

IMPROVING LITERACY IN THE DIGITAL AGE: UNLEASHING CRITICAL THINKING POTENTIAL

Widyapuri Prasastiningtyas*¹, Ahmad Zulfahmi Ubaidillah², Ine Aprianti³,
Lucy Nurfadilah⁴

Universitas Sangga Buana YPKP*^{1,2,3,4}

Email: widya.puri@usbypkp.ac.id*^{1,2,3,4}

Abstract

The study also found that literacy education in schools and families plays an important role in shaping individuals' critical thinking skills. Learning that involves relevant digital media and content tailored to individual needs, as well as approaches that encourage critical reflection and dialogue, can improve literacy in the digital age and critical thinking skills. Theoretical foundations that support the relationship between literacy in the digital age and critical thinking skills are explored to provide a deeper understanding of the role of literacy in the digital age. The research method used is a qualitative approach involving two groups of research subjects, namely high school students and university students. Data collection was conducted through in-depth interviews and surveys to obtain their views and perceptions related to literacy and critical thinking in the digital era. The results showed that increasing literacy in the digital era significantly contributed to the development of critical thinking potential in individuals. Research subjects who have higher literacy levels tend to be better able to critically analyze information, identify fake news, and critically evaluate information sources. They also have a higher awareness of the dangers of misleading information and are better able to sort out relevant information.

Keywords: Literacy, Digital Age, Critical Thinking

Abstrak

Studi ini juga menemukan bahwa pendidikan literasi di sekolah dan keluarga memainkan peran penting dalam membentuk keterampilan berpikir kritis individu. Pembelajaran yang melibatkan media digital yang relevan dan konten yang disesuaikan dengan kebutuhan individu, serta pendekatan yang mendorong refleksi kritis dan dialog, dapat meningkatkan literasi di era digital dan keterampilan berpikir kritis. Landasan teoritis yang mendukung hubungan antara literasi di era digital dan keterampilan berpikir kritis dieksplorasi untuk memberikan pemahaman yang lebih dalam tentang peran literasi di era digital. Metode penelitian yang digunakan adalah pendekatan kualitatif yang melibatkan dua kelompok subjek penelitian, yaitu siswa sekolah menengah atas dan mahasiswa. Pengumpulan data dilakukan melalui wawancara mendalam dan survei untuk mendapatkan pandangan dan persepsi mereka terkait literasi dan berpikir kritis di era digital. Hasil penelitian menunjukkan bahwa peningkatan literasi di era digital secara signifikan berkontribusi pada pengembangan potensi berpikir kritis individu. Subjek penelitian yang memiliki tingkat literasi lebih tinggi cenderung lebih mampu

menganalisis informasi secara kritis, mengidentifikasi berita palsu, dan mengevaluasi sumber informasi secara kritis. Mereka juga memiliki kesadaran yang lebih tinggi terhadap bahaya informasi yang menyesatkan dan lebih mampu memilah informasi yang relevan.

Kata Kunci: Literasi, Era Digital, Berpikir Kritis

INTRODUCTION

In this advanced digital era, technological changes and easy access to information have changed the social, economic, and cultural landscape globally (Cladis, 2020). Information that was previously limited to traditional sources is now easily accessible through various digital platforms such as the Internet, social media, and technology-based applications. However, along with these benefits come new challenges in dealing with the information explosion and various narratives that are not always verified. In this information-rich context, literacy in the digital era has become an urgent thing for individuals to have. Literacy in the digital era is no longer limited to the ability to read and write but also includes the skills to analyze, assess, and extract relevant and credible information from various sources. To welcome this rapidly evolving information age, the challenge arises to equip people with strong digital literacy (Papadakis, 2022).

To build a literate society in the digital era, it is essential to address various dimensions that support the development of critical thinking skills. One of these is the ability to assess the validity and relevance of information that is widely disseminated across digital platforms. In today's fast-paced and easily accessible information age, new challenges often arise, particularly due to the abundance of false or misleading information that can be harmful if accepted without verification (Kozyreva dkk., 2023). Individuals with critical thinking skills are not only able to identify biases in the information they receive but can also conduct in-depth evaluations of the content presented, relate that information to broader contexts, and ultimately form conclusions based on accurate data and rational analysis.

In the context of education, the role of teachers and educational institutions is crucial in encouraging students to develop their critical thinking skills. Formal education should not only focus on teaching academic material but also provide space for students to think reflectively and critically. This includes teaching students how to read critically, how to deeply analyze texts, and how to question the assumptions hidden behind every argument presented. Education that promotes open dialogue and critical discussion can strengthen students' ability to objectively evaluate information and avoid passive absorption of knowledge. Additionally, digital literacy must be integrated into the curriculum to teach students how to use technology wisely and responsibly (Lebid & Shevchenko, 2020).

However, the development of critical thinking is not solely the responsibility of educational institutions. Families also play an important role in shaping children's critical thinking from an early age. Parents can encourage their children to always ask questions, observe, and seek additional information before accepting any statement as the truth. By instilling the habit of critical thinking, families help create individuals who are more independent and aware of the importance of validating information in daily life. Parents

who can set an example in terms of digital literacy and critical thinking will also be better equipped to guide their children in facing the increasingly complex challenges of the digital world (Carmi dkk., 2020).

Not only within the realms of education and family, but the wider community must also recognize the importance of building a literacy culture based on critical thinking skills. Public campaigns to combat the spread of fake news or hoaxes, for instance, can be a significant initial step in promoting the importance of verifying information before accepting and disseminating it (Mudra, 2020). Organizations and communities can actively participate in hosting training sessions or seminars aimed at raising public awareness about digital literacy and the importance of critical thinking. Furthermore, governments should also play their part in supporting policies that promote digital literacy and critical thinking through educational programs, both formal and informal.

The increasing use of technology and the internet also presents additional challenges in the process of building a critical-thinking society. Algorithms on social media often encourage users to remain in a "filter bubble," where they are only exposed to information that aligns with their views (Anthonysamy dkk., 2020). This can reinforce existing biases and limit individuals' ability to view issues from multiple perspectives. Therefore, individuals need to recognize this risk and actively seek diverse sources of information to broaden their perspectives. Being critical of algorithms and aware of the potential distortion of information generated by technology is a crucial part of literacy in the digital era (Wong dkk., 2021).

In addition, another challenge that emerges in the digital age is the phenomenon of information overload, where individuals are faced with an overwhelming volume of information in a very short amount of time (Markham, 2020). In such situations, the ability to filter relevant and high-quality information becomes an essential skill. Critical thinking enables individuals to sort information based on its relevance and accuracy while discarding information that is useless or misleading. This is crucial in decision-making, both in personal and professional contexts, as decisions based on inaccurate information can have detrimental consequences (Cardon dkk., 2023).

Moreover, critical thinking also has a positive impact on the development of creativity. When individuals are accustomed to questioning assumptions and seeking answers beyond the boundaries of conventional thinking, they become more capable of generating innovative solutions to the problems they face (Ludvik, 2023). In the workplace, critical thinking skills are highly valued because workers who can think independently and critically tend to be more adaptable to change and more effective in solving complex problems. Therefore, literacy in the digital age, supported by critical thinking skills, is not only important for tackling the challenges of complex information but also for enhancing productivity and innovation in various sectors (McDiarmid & Zhao (赵勇), 2023).

Given the importance of digital literacy and critical thinking, efforts to strengthen both aspects must be carried out continuously. Governments, educational institutions, families, and society as a whole must collaborate to create an environment that supports

comprehensive literacy development. This includes providing equitable access to quality information sources, offering appropriate training and education, and encouraging individuals to always think critically in every situation. In this way, we can build a society that is not only digitally literate but also capable of thinking critically in facing various challenges in the information age.

Ultimately, critical thinking skills are an essential foundation in modern life. They enable individuals not only to better understand the world around them but also to actively participate in shaping a brighter future through wise decision-making based on valid data. A society with high literacy levels and strong critical thinking skills will be better equipped to face complex global challenges, from climate change to political disinformation. As technology continues to evolve, the development of digital literacy and critical thinking skills will become increasingly important, not only for the survival of individuals but also for the sustainability of human civilization as a whole.

METHOD

This study used a qualitative approach involving two groups of research subjects, namely high school students and university students. The qualitative approach was chosen because it allows researchers to gain an in-depth understanding of the perspectives and experiences of research subjects related to literacy in the digital era and critical thinking (Jaya, 2020). This research used a qualitative approach. This approach was chosen because it provides an opportunity to gain in-depth insight and understanding of the research subjects' perspectives, experiences, and beliefs related to literacy in the digital era and critical thinking. The qualitative approach also allows researchers to explore the phenomenon of literacy in the digital era in more detail and depth.

Research Subjects: The two groups of research subjects involved in this study are high school students and university students. High school students were chosen because they are in an important developmental phase in dealing with information in the digital age, while university students have more advanced literacy experiences after experiencing previous education. Involving both groups will provide a more comprehensive picture of how literacy in the digital age and critical thinking develop during the educational process.

Data Collection:

1. **In-depth Interviews;** In-depth interviews will be conducted with the research subjects to gain in-depth insights into their views on literacy in the digital age and critical thinking. These interviews will include questions related to their experiences in seeking information in the digital environment, identifying credible sources of information, and how they evaluate and use information critically.
2. **Surveys;** Surveys will be used as a method of collecting broader data from the research subjects. The survey will ask about the literacy behavior and critical thinking patterns of the research subjects in certain situations.

RESULTS AND DISCUSSION

Research Result

Data collected from in-depth interviews and surveys will be analyzed using a qualitative analysis approach. The data will be coded and categorized to identify patterns, themes, and relevant findings related to literacy in the digital age and critical thinking. Using qualitative methods, this research is expected to provide a deeper understanding of the importance of literacy in the digital age in shaping the potential for critical thinking in individuals. By combining the theories of literacy in the digital age and critical thinking, this research will contribute valuable information for the development of more effective literacy strategies in facing information challenges in this rapidly evolving digital age.

Discussion

The discussion of research on the importance of improving literacy in the digital era and awakening the potential for critical thinking in high school and university students is very relevant and crucial in facing the challenges of increasingly complex information and digital technology that continues to develop. Here is a more detailed discussion.

The Importance of Improving Literacy in the Digital Age:

- a. **Abundance of Information:** In the digital age, information can be accessed easily and abundantly from various sources. Improving literacy in the digital age helps high school and college students to recognize relevant, accurate, and reliable information.
- b. **Preventing the Spread of Hoaxes:** In a digital environment, the spread of fake news (hoaxes) is a serious problem. By improving literacy in the digital era, high school and college students can be more critical in verifying the truth of information before spreading it.
- c. **Critical Thinking Skills:** Literacy in the digital age involves critical thinking skills in analyzing and evaluating information from various sources. This helps students and college students become smarter and wiser in decision-making and assessment of the situation or problem at hand.
- d. **Effective Utilization of Technology:** Improving literacy in the digital age helps students and college students utilize technology effectively and responsibly so that they can become smart and productive users in the digital world (Polizzi, 2023).

2. Awakening Critical Thinking Potential:

- a. **Countering Confirmation Bias:** In the digital age, there is a tendency to seek and consume information that conforms to pre-existing beliefs (confirmation bias). Awakening the potential of critical thinking helps students to realize this bias and strive for a broader and more objective understanding.
- b. **Deeper Analysis:** With critical thinking, high school and college students can conduct deeper analysis of complex issues, construct strong arguments, and present well-grounded opinions.

- c. Ability to Evaluate Information: Critical thinking helps students and college students evaluate information from various sources and recognize weaknesses or flaws in the arguments or data presented.
 - d. Courage to Ask Questions and Understand Other Perspectives: With critical thinking, students and college students will be more courageous to ask questions and seek understanding of other points of view. They will also be open to different views and seek to understand the perspectives of others.
3. Findings from In-Depth Interviews:
- a. High school students: The majority of students spend significant time on social media, but some of them lack awareness of fake news and do not always verify information before sharing it. Some students expressed difficulty in evaluating credible sources of information and tend to seek out information that only fits their views.
 - b. Students: Students tend to be more skillful in sourcing scientific references and using credible databases in their academic writing. However, some students also faced difficulties in critically analyzing and articulating scientific information.
4. Findings from the Survey:
- a. High school students: Most students spend considerable time on social media and rely on these platforms as their main source of information. The majority of students recognize the existence of fake news on social media, but some of them lack training in identifying and avoiding fake news.
 - b. College students: Students tend to use databases and scholarly journals as their main source of reference for academic assignments. However, some students face difficulties in finding relevant and critical reference sources.

The findings from the in-depth interviews and surveys in this study provide a comprehensive picture of digital literacy and critical thinking skills among high school students and university students. These findings highlight significant differences in how students from these two groups access, process, and evaluate information, as well as the challenges they face regarding the phenomenon of fake news and the understanding of scientific information.

First, from the in-depth interviews conducted with high school students, it was found that the majority of students spend a considerable amount of time on social media. Social media has become the primary source of information for many students, which can have both positive and negative impacts. On the one hand, social media provides easy access to a variety of real-time information. On the other hand, the findings show that many students are not fully aware of the threats posed by fake news or inaccurate information circulating on these platforms. Some students even tend to not verify the truth of the information before sharing it with friends or family. This phenomenon indicates a lack of awareness about the importance of checking information sources and the dangers of spreading false information.

Some high school students also expressed difficulties in evaluating the credibility of information sources. They tend to seek out information that only aligns with their views or beliefs without considering the validity of the sources. This demonstrates the presence of confirmation bias, where individuals are inclined to seek information that reinforces their existing beliefs and ignore information that contradicts their views. The lack of ability to evaluate credible sources can exacerbate this situation, as students do not have adequate skills to filter valid information from misleading content.

On the other hand, interviews with university students revealed a clear difference in terms of digital literacy skills. Most university students are more proficient in sourcing scientific references and using credible databases in their academic writing. They tend to rely on academic journals and recognized databases as their primary sources for completing university assignments. This skill reflects that university students have a higher level of literacy in terms of accessing and using credible scientific sources, which is an essential skill in the context of higher education.

However, even though university students are better at accessing credible sources, some of them still face challenges in critically analyzing and articulating scientific information. Not all students can fully comprehend what they read, and some find it difficult to construct logical and structured arguments based on the information they acquire. These challenges show that critical thinking skills, particularly in analyzing scientific information, still need to be improved among university students. While they have access to credible sources of information, the ability to process and use that information effectively still requires strengthening.

In addition to the in-depth interviews, the surveys conducted with high school students also provide important insights into how they use social media and how they understand the existence of fake news. Most students spend a significant amount of time on social media and rely on these platforms as their primary source of information. The fact that most students depend on social media as their main source of information raises concerns, given the large amount of unverified information on these platforms. Although most students acknowledge the existence of fake news on social media, many of them lack sufficient training in identifying and avoiding fake news.

The lack of training in recognizing fake news underscores the urgent need to improve digital literacy among high school students. With the rapid development of technology, students must be equipped with skills that can help them filter valid information from invalid content. Digital literacy education should include training on how to recognize fake news, understand how social media algorithms work, and be aware of the impact of spreading false information. Without these skills, students are at risk of continuing to fall victim to the spread of misleading information, which can influence their views and decisions in the future.

On the other hand, survey results from university students indicate that they are more likely to use databases and academic journals as their primary sources of reference for academic assignments. This reflects a better understanding of the importance of using

credible and reliable information sources in an academic context. However, similar to high school students, some university students also face difficulties in finding relevant and critical reference sources. This could be due to limited access to adequate resources or a lack of skills in navigating the various available academic databases.

The challenge of finding relevant reference sources shows that although university students are more skilled in using scientific sources, they still need support in honing more specific information retrieval skills. This includes the ability to evaluate the relevance and accuracy of sources, as well as the ability to understand the broader context of the information they use. These skills are crucial in academic research, as mistakes in selecting irrelevant or non-credible sources can negatively impact the quality of their research.

Overall, the findings from the in-depth interviews and surveys indicate significant differences between high school students and university students in terms of digital literacy and critical thinking skills. High school students appear to be more vulnerable to the negative impacts of social media, including the spread of fake news, while university students are more adept at using credible sources of information for academic purposes. However, both groups face challenges in critical thinking, whether in evaluating the credibility of information or in analyzing and articulating information deeply.

To address these challenges, digital literacy and critical thinking education should be a priority at all levels of education (Hutchison dkk., 2020). For high school students, the focus should be on raising awareness about fake news and the importance of information verification, as well as providing proper training in the responsible use of social media. Meanwhile, for university students, efforts should focus on enhancing critical analysis skills, particularly in the context of using scientific sources of information (Couch, 2023).

In addition, there needs to be stronger collaboration between educational institutions, governments, and communities in creating programs that support the development of digital literacy and critical thinking skills (Damasceno, 2021). By doing so, the younger generation will not only be able to face the challenges of information in the digital era but will also become more critical, reflective, and wise individuals in making decisions in the future. Finally, digital literacy and critical thinking are interconnected skills that cannot be separated when facing the challenges of the modern world (Allen, 2020). By continuously encouraging the development of these two skills, we can shape a generation that is better prepared to face the complexities of information and global challenges in the future

CONCLUSION

The findings of this study show that there is a significant difference in the level of literacy in a digital age and critical thinking between high school and university students. High school students tend to rely on social media as their main source of information and are less trained in identifying fake news. On the other hand, university students have better academic literacy skills but sometimes have difficulties in critical thinking especially in analyzing scientific information. It is important to realize that improving literacy in the

digital age and critical thinking should start from an earlier level of education. High school students need to be encouraged to be more critical and thoughtful in using social media as a source of information. Specialized training on fake news recognition and critical thinking skills should be provided to students to help them overcome this challenge.

On the other hand, students need to be encouraged to actively seek verified reference sources and hone their critical thinking skills in analyzing scientific literature. Colleges and universities should provide training programs that are effective in developing students' critical thinking skills. Overall, improving literacy in the digital age and critical thinking are important steps in shaping competitive and intelligent individuals in the face of an increasingly complex and dynamic world of information. By combining literacy in the digital era with critical thinking, individuals will be able to access, assess, and use information wisely in the current digital era.

BIBLIOGRAPHY

Allen, S. J. (2020). On the Cutting Edge or the Chopping Block? Fostering a Digital Mindset and Tech Literacy in Business Management Education. *Journal of Management Education*, 44(3), 362–393. <https://doi.org/10.1177/1052562920903077>

Anthonyamy, L., Koo, A. C., & Hew, S. H. (2020). Self-regulated learning strategies in higher education: Fostering digital literacy for sustainable lifelong learning. *Education and Information Technologies*, 25(4), 2393–2414. <https://doi.org/10.1007/s10639-020-10201-8>

Cardon, P., Fleischmann, C., Aritz, J., Logemann, M., & Heidewald, J. (2023). The Challenges and Opportunities of AI-Assisted Writing: Developing AI Literacy for the AI Age. *Business and Professional Communication Quarterly*, 86(3), 257–295. <https://doi.org/10.1177/23294906231176517>

Carmi, E., Yates, S. J., Lockley, E., & Pawluczuk, A. (2020). Data citizenship: Rethinking data literacy in the age of disinformation, misinformation, and malinformation. *Internet Policy Review*, 9(2), 1–22. <https://doi.org/10.14763/2020.2.1481>

Cladis, A. E. (2020). A shifting paradigm: An evaluation of the pervasive effects of digital technologies on language expression, creativity, critical thinking, political discourse, and interactive processes of human communications. *E-Learning and Digital Media*, 17(5), 341–364. <https://doi.org/10.1177/2042753017752583>

Couch, J. D. (2023). *Rewiring Education: How Technology Can Unlock Every Student's Potential*. BenBella Books.

Damasceno, C. S. (2021). Multiliteracies for Combating Information Disorder and Fostering Civic Dialogue. *Social Media + Society*, 7(1), 2056305120984444. <https://doi.org/10.1177/2056305120984444>

Hutchison, K., Paatsch, L., & Cloonan, A. (2020). Reshaping home–school connections in the digital age: Challenges for teachers and parents. *E-Learning and Digital Media*, 17(2), 167–182. <https://doi.org/10.1177/2042753019899527>

Jaya, I. M. L. M. (2020). *Metode Penelitian Kuantitatif dan Kualitatif: Teori, Penerapan, dan Riset Nyata*. Anak Hebat Indonesia.

Kozyreva, A., Wineburg, S., Lewandowsky, S., & Hertwig, R. (2023). Critical Ignoring as a Core Competence for Digital Citizens. *Current Directions in Psychological Science*, 32(1), 81–88. <https://doi.org/10.1177/09637214221121570>

Lebid, A. E., & Shevchenko, N. A. (2020). Cultivating the Skills of Systems Thinking in the Context of Fostering the Basic and Professional Competencies Associated with Media Education and Media Literacy. *International Journal of Media and Information Literacy*, 5(1), Article 1.

Ludvik, M. J. B. (2023). *The Neuroscience of Learning and Development: Enhancing Creativity, Compassion, Critical Thinking, and Peace in Higher Education*. Taylor & Francis.

Markham, A. N. (2020). Taking Data Literacy to the Streets: Critical Pedagogy in the Public Sphere. *Qualitative Inquiry*, 26(2), 227–237. <https://doi.org/10.1177/1077800419859024>

McDiarmid, G. W., & Zhao (赵勇), Y. (2023). Time to Rethink: Educating for a Technology-Transformed World. *ECNU Review of Education*, 6(2), 189–214. <https://doi.org/10.1177/20965311221076493>

Mudra, H. (2020). DIGITAL LITERACY AMONG YOUNG LEARNERS: HOW DO EFL TEACHERS AND LEARNERS VIEW ITS BENEFITS AND BARRIERS? *Teaching English with Technology*, 20(3), 3–24.

Papadakis, S. (2022). Apps to Promote Computational Thinking and Coding Skills to Young Age Children: A Pedagogical Challenge for the 21st Century Learners. *Educational Process: International Journal (EDUPIJ)*, 11(1), 7–13.

Polizzi, G. (2023). Internet users' utopian/dystopian imaginaries of society in the digital age: Theorizing critical digital literacy and civic engagement. *New Media & Society*, 25(6), 1205–1226. <https://doi.org/10.1177/14614448211018609>

Wong, B. L. H., Khurana, M. P., Smith, R. D., El-Omrani, O., Pold, A., Lotfi, A., O'Leary, C. A., & Saminarsih, D. S. (2021). Harnessing the digital potential of the next generation of health professionals. *Human Resources for Health*, 19(1), 50. <https://doi.org/10.1186/s12960-021-00591-2>