the Independent Curriculum in the next academic year; (c) suggestions to overcome these challenges include: teachers participating in workshops or training programs, principals accommodating MBKM students and seeking their assistance in using digital media, and principals engaging in collaborations with lecturers in Langsa City through research and community service activities related to digital media.
8.	(Lestari et al., 2023)	A Systematic Literature Review on Media Technology in Creative Thinking for Elementary School Students	This study employed a systematic literature review method, in which all identified articles were processed based on inclusion and exclusion criteria, as well as quality assessment. A total of 25 articles meeting these criteria were then analyzed in accordance with the predetermined research questions.	The results of this study present an overview of creative thinking, as extensively discussed in previous research, including the influencing factors, the methods or techniques employed, and the research trends observed during the period from 2010 to 2022.
9.	(Pubian & Herpratiwi, 2022)	The Use of Google Sites as a Learning Medium to Enhance Learning Effectiveness among Elementary School Students	This study employs the Systematic Literature Review (SLR) method, in which data collection was conducted through documentation	This study highlights that Google Sites can be utilized as both a medium and a method of classroom instruction, particularly in the context of 21st-century learning and the Fourth Industrial Revolution. The integration of Google Sites is expected to enhance students' engagement and interest in the learning process, especially

No.	Author	Research Title	Method	Research Findings
			and a comprehensive review of all articles related to Google Sites.	at the elementary school level.
10.	(Puspitarini et al., 2019)	Using Learning Media to Increase Learning Motivation in Elementary School	This study employed a qualitative research design, utilizing observation and interview techniques as the primary methods of data collection.	The integration of technology-based learning media offers a viable solution to address spatial and temporal constraints in the learning process, enabling teachers to optimize instructional delivery without the necessity of providing excessive verbal explanations.

The rapid advancement of information technology has influenced nearly all aspects of human life, including education (Riska Aini Putri, 2023). One of the most significant transformations is the paradigm shift from the use of conventional instructional media toward digital learning tools. This transformation extends beyond technical changes, shaping instructional strategies, teacher and student interactions, and the overall effectiveness of achieving learning objectives. In this regard, a comparative examination of digital and conventional media is essential, as both present fundamental differences in supporting the teaching learning process.

In the context of twenty first century education, the effectiveness of digital media is reflected in its capacity to create interactive, collaborative, and flexible learning environments. Digital tools can offer simulations, visualizations, and extensive access to information, enabling learners to engage in more independent and creative study. For instance, the use of learning management systems (LMS) and platforms such as Google Classroom, Edmodo, or Google Sites allows educators to design instructional activities that can be accessed anytime and anywhere. This flexibility addresses the spatial and temporal limitations often inherent in conventional learning environments (Mubaidilla, 2024).

Furthermore, digital media supports personalized learning experiences. Technology enables educators to adapt content according to students' needs, abilities, and learning styles (Sindi Septia Hasnida et al., 2023). As evidenced by the studies reviewed in Table 1, the integration of digital media contributes not only to improved

academic achievement but also to the advancement of affective development, language proficiency, critical thinking, and knowledge acquisition among primary school learners. These converging findings substantiate the argument that digital media functions as more than a supplementary tool rather, it serves as a transformative medium that reshapes the quality and depth of learning processes. Consequently, this research underscores the urgency of developing pedagogical frameworks that optimize digital media integration in primary education to maximize both cognitive and non-cognitive outcomes.

Another side, within the framework of differentiated instruction, digital platforms provider a variety of content including instructional videos, infographics, e-books, and interactive simulations that accommodate diverse learner preferences. This aligns with constructivist learning theory, which emphasizes the importance of building knowledge through direct experiences and meaningful engagement.

Nevertheless, conventional media retains a vital role, particularly in fostering social interaction and developing psychomotor skills. Face to face instruction using traditional tools such as blackboards, printed textbooks, and physical teaching aids often provides opportunities for teachers to directly observe students' development. Additionally, conventional methods can reduce digital distractions, which are common when learners use technology based devices. As such, conventional media contributes to creating a more focused learning atmosphere, particularly for younger students in primary education who require intensive guidance.

The effectiveness of instruction is determined not solely by the type of media employed, but by the manner in which it is integrated into pedagogical strategies (Mubaidilla et al., 2024). While digital media offers numerous advantages, it can become ineffective if not supported by sound instructional design. Conversely, conventional media when applied creatively and innovatively can produce learning outcomes comparable to those achieved with digital tools. Therefore, the success of learning activities depends on the alignment between media, methods, learning objectives, and learner characteristics.

Within the theoretical framework of blended learning, the integration of digital and conventional media represents an optimal approach to enhancing instructional effectiveness. This model combines the benefits of online and offline learning, enabling students to take advantage of technological flexibility while maintaining direct

interaction with teachers and peers. For example, an educator might deliver content through interactive videos accessible online, followed by in person discussions to deepen conceptual understanding. This hybrid approach enriches the learning process, making it more diverse, engaging, and learner centered (Harahap, 2022).

Comparisons of digital and conventional media effectiveness must also take into account the level of digital literacy among both teachers and students. Digital tools require proficiency in operating technological devices, managing information, and interacting ethically and safely in online environments. When digital literacy is limited, technology use can become an obstacle rather than a solution. In contrast, conventional media tends to be easier to implement and does not require complex technical skills. Therefore, strengthening digital literacy is a critical prerequisite for the optimal use of digital learning media.

From an educational psychology perspective, digital media often provides multisensory stimulation that can increase student motivation. Engaging visuals, audio, animations, and interactivity help sustain learners' attention for longer periods. However, excessive use of digital tools can diminish long-term concentration and contribute to cognitive overload (Agustin et al., 2025). Conversely, conventional media, despite being simpler, can offer a more structured learning experience with fewer distractions. Striking a balance between the two is therefore essential for maintaining instructional quality.

Overall, the effectiveness of digital versus conventional learning media is context dependent. For subjects requiring abstract conceptual understanding or broad information exploration, digital media tends to be more advantageous. Conversely, for learning that demands intensive interpersonal interaction, character building, or motor skill development, conventional approaches are often more appropriate. Thus, media selection should be guided by a thorough analysis of instructional needs, learner characteristics, and targeted learning outcomes.

Digital and conventional media play complementary roles in enhancing instructional effectiveness. Rather than viewing them as mutually exclusive options, they should be integrated strategically. Teachers, as facilitators of learning, must possess the competence to blend these media types leveraging the potential of technology while preserving the humanistic strengths of conventional methods.

Through such integration, the learning process can become more effective, relevant to contemporary demands, and firmly grounded in essential educational values.

Conclusion

Digital media excel in providing interactive, flexible, and visually appealing learning experiences, which foster motivation and engagement. Conventional media remain valuable in supporting face to face interaction, developing social skills, and delivering concrete experiences suited to young learners' developmental stages. Future teacher education programs should prioritize the systematic development of Technological Pedagogical Content Knowledge (TPACK), with a particular emphasis on preparing teachers to design blended learning environments that integrate digital and conventional media in a pedagogically meaningful manner. This emphasis is consistent with Cognitive Theory of Multimedia Learning, which highlights that meaningful integration of multiple media formats text, visuals, and audio can enhance conceptual understanding when aligned with sound pedagogical strategies. Accordingly, subsequent research must empirically test and validate the proposed media integration framework across varied Indonesian elementary school contexts to evaluate its effectiveness, cultural relevance, and generalizability.

References

Agustin, N., Pradana, A. A., & Mubaidilla, I. A. (2025). Pengembangan Media Pembelajaran Holistik Counting Box untuk Meningkatkan Kemampuan Kognitif Siswa dalam Mata Pelajaran Matematika. *Joyful Learning Journal*, *14*(1). https://journal.unnes.ac.id/journals/jlj/article/view/19601/3331

Agustira, S., & Rahmi, R. (2022). PENGGUNAAN MEDIA PEMBELAJARAN UNTUK MENINGKATKAN HASIL BELAJAR SISWA PADA TINGKAT SD. *MUBTADI: Jurnal Pendidikan Ibtidaiyah*, *4*(1), 72–80. https://doi.org/10.19105/mubtadi.v4i1.6267

Aina, S. A. O., & Aina, M. A. O. (2023). Rethinking the Use of Classroom Cases: Leveraging Generative and Multimedia Principles for Meaningful Preservice Teacher Learning. *Creative Education*, *14*(05), 972–992. https://doi.org/10.4236/ce.2023.145062

Ani Daniyati, Ismy Bulqis Saputri, Ricken Wijaya, Siti Aqila Septiyani, & Usep Setiawan. (2023). Konsep Dasar Media Pembelajaran. *Journal of Student Research*, *1*(1), 282–294. https://doi.org/10.55606/jsr.v1i1.993

Assya'bani, R., & Majdi, M. (2022). Pengembangan Model Pembelajaran Pasca Covid-19 Berdasarkan Pembelajaran Abad 21. *Al Qalam: Jurnal Ilmiah Keagamaan Dan Kemasyarakatan*, *16*(2), 555. https://doi.org/10.35931/aq.v16i2.903

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Buchari, A. (2018). Peran Guru dalam Pengelolaan Pembelajaran. *Jurnal Ilmiah Iqra'*, *12*(2), 106. https://doi.org/10.30984/jii.v12i2.897

Darmawan, P. D., Aziz, M. F. R., & Aini, K. (2025). Kesenjangan Akses Teknologi di Sekolah: Tantangan dan Solusi dalam Penggunaan Media Pembelajaran Digital Berbasis E-Learning. *Zaheen : Jurnal Pendidikan, Agama dan Budaya*, *1*(2), 1–12.

Effendi, D., & Wahidya, A. (2019). Pemanfaatan Teknologi dalam Proses Pembelajaran Menuju Pembelajaran Abad 21. *PROSIDING SEMINAR NASIONAL PENDIDIKAN PROGRAM PASCASARJANA UNIVERSITAS PGRI PALEMBANG*. https://jurnal.univpgri-palembang.ac.id/index.php/prosidingpps/article/view/2977

Harahap, A. R. (2022). Kelebihan dan Kekurangan Pembelajaran Berbasis TIK di SD IT Al- Khoiriyah Dalam Penerapan Berbasis Online. *SHANUN: Jurnal Pendidikan Madrasah Ibtidaiyah*, *1*(1). https://jurnal.perima.or.id/index.php/JUS/article/view/15/57

Hodaifah, H., Widodo, W., & Prahani, B. K. (2025). Implementation of Interactive Multimedia to Improve Science Literacy of Elementary School Students: Systematic Literature Review. *Journal of Innovation and Research in Primary Education*, *4*(3), 653–663. https://doi.org/10.56916/jirpe.v4i3.1416

Khairiyah, D., Qomario, & Mastur. (2025). Systematic Literature Review: The Use of 3D Animated Videos for Environmental Hygiene Education. *MALCOM: Indonesian Journal of Machine Learning and Computer Science*, *5*(3). https://doi.org/10.57152/malcom.v5i3.2033

Lestari, I., Nurbaeti, M., & Wahyudiana, E. (2023). A Systematic Literature Review on Media Technology in Creative Thinking for Elementary School Students. *PARAMETER: Jurnal Pendidikan Universitas Negeri Jakarta*, *34*(2), 82–118. https://doi.org/10.21009/parameter.342.03

Maisarah, Ayudia, I., Prasetya, C., & Mulyani. (2023). Analisis Kebutuhan Media Digital Pada Pembelajaran IPA di Sekolah Dasar. *Jurnal Pengajaran Sekolah Dasar*, *2*(1), 48–59. https://doi.org/10.56855/jpsd.v2i1.314

Mazaimi, Z., & Sary, I. (2023). Perbandingan Efektivitas Pembelajaran Tradisional dan Pembelajaran Berbasis Video Di Sekolah Menengah Atas. *Teknologi Pendidikan*, *2*(1). https://doi.org/10.56854%2Ftp.v2i1.221

Moulana, M. R. (2025). Studi Literatur Tentang Peran Guru Dalam Perkembangan Peserta Didik. *AEJ (Advances Education Journal)*, *1*(6). https://journal.al-afif.org/index.php/aej/article/view/98/71

Mubaidilla, I. A. (2024). Media Interaktif Berbasis Teknologi dalam Pembelajaran Tatap Muka. *At Taksis: Jurnal Pendidikan Dasar*, *2*(1). https://doi.org/10.55799/attaksis.v2i1.278

Mubaidilla, I. A., Hidayah, A., & Muthmainnah, M. (2024). Persepsi Siswa Terhadap Public Speaking Mahasiswa PPL IAINU Tuban dalam Memotivasi Belajar

Siswa Kelas Iv SDI Darut Tauhid Tambakboyo. *Tarunaedu: Journal of Education and Learning*, *2*(1), 1–7. https://doi.org/10.54298/tarunaedu.v2i1.165

Mubaidilla, I. A., Prasetyo, A. F., Agustin, N., Pradana, A. A., Hafni, N. D., Huda, M., Ainiyah, Z. D., & Ngainin, N. (2025). Pemanfaatan Media Pembelajaran Berbasis Aplikasi Digital di MI Tarbiyatul Athfal II Lamongan. *El-Madaniyah : Jurnal Pengabdian Kepada Masyarakat P3M STAI Sangatta*, *02*(01). https://doi.org/10.55799/elmadaniyah.v2i01.643

Ndongfack, M. N. (2015). TPACK Constructs: A Sustainable Pathway for Teachers Professional Development on Technology Adoption. *Creative Education*, *06*(16), 1697–1709. https://doi.org/10.4236/ce.2015.616171

Nengsih, S., & Haryanti, Y. D. (2024). Systematic Literature Review: Media Berbasis Digital pada Pembelajaran IPA di Sekolah Dasar. *JURNAL MADINASIKA Manajemen Pendidikan Dan Keguruan*, *5*(2), 58–67. https://doi.org/10.31949/madinasika.v5i2.7811

Nollmeyer, G. E., & Baldwin, K. A. (2024). Strengthening Elementary Preservice Teacher Content Knowledge in Science through Model Based Inquiry. *Creative Education*, *15*(10), 2131–2150. https://doi.org/10.4236/ce.2024.1510131

Parisu, C. Z. L. (2025). Dari Kelas Konvensional ke Pembelajaran Berbasis Digital. *Journal of Humanities, Social Sciences, And Education (JHUSE)*, *1*(2). https://doi.org/3089-7246

Pubian, Y. M., & Herpratiwi, H. (2022). Penggunaan Media Google Site dalam Pembelajaran untuk Meningkatkan Efektifitas Belajar Peserta Didik Sekolah Dasar. *Akademika*, *11*(01), 163–172. https://doi.org/10.34005/akademika.v11i01.1693

Puspitarini, Y. D., Hanif, M., & Educational Technology Program, Universitas Sebelas Maret, Indonesia, muhammadhanif@student.uns.ac.id. (2019). Using Learning Media to Increase Learning Motivation in Elementary School. *Anatolian Journal of Education*, *4*(2), 53–60. https://doi.org/10.29333/aje.2019.426a

Putra, A. P., & Malini, H. (2022). Pembelajaran dalam Jaringan (Daring) Saat dan Pasca Pandemi Covid-19. *Jurnal Intersections*, *7*(1). https://doi.org/10.47200/intersections.v7i1.1138

Rahmasari, A., Hilaliah, D., Kusuma, D., Patmalah, D., & Kholasoh, S. (2025). Mengatasi Kesenjangan Digital untuk Meningkatkan Kualitas Pembelajaran Siswa. *Jurnal Multidisiplin Ilmu Akademik*, *2*(3). https://doi.org/10.61722/jipm.v3i3.980

Resti, R., Wati, R. A., Ma'Arif, S., & Syarifuddin, S. (2024). Pemanfaatan Media Pembelajaran Berbasis Teknologi sebagai Alat Untuk Meningkatkan Kemampuan Literasi Digital Siswa Sekolah Dasar. *Al Madrasah Jurnal Pendidikan Madrasah Ibtidaiya*, *8*(3), 1145. https://doi.org/10.35931/am.v8i3.3563

Riska Aini Putri. (2023). Pengaruh Teknologi dalam Perubahan Pembelajaran di Era Digital. *Journal of Computers and Digital Business*, *2*(3), 105–111. https://doi.org/10.56427/jcbd.v2i3.233

Salam, N., Suyanto, S., & Ningsih, S. N. (2024). Maximizing the Potential of Digital Learning Media in Primary Education: Insights from a Systematic Literature Review. *Indonesian Journal of Educational Research and Review*, *7*(3), 615–629. https://doi.org/10.23887/ijerr.v7i3.80617

Sindi Septia Hasnida, Ridho Adrian, & Nico Aditia Siagian. (2023). Tranformasi Pendidikan Di Era Digital. *Jurnal Bintang Pendidikan Indonesia*, *2*(1), 110–116. https://doi.org/10.55606/jubpi.v2i1.2488

Sulaiman, A., & Azizah, S. (2020). *Problem-Based Learning to Improve Critical Thinking Ability in Indonesia: A Systematic Literature Review*. *07*(01). https://ejournal.unuja.ac.id/index.php/pedagogik/article/view/792/599

Suryadi, S. (2019). Peranan Perkembangan Teknologi Informasi dan Komunikasi dalam Kegiatan Pembelajaran dan Perkembangan Dunia Pendidikan. *JURNAL INFORMATIKA*, *3*(3), 9–19. https://doi.org/10.36987/informatika.v3i3.219

Yuniarti, A., Titin, T., Safarini, F., Rahmadia, I., & Putri, S. (2023). Media Konvensional dan Media Digital dalam Pembelajaran. *JUTECH : Journal Education and Technology*, *4*(2), 84–95. https://doi.org/10.31932/jutech.v4i2.2920