

Analysis of the Application of Learning Media by Teachers to Improve Literacy in High School Students in Central Java

Urip Widodo^{a,1,*}, Walyono^{a,2}, Mugiyo^{a,3}, Agus Subandi^{a,4}, Justin Farrell^{b,5}


^a STABN Raden Wijaya Wonogiri, Jalan Kantil Bulusulur, Wonogiri 57615, Indonesia

^b Yale University, School of the Environment, 195 Prospect St, New Haven, CT 06511, United States

¹urwido@radenwijaya.ac.id*; ²walyono@radenwijaya.ac.id; ³aressamugiyo@gmail.com; ⁴agussubandi@radenwijaya.ac.id;

⁵justin.farrell@yale.edu

* corresponding author

| ARTICLE INFO | ABSTRACT |
|---|--|
| <p>Article history Received May 12, 2025 Revised June 15, 2025 Accepted June 29, 2025</p> <p>Keywords Literacy Digital Media Teacher Competence x</p> | <p>The rapid development of information technology in Indonesia requires teenagers to have strong digital literacy to use technology wisely and productively. Adequate digital literacy will help adolescents access information critically, maintain privacy, and participate actively and safely in the digital world. This research method uses interviews and surveys to collect data from the high school student population in Central Java, enabling researchers to obtain in-depth insights into students' views and experiences. The sample taken in Banjarnegara Regency will provide a representative picture that helps researchers analyze trends and patterns among high school students in the region. The study results showed that the habit of reading has not been formed in children from an early age, so they tend not to enjoy reading. Another thing that encourages children is that the lack of reading habits at home and the surrounding environment makes children less interested in books and unaware of the benefits and pleasures that can be obtained from reading. Students prefer to read in a supportive environment, such as a home with many books and parents who regularly read stories. The interview results show several ways to attract and motivate to increase reading interest, including integrating literacy into the school curriculum, teaching children how to search for information online, organizing extracurricular literacy activities, and teaching children how to organize and manage information. Good material that meets students' needs will help develop an interest in reading and writing and strengthen the ability to analyze and understand the text as a whole; literacy is at the forefront of society's efforts to tackle fake news. The literacy culture still needs to be developed. Therefore, cooperation from all parties, including the government, schools, and the community, is required to raise awareness of the importance of reading and increase access to literary sources.</p> <p>This is an open access article under the CC-BY license.</p>  |

I. Introduction

Reading is a fundamental skill at the heart of literacy, an ability indispensable for children growing up in today's digital era. Literacy not only enables individuals to read and write but also empowers them to think critically, communicate effectively, and navigate the vast flow of information in the modern world. Reading itself is a complex cognitive process that engages multiple senses and functions requiring coordination between the eyes, fingers, ears, memory, and brain to decode, comprehend, and interpret meaning from text. In the digital age, the nature of reading and literacy is undergoing a profound transformation. The widespread use of technology has changed how people access, process, and interact with information. While digital tools offer new opportunities for learning and engagement, they also introduce challenges such as distraction, reduced attention spans,

and superficial reading habits. Therefore, fostering strong reading and literacy skills remains essential to help children adapt thoughtfully and responsibly to the demands of this rapidly changing world. (Sari, 2020).

The development of today's world is complicated to predict; international competition has become an integral part of the national system. Digital Literacy is closely related to new literacy (Alfin, 2019). More literacy is accessing, using, and comprehending in-depth (Afriyanti, 2019). Countries that dominate technology can compete globally to meet the need for high-quality education (Bishry, 2018). The hopes and challenges of welcoming Indonesian gold have potential and threats when not properly managed and sustainable. The preparation of the generations still in my school today to be future leaders must be prepared to hold on to the full cover of self-

righteousness. Reading can be understood as an activity to expand insight and knowledge (Cabinio et al., 2015).

This study is particularly significant because digital literacy has become an essential competency in the modern era, shaping how individuals interact, communicate, and work in an increasingly digital environment. Despite this, reading remains a fundamentally cognitive activity that requires focus, reflection, and sustained attention, qualities often undermined by the fast-paced, fragmented nature of digital media. Many children today prefer using mobile phones for entertainment or social interaction, which can lead to reduced concentration, shallow reading habits, and a decline in deep comprehension skills. The rise of digital literacy, driven by rapid advances in Internet technology, has profoundly transformed how people access, evaluate, and interpret information. Therefore, understanding how to balance traditional reading habits with the demands of digital literacy is crucial to fostering critical thinking, discernment of information, and responsible digital engagement among students (Çalışkan & Ulaş, 2022).

To prepare future leaders, students need to be equipped with a range of scientific knowledge, skills, and ethical principles. At the same time, information technology trends require humans to think quickly and accurately to find opportunities, but low reading interest will hurt school learning quality. So it needs one of the most essential skills is reading; reading becomes crucial because the vast amount of information in the virtual world that is part of further literacy reveals that literacy is a skill that relates to the ability to access, scale and understand to spread the information available (Castillo, 2022).

Almost everything we do involves technology, from studying at school and communicating with friends to searching for information on the Internet. So, we all need to master digital literacy to explore the world online safely and intelligently (Desi, 2020). The ability to use technology wisely and safely. An interest in literacy must be well-built to enrich insight, expand imagination, and form a critical and analytical character. Digital tools can also provide students with more personalized learning experiences that cater to their individual needs and learning styles. Secondly, digital literacy can enable teachers to design and deliver compelling digital-based learning experiences for their students. This can include the use of learning management systems, digital assessments, and other tools to enhance teaching and learning outcomes. Digital literacy can also enable teachers to create digital content, such as videos and interactive quizzes, thereby improving the quality of their teaching and engaging their students (Dewi et al., 2021). Digital tools can streamline administrative tasks, such as record-keeping and grading, allowing teachers to focus on teaching and providing feedback to their students. Digital literacy can also enable teachers to collaborate and communicate with their colleagues and students more

effectively, facilitating the sharing of best practices and promoting a culture of continuous learning.

Literacy enables people to use data effectively in a modern, information-rich society. By developing literacy across these areas, individuals can become more skilled readers, writers, thinkers, and decision-makers. (Ebyatiswara Putra et al., 2023). The importance of high school literacy extends beyond academic success; it also affects students' ability to participate actively in society, understand complex issues, and develop the critical thinking necessary to be responsible and skilled citizens in the digital age. Indirect literacy activities indirectly motivate learners to be interested in learning, such as reading. Critical learning patterns can be strengthened through literacy-based training. According to reports, the teacher's role is highly beneficial in this setting, helping students learn effectively through interactive and collaborative teaching and learning activities (Fadhli et al., 2017). a literacy-based learning approach that encourages the learner to participate in practical investigations that result in critical thinking for comprehension, textual applications, and their own thinking with forethought. By teaching grammar rules and demonstrating each word or sentence one at a time, a literacy-based approach can help students improve their literacy skills.

Additionally, pupils. They must be trained from a young age to think critically about what they read, hear, and see, so they can recognize misinformation on social media or in the news. A fundamental talent or skill for locating relevant information is digital literacy. Teachers and students must presume that these abilities are comparable to reading and writing when learning a language in a classroom. Previous research indicates that literacy is a new social practice in the school that focuses on improving students' reading and writing abilities, which are used across a range of activities and in many circumstances.

A substantial body of research has examined literacy culture, learning media, internet use, and teachers' competencies, highlighting how literacy skills significantly influence an individual's academic achievement, career development, and overall future success. However, there remains a noticeable gap in studies examining the specific role of reading habits, particularly among Indonesian Buddhist high school students. This underexplored area presents a vital opportunity to understand how cultural, religious, and educational factors intersect to shape students' literacy behaviors. Therefore, this study seeks to investigate the reading and literacy habits of middle school students in Central Java, aiming to provide insights that could inform more inclusive and culturally responsive literacy development strategies.

Furthermore, Nurul Fadilla and Puri Pramudiani's (Firmansyah & Dede, 2022) research confirms previous findings by demonstrating the significant positive impact

of reading habits from elementary school on students' cognitive and social development. Their study showed that students who are accustomed to reading exhibit superior reading abilities and improved critical and analytical thinking skills. Students who read frequently are better equipped to analyze complex information, solve problems, and understand different perspectives. This helps them face academic challenges with more readiness and confidence. Additionally, reading habits also influence their social development by making it easier to interact with peers and work more effectively in groups. Research indicates that reading habits enhance students' vocabulary and oral and written communication skills. Students who read often demonstrate a better understanding of various subjects, as they can connect new information with previous knowledge. Previous research has focused on preparing various literacy media for teachers and students, the use of Bigbook to improve students' early reading skills, and the use of popular media for literacy (Firmansyah et al., 2022). However, this study analyzes learning media props for literacy activities. This research provides a broader picture of the teaching aids that can be used in literacy and does not focus solely on one literacy skill, making it more comprehensive. To ensure this, it is necessary to analyze the learning media created by students that have media characteristics and support literacy activities. So, further research is needed to explore the media students have made, to provide information on the extent to which the suitability of learning media products has been assessed, and to serve as a follow-up plan for lecturers to develop student support in creating learning media (Boiliu et al., 2016). The purpose of this study is to analyze student-made learning media products, especially teaching aids, in accordance with learning media criteria and oriented toward literacy activities. Teaching aids were chosen because they are more concrete and easier to make and use. From the results of this analysis, it is hoped that data and an overview of the quality of teaching aids and their suitability in supporting literacy activities can be obtained. The results of this study are expected to serve as a reflection and reference for developing learning media with various innovations and for paying attention to literacy elements.

However, studies lead to conclusions. For example, a study conducted by (Indriyadi, 2021) found that although literacy has a positive impact, students often need help applying reading habits. These constraints include limited access to quality reading material and a need for more self-motivation. The research emphasizes the importance of school and family community support in enhancing literacy culture. This support includes providing adequate reading resources and fostering an environment that supports reading so students can overcome these barriers and develop strong literacy habits.

However, research on the role of reading habits, especially among Buddhist high school students in Indonesia, remains to be conducted. Hopefully, this study

can identify effective methods to enhance high school literacy, especially in diverse religious and cultural contexts. The primary issue in this study is how effectively teachers can use Android to implement the inquiry learning paradigm, thereby helping junior high school pupils become more digitally literate (Kim et al., 2020).

The objective of the study was to measure students' understanding and teachers' knowledge of students' reading practices before, during, and after learning (Laubrock & Kliegl, 2015). The study aims to analyze how effective teaching media can improve student literacy in Central Java, focusing on teachers' roles in using these media effectively and on media literacy, and providing insight into effective strategies to optimize student Literacy.

II. Method

The research method employed in this study is a survey, designed to examine the use of media to enhance students' digital literacy. Data will be collected through the distribution of structured questionnaires to respondents, enabling the researcher to gather comprehensive information on media use habits, levels of digital literacy, and perceptions and preferences regarding media use in educational contexts.

The study population comprises all Buddhist high school students in Central Java Province, totaling 236 individuals. From this population, the sample includes Buddhist students and 15 religious teachers, ensuring that both learner and educator perspectives are represented. By incorporating insights from these two groups, the study aims to develop a holistic understanding of how media use influences the development of digital literacy within the Buddhist educational community in Central Java.

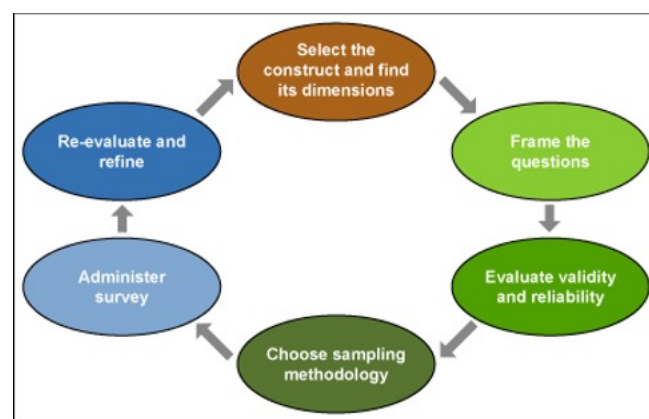


Fig. 1. Design Survey Method

The instruments used in this research include surveys and interviews with the working group of teachers of Buddhist education at the high school/SME level, as well as discussions on the work of Buddhist subjects. By using both methods, the research can gather comprehensive and in-depth data on the views, experiences, and practices of

teaching Buddhism at the high school/SMA level. Furthermore, combining survey and interview methods is expected to provide a more complete understanding of the roles and challenges teachers face in teaching the Buddhist religion. The combined quantitative and qualitative approach enables the study to understand better the roles and challenges of teaching Buddhism at the middle school/SMA level.

III. Results and Discussion

The research aims to see how learning media is used in today's education. In the rapidly evolving information technology era, learning media are becoming increasingly important in supporting learning processes. The study will also explore how to use learning media to improve the quality of education by learning how teachers use it. Related factors discussed in this study include the type of media used, its effects on the learning process, and its impact (Nadiroh et al., 2023).

Digital literacy is the practical, critical, and secure use of digital technology. It involves understanding various digital tools, including hardware and software, and the ability to evaluate, filter, and create content online (Novitasari & Fauziddin, 2022). More than just the use of technology, digital literacy also includes recognising and addressing online risks such as fraud, cyberbullying, and data privacy. According to the study results, no attempt has yet been made to integrate literacy into the school curriculum (Alfin, 2019).

With increasing reliance on technology, digital literacy has become a key skill for actively participating in an increasingly digitally connected society (Nasionalita & Nugroho, 2020). The micro-learning approach, which can improve student retention and involvement, has become an effective strategy in the learning process. Students tend to retain information better when the material is broken into small, easily digestible pieces. Furthermore, by allowing students to focus on one concept or skill at a time, the microlearning approach helps them engage more actively in learning and understand more deeply. Digital literacy is not just about skills but also about being responsible and capable of exploring the increasingly important virtual world (Nisa et al., 2023).

Observations of the learning process of high school students in Central Java provide valuable insights into classroom dynamics and the teaching strategies used. By examining interactions between teachers and students and classroom learning patterns, the study aims to gain a deeper understanding of the factors that influence learning effectiveness. These observations are expected to identify potential improvements in the teaching approach, students' needs, and the challenges teachers face in facilitating effective learning. Thus, this observation not only provides a clear picture of the realities of learning in the field but can also serve as a basis for developing better learning

strategies in the future and for gaining wisdom in using them, as research indicates (Noor Fitri et al., 2023).

Hasil wawancara terhadap beberapa siswa menunjukkan bahwa aktivitas membaca dianggap kurang penting oleh mereka. Siswa cenderung lebih memilih menggunakan HP untuk mengisi waktu luang mereka, dengan minat yang lebih besar pada bermain game dan berkumpul dengan teman-teman sebaya (Angresia et al., 2022). Hal ini diperkuat oleh fakta bahwa siswa SMA sering kali lebih tertarik pada penggunaan media sosial seperti TikTok, Twitter, Instagram, dan Facebook (Kiviranta et al., 2024). Selain itu, kegiatan menonton televisi, bermain game, dan berbagai aktivitas hiburan lainnya tampaknya lebih menarik bagi mereka dibandingkan dengan membaca. Perubahan dalam preferensi ini mencerminkan pergeseran budaya digital yang mempengaruhi cara siswa menghabiskan waktu dan mengevaluasi berbagai bentuk hiburan serta informasi (Pradana, 2018).

The results of interviews with some students showed that reading activity was considered less important by them. Students tend to prefer using their phones to fill their free time, with greater interest in playing games and gathering with peers. This is reinforced by the fact that high school students are often more interested in using social media platforms such as TikTok, Twitter, Instagram, and Facebook. Besides, watching TV, playing games, and other forms of entertainment seem more appealing to them than reading. These changes in preferences reflect a shift in digital culture that influences how students spend their time, evaluate different forms of entertainment and information, and their ability to think, critically understand, and improve their emotional well-being. A decrease in reading interest can lead to a decline in the ability to reflect and think deeply, which is an important part of Buddhist teachings and daily life. (Novitasari & Fauziddin, 2022).

This phenomenon poses a significant challenge for both educators and parents in encouraging students' interest in reading. To address this, deliberate efforts must be made to create reading experiences that are engaging and relevant to students' lives in today's digital world. One effective strategy is to incorporate digital content, such as e-books, multimedia stories, or interactive reading platforms, into literacy activities, enabling students to explore texts through familiar, stimulating technological media. Additionally, integrating reading with technology-based activities, like online book discussions, gamified reading challenges, or creative digital storytelling projects, can turn reading from a passive activity into an active, enjoyable one. By aligning literacy practices with students' interests, habits, and technological skills, educators can foster more positive, consistent, and sustainable reading behaviors that go beyond the classroom.

One of the key obstacles to improving literacy lies in the limited familiarity and low awareness of its importance among parents, many of whom have yet to cultivate a consistent reading culture at home. This challenge is further compounded by the heavy academic workload and tightly structured curricula that dominate students' daily routines. As a result, reading for pleasure often becomes a low priority. Many high school students report feeling too busy to engage with their favorite books outside of academic requirements, as highlighted in interviews. This situation underscores the need for a more balanced approach, one that not only emphasizes academic achievement but also provides time and encouragement for voluntary, interest-based reading to sustain motivation, creativity, and intellectual growth. Firmansyah and Dede (Fadilla & Pramudiani, 2023) believe that literacy activities foster creativity and innovation.

Another factor in the lack of interest in literacy is that teachers are less accustomed to students reading and need help with reading or less practical reading skills, which causes students to feel frustrated and less interested in reading activities. A good indicator that respondents regularly use digital media is the large percentage of teachers and students who use digital devices for hobbies and daily activities. Regarding the final statement item, most respondents who said they did not use digital devices for side jobs implied that most professors and pupils did not have other jobs, such as product sales. As a result, this last statement suggests that teachers and students who use digital devices for side employment are probably more digitally literate, and that this is not prioritized in schools (Purba & Girsang, 2021).

Parents and teachers play a crucial role in nurturing literacy by serving as positive role models and demonstrating a genuine interest in reading from an early age, both at home and in school. When children observe adults engaging in reading as an enjoyable and purposeful activity, they are more likely to adopt similar habits. Beyond merely providing and ensuring easy access to diverse reading materials such as books, magazines, newspapers, and digital texts, it is essential to create an environment that encourages curiosity, discussion, and reflection about what is read. This consistent exposure not only enhances students' reading skills and comprehension but also fosters critical thinking, empathy, and moral awareness, ultimately contributing to the holistic development of character and lifelong learning attitudes (Rahmi et al., 2023).

Engaging students in in-depth discussions about the books they read can significantly enhance their comprehension, interpretation, and appreciation of the material. Through thoughtful dialogue, students are encouraged to express their opinions, connect ideas, and develop critical thinking skills that deepen their overall reading experience. Furthermore, integrating technology into literacy development such as providing access to

digital books, interactive reading platforms, and personalized reading apps aligned with children's interests and talents can make reading more accessible and appealing. By combining meaningful discussions with technology-driven engagement, educators and parents can cultivate a dynamic reading culture that not only strengthens literacy skills but also nurtures curiosity, creativity, and a lifelong love of reading (Rini et al., 2022).

Literacy can be defined as the ability to read and write (Sasferi, 2018). Although many students argue that reading is not essential for the future, reading habits affect literacy, cognitive development, and critical thinking. Reading teaches us to think critically, creatively, and analytically, which is vital to future challenges. Besides becoming a source of entertainment (Subekti et al., 2018), reading can broaden students' insights, expand their vocabulary, and improve their communication skills, all of which are very valuable in a changing world. Besides, reading can help one understand a variety of perspectives and topics in everyday life. Therefore, although the view that reading is not essential may be widespread among students, educators' continued encouragement and support of reading practice as a foundation for future success may positively impact students' academic performance and learning motivation (Leithwood et al., 2020).

The results of an interview with a teacher who has not yet practiced reading in the classroom show that teachers who have not yet done so are more likely to give the student a reading assignment. This shows a difference between the ideal expectation that students develop a strong reading habit and the actual classroom practice. Practising regular, structured reading in school can be a solid foundation for cultivating a strong interest in and habit of reading. Research conducted by (Surono et al., 2023) revealed that literacy positively impacts performance. Literacy, broadly speaking, refers to a person's aptitude for reading and writing. To enhance students' literacy and enable them to comprehend and apply knowledge across a variety of current formats and sources, all individuals, teachers, and students alike must have access to digital media. An activity known as "online learning" uses the internet to deliver content to students. Online learning is the use of the internet to provide a variety of creative and innovative digital media, transforming traditional learning into a digital experience.

A variety of digital media platforms, including Google Meet, YouTube, PowerPoint, and WhatsApp groups, are utilized to distribute educational materials. The learning process is not constrained by time or money thanks to these digital media, allowing for flexible access to learning resources. You need to be able to employ technology resources effectively in the current pandemic crisis. Indirectly, digital media offers new abilities and experiences in information access that rely on conceptual mastery or inventiveness. There are occasional challenges in the online learning process. The statement above

represents a challenge faced by educators and learners throughout the ongoing pandemic.

Through learning media, teachers and students can engage in an educational communication process. Originally conducted in person, the shift to online learning has occurred during the present epidemic. To connect when the instructor delivers content, online learning relies heavily on the internet. During the learning process, students frequently experience intermittent internet connections. The instructor recommended searching for Wi-Fi in public areas and schools while still following health precautions to get around these challenges. This endeavor is regarded as one of the most suitable solutions to overcome learning obstacles and keep students' attention on their studies. Therefore, using digital media to help kids become more literate can help them learn more through thinking exercises and language skills for both oral and written communication. This is demonstrated by the usage of digital media in classrooms to raise students' literacy levels. Implementing literacy in learning requires an active role for the teacher and an understanding of literacy to package creative, innovative, and fun activities. Therefore, prospective teachers need to be equipped with literacy-related skills, including media development that supports literacy. Teachers play a significant role in creating a conducive, fun learning environment by using learning media.

Teachers must provide appropriate instruction, conduct classes that reflect and encourage community and collaboration, and offer a variety of literature with diverse themes so that learners are enthusiastic about literacy activities. Teacher support is critical to improving literacy skills, primarily through creative ways to motivate learners, strengthen their written work, and provide meaningful classroom experiences (Temur & Sezer, 2023). These can build learners' love for literacy activities. Literacy activities must be packaged in a variety of ways, including through media. The media plays an essential role in learning. The utilization of media can enhance understanding, interest, and clarity in learning. Learning media can increase students' attention and focus on learning materials. At the beginning of learning activities, teachers can attract attention and make perceptions using media to visualize what will be learned more easily (van Hek & Kraaykamp, 2023). Based on the study's results, students have produced various media teaching aids. The media has also fulfilled its function and can be used in learning. In general, the function of teaching aids is to create a learning atmosphere, embed concepts learned, and engage students so they are not bored. Using teaching aids makes the delivery of material more. Learners can be allowed to observe and use the media directly. By enabling students to learn, build understanding, communicate, interact actively, and hone a range of abilities, including literacy skills. It is explained that various media props can be used in literacy learning (Khotimah et al., 2019).

The use of various media will undoubtedly attract more students to activities and improve literacy skills. Learners find it easier to understand the material being studied and do not feel bored participating in literacy activities. The media plays a vital role in literacy development, helping learners develop literacy skills, including in school settings. Teachers find it more helpful with literacy media. Individuals can also create literacy media according to their needs by using objects around them (Nasution & Rasyidah, 2022).

Media not only makes it easier for students but also for teachers, because teachers find it easier to understand the concepts that students must learn, and help teachers to motivate students to take part in learning. The use of appropriate learning media can increase students' interest and learning outcomes. The use of teaching aids can make students more active by simulating role-play to solve everyday problems. In addition, teaching aids can help facilitate the learning process. For example, the use of props in the form of solar system arrays. Learners find it easier to understand the concepts of the planets and the center of the solar system without the difficulty of imagining their positions and how their rotational and orbital movements work. Therefore, teaching aids are essential for supporting learning activities, especially in understanding concepts.

Concepts that were previously abstract become easier to understand. Learners who can understand the concept also show good listening skills. This shows that teaching aids can be used to hone literacy skills, especially speaking skills, by being able to explain back and conclude orally. Of the several media developed, several teaching aids can be used in science materials. Science teaching aids in the media are a means of learning science that can be used to simulate problem-solving in everyday life (Prahani et al., 2023). One of the teaching aids developed by students is the thrust media. In simulation, props can be used to hone speaking skills, which is an advanced literacy skill. When doing simulations, students must understand the concept and be able to explain it while demonstrating the media (Pintakhari et al., 2022). Media props lead more to listening and speaking literacy activities. Teaching aids in the context of learning often focus on listening and speaking literacy activities. Teaching aids, such as three-dimensional models, diagrams, or visual presentations, can help learners visualize abstract concepts and listen to the teacher's or fellow learners' explanations (Saisabila, 2018).

By involving props in learning activities, learners can improve their listening skills through visual and verbal explanations that support concept understanding. Media props provide insights into how their use can improve learners' speaking literacy. These resources can provide further understanding of the importance of teaching aids in developing listening and speaking literacy skills. Literacy-oriented teaching aids can be an alternative solution to help

elementary school children improve their literacy skills. By using engaging and interactive teaching aids, children can build a strong literacy foundation for their future. A good teaching aid media must also pay attention to the content or message of the material to be conveyed through the media. In addition to the various media props used in literacy activities, students' literacy skills can also be maximized through balanced literacy. This activity needs different learning experiences. This can be achieved by using various media props for games as needed.

Therefore, greater efforts should be made to enhance the reading experience for students, making it more attractive, engaging, and meaningful. Reading should evoke the same sense of excitement, challenge, and reward that they experience when playing games. By incorporating elements such as interactivity, curiosity, and a sense of achievement, educators can help students perceive reading not merely as an academic task but as an enjoyable and valuable activity that stimulates imagination, critical thinking, and lifelong learning (Rahmadani, 2024).

Digital technologies, like computers and the Internet, have improved interactivity and access to information, but still face challenges due to digital skills and teacher technology. This can encourage and inspire students to engage in reading by paying attention to their interests in exciting, engaging texts. The selection of books on such topics is expected to increase reading interest and provide developmental benefits. Project-based learning (PBL) encourages active involvement and critical thinking but requires time and resources for individual learning, alternative methods, such as traditional media and technology. Training mini-programmes and structured discussions can optimize student learning outcomes. Reading activities require continuous, sustained practice so students can develop. Eventually, students can play a vital role in preparing to become literate and capable individuals. The social environment, particularly family members (Silaban et al., 2024), is a highly effective factor in the development of reading comprehension skills. The novelty of this study is that the teaching aids analyzed are diverse and that it examines not only their use in literacy activities in general, but also the media's function. The analysis of the suitability of the teaching aids' functions confirms that the media created by students have incorporated these functions. The analysis is expected to provide an overview for teachers or educators who will implement literacy instruction using teaching aids. It is expected to make it easier to choose media that suits learning needs. Meanwhile, the limitation of this research is that only one type of media, in the form of teaching aids, is analyzed. It should be possible to analyze and compare with other media to obtain more complete data on the use of various media in literacy activities.

IV. Conclusion

The use of media by Central Java High School teachers to improve student literacy has resulted in effective teaching strategies and diverse challenges. Reading activities enable students to access a wide range of in-depth information sources, helping them better understand the subject matter from different perspectives. By reading, students can train critical thinking and analytical skills as they evaluate information, draw conclusions, and connect complex ideas. Routine reading helps students broaden their insights and knowledge about a wide range of topics and subjects, thus becoming better prepared to face the challenges of academic and everyday life. Through reading activities, students can identify and understand various historical, cultural, and scientific contexts of information, enriching the learning process in depth. A continuous and sustained literacy activity can improve writing and speaking skills. By reading, students can broaden their insights and knowledge on a wide range of topics, thus helping them better understand the subject matter. Integration into the curriculum is an important part that needs to be understood jointly. Routine reading can also improve students' critical and analytical thinking skills, which are essential for solving problems and completing academic tasks. In addition, reading habits can improve students' language and vocabulary skills, thus making them more effective in conveying ideas and written and oral arguments. Through reading, students can find inspiration and motivation to learn more energetically as they encounter new experiences and perspectives that enrich their learning. It is advised that further research be conducted to identify other learning models that can be applied in inquiry-based learning, either as a method or as a strategy. This approach may not entirely reflect the effectiveness of the training in enhancing digital literacy. Future research should incorporate quantitative methods for a more comprehensive evaluation of digital literacy training programs.

References

- Afriyanti, D. (2019). Meningkatkan Kemampuan Membaca Kata Melalui Media Game Edukasi Untuk Anak Tunagrahita Di SLB Perwari Padang. *Ranah Research: Journal of Multidisciplinary Research and Development*, 2(1). <https://jurnal.ranahresearch.com/index.php/R2J/article/view/206>
- Agung Saputro, T., Kriswandani, K., & Ratu, N. (2022). Pengembangan Media Pembelajaran Menggunakan Aplikasi Construct 2 Pada Materi Aljabar Kelas VII. *JTAM | Jurnal Teori dan Aplikasi Matematika*, 2(1), 1. <https://doi.org/10.31764/jtam.v2i1.219>
- Alfin, J. (2019). Pengembangan Materi Sejarah Kebudayaan Islam sebagai Bahan Ajar Literasi Membaca di Madrasah Ibtidaiyah. *Jurnal Pendidikan Agama Islam (Journal of Islamic Education Studies)*, 7(1), 71–88. <https://doi.org/10.15642/jpai.2019.7.1.71-88>

- Angresia, Y., Sesmiarni, Z., Charles, C., & Melani, M. (2022). Komik Digital: Media Pembelajaran Pemrograman Dasar di SMK Negeri 1 Ampek Nagari. *Intellect: Indonesian Journal of Learning and Technological Innovation*, 1(2), 219–235. <https://doi.org/https://doi.org/10.57255/intellect.v1i2.204>
- Asmonah, S. (2019). Meningkatkan kemampuan membaca permulaan menggunakan model direct instruction berbantuan media kartu kata bergambar. *Jurnal Pendidikan Anak*, 8(1), 29–37. <https://doi.org/10.218-31/jpa.v8i1.26682>
- Bishry, H. (2018). The correlation between vocabulary mastery and reading comprehension. *Jurnal Tabarwi: Jurnal Ilmu Pendidikan*, 14(2), 63–68.
- Boiliu, F. M., Samalinggai, K., & Setiawati, D. W. (2016). Peran Pendidikan Agama Kristen Di Era Digital Sebagai Upaya Mengatasi Penggunaan Gadget Yang Berlebihan Pada Anak Dalam Keluarga Di Era Disrupsi 4.0. *Islamic Communication Journal*, 1(1). <https://doi.org/10.21580/icj.2016.1.1.1245>
- Cabinio, M., Rossetto, F., Blasi, V., Savazzi, F., Castelli, I., Massaro, D., Valle, A., Nemmi, R., Clerici, M., Marchetti, A., & Baglio, F. (2015). Mind-reading ability and structural connectivity changes in aging. *Frontiers in Psychology*, 6(NOV). <https://doi.org/10.3389/fpsyg.2015.01808>
- Çalışkan, E. F., & Ulaş, A. H. (2022). The Effect of Parent-Involved Reading Activities On Primary School Students' Reading Comprehension Skills, Reading Motivation, and Attitudes Towards Reading. *International Electronic Journal of Elementary Education*, 14(4). <https://doi.org/10.26822/iejee.-2022.260>
- Castillo, C. L. (2022). Using Genially Games for Enhancing EFL Reading and Writing Skills in Online Education. *International Journal of Learning, Teaching and Educational Research*, 21(1), 340–354. <https://doi.org/10.26803/ijlter.21.1.19>
- Desi, Y. P. (2020). Gerakan Literasi Digital Berbasis Sekolah: Implementasi dan Strategi. *Jurnal Ilmu Komunikasi*, 17(1). <https://doi.org/10.31315/jik.v17-i1.3510>
- Dewi, D. A., Hamid, S. I., Annisa, F., Oktafianti, M., & Genika, P. R. (2021). Menumbuhkan Karakter Siswa melalui Pemanfaatan Literasi Digital. *Jurnal Basicedu*, 5(6). <https://doi.org/10.31004/basicedu.-v5i6.1609>
- Ebyatiswara Putra, A., Taufiqur Rohman, M., Linawati, L., & Hidayat, N. (2023). Pengaruh Literasi Digital terhadap Kompetensi Pedagogik Guru. *Murhum: Jurnal Pendidikan Anak Usia Dini*, 4(1). <https://doi.org/10.37985/murhum.v4i1.185>
- Fadhli, M., Suhaimi, & Musdizal. (2017). The effect of the read, encode, annotate, ponder (reap) strategy and reading interest on reading comprehension achievement. *Jurnal Tabarwi: Jurnal Ilmu Pendidikan*, 13(2).
- Fadilla, N., & Pramudiani, P. (2023). Hubungan antara Kebiasaan Membaca dengan Keterampilan Berpikir Kritis Peserta Didik Di Sekolah Dasar. *Jurnal Elementaria Edukasia*, 6(2), 304–313. <https://doi.org/10.31949/jee.v6i2.5430>
- Firmansyah, D., & Dede. (2022). Kinerja Kewirausahaan: Literasi Ekonomi, Literasi Digital dan Peran Mediasi Inovasi. *Formosa Journal of Applied Sciences*, 1(5), 745–762. <https://doi.org/10.55927/fjas.v1i5.1288>
- Firmansyah, D., Saepuloh, D., & Dede. (2022). Daya Saing: Literasi Digital dan Transformasi Digital. *Journal of Finance and Business Digital*, 1(3). <https://doi.org/10.55927/jfbd.v1i3.1348>
- Indriayadi, T. (2021). Modifying and Assessing Validity and Reliability of the Motivation for Reading Questionnaire. *Jurnal Tabarwi: Jurnal Ilmu Pendidikan*, 17(1), 1–13.
- Khotimah, H., Supena, A., & Hidayat, N. (2019). Meningkatkan attensi belajar siswa kelas awal melalui media visual. *Jurnal Pendidikan Anak*, 8(1), 17–28. <https://doi.org/10.21831/jpa.v8i1.22657>
- Kim, S., Kim, J., & Choi, J. (2020). Development and application of a Forest Education program using the ADDIE model. *Journal of Forest and Environmental Science*. <https://koreascience.kr/article/JAKO202029-462557688.page>
- Kiviranta, L., Lindfors, E., Rönkkö, M. L., & Luukka, E. (2024). Outdoor learning in early childhood education: exploring benefits and challenges. *Educational Research*, 66(1), 102–119. <https://doi.org/10.1080/00131881.2023.2285762>
- Laubrock, J., & Kliegl, R. (2015). The eye-voice span during reading aloud. *Frontiers in Psychology*, 6. <https://doi.org/10.3389/fpsyg.2015.01432>
- Leithwood, K., Sun, J., & Schumacker, R. (2020). How School Leadership Influences Student Learning: A Test of “The Four Paths Model”. *Educational Administration Quarterly*, 56(4), 570–599. <https://doi.org/10.1177/0013161X19878772>
- Løkken, I. M., Campbell, J. A., Kucirkova, N. I., & Dale, P. (2023). Experiment protocol: Exploring the sense of smell in digital book reading. *International Journal of Educational Research Open*, 5. <https://doi.org/10.10-16/j.ijedro.2023.100285>
- Manoharan, A., & Ramachandran, S. (2023). Enhancing Reading Comprehension Skills of Prospective Teachers Using Suitable Reading Strategies. *Journal of Language Teaching and Research*, 14(1). <https://doi.org/10.17507/jltr.1401.06>
- McInerney, D., & Putwain, D. (n.d.). *Developmental and Educational Psychology for Teachers*.
- Nadiroh, S. M., Purbasari, I., & Ermawati, D. (2023). Analisis Penerapan Profil Pelajar Pancasila Berbasis Budaya Literasi di SDN 1 Brantaksekarjati. *Journal on Education*, 5(3).
- Nasionalita, K., & Nugroho, C. (2020). Indeks Literasi Digital Generasi Milenial di Kabupaten Bandung. *Jurnal Ilmu Komunikasi*, 18(1). <https://doi.org/10.31315/jik.v18i1.3075>
- Nasution, D. F., & Rasyidah, R. (2022). Development of problem-based learning student worksheets on the human digestive system to improve students' learning outcomes. *BIO-INOVED: Jurnal Biologi-Inovasi Pendidikan*, 4(2), 207. <https://doi.org/10.20527/bino.-v4i2.13489>

- Nisa, N., Arum, N., Hidayat, S. N., & Wahyuningsih, Y. (2023). Penguatan Pendidikan Karakter melalui Literasi Digital di Sekolah Dasar. *Journal on Education*, 5(2).
- Noor Fitri, E., Fixri Andini, D., Nurachmana, A., Yustiya Ramadhan, I., & Veniaty, S. (2023). Peran budaya literasi dalam meningkatkan minat baca peserta didik di sekolah dasar. *Journal of Student Research (JSR)*, 1(1), 129–140.
- Novitasari, Y., & Fauziddin, M. (2022). Analisis Literasi Digital Tenaga Pendidik pada Pendidikan Anak Usia Dini. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 6(4). <https://doi.org/10.31004/obsesi.v6i4.2333>
- Pintakhari, B., Nguru, D. A. L., & Bungaa, D. M. (2022). Peran Media Komik Alkitab dalam Proses Pembelajaran untuk Meningkatkan Keterampilan Bercerita Murid Sekolah Minggu. *Jurnal Teologi Gracia Deo*, 4(1), 190–200. <https://doi.org/10.46929/graciadeo.v4i1.108>
- Pradana, Y. (2018). Atribusi kewargaan digital dalam literasi digital. *UCEVJ*, 3(2), 182.
- Purba, A., & Girsang, S. E. E. (2021). Developing Think Talk Write Strategy on Students' English Literacy Capability. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*, 4(1). <https://doi.org/10.33258/birci.v4i1.1764>
- Rahmadani, A. A. (2024). The Influence of the Visualization, Auditory, Kinesthetic (VAK) Learning Model Assisted by Song Clip Video Media on the Poetry Writing Ability of Class X Students of SMA Negeri 7 Medan. *Indonesian Journal of Advanced Research*, 3(2), 249–260. <https://doi.org/https://doi.org/10.559-27/ijar.v3i2.7220>
- Rahmi, R., Fitriani, S., & Safiah, I. (2023). Pengaruh Kebiasaan Membaca Terhadap Kemampuan Membaca Pemahaman Siswa Kelas V SD Negeri 9 Lhoksukon. *Jurnal Ilmiah Mahasiswa: Elementary Education Research*, 8(2), 53–60. <http://www.jim.unsyiah.ac.id/pgsd/index>
- Rini, R., Suryadinata, N., & Efendi, U. (2022). Literasi digital mahasiswa dan faktor-faktor yang berpengaruh. *Jurnal Akuntabilitas Manajemen Pendidikan*, 10(2). <https://doi.org/10.21831/jamp.v10i2.48774>
- Saisabila, A. (2018). Pengaruh Model Student Facilitator And Explaining Berbantuan Media Visual Non Proyekti Terhadap Kompetensi Pengetahuan Ipa. *Indonesian Journal Of Educational Research And Review*, 1(1). <https://doi.org/10.23887/ijerr.v1i1.14616>
- Sari, P. A. P. (2020). Hubungan Literasi Baca Tulis Dan Minat Membaca Dengan Hasil Belajar Bahasa Indonesia. *Journal for Lesson and Learning Studies*, 3(1), 141–152. <https://doi.org/https://doi.org/10.238-87/jlls.v3i1.24324>
- Sasferi, N. (2018). Language skills melalui cooperative integrated reading and composition (MCIRD) dalam pembelajaran bahasa di ma Negeri 1 Kerinci. *Jurnal Tabarwi: Jurnal Ilmu Pendidikan*, 14(1), 45–55.
- Silaban, R., Br. Girsang, O. A., Manalu, R. T., Sitorus, M., Tarigan, S., & Alexander, I. (2024). *Analysis of Teachers and Student Responses to Android-based Chemical Bonding Learning Media Using Smart Apps Creator Program*. <https://doi.org/10.4108/eai.24-10-2023.2342270>
- Subekti, H., Taufiq, M., Susilo, H., & Suwono, H. (2018). Mengembangkan literasi informasi melalui belajar Berbasis kehidupan terintegrasi STEM untuk menyiapkan Calon guru sains dalam menghadapi era revolusi Industri 4.0: review literatur. *Education and Human Development Journal*, 3(1).
- Surono, Y., Utomo, B., & Muslianty, D. (2023). Minat Membaca dalam Upaya Meningkatkan Perilaku Belajar Siswa pada Mata Pelajaran Pendidikan Agama Buddha dan Budi Pekerti. *Journal on Education*. <https://www.jonedu.org/index.php/joe/article/view/4232>
- Temur, T., & Sezer, T. (2023). The Agenda of The Reading Teacher Journal on Reading and Reading Skills: A Corpus Analysis in the Last Decade. *International Electronic Journal of Elementary Education*, 15(4). <https://doi.org/10.26822/iejee.2023.288>
- van Hek, M., & Kraaykamp, G. (2023). Why Jane likes to read and John does not. How parents and schools stimulate girls' and boys' intrinsic reading motivation. *Poetics*, 101. <https://doi.org/10.1016/j.poetic.2023-101828>.