EDUCARE Journal of Primary Education
ISSN 2716-1021 (p) 2716-1013 (e)
OPEN ACCESS
https://educare.uinkhas.ac.id/index.php/jie
DOI: 10.35719/educare.v6i1.367
Vol 6, No 1, June 2025, pp. 97-110

Needs Analysis for Educational Comic Media as a Learning Tool in Elementary Schools

Maulida Rizka Yulianti[1*], Herlina Usman[2], Mahmud Yunus[3]
[1,2,3]Elementary School Teacher Education, Jakarta State University, Jakarta, Indonesia

Article Information:
Received 2025-04-15
Revised 2025-06-17
Accepted 2025-06-30

Keywords: Digital Comics, Educational Media, Elementary Students, Learning Engagement

ABSTRACT

Technological advancements have driven innovation in learning media; however, their utilization at the elementary school level remains limited. Several institutions lack media that aligns with the characteristics and needs of fifth-grade students. The absence of media that integrate visual and narrative elements hinders the improvement of student motivation and comprehension. Therefore, a needs analysis of educational comic press as a practical learning tool in elementary schools is necessary. This study employs a descriptive qualitative approach to examine the need for educational comic media in elementary education through observation, interviews, and document analysis. Data analysis employs Miles and Huberman's interactive model, which involves data reduction, display, and verification, with validity reinforced through triangulation. Findings indicate the need for innovative learning media suited to students' developmental stages and learning contexts. The results show that digital comics have a strong potential to enhance student interest and engagement. Combining visual and textual elements makes the material more accessible, especially for visual learners. Digital comics are also effective for character education. However, successful implementation requires infrastructure support and teacher training. Collaboration between teachers and parents is essential to create inclusive, engaging learning that meets 21st-century educational needs. This research expands learning media alternatives by proposing digital comics as practical tools for improving reading interest, material comprehension, and character education. It also highlights the importance of teacher-parent collaboration and the need for training and infrastructure in the digital era.

Copyright:
This work is licensed under an Attribution-ShareAlike 4.0 International (CC BY-SA 4.0).

INTRODUCTION

One of the main challenges in the learning process at the elementary school level is students' low motivation, particularly in subjects perceived as challenging or less engaging. Lavrijsen et al. (2021) and Xia et al. (2022) argue that low motivation significantly influences students' engagement in classroom activities. This lack of engagement then impacts their academic achievement, as Bergmark and Westman (2018) emphasize that minimal participation can hinder meaningful learning. To overcome this, Katona et al. (2023) emphasize the importance of utilizing appropriate learning media to create a more enjoyable and motivating learning atmosphere. Given that basic education serves as the foundation for further educational levels, Asmawadi (2021) asserts that efforts to enhance the quality of learning at this stage are essential. In this context, Rina et al. (2020) identify educational comics as media well-suited to the characteristics of elementary school students. Dwijayani (2019) explain that comics combine visuals, narratives, and text in a format that appeals to children, thereby improving comprehension and stimulating imagination. Supporting this view,

To cite this article (APA Style):
Yulianti, M. R., Usman, H., & Yunus, M. (2025). Needs Analysis for Educational Comic Media as a Learning Tool in Elementary Schools. *EDUCARE: Journal of Primary Education, 6(1)*, 97–110. https://doi.org/10.35719/educare.v6i1.367

[*]**Corresponding Author**: Maulida Rizka Yulianti, Elementary School Teacher Education, Jakarta State University, Jakarta, Indonesia, email: rizkamaulida354@gmail.com

Narestuti et al. (2021) and Hakim et al. (2024) find that comics are particularly effective in helping fourth-grade students grasp abstract concepts by their cognitive development stage. Thus, educational comics are a strategic alternative to enhance elementary education students' interest and understanding.

Various previous studies have developed comic-based media to enhance the academic skills of elementary school students. Ananda et al. (2023) created children's story comics integrated with student worksheets (LKPD) using the ADDIE model to improve narrative writing skills. Meanwhile, Miranda & Dafit (2024) employed the 4D model to develop digital comics to enhance reading comprehension among fourth-grade students. Through a literature review, Oktaviana & Ramadhani (2023) found that digital comics can increase motivation and the effectiveness of science learning. However, these studies primarily focused on media development for academic skill enhancement rather than analyzing the actual need for digital comics as learning media at the elementary level (Hayat et al., 2024; Fitri et al., 2025). Several problems identified by the researcher indicate that classroom instruction is still dominated by lectures and textbook use, which leads to student boredom. Visual media such as comics have not been optimally utilized, even though they align well with the characteristics of 10 11-year-old students. Therefore, alternative learning media that are visual, narrative, and engaging are needed to improve student motivation and comprehension.

This study examines the need for using comic media as a learning aid in private elementary schools. The primary focus is directed at identifying the role of comic media in increasing learning motivation and students' understanding of the subject matter, especially. Comics as a learning medium is considered to have great potential because it combines visual elements, stories, and interesting texts for elementary school-age students. This study is expected to provide a real contribution to the development of learning media that is more relevant to the conditions and needs of today's students, namely, media that is contextual, interactive, and in line with the development of digital technology. The benefits of this study include providing empirical data for teachers and media developers in designing educational comics based on student characteristics and being a reference for schools in integrating interesting digital media. The study's results also have the potential to support a curriculum that is adaptive to the challenges and needs of 21st-century learning.

Based on the background and objectives of the study, it can be formulated a hypothesis that there is a significant need for the use of comic media as a learning aid in private elementary schools, especially in improving the motivation and understanding of learning in grade IV students. Comic press is estimated to be an effective learning alternative because it combines visual elements, stories, and texts in accordance with the cognitive and psychological development characteristics of students aged 10-11 years. In addition, this hypothesis also assumes that using contextual and interactive digital comic media can provide a more enjoyable learning experience and increase students' active participation in the learning process. Thus, Comic Press not only has the potential to improve cognitive learning outcomes but also encourages innovation in the process of developing learning media and strengthening adaptive curricula to the challenges of 21st-century learning based on digital.

RESEARCH METHOD

This study employs a qualitative approach with a descriptive research design. According to Hall and Liebenberg (2024), this approach is suitable for understanding complex, contextual phenomena in-depth. The qualitative method allows researchers to explore social issues in elementary school settings, especially concerning the need for comic media in learning. Busetto et al. (2020) note that this method effectively captures social dynamics that are not easily quantified. Doyle et al. (2020) add that qualitative research examines natural settings, with the researcher as the primary instrument, using triangulation for data collection and focusing on meaning rather than generalization. Additionally, Davies et al. (2013) highlight that descriptive research provides a factual and systematic picture of real classroom conditions. Therefore, this design is appropriate for identifying students' needs for educational comics and supports the development of targeted learning media that match the characteristics of elementary school students.

The object of this research is children's comic media used as an alternative learning tool, while the study subjects are elementary school students. The selection of subjects is based on the cognitive-developmental characteristics of elementary-aged children in the concrete operational stage. According to Hayat and colleagues (2024), at this stage, visual media, such as comics, are highly effective in helping students understand abstract concepts, as they are presented contextually and engagingly. This study was conducted at SDIT Utsmanil Hakim. This private elementary school contextually represents a primary education environment dominated by conventional teaching methods, such as lectures and textbook use. This condition indicates an urgent need for innovative learning media that is more engaging and aligned with students' current learning styles. Therefore, this research focuses on an in-depth exploration of students' learning experiences, teachers' perceptions, and the ongoing classroom learning conditions. The ultimate goal is to design learning media that are more effective, contextual, and digitally based—capable of keeping pace with modern developments while optimally meeting students' learning needs.

Data collection in this study employed three main techniques: observation, interviews, and document analysis. Shanks and Bekmamedova (2018) assert that combining these techniques offers a comprehensive understanding of the studied phenomenon. Classroom observations examined students' engagement and responses, particularly when using visual media. According to Granström et al. (2024), direct observation helps researchers grasp the learning context and document students' behaviors and enthusiasm. Semi-structured interviews with teachers were conducted to explore teaching approaches, challenges, and perceptions of the effectiveness of comic media in instruction. McIntosh and Morse (2015) note that this interview format allows flexibility in probing relevant topics based on responses. Document analysis involved reviewing lesson plans, literacy records, and prior learning materials. Amiraslani and Dragovich (2022) believe this method enriches data and contextualizes field findings. To ensure validity, triangulation was applied by cross-checking data from all three techniques, providing a more accurate and complete understanding of the learning environment.

This study employed the interactive data analysis model by Miles and Huberman, which includes three stages: data reduction, data display, and conclusion drawing or verification. According to Hashimov (2014) and Hastasari et al. (2022), this model allows researchers to manage data systematically. The first stage, data reduction, involves selecting and simplifying data from observations, interviews, and documents to align it with the research focus (Natow, 2019). Next, the reduced data is organized into descriptive narratives, which, as noted by Guido et al. (2024), help clarify meaning and context. Bingham (2023) highlights that systematic data display makes it easier to identify relationships. The final stage is concluding, conducted through repeated verification to ensure consistency (Zamiri & Esmaeili, 2024). To validate findings, source and technique triangulation and member checking were used. As Carter et al. (2014) and Campbell et al. (2023) suggest, these strategies enhance research credibility. This process supports identifying students' needs for comic-based learning media.

RESULTS AND DISCUSSION

Results

Availability and Completeness of Reading Facilities

Based on interviews with class teachers at SDIT Utsmanil Hakim, several findings showed the dynamics of students' reading interests and efforts to develop them in the school environment. Reading facilities in the library and reading corners in the classroom were considered complete and supported student literacy. The existence of reading corners was utilized positively, with students enthusiastic about reading at certain times. Teachers also actively provided motivation, formed reading groups, and gave simple literacy assignments. However, several challenges were found, such as the lack of strong reading habits, the influence of technology, and the assumption that reading was merely an obligation. Nevertheless, teachers showed a high commitment to creating interesting

learning strategies and encouraging a culture of literacy. This data is the initial basis for formulating learning media appropriate to elementary school students' needs and characteristics.

Table 1. Findings Related to Students' Reading Interests in Elementary Schools

No	Aspect	Main Findings
1	School Literacy Facilities	Libraries and reading corners are available and quite complete
2	Students' Reading Interest	The majority of students (±70%) have a fairly good interest in reading, but it is not evenly distributed
3	Teacher's Strategy in Coaching	Teachers provide motivation, read stories, and give light assignments, but they are not structured consistently
4	Classroom Literacy Activities	Activities such as reading groups, telling stories about books, and summarizing assignments have been carried out, but they are not routine and the results vary
5	Challenges in Reading Interest	The main challenge is the habit of reading that has not been formed, and the assumption that reading is a task
6	Teacher's Expectations	Teachers hope that students will enjoy reading through a creative and fun approach, as well as a collection of books that suit students' interests

Field findings indicate that although literacy support facilities such as libraries and reading corners have been available and utilized, students' reading interest still faces complex challenges. Reading habits have not been formed evenly, and some students still view this activity as a burden. This shows that the availability of facilities alone is insufficient but must be accompanied by creative and consistent pedagogical strategies. The role of teachers is vital in creating a pleasant literacy atmosphere through motivation, light literacy tasks, and interactive activities such as storytelling and reading together. Therefore, developing learning media, such as engaging and contextual educational comics, is essential to bridge students' learning needs and strengthen literacy culture at the elementary school level sustainably and effectively.

Media Integration in the Indonesian Language Learning Process

Indonesian language learning in grade IV of elementary school shows various dynamics that reflect adaptation to curriculum demands and student needs. Teachers have implemented the Independent Curriculum with various active learning methods such as discussion, cooperative, and project-based. Innovation is also seen through integrating digital media and technology that facilitates understanding the material. However, teachers face challenges in the form of low interest in reading and limited time in implementing learning. Student learning outcomes are generally good, but there are difficulties in writing fictional texts and finding main ideas. Teachers use creative learning media such as mind mapping, flashcards, and interactive applications to overcome these obstacles. The results of non-cognitive assessments also reveal the dominance of visual learning styles in students, indicating the importance of visual and contextual approaches in language learning.

Table 2. Interview Findings on Aspects of Indonesian Language Learning

No	Findings	Description
1	Curriculum and Learning Methods Used	Teachers use the Independent Curriculum with discussion methods, cooperative learning (Think-Pair-Share, Jigsaw), project-based, and active learning to increase student engagement.
2	Implementation of Indonesian Language Learning	Learning is carried out with the support of digital media such as videos, applications, and e-books. Students are also trained to write using computers to improve basic writing and technology skills.
3	Student Results and Enthusiasm	Student learning outcomes are quite good, most are able to read, write, and discuss. Student enthusiasm is high when using media or group activities, but there is still variation in student interests.
4	Learning Constraints	The main obstacles come from the lack of student interest and time constraints. Students sometimes feel bored when faced with long readings in Indonesian language learning materials.
5	Learning Styles and Non-Cognitive Assessment	The majority of students have a visual learning style, followed by auditory and kinesthetic. Non-cognitive assessments show that students develop well in responsibility, cooperation, and social attitudes.

6	Use of Learning Media on Difficult Materials	Difficult materials such as writing fictional texts and determining main ideas are taught with the help of media such as mind mapping, short videos, flashcards, and interactive applications such as Kahoot! and Quizizz.

Interview findings show that Indonesian language learning in grade IV has transformed positively through innovative methods and digital media. Implementing the Merdeka Curriculum with an active learning approach can increase student engagement. However, obstacles remain, such as lack of interest and time and difficulty understanding complex material. Teacher readiness to adapt creative media is an essential solution in addressing these challenges. The dominance of visual learning styles indicates the need for consistent visual and interactive learning. Therefore, a more systematic and sustainable strategy is needed, including preparing contextual materials and strengthening literacy through a fun and adaptive approach. Overall findings emphasize the importance of continuous innovation to ensure that Indonesian language learning can effectively answer students' needs and demands.

Analysis of the Advantages and Disadvantages of Indonesian Language Learning Media

The learning media used in the Indonesian language learning process in grade IV shows a variety of adaptive strategies to students' needs. Teachers use four main media types: mind mapping, learning videos, teaching aids such as flashcards, and learning applications such as Kahoot! or Quizizz. Each media has the strength to facilitate understanding of concepts, increase interest in learning, and adapt to students' learning styles. However, each media has certain limitations, such as technical constraints, difficulty using by certain students, or the risk of being too competitive. Even so, the selection of diverse media reflects a creative and student-oriented learning approach. This also shows the teacher's efforts to create a more meaningful, interactive, and enjoyable learning experience in the classroom.

Table 3. Findings of Aspects of Advantages and Disadvantages of Learning Media

No.	Types of Learning Media	Pros	Cons
1	Mind Mapping	Helps students organize their thoughts and increase creativity	Time consuming and not suitable for all students
2	Learning Videos	Engaging, interactive, and suitable for all learning styles	Needs access to technology and supervision to keep students focused
3	Flashcards	Interactive, fun, and easy to use in various settings	Limited to complex material and can lead to incomplete information
4	Learning Applications (Kahoot, Quizizz)	Increase engagement and provide immediate feedback	Requires internet connection and can lead to competitive pressure
5	Visual and Interactive Media	Make it easier to understand complex concepts through a visual approach	Potential for too much information in a short time
6	Simple & Practical Media	Can be used flexibly without a large cost (like flashcards)	Less effective for explaining abstract or in-depth concepts

The analysis of various learning media highlights the positive direction of learning Indonesian, with each media contributing to student engagement and understanding, particularly in literacy skills. However, the effectiveness of media depends on several factors, including infrastructure readiness, student characteristics, and the teacher's ability to manage the learning process effectively. Technical challenges, such as access to technology and limited supervision time, are significant concerns, especially with digital-based media. To maximize the benefits, teachers must select and combine appropriate media tailored to the classroom context, constantly assessing its effectiveness. Additionally, continuous improvement in teacher training and facility support is crucial to ensure media can address learning challenges and facilitate optimal student achievement. By enhancing teacher capabilities and providing necessary resources, media can bridge gaps in learning, ultimately promoting a more effective and engaging educational experience. Proper preparation in these areas is key to achieving better educational outcomes for students.

Discussions

The Potential of Digital Comic Media in Increasing Students' Interest in Learning

Engaging and enjoyable media can significantly enhance students' interest in reading. Among various instructional tools, digital comics have been noted for their effectiveness due to their combination of visual and textual content, which caters to multiple learning styles (Belda-Medina, 2024). In a study conducted by Dewaele and Li (2021), observations in a fifth-grade classroom revealed that approximately 70% of students demonstrated increased enthusiasm for reading when engaged in structured activities led by teachers or provided with designated reading time. This aligns with the idea that reading becomes more meaningful and appealing when presented in an organized and enjoyable format, as highlighted by Naeem et al. (2023). Instead of viewing reading as monotonous or routine, students respond positively when the learning environment includes elements of fun and creativity, a point emphasized by Hsbollah and Hassan (2022). Furthermore, research by Indriani and Suteja (2023) illustrates that structured exposure to reading, combined with visually stimulating content, not only enhances students' attention but also fosters a lasting interest in literacy activities. This underscores the potential of digital comics to act as a catalyst for improving student engagement and promoting a culture of reading within the classroom.

As a unique blend of visual and verbal elements, comics play a crucial role in making educational content more accessible and enjoyable for students. Fitria et al. (2023) argue that integrating vivid illustrations with written text activates students' curiosity and enhances their imagination, transforming reading into an exploratory experience rather than a passive task. This transformation is particularly beneficial for young learners who struggle with traditional textual materials, as Nanwani (2021) highlights. By framing lessons in the form of illustrated stories, digital comics create a more immersive and emotionally engaging learning environment, as Axelrod and Kahn (2024) suggest. According to Ginting et al. (2022), students begin to associate reading with excitement and discovery rather than academic pressure, as the narratives provide context and the visuals offer cues that support comprehension and retention. This dual-mode presentation effectively caters to visual learners and those who benefit from contextual, storytelling-based instruction. Therefore, digital comics can bridge the gap between reading as a mechanical task and learning as an enjoyable, meaningful journey.

A growing body of research supports the use of digital comics as a practical learning tool. Artanegara et al. (2024) found that incorporating Problem-Based Learning with digital comics significantly increased students' learning outcomes and engagement. Similarly, Hijriyah et al. (2022) observed that using e-comics in Qira'ah instruction improved students' attention and motivation. These findings suggest that digital comics are not just supplementary media, but active learning tools capable of reshaping the classroom dynamic, as Saputri et al. (2021) argue. The inclusion of comics fosters interactivity and imagination, motivating students to share ideas, discuss narratives, and relate content to their own experiences, as noted by Pulimeno et al. (2020). This active engagement, according to Cents-Boonstra et al. (2020), leads to deeper comprehension and greater enthusiasm for the subject matter. When thoughtfully implemented, comic-based learning can transform a dull classroom into a vibrant learning community, where students absorb information while being emotionally and cognitively invested in the process.

Effectiveness and Challenges in the Use of Digital Comics as Learning Media

Referring to Mayer's (2002) multimedia learning theory, combining text and images in comics enhances students' cognitive processing by engaging both verbal and visual channels, as Apostolou and Linardatos (2023) explain. This dual-channel input improves understanding of abstract or complex concepts by making them more concrete and easier to visualize. Furthermore, Jang and Ha (2025) suggest that using images alongside text can help strengthen memory retention, particularly for learners who rely heavily on visual cues. According to von Reumont and Budke (2020), comics transform learning into a more dynamic and context-rich experience, which is especially beneficial for young students struggling with conventional, text-heavy materials. The visual-verbal format, as

noted by Matuk et al. (2021), not only supports comprehension but also increases motivation by presenting information in an entertaining and relatable format. Thus, comics can serve as a strategic learning tool in classrooms, offering an inclusive learning approach that caters to diverse student needs and preferences. This approach aligns well with the cognitive principles of reducing extraneous load and increasing meaningful engagement in multimedia instruction.

Despite their educational benefits, using digital comics in learning still faces several practical obstacles. One major issue is the lack of access to adequate digital devices, such as tablets, laptops, or stable internet connections, particularly in under-resourced schools, as highlighted by Graves et al. (2021). Furthermore, not all teachers possess the necessary skills to design or effectively integrate instructional comics into lesson plans, which Zhang (2022) points out as a significant challenge. Many educators may struggle to adopt new technology-based approaches without appropriate training or support. Dewahrani et al., (2024) emphasize that teacher readiness and access to sufficient infrastructure are critical factors in successfully implementing digital learning media. These barriers underline the importance of systemic solutions, including professional development programs for teachers focused on media creation and digital pedagogy, as suggested by Theodorio (2024). Additionally, schools must invest in infrastructure to ensure equal access for all students. Without these supports, the full potential of comic-based digital learning media in improving student outcomes may not be realized.

To address these challenges, various digital design tools, such as Canva, can assist teachers in creating engaging and student-friendly comics, as Firdayanti et al. (2024) suggest. Canva's user-friendly interface allows educators to produce high-quality visual media without advanced graphic design skills, a point highlighted by Fitria (2023). This platform also aligns with current trends in educational technology, enabling teachers to design media that reflects students' digital habits and preferences, as Todino (2025) observes. Moreover, empirical validation of comic-based digital media has shown promising results. Manik (2019) notes that the material quality of comic-based media has proven to be highly effective in enhancing student understanding. These findings support the idea that well-designed comic media can significantly improve learning outcomes, as Thelma et al. (2024) emphasize. Therefore, integrating comic-based digital media should not be seen merely as a pedagogical trend but as an evidence-based strategy. With appropriate training and tools, teachers can become both content deliverers and creative media developers, fostering engaging, effective, and inclusive learning environments.

Character Value Reinforcement and Parent-Teacher Synergy in Digital Comic Media

Beyond serving as academic tools, digital comics are also effective media for character education. Suwanda et al. (2023) argue that comics designed with a character education approach can internalize moral and ethical values into the learning process. Through storylines that depict relatable scenarios, students are subtly introduced to values such as honesty, responsibility, empathy, and perseverance, as Kurniawan et al. (2024) highlight. These values are embedded in the narrative structure, making them more impactful than direct instruction. In the context of SDIT Utsmanil Hakim, Suma et al. (2024) emphasize that digital comics not only deliver curriculum content but also reflect local cultural and moral values, aligning the learning experience with students' everyday lives. This relevance, according to Bergin et al. (2024), makes learning more meaningful and supports students' social-emotional development. As students engage with stories depicting moral dilemmas or positive behavior, they develop critical thinking and ethical reasoning skills, making digital comics an essential tool in holistic education, as noted by Kim et al. (2024).

At SDIT, digital comics are designed not only for their visual appeal but also for their contextual relevance. Clark (2017) suggests that these comics integrate themes, characters, and settings that reflect students' real-life environments, strengthening the connection between the learning material and daily experiences. By grounding the stories in relatable contexts, Dubovi and Tabak (2021) argue that students are more likely to engage emotionally and cognitively with the content. This approach, according to Kelly et al. (2021), supports the development of a literacy culture that is not only

academic but also culturally and socially embedded. Digital comics, therefore, act as bridges that connect the school curriculum with students' realities, encouraging them to read and reflect more meaningfully, as Rosser and Soler (2024) note. As reading becomes part of their lived experiences, Gambrell (2015) and Nurhayati and Najoan (2023) emphasize that students naturally develop better comprehension and are more inclined to sustain reading habits. This shift from passive to active literacy engagement helps foster a generation of learners who are both literate and socially aware.

The successful integration of digital comics in the learning process also depends heavily on the collaboration between teachers and parents, as Palioura and Dimoulas (2022) suggest. Teachers play a vital role in designing engaging and educational modules using digital comics, ensuring that the content aligns with academic standards and students' developmental needs, a point emphasized by Mamolo (2022). Meanwhile, parents contribute by providing access to the necessary technology at home, such as smartphones, tablets, or internet connectivity, as Hadlington et al. (2019) note. This partnership ensures that learning can continue beyond the classroom and that students have consistent exposure to quality educational content, as highlighted by Golden (2023). According to Zakya et al. (2024), the synergy between educators and families is a key driver in building an adaptive and innovative learning ecosystem suited to the demands of the digital era. When both parties actively support students' learning journeys, it leads to improved academic outcomes, stronger character development, and a more holistic educational experience that prepares students for future challenges.

CONCLUSION

Based on the discussion, it can be concluded that digital comics hold significant potential to enhance students' interest and engagement in learning. Their unique combination of visual and textual elements makes educational content more accessible, especially for visual learners and young readers. Digital comics improve literacy and comprehension and serve as practical tools for character education by embedding moral values within relatable narratives. Despite their benefits, successful implementation requires addressing challenges such as limited access to technology and insufficient teacher readiness. Therefore, support through teacher training and infrastructure development is essential. Integrating platforms like Canva helps simplify comic design, making it easier for educators to develop engaging instructional media. Furthermore, collaboration between teachers and parents plays a critical role in maximizing the impact of digital comics. When both school and home environments support their use, digital comics can foster a more inclusive, engaging, and value-based learning experience that aligns with the needs of 21st-century education.

The findings of this study have both practical and theoretical implications. Educators should consider incorporating digital comics into their teaching strategies to enhance student engagement, especially in literacy and character education. Platforms like Canva can empower teachers to design effective visual media even with limited technical skills. Schools should also invest in teacher training and digital infrastructure to ensure the successful implementation of this media. Parental involvement is equally important, as home support strengthens the continuity of learning beyond the classroom. Theoretically, this study supports Mayer's multimedia learning theory by demonstrating how dual-channel input—visual and verbal—enhances cognitive processing and learning outcomes. It also extends the understanding of how digital media can support value-based education through narrative-based instruction. These insights contribute to the growing literature on educational technology and provide a foundation for future research on media-based learning innovations in diverse educational contexts.

This study acknowledges several limitations that should be addressed in future research. The scope of the study is primarily descriptive and limited to specific educational contexts, such as elementary school settings, which may affect the generalizability of the findings to different age groups or educational levels. Additionally, the study does not explore the long-term impacts of digital comic usage on academic achievement or character development. Access to digital infrastructure and teacher competence in using technology were discussed but not empirically measured. Therefore, further studies should involve experimental designs to measure learning outcomes more precisely and

broader participant samples to assess effectiveness across diverse demographics. Future research could also examine the integration of digital comics across various subjects, evaluate their impact on critical thinking, and explore students' perceptions and preferences. These directions provide a more comprehensive understanding of how digital comics can be optimized in different educational environments.

ACKNOWLEDGEMENT

With great respect, the author expresses his deepest appreciation to the principal, teachers, and all students for their enthusiasm, contribution, and extraordinary collaboration during the process of compiling this article. Our gratitude is also addressed to the editorial team of the EDUCARE Journal for the opportunity and trust given so that this article can be published properly.

BIBLIOGRAPHY

Amiraslani, F., & Dragovich, D. (2022). A Review of Documentation: A Cross-Disciplinary Perspective. *World, 3(1)*, 126-145. https://doi.org/10.3390/world3010007

Ananda, N. M., Aka, K. A., & Kurnia, I. (2023). Pengembangan Media Komik Cerita Anak Berbantuan LKPD Untuk Meningkatkan Keterampilan Menulis Narasi Pada Siswa Sekolah Dasar. *Edukatif: Jurnal Ilmu Pendidikan, 5*(2), 953–960. https://doi.org/10.31004/edukatif.v5i2.4771

Apostolou, D., & Linardatos, G. (2023). Cognitive Load Approach to Digital Comics Creation: A Student-Centered Learning Case. *Applied Sciences, 13(13)*, 7896. https://doi.org/10.3390/app13137896

Artanegara, I. M. S., Agung, A. G., & Ambara, D. P. (2024). Komik Digital Berbasis Problem Based Learning Pada Muatan IPAS Materi Kekayaan Budaya Indonesia. *Jurnal Ilmiah Pendidikan Profesi Guru, 7*(1), 235–245. https://doi.org/10.23887/jippg.v7i1.76917

Asmawadi, A. (2021). Fun Learning Melalui Media Whatsapp Pada Pembelajaran Jarak Jauh Untuk Kelas 1 Sekolah Dasar. *ELEMENTARY: Jurnal Inovasi Pendidikan Dasar, 1*(1), 1–10. https://doi.org/10.51878/elementary.v1i1.16

Axelrod, D., & Kahn, J. (2024). "Then You Go To Snap": Multimodal Making Of Digital Comics In A Language Arts High School Classroom. *Educational Technology Research and Development, 72(1)*, 41–57. https://doi.org/10.1007/s11423-023-10285-2

Belda-Medina, J. (2024). Inclusive Education through Digital Comic Creation in Higher Learning Environments. *Social Sciences, 13(5)*, 272. https://doi.org/10.3390/socsci13050272

Bergin, C., Tsai, C.-L., Prewett, S., Jones, E., Bergin, D. A., & Murphy, B. (2024). Effectiveness of a Social-Emotional Learning Program for Both Teachers and Students. *AERA Open, 10*. https://doi.org/10.1177/23328584241281284

Bergmark, U., & Westman, S. (2018). Student Participation Within Teacher Education: Emphasising Democratic Values, Engagement And Learning For A Future Profession. *Higher Education Research & Development, 37(7)*, 1352–1365. https://doi.org/10.1080/07294360.2018.1484708

Bingham, A. J. (2023). From Data Management to Actionable Findings: A Five-Phase Process of Qualitative Data Analysis. *International Journal of Qualitative Methods, 22*. https://doi.org/10.1177/16094069231183620

Busetto, L., Wick, W. & Gumbinger, C. (2020). How To Use And Assess Qualitative Research Methods. *Neurol. Res. Pract. 2, 14*. https://doi.org/10.1186/s42466-020-00059-z

Campbell, R., Javorka, M., Engleton, J., Fishwick, K., Gregory, K., & Goodman-Williams, R. (2023). Open-Science Guidance For Qualitative Research: An Empirically Validated Approach For De-Identifying Sensitive Narrative Data. *Advances in Methods and Practices in Psychological Science, 6(4)*. https://doi.org/10.1177/25152459231205832

Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. J. (2014). *The use of triangulation in qualitative research*. *Oncology nursing forum, 41(5)*, 545–547. https://doi.org/10.1188/14.ONF.545-547

Cents-Boonstra, M., Lichtwarck-Aschoff, A., Denessen, E., Aelterman, N., & Haerens, L. (2020). Fostering Student Engagement With Motivating Teaching: An Observation Study Of Teacher And Student Behaviours. *Research Papers in Education, 36(6)*, 754–779. https://doi.org/10.1080/02671522.2020.1767184

Clark, E. E. (2017). Are Comics Effective Materials For Teaching Ells? A Literature Review On Graphic Media For L2 Instruction. *IJAEDU-International E-Journal of Advances in Education, 3(8)*, 298–309. https://doi.org/10.18768/ijaedu.336260

Davies, D., Jindal-Snape, D., Collier, C., Digby, R., Hay, P., & Howe, A. (2013). Creative Learning Environments In Education—A Systematic Literature Review. *Thinking Skills and Creativity, 8*, 80–91. https://doi.org/10.1016/j.tsc.2012.07.004

Dewaele, J.-M., & Li, C. (2021). Teacher Enthusiasm And Students' Social-Behavioral Learning Engagement: The Mediating Role Of Student Enjoyment And Boredom In Chinese EFL Classes. *Language Teaching Research, 25(6)*, 922-945. https://doi.org/10.1177/13621688211014538

Dewahrani, Y. R., Sartono, N., Hamidah, & Febrina, H. S. (2024). The Development Of Digital Comic Based On Biology Literacy As Learning Media On The Topic Of Immune System. *AIP Conference Proceedings, 2982(1)*, 050021. https://doi.org/10.1063/5.0184369

Doyle, L., McCabe, C., Keogh, B., Brady, A., & McCann, M. (2020). An Overview Of The Qualitative Descriptive Design Within Nursing Research. *Journal of research in nursing: JRN, 25(5)*, 443–455. https://doi.org/10.1177/1744987119880234

Dubovi, I., & Tabak, I. (2021). Interactions Between Emotional And Cognitive Engagement With Science on YouTube. *Public understanding of science (Bristol, England), 30(6)*, 759–776. https://doi.org/10.1177/0963662521990848

Dwijayani, N. M. (2019). Development Of Circle Learning Media To Improve Student Learning Outcomes. *Journal of Physics: Conference Series, 1321(2)*, 022099. https://doi.org/10.1088/1742-6596/1321/2/022099

Firdayanti, F., Emiliyana, M. P., Fitriah, S., Kurniati, U., & Mahmud. (2024). Teacher and Student's Pedagogical Tasks Using Canva as Media for English Language Teaching (ELT) in Developing Creativity for High School. *International Journal of English Language Studies, 6(2)*, 130-136. https://doi.org/10.32996/ijels.2024.6.2.19

Fitri, A. A., Trianingsih, M., Ifadha, R. D., Marini, A., & Yunus, M. (2025). Penerapan Pendekatan Saintifik dalam Pembelajaran IPS di Sekolah Dasar. *Indonesian Research Journal on Education, 5(1)*, 99 –. https://doi.org/10.31004/irje.v5i1.1848

Fitria, T. N. (2023). Creation of Comic Strips Using Canva in Teaching Writing to Students. *ISLLAC: Journal of Intensive Studies on Language, Literature, Art, and Culture. 7*. 159-176. https://doi.org/10.17977/um006v7i12023p159-176

Fitria, Y., Malik, A., Mutiaramses, Halili, S. H., & Amelia, R. (2023). Digital Comic Teaching Materials: It's Role To Enhance Student's Literacy On Organism Characteristic Topic. *Eurasia*

Journal of Mathematics, Science and Technology Education, 19(10), em2333. https://doi.org/10.29333/ejmste/13573

Gambrell, L. B. (2015). Getting Students Hooked on the Reading Habit. *The Reading Teacher, 69(3)*, 259–263. https://doi.org/10.1002/trtr.1423

Ginting, D., Sulistyo, T., Ismiyani, N., Sembiring, M., Asfihana, R., Fahmi, A., Made Rai Suarniti, G., & Mulyani, Y. (2022). English Language Teacher's Multimedia Knowledge in Teaching Using Technology. *World Journal of English Language, 12(6)*, p184. http://dx.doi.org/10.5430/wjel.v12n6p184

Ginting, D., Woods, R. M., Barella, Y., Limanta, L. S., Madkur, A., & How, H. E. (2024). The Effects of Digital Storytelling on the Retention and Transferability of Student Knowledge. *SAGE Open, 14(3)*. https://doi.org/10.1177/21582440241271267

Golden, B. (2023). Enabling Critical Thinking Development In Higher Education Through The Use Of A Structured Planning Tool. *Irish Educational Studies, 42(4)*, 949–969. https://doi.org/10.1080/03323315.2023.2258497

Granström, M., Kikas, E., & Eisenschmidt, E. (2023). Classroom observations: How do teachers teach learning strategies? *Frontiers in Education, 8*, 1119519. https://doi.org/10.3389/feduc.2023.1119519

Graves, J. M., Abshire, D. A., Amiri, S., & Mackelprang, J. L. (2021). Disparities in Technology and Broadband Internet Access Across Rurality: Implications for Health and Education. *Family & Community Health, 44(4)*, 257–265. https://doi.org/10.1097/FCH.0000000000000306

Guido, R., Ferrisi, S., Lofaro, D., & Conforti, D. (2024). An Overview on the Advancements of Support Vector Machine Models in Healthcare Applications: A Review. *Information, 15(4)*, 235. https://doi.org/10.3390/info15040235

Hadlington, L., White, H., & Curtis, S. (2019). "I cannot live without my [tablet]": Children's experiences of using tablet technology within the home. *Computers in Human Behavior, 94*, 19–24. https://doi.org/10.1016/j.chb.2018.12.043

Hakim, N., Jastacia, B., & Mansoori, A. A.-. (2024). Personalizing Learning Paths: A Study of Adaptive Learning Algorithms and Their Effects on Student Outcomes. *Journal Emerging Technologies in Education, 2(4)*, 318–330. https://doi.org/10.70177/jete.v2i4.1365

Hall, S., & Liebenberg, L. (2024). Qualitative Description as an Introductory Method to Qualitative Research for Master's-Level Students and Research Trainees. *International Journal of Qualitative Methods, 23*. https://doi.org/10.1177/16094069241242264

Hashimov, E. (2014). Qualitative Data Analysis: A Methods Sourcebook and The Coding Manual for Qualitative Researchers: Matthew B. Miles, A. Michael Huberman, and Johnny Saldaña. Thousand Oaks, CA: SAGE, 2014. 381 pp. Johnny Saldaña. Thousand Oaks, CA: SAGE, 2013. 303 pp. *Technical Communication Quarterly, 24(1)*, 109–112. https://doi.org/10.1080/10572252.2015.975966

Hastasari, C., Setiawan, B., & Aw, S. (2022). Students' Communication Patterns Of Islamic Boarding Schools: The Case Of Students In Muallimin Muhammadiyah Yogyakarta. *Heliyon, 8(1)*, e08824. https://doi.org/10.1016/j.heliyon.2022.e08824

Hayat, F., Khan, M., Ahmad, S., Kamran, M., & Maleeha. (2024). Exploring the Characteristics of Concrete Operational Stage among Primary School Students. *Qlantic Journal of Social Sciences and Humanities, 5(1)*, 124-132. https://doi.org/10.55737/qjssh.786349315

Hayat, M. S., Yunus, M., Qotrun Nada, N., & Suma, S. (2024). Analysis Of The Integration Of Sdgs Values In Learning Science Project In Vocational Schools To Build A Sustainable Lifestyle. *KnE Social Sciences, 9(6)*, 173–183. https://doi.org/10.18502/kss.v9i6.15265

Hijriyah, U., Aridan, M., Mizan, A. N., Dealintang, A., & Yuniarti, L. (2022). Development of Digital Comic Media for Learning Qira'ah for Fifth Grade Students of Madrasah Ibtidaiyah. *Arabiyatuna: Jurnal Bahasa Arab, 6(2)*, 693–710. https://doi.org/10.29240/jba.v6i2.4361

Hsbollah, H. M., & Hassan, H. (2022). Creating Meaningful Learning Experiences With Active, Fun, And Technology Elements In The Problem-Based Learning Approach And Its Implications. *Malaysian Journal of Learning and Instruction, 19(1)*, 147–181. https://doi.org/10.32890/mjli2022.19.1.6

Indriani, S., & Suteja, H. (2023). Fostering Reading Interest Through Digital Storytelling For Young Learners In The Early Childhood. *Journal of Education and Learning (EduLearn). 17*. 301-306. https://doi.org/10.11591/edulearn.v17i2.18372

Jang, D., & Ha, J. (2025). The Effect Of Text And Graphic Cue-Based Action Observation On The Working Memory Performance Of Novice Badminton Players. *Frontiers in psychology, 15*, 1439528. https://doi.org/10.3389/fpsyg.2024.1439528

Katona, B., Venkataragavan, J., Nina, E., Ulrika, B., & Björn, O. (2023). Use of Visual Learning Media to Increase Student Learning Motivation. *World Psychology, 1(3)*, 161–176. https://doi.org/10.55849/wp.v1i3.381

Kelly, L. B., Wakefield, W., Caires-Hurley, J., Kganetso, L. W., Moses, L., & Baca, E. (2021). What Is Culturally Informed Literacy Instruction? A Review of Research in P–5 Contexts. *Journal of Literacy Research, 53(1)*, 75-99. https://doi.org/10.1177/1086296X20986602

Kim, E. K., Allen, J. P., & Jimerson, S. R. (2024). Supporting Student Social Emotional Learning and Development. *School Psychology Review, 53(3)*, 201–207. https://doi.org/10.1080/2372966X.2024.2346443

Kurniawan, A., Amalia, P. A., & Indrawati, I. (2024). Improving Students' Reading Comprehension through Storytelling Frame. *Buletin Poltanesa, 25(2)*, 217–222. https://doi.org/10.51967/tanesa.v25i2.3183

Lavrijsen, J., Preckel, F., Verachtert, P., Vansteenkiste, M., & Verschueren, K. (2021). Are Motivational Benefits Of Adequately Challenging Schoolwork Related To Students' Need For Cognition, Cognitive Ability, Or Both? *Personality and Individual Differences, 171*, 110558. https://doi.org/10.1016/j.paid.2020.110558

Mamolo, L. A. (2022). Students' evaluation and learning experience on the utilization of Digital Interactive Math Comics (DIMaC) mobile app. *Advances in Mobile Learning Educational Research, 2(2)*, 375-388. https://doi.org/10.25082/AMLER.2022.02.006

Manik, R. M. S. (2019). The Effectiveness of Comic Strip As Media to Improve the Students' Reading Comprehension on Narrative Text of MTs Ar-Rahman Langkat. *KnE Social Sciences, 3(19)*, 933–947. https://doi.org/10.18502/kss.v3i19.4918

Matuk, C., Hurwich, T., Spiegel, A., & Diamond, J. (2021). How Do Teachers Use Comics To Promote Engagement, Equity, And Diversity In Science Classrooms?. *Research In Science Education, 51(3)*, 685–732. https://doi.org/10.1007/s11165-018-9814-8

Mayer, R.E. (2002), Cognitive Theory and the Design of Multimedia Instruction: An Example of the Two-Way Street Between Cognition and Instruction. *New Directions for Teaching and Learning*, 55-71. https://doi.org/10.1002/tl.47

McIntosh, M. J., & Morse, J. M. (2015). Situating And Constructing Diversity In Semi-Structured Interviews. *Global Qualitative Nursing Research, 2*, 2333393615597674. https://doi.org/10.1177/2333393615597674

Miranda, D., & Dafit, F. (2024). Pengembangan Media Komik Digital untuk Membaca Pemahaman Siswa Kelas V SD. *Jurnal Basicedu, 8(5)*, 3649–3657. https://doi.org/10.31004/basicedu.v8i5.8572

Naeem, M., Ozuem, W., Howell, K., & Ranfagni, S. (2023). A Step-by-Step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research. *International Journal of Qualitative Methods, 22*. https://doi.org/10.1177/16094069231205789

Nanwani, S. (2021). *Organization and Education Development: Reflecting and Transforming in a Self-Discovery Journey (1st ed.)*. Routledge. https://doi.org/10.4324/9781003166986

Narestuti, A. S., Sudiarti, D., & Nurjanah, U. (2021). Penerapan Media Pembelajaran Komik Digital Untuk Meningkatkan Hasil Belajar Siswa. *Bioedusiana: Jurnal Pendidikan Biologi, 6*(2), 305–317. https://doi.org/10.37058/bioed.v6i2.3756

Natow, R. S. (2019). The Use Of Triangulation In Qualitative Studies Employing Elite Interviews. *Qualitative Research, 20(2)*, 160-173. https://doi.org/10.1177/1468794119830077

Nurhayati, N., & Najoan, G. A. (2023). Students' Reading Habit and Their Reading Comprehension in Learning English. *Indonesian Journal of Interdisciplinary Research in Science and Technology, 1(9)*, 805–822. https://doi.org/10.55927/marcopolo.v1i9.6587

Oktaviana, M., & Ramadhani, S. P. (2023). Pengembangan Media Pembelajaran IPA Berbasis Komik Digital Untuk Meningkatkan Hasil Belajar Kognitif Siswa. *Jurnal Ilmiah Profesi Pendidikan, 8*(1), 48–56. https://doi.org/10.29303/jipp.v8i1.1090

Palioura, M., & Dimoulas, C. (2022). Digital Storytelling in Education: A Transmedia Integration Approach for the Non-Developers. *Education Sciences, 12(8)*, 559. https://doi.org/10.3390/educsci12080559

Pulimeno, M., Piscitelli, P., & Colazzo, S. (2020). Children's Literature To Promote Students' Global Development And Wellbeing. *Health promotion perspectives, 10(1)*, 13–23. https://doi.org/10.15171/hpp.2020.05

Rina, N., Suminar, J. R., Damayani, N. A., & Hafiar, H. (2020). Character Education Based On Digital Comic Media. *International Journal of Interactive Mobile Technologies (iJIM), 14(03)*, pp. 107–127. https://doi.org/10.3991/ijim.v14i03.12111

Rosser, P., & Soler, S. (2024). Heritage Education of Memory: Gamification to Raise Awareness of the Cultural Heritage of War. *Heritage, 7(8)*, 3960-3996. https://doi.org/10.3390/heritage7080187

Saputri, A., Sunardi, S., & Musadad, A. (2021). Digital Comics as A Media in EFL Reading Classrooms. *AL-ISHLAH: Jurnal Pendidikan, 13(2)*, 1097-1102. https://doi.org/10.35445/alishlah.v13i2.758

Shanks, G., & Bekmamedova, N. (2018). Case Study Research In Information Systems. In K. Williamson & G. Johanson (Eds.), *Research methods* (2nd ed., pp. 193–208). Chandos Publishing. https://doi.org/10.1016/B978-0-08-102220-7.00007-8

Suma, M., Rahman, F., Dalyan, M. Z., Andini, C., & Wajadi, A. M. F. (2024). Cultural Aspects of Character Education found in Comic "Pelayaran Ke Dusung": An Ecranization through the Application of Augmented Reality. *Journal of Ecohumanism, 3(4)*, 739–753. https://doi.org/10.62754/joe.v3i4.3573

Suwanda, N. A., Ulfa, S. W., & Adlini, M. N. (2023). Pengembangan Media Pembelajaran Komik Digital Biologi Berbasis Pendidikan Karakter Pada Materi Sistem Ekskresi Untuk Peserta Didik Kelas XI SMA. *JUPEIS: Jurnal Pendidikan dan Ilmu Sosial, 2*(4), 79–91. https://doi.org/10.57218/jupeis.vol2.iss4.839

Thelma, C. C., Sain, Z. H., Mpolomoka, D. L., Akpan, W. M., & Davy, M. (2024). Curriculum Design for the Digital Age: Strategies for Effective Technology Integration in Higher Education. *International Journal of Research, 11(7)*, 85–201. https://doi.org/10.5281/zenodo.13123899

Theodorio, A. O. (2024). Examining The Support Required By Educators For Successful Technology Integration In Teacher Professional Development Program. *Cogent Education, 11(1)*. https://doi.org/10.1080/2331186X.2023.2298607

Todino, M. D. (2025). Educational Technologies. *Encyclopedia, 5(1)*, 23. https://doi.org/10.3390/encyclopedia5010023

von Reumont, F., & Budke, A. (2020). Strategies for Successful Learning with Geographical Comics: An Eye-Tracking Study with Young Learners. *Education Sciences, 10(10)*, 293. https://doi.org/10.3390/educsci10100293

Xia, Q., Yin, H., Hu, R., Li, X., & Shang, J. (2022). Motivation, Engagement, and Mathematics Achievement: An Exploratory Study Among Chinese Primary Students. *SAGE Open, 12(4)*. https://doi.org/10.1177/21582440221134609

Zakya, A. L. F., Wardhani, P. A., & Usman, H. (2024). Hubungan Antara Motivasi Belajar Dan Kemandirian Peserta Didik Terhadap Hasil Belajar IPS Siswa SDN Jati 05 Pagi Tahun Pelajaran 2023/2024. *Jurnal Ilmiah Profesi Pendidikan, 9*(2), 831–838. https://doi.org/10.29303/jipp.v9i2.2207

Zamiri, M., & Esmaeili, A. (2024). Methods and Technologies for Supporting Knowledge Sharing within Learning Communities: A Systematic Literature Review. *Administrative Sciences, 14(1)*, 17. https://doi.org/10.3390/admsci14010017

Zhang, Y. (2022). Developing EFL Teachers' Technological Pedagogical Knowledge Through Practices in Virtual Platform. *Frontiers in psychology, 13*, 916060. https://doi.org/10.3389/fpsyg.2022.916060