

## Exploring Digital Literacy's Roles in Achieving Quality of Learning

Wildan As'at Taufik Hasibuan<sup>1\*</sup>, Sholihatul Hamidah Daulay<sup>1</sup>

<sup>1</sup>English Education Department, UIN Sumatera Utara Medan

\*E-mail: wildan0333253001@uisu.ac.id (corresponding author)

---

**Abstract:** This study aims to explore the critical role of digital literacy in enhancing the quality of learning, particularly in higher education and language acquisition. It investigates how digital literacy affects student engagement, comprehension, and learning outcomes, while also addressing the challenges and requirements for educators in effectively integrating digital tools. The research employs a Systematic Literature Review (SLR) methodology. Data were collected by reviewing and analyzing 10 scientific articles published over 5 years, sourced from online journals via Google Scholar using the keywords "digital literacy" and "improving the quality of learning." The analysis reveals that digital literacy significantly improves the quality of learning by fostering student motivation, creativity, and critical thinking. It facilitates access to diverse digital resources and enhances communication and information processing skills. However, the study also identifies several challenges, including insufficient digital competency among teachers, inadequate technological infrastructure, and the need to adapt the curriculum to effectively embed digital literacy. Findings indicate that while students often possess a fair level of digital literacy for social media and information searching, targeted application in educational contexts requires further development and support.

**Keywords:** Digital Literacy; Role; Quality of Learning

---

### INTRODUCTION

Advancements in information and communication technology, notably communication systems developed in urban and rural areas, have a major impact on the social and political order (Wiryani et al., 2022). In addition, the system. Additionally, the field of education is greatly impacted by technological advancements that are becoming increasingly effective (Salsabila et al., 2020). New communication tools have emerged from technological advancements, transforming communication systems from wired to wireless networks. All areas of technology are evolving at an accelerating rate, and both human activity and digitalization are growing.

Therefore, everyone needs to improve their understanding of digitalization. Because of the speed at which times are changing, digitalization necessitates knowledge improvement to keep up. Utilizing and understanding digital technology is crucial for everyone to benefit from digitization. Digital literacy, or digital skills, is incredibly helpful in today's world because technology has permeated every aspect of life. The digital literacy abilities that Generation 4.0 requires to compete in the global economy are significantly impacted by the significance of deploying this technology. As the fourth industrial revolution progresses, knowledge and information are dispersed globally, surpassing time, location,

distance, and space.

In this age of computers and the internet, technology has always played a significant role in human life (Sormin et al, 2019). Technology has influenced and transformed people's daily lives (Munir, 2017). Therefore, today's tech-savvy culture will fall behind if they are unable to grasp knowledge and seize numerous opportunities. Details, as of right now, have a significant and genuine role in the era of the information or knowledge society. In Indonesia, 99.4% of the population uses smartphones, and 212 million people use the internet as of Digital 2023. As a result, practically everyone in Indonesia communicates via smartphones. The communication infrastructure is so open that information dissemination in all media, including virtual portals, is essentially unrestricted.

Digital literacy is evolving into a fundamental ability in higher education that encompasses much more than just using digital devices and apps; it also includes assessing, comprehending, and interacting with online material (Gibson S Smith, 2018). In the digital realm, literacy is an essential part of learning a language. Students with digital literacy can access a variety of digital learning materials and improve their communication and information-processing abilities (Anggeraini et al., 2019; Wati et al., 2023). However, in the context of language learning, it encompasses not only the use of technology but also other advanced techniques, such as content creation, information evaluation, and social-emotional skills (Anggeraini et al., 2019).

As a result, many universities began integrating digital components into their curricula, and the learning process became more effective and efficient (Alenezi, 2023). This was copied into the regular operations of higher education institutions around the world. The incorporation of digital technology provides more flexible and student-centered learning options for institutions of higher education (Røe et al., 2022). Another problem is that staff members must become more proficient in technology (Jamilah, 2020; Røe et al., 2022). The COVID-19 pandemic introduced new issues, leading to the adoption of digital learning strategies and causing declines in traditional pedagogy and a rise in transmissionism instruction (Røe et al., 2022).

Technology-oriented education has changed as a result of advancements in the Information Technology Communication (ICT) age. In the age of the fourth industrial revolution, the development of skilled human resources is crucial, as people must stay current with the times, particularly in response to changes in the use of technology in the classroom, which is increasingly driven by scientific and technological advancements. Teachers need to be able to use technology in accordance with the times. Today's pupils are learning in virtual environments rather than traditional classrooms, demonstrating technological advancement. Numerous learning programs are accessible at any time and from any location. Furthermore, learning and teaching can take place virtually, with minimal in-person interaction. Literacy is affected by changes in the education system that drive technological advancements, particularly digital literacy in meeting information needs. Students need to be pickier about what they read and write, and analyze data to ensure that pupils understand it correctly. The capacity to comprehend and access information from a wide range of sources available via computers, laptops, webpages, and other electronic devices, as well as the internet, is known as digital literacy. One of the literacies that must be considered in daily life is reading. Recognizing, comprehending, and applying knowledge acquired in educational institutions are all components of digital reading

literacy (Simbolon, 2022). There are several guiding principles for the growth of digital literacy, according to Mayes S. Fowler in Martin S. Mardigan's research (Mayes et al., 2006). There are three levels of digital literacy: First, digital competence, which encompasses skills, concepts, approaches, and behaviors; Second, digital use, which entails applying digital competence in a particular setting; and Third, digital transformation, which indicates that in a digital world, creativity and innovation are necessary.

Instilling digital literacy at a young age is crucial for developing a critical, analytical, and reflective understanding of information. Indonesia is ranked second by UNESCO, according to Devega at Kominfo. lowest in global literacy, indicating a very low level of interest in reading (Devega, 2017). The reading habits of the Indonesian public are quite alarming; of 1,000 Indonesians, only 0.001% read regularly. Additionally, the 2018 Program for International Student Assessment (PISA) analyzed its results and explained the poor reading levels among youngsters. The reading proficiency score is 371, which is 116 points lower than the average for other nations.

Thus, the significance of information sorting, also known as digital literacy, is evident in the contemporary era of widespread information availability. This affects how well students comprehend the material. Digital literacy abilities in the classroom. Improvements to institutions are still necessary (Pratama et al, 2019). According to the data, 49.39% of students were classified as less. They made every effort to support students by implementing the Schoology-based learning approach, but the outcomes showed it still needed improvement. As a result, an analysis of human resources (teachers) in relation to digital literacy proficiency is required. Instructors play a critical role in raising the standard of instruction so that students feel at ease and comprehend the content being covered. When it comes to raising the standard of learning, competency is crucial (Yuliana et al, 2023). Additionally, it can give educators the tools they need to deliver engaging and innovative lessons. The findings indicate that students' learning outcomes are significantly impacted by their level of digital literacy. Considering these conditions, a clear gap emerges between the growing dependence on digital technology in Indonesian education and the actual level of digital literacy among students and teachers, as reflected in the low PISA reading score and the persistently high proportion of students categorized as having limited digital competence (Pratama et al., 2019).

This gap motivates the present study to systematically trace how digital literacy has been investigated across recent research and how its role in improving the quality of learning is empirically evidenced. By reviewing ten scientific articles published within the last five years, this study seeks to map the extent to which digital literacy contributes to student engagement, comprehension, and learning outcomes, while also identifying the recurring challenges, such as limited teacher competency and inadequate infrastructure, that have been introduced above and that are further examined in the following discussion.

## **METHOD**

The Systematic Literature Review (SLR) approach is used in this study. This approach involves finding, reviewing, assessing, and interpreting all previous studies. The SLR technique is a research design that combines evidence from previously conducted

systematic studies to address a query. Using the keywords "digital literacy" and "improving the quality of learning," the data collection procedure draws on online journals accessible via Google Scholar. The ten publications that will be utilized as a discussion in the writing of this essay span a total of five years.

## FINDINGS AND DISCUSSION

Based on the topics of digital literacy, digital technology, and shifts in the influence of pre- and post-academy digital literacy in educational units, these published study data results are examined and condensed. The scientific findings in Table 1 present the article data.

These ten studies were purposively selected because they represent the diversity of educational settings in which digital literacy has been examined, ranging from senior high school biology classrooms to Islamic religious education and higher education institutions. This variety allows the present review to capture how the challenges outlined in the introduction, such as uneven digital competence among teachers (Yuliana et al, 2023) and the comparatively low reading literacy of Indonesian students (Devega, 2017), are reflected, confirmed, or nuanced across different research contexts. The summary in Table 1, therefore, serves not merely as a catalog of prior findings but as an empirical basis for identifying patterns that connect directly to the problems raised earlier in this article.

**Table 1**

*The Results of the Scientific Article Data*

| Title/variable                                                                                                                                                              | Researcher            | Year | Result/affect                                                                                                                                                                                                                                                                                                             | Method                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| The level of digital literacy of Students based on the use of Information technology as mobile Learning in biology learning at Senior high school kuala Nagan raya district | Oktavia               | 2021 | The findings show that the two schools studied need to improve in digital literacy. The data shows 35.5% and 51.7%; It is necessary to apply a learning A model that integrates digital media or online systems in biology learning activities in high school to improve digital literacy skills in high school students. | Quantitative approach         |
| Chatbot-Assisted Dynamic Assessment (CADA), vocabulary acquisition, and provision of diagnostic information                                                                 | J. Jeon               | 2021 | Classes using ChatGPT-Assisted Dynamic Assessment (CADA) are more capable of vocabulary acquisition and provision of diagnostic information than non-CADA classes classes.                                                                                                                                                | Quasi Experimental            |
| Distance Learning During the Covid-19 Pandemic: The Role of                                                                                                                 | Muasyaroh and Royanto | 2021 | The findings show that digital literacy is quite                                                                                                                                                                                                                                                                          | Quantitative non-Experimental |

| Title/variable                                                                                                                                  | Researcher                               | Year | Result/affect                                                                                                                                                                                                                                                      | Method                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Digital Literacy and Task Value on Student Self-Regulated Learning                                                                              |                                          |      | good. Responding to the participants, it can be seen that the average. The average student has fairly good digital literacy, especially in searching, understanding, and using information references from the internet, and can communicate well on social media. |                                              |
| Email-assisted visual vocabulary, vocabulary knowledge                                                                                          | Hamed                                    | 2020 | The visual vocabulary class had more vocabulary proficiency than the conventional vocabulary class.                                                                                                                                                                | Quasi Experiment                             |
| Transformation of Islamic Education in the Digital Age: Implementation of Digital Literacy in Learning in Banyumas Region                       | Yahya                                    | 2023 | The findings show that digital literacy in Islamic religious education learning has increased the effectiveness of learning and enriched understanding by using technology to produce learning that is interesting, interactive, and relevant to students' lives.  | Qualitative-Content Analysis                 |
| Literacy skills, digital learning environment                                                                                                   | S. Alneyadi, E.Abulibdeh, Yousef Wardat, | 2023 | Reading comprehension and creative writing skills were higher in the experimental class.                                                                                                                                                                           | Quasi Experiment , Treatment S Control Class |
| Teacher Performance, Professionalism, and Digital Literacy Skills: Teacher Influence on Learning Quality Online Vocational School in Jambi City | Maharani                                 | 2021 | The findings show that teachers' digital literacy skills are low due to limited access to technologically literate personnel, so the quality of learning in online classes could be improved.                                                                      | Qualitative                                  |
| Mobile learning and                                                                                                                             | Rahmani                                  | 2021 | Using mobile devices                                                                                                                                                                                                                                               | Quasi-experiment,                            |

| Title/variable                                                                  | Researcher                  | Year | Result/affect                                                                                                                                                                                                                                                                                                                                             | Method                                  |
|---------------------------------------------------------------------------------|-----------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| flashcards in vocabulary learning outside the classroom, vocabulary knowledge   |                             |      | and digital flashcards for out-of-class vocabulary learning can improve EFL learners' knowledge of high frequency words.                                                                                                                                                                                                                                  |                                         |
| Digital Literacy Analysis of Independent Learning During the Covid-19 Pandemic  | Biru RCB, Saepuddin, Sardin | 2020 | The findings show that learning independence can improve students' digital literacy skills during the Covid 19 pandemic. However, there are shortcomings in this study: independent learning practices using digital technology have not been analyzed. So doubts arise about whether digital literacy-based learning has been carried out appropriately? | Qualitative                             |
| Literacy education, digital social behaviour, happiness, and cognitive function | Hocheol Lee                 | 2022 | Digital literacy education in older adults in rural areas has higher smartphone usage and video recording capacity compared to the control group                                                                                                                                                                                                          | Quasi Experiment, Control and Treatment |

Taken together, the ten studies summarized in Table 1 reveal a consistent pattern: digital literacy tends to improve specific competencies, such as vocabulary acquisition, reading comprehension, and self-regulated learning, when it is deliberately integrated into instructional design, yet it remains underdeveloped where teacher readiness and infrastructure are lacking. This pattern mirrors the concerns raised in the introduction regarding Indonesia's low PISA reading score and the limited digital competency of educators (Pratama et al, 2019; Yuliana et al, 2023), while also extending them by showing, through studies such as Oktavia (2021) and Muasyaroh and Royanto (2021), that the same gap appears across both formal and informal learning settings. The following discussion elaborates on these patterns in relation to the broader theoretical understanding of digital literacy.

### Digital Literacy in the Digital Age

Media literacy, which is the public's capacity, awareness, and understanding to assess

messages critically, is synonymous with digital literacy. This is a result of widespread public opinion that mass media material has detrimental effects. To ensure that everyone can benefit from digitalization, it is crucial to comprehend and use digital technology. Because everything has been affected by technology in this way, digital literacy is a very useful skill nowadays, particularly in education. The capacity to apply functional skills on digital devices to think critically, be creative, collaborate, communicate, locate and choose information, and be aware of changing sociocultural contexts and electronic safety is known as digital literacy (Hague et al, 2022). Good digital literacy in the classroom fosters creativity and curiosity, which enhances students' understanding of specific subjects.

However, careful consideration of digital literacy-based learning is necessary because, first, data is examined. Effective planning is the first step in digital learning, and it must then inform how learners receive the learning materials (content delivery). Planning and organizing learning, verbal and nonverbal presentation skills, teamwork, questioning strategy skills, mastery of learning materials, involving students in learning and organizing their learning activities, knowledge of learning theory, knowledge of digital learning, knowledge of learning planning, and mastery are all included in the scope of competence for a teacher in digital learning.

According to other study results, participants' responses indicate that the typical student has a fair level of digital literacy, particularly in locating, comprehending, and applying online information sources, and can interact effectively on social media. media (Muasyaroh et al, 2021). Concerns have been raised in the study regarding the impact of distance learning (DL), which permits students to lack technological proficiency. Teachers, who are supposed to absorb information and teach effectively, are being replaced by technology. According to research, self-regulated learning is a tool that educators employ to help students grow as individuals and succeed; thus, all students, instructors, lecturers, and other learners need to possess it. Nevertheless, to acquire digital literacy skills, verification is required to complete the concept of task value. In practice, the idea of task value has a greater impact on studies of digital literacy abilities following task evaluation (Muasyaroh et al., 2021).

Task evaluation plays a greater role in fostering students' capacity for self-regulated learning within the framework of Distance Education (DL), as opposed to other writers of articles who have not yet been authenticated and merely use digital technology to satisfy their information needs and academic learning. Digital literacy has been effectively applied, and this was completed. Although there are many advantages to implementing digital literacy, there are also certain obstacles that must be addressed (Yahya, 2023). Having enough resources is crucial to meeting the requirements for digital literacy. There are restrictions on internet connectivity because the research site must accommodate technology.

Furthermore, they still need to provide training on technology use, which is crucial for developing digital literacy and raising the caliber of teachers. Another crucial factor to consider is the need for curriculum modifications. Digital literacy needs to be assessed and taken into consideration in the curricula used in the research sites. Considering how quickly technology is developing these days. This entails modifying instructional methodologies and course materials to accommodate the usage of digital media and technology. It's also important to consider the creation of relevant digital learning

materials and the selection of suitable content. Institutions of higher learning must regularly assess tracking, making it impossible for them to observe how well students are learning digital literacy. Surveys of teachers and students, evaluations of student performance, and analyses of the learning outcomes attained can all be used to assess digital literacy. The evaluation's findings may serve as a useful guide for upcoming developments and refinements to the application of digital literacy.

Furthermore, studies, including those conducted by Oktavia (2021), have shown that digital literacy skills still need improvement, indicating that the two schools under study have shortcomings in digital literacy. According to the research, 35.5% and 51.7% of high school biology classes require the use of a learning model that incorporates online resources or digital media in order to enhance students' digital literacy. However, training in information and communication technology competency development is required for human resources (teachers).

These figures echo the concern raised earlier regarding Indonesia's position among the lowest-ranked countries in global reading literacy (Devega, 2017) and its comparatively low PISA reading score, which sits well below the international average. If more than a third of the students in Oktavia's (2021) study are still considered to have inadequate digital literacy, it suggests that the low national reading performance identified in the introduction is not an isolated statistic but a condition that persists in students' capacity to search, evaluate, and use digital information, which are precisely the competencies that digital literacy is meant to build.

### **Using Digital Literacy to Learn Media**

Learning media facilitates critical thinking and makes learning easier by acting as a source of knowledge and an intermediary in the learning process. From an educational standpoint, the media also plays a crucial role in influencing how well students learn. The availability of this educational resource can directly stimulate students' creativity. Their needs and desires are met through digital media-based learning so students may comprehend the content, think creatively, research, and think critically, and draw conclusions. Media is regarded as a teaching and learning aid.

Additionally, educational media can impart knowledge and pique students' enthusiasm for achieving specific objectives. Learning materials may include information and messages that are designed to pique pupils' curiosity. By leveraging technology to provide engaging, interactive, and life-relevant learning, educational media can improve learning outcomes and enhance comprehension (Yahya, 2023). Learning media can help students develop a way of thinking that can alter their attitudes at the cognitive, affective, and psychomotor levels.

However, the process's outcome has numerous issues and still has to be as anticipated. The program, academic setting, learning resources, and learning motivation, all of which promote learning activities, certainly have no bearing on the noted deficiencies. If the quality of learning is to be raised, learning media must be available.

Teachers need to be able to create lesson plans aligned with emerging technologies. The choice of educational resources that are useful, creative, and simple to comprehend involves fusing several types of media that are already available, such as text, pictures, and videos, with audio as a key element in accomplishing learning goals.

This reinforces the point made in the introduction that teacher readiness is central to translating the potential of digital media into actual improvements in learning quality (Yuliana et al, 2023; Røe et al., 2022). Without adequate training and curricular support, the widespread access to smartphones and the internet enjoyed by the majority of the Indonesian population (We Are Social, 2023) does not automatically translate into stronger digital literacy or better learning outcomes. This underscores why both the findings of this review and the challenges outlined earlier call for coordinated efforts among institutions, educators, and curriculum designers to embed digital literacy more deliberately into the learning process.

## **CONCLUSION**

Digital media learning is a face-to-face method that uses virtual learning resources. Using digital media to implement learning does not guarantee that the message will be received as intended. Digital learning should take into consideration the students' and professionals' preparedness. To receive information effectively, pupils must be able to use a variety of media outlets, which requires digital literacy skills. According to the authors' study of their earlier publications, students' and teachers' digital literacy needs to be improved to promote digital learning with creativity and innovation. Some earlier researchers, however, require assistance to arrive at a heuristic connected to the data or results delivered. such that only a limited amount of evaluation or analysis can be done by researchers. This is because their research mainly focuses on students, making it appear less objective since it fails to include educators' perspectives on digital literacy. High levels of literacy

Teachers can also indirectly raise the standard of instruction and learning for pupils in classrooms. Furthermore, a high level of digital literacy may indirectly affect students' learning outcomes. For information and communication technology in online learning to align with educational objectives, it is essential to have strong digital literacy.

In this sense, the findings of this review directly answer the concerns raised at the outset of this article: Indonesia's comparatively low reading literacy ranking and limited teacher readiness are not disconnected issues but two sides of the same challenge that determines how effectively digital literacy can improve the quality of learning. Addressing them together, rather than in isolation, ultimately enables information and communication technology to support, rather than hinder, students' learning outcomes.

## **ACKNOWLEDGEMENTS**

Sincere appreciation is also extended to the lecturers of the State Islamic University of North Sumatra for their valuable knowledge, guidance, and support during the researcher's academic journey. Special thanks are given to all educators and scholars whose works were reviewed and analyzed in this study, as their contributions have significantly enriched this research. The researcher would also like to thank his friends and colleagues for their support, motivation, and constructive discussions, which greatly helped in completing this research. Finally, the researcher realizes that this study is far from perfect. Therefore, constructive criticism and suggestions are highly appreciated for future improvement. It is hoped that this research will be beneficial for readers, especially in understanding the importance of digital literacy in enhancing the quality of learning.

## REFERENCES

- Alenezi, M. (2023). Digital learning and digital institutions in higher education. *Education Sciences*, 13(1), 88. <https://doi.org/10.3390/educsci13010088>
- Anggeraini, Y., Faridi, A., Mujiyanto, J., S Bharati, D. A. L. (2019). Literasi digital: Dampak dan tantangan dalam pembelajaran bahasa. *Prosiding Seminar Nasional Pascasarjana*, 2(1), 386–389.
- Gibson, P. F., S Smith, S. (2018). Digital literacies: Preparing pupils and students for their information journey in the twenty-first century. *Information and Learning Science*, 119(12), 733–742. <https://doi.org/10.1108/ILS-07-2018-0059>
- Hague C, Payton S. Digital literacy across the curriculum. *Future Lab*. 2022. 349–374 p.
- Martin, A., S Madigan, D. (2006). Digital literacies for learning. Facet. (EBSCO ebook academic collection).
- Mayes, T., S Fowler, C. (2006). Learners, learning literacy, and the pedagogy of e-learning. In A. Martin S D. Madigan (Eds.), *Digital literacies for learning* (pp. 26–33). Facet.
- Munir. (2017). *Pembelajaran digital*. Alfabeta.
- Muasyaroh H, Royanto LRM. Pembelajaran jarak jauh di masa pandemic COVID-19: Peran literasi digital dan task value terhadap self-regulated learning mahasiswa. *J Psikol Ulayat*. 2021;8:247–65.
- Røe, Y., Wojniusz, S., S Bjerke, A. H. (2022). The digital transformation of higher education teaching: Four pedagogical prescriptions to move active learning pedagogy forward. *Frontiers in Education*, 6, 784701. <https://doi.org/10.3389/feduc.2021.784701>
- Salsabila, U. H., Sari, L. I., Lathif, K. H., Lestari, A. P., S Ayuning, A. (2020). Peran teknologi dalam pembelajaran di masa pandemi COVID-19. *Al-Mutharahah: Jurnal Penelitian Dan Kaji Sosial Keagamaan*, 17(2), 188–198.
- Simbolon, M., Eliyanti, M., A., S Nafiah, M. (2022). Pengaruh literasi digital terhadap minat baca siswa sekolah dasar. *Jurnal Cakrawala Pendas*, 8(2), 532–542. Sormin,
- S. A., Siregar, A. P., S Priyono, C. D. (2019). Konsepsi literasi digital dalam pembelajaran sejarah di era disruptif. *Seminar Nasional Sejarah Ke 4 Jurusan Pendidikan Sejarah Universitas Negeri Padang*, 647–662.
- Wati, I., Ernita, M., Ristiliana, R., S Lubis, M. I. (2023). Peran Literasi Digital dalam Pembelajaran Di Era Society 5.0 Pada Mahasiswa Pendidikan Ekonomi UIN Suska Riau. *Eklektik: Jurnal Pendidikan Ekonomi Dan Kewirausahaan*, 6(1), 21–33.
- We Are Social. (2023). *Indonesian Digital Report* 2023. <https://wearesocial.com/uk/blog/2023/01/digital-2023/>
- Wirany, D., Natasha, S., S Kurniawan, R. (2022). Perkembangan Teknologi Informasi dan Komunikasi terhadap Perubahan Sistem Komunikasi Indonesia. *Jurnal Nomosleca*, 8(2), 242–252.