



Implementing Digital Literacy to Foster Citizenship Attitudes among Fifth-Grade Students at Elementary School No. 2 Pelaga

Rika Putri Rachman¹, Dewa Bagus Sanjaya¹, I Nengah Suastika¹

¹Department of Science Education, Ganesha University of Education, Bali, Indonesia

Article Info

Article history:

Received Jun 7, 2026
Revised Jun 30, 2026
Accepted Jul 14, 2026
OnlineFirst Jul 20, 2026

Keywords:

Citizenship attitudes
Digital citizenship
Digital literacy
Elementary school.
Pancasila Education

ABSTRACT

Purpose of the Study: This study aims to examine the implementation of digital literacy in fostering citizenship attitudes among fifth-grade elementary school students and to identify the challenges encountered by teachers, school administrators, and parents in supporting the development of responsible digital citizenship.

Methodology: This study employed a descriptive qualitative approach. Data were collected through in-depth interviews involving three key informants, namely the fifth-grade teacher, the school principal, and a parent representative. Data were analyzed using the Miles and Huberman qualitative analysis framework, including data reduction, data display, and conclusion drawing.

Main Findings: The findings reveal that integrating digital ethics into Pancasila Education, supported by school policies and active parental guidance, effectively strengthened students' ethical awareness, discipline, tolerance, and responsible behavior in digital environments. Nevertheless, implementation was constrained by inadequate school infrastructure, limited parental digital literacy, and inconsistencies between school and home regulations governing students' digital practices.

Novelty/Originality of this Study: This study offers a contextual model of digital citizenship development at the elementary school level by emphasizing the integration of digital literacy within Pancasila Education through collaborative engagement among schools, teachers, and families. It extends existing knowledge by highlighting digital literacy as a practical foundation for strengthening citizenship values from an early educational stage.

This is an open access article under the [CC BY](https://creativecommons.org/licenses/by/4.0/) license



Corresponding Author:

Rika Putri Rachman,
Department of Science Education, Ganesha University of Education,
Jl. Udayana No.11, Banjar Tegal, Singaraja, Kabupaten Buleleng, Bali 81116, Indonesia
Email: rika.putri@student.undiksha.ac.id

1. INTRODUCTION

The rapid advancement of digital technology has significantly transformed various aspects of human life, including the field of education. The continuous development of technological innovation and the digital ecosystem has affected not only adults but also children [1] [2]. Digital literacy has become an essential competency that should be developed from an early age, as it encompasses not only the ability to access information but also critical thinking skills, digital ethics, and responsible engagement in digital environments [3] [4]. Emphasizes that digital literacy plays a fundamental role in fostering critical thinking, ethical awareness, and students' social participation as citizens in the digital era [5] [6]. The higher an individual's level of digital literacy, the stronger their citizenship attitudes in responding to contemporary social issues. Furthermore, inadequate digital literacy contributes to the spread of misinformation, hate speech, and unethical behavior on social media, making individuals less likely to demonstrate tolerance and social responsibility [7] [8].

Digital transformation has also fundamentally reshaped the concept of citizenship. Citizenship, once primarily understood as direct participation in social life, has evolved into the concept of digital citizenship, which emphasizes how individuals participate, interact, and fulfill their responsibilities within digital environments. This transformation requires a redefinition of citizenship attitude indicators to reflect the complexities of contemporary digital life. The widespread use of social media among elementary school students indicates that digital spaces have become an integral component of character development [9], [10]. As digital natives, children utilize digital devices for learning, entertainment, and social interaction, all of which directly influence the formation of their attitudes and behaviors. However, the increasing intensity of digital media use is frequently not accompanied by an adequate understanding of digital ethics and online safety) [11]. Reported that children often use digital technologies without considering the broader social consequences of their online activities.

Digital literacy is closely associated with the development of responsibility and basic legal awareness among children. Adequate digital literacy enables students to understand appropriate boundaries in the use of technology, including protecting personal privacy and recognizing the consequences of their actions in digital environments [12] [13]. State that digital literacy supports character education by encouraging students to develop discipline, responsibility, and awareness of social norms. The integration of digital literacy into elementary education also contributes to the cultivation of digital etiquette, empathy, and tolerance. Likewise, [14] emphasizes that technology use accompanied by systematic digital literacy education enables students to understand the importance of ethical behavior, digital security, and healthy social interaction.

Numerous studies have demonstrated that digital literacy plays a significant role in fostering citizenship attitudes that are relevant to contemporary societal developments [5]. Explains that digital literacy enhances ethical awareness, critical thinking, and students' social participation, thereby positioning digital competence as an integration of values, attitudes, and civic responsibility. Citizenship education also serves a strategic function in internalizing ethical values, social norms, and legal awareness within digital contexts [15]. Identifies the proliferation of misinformation and limited digital legal awareness as urgent challenges that necessitate the integration of citizenship values into social media engagement. Similarly, [16] citizenship education contributes to the development of tolerance, respect for diversity, and the formation of responsible citizenship identities in the era of digital globalization.

Although research on digital literacy and citizenship attitudes has grown considerably, most existing studies have concentrated on adolescents, while investigations involving elementary school students remain relatively limited. Elementary education represents a critical stage of character formation during which values such as responsibility, tolerance, and ethical conduct should be instilled from an early age. Examining the relationship between digital literacy and citizenship attitudes among elementary school students therefore provides valuable insights into the early development of responsible citizens in the digital era. The novelty of this study lies in the development of citizenship indicators that integrate traditional civic values with the competencies required in the twenty-first century, thereby offering a more comprehensive perspective on citizenship education in contemporary digital contexts.

2. RESEARCH METHOD

This study employed a descriptive qualitative approach to obtain an in-depth understanding of the implementation of digital literacy in fostering citizenship attitudes among fifth-grade students at elementary school No. 2 Pelaga. The primary focus of data collection was to develop an empirical understanding of the actual phenomena occurring in the field without introducing any intervention or treatment to the research participants. This approach was intended to provide an objective description of how citizenship values were internalized through students' everyday digital activities [17], [18].

The primary data collection technique consisted of in-depth interviews with three key informants, namely the fifth-grade classroom teacher, who was responsible for designing and implementing learning activities; the school principal, who represented the institutional policymaker; and a representative parent, who provided insights into students' behavior within the family environment. These informants contributed valuable information regarding students' habitual practices, the challenges encountered during the implementation process, and students' responses to the digital literacy initiatives conducted by the school. All interview data were verified to ensure their credibility and validity before proceeding to the subsequent stage of analysis.

The data analysis process followed three sequential stages [19]. First, data reduction was conducted to select, simplify, and focus relevant information obtained from the interview transcripts while eliminating data that were not directly related to the research objectives. Second, the reduced data were systematically organized and presented in a structured narrative to facilitate the interpretation of digital literacy implementation patterns and their influence on students' citizenship attitudes. Finally, conclusions were drawn based on the systematically analyzed findings to address the research questions comprehensively.

3. RESULTS AND DISCUSSION

3.1. Implementation of Digital Literacy by Fifth-Grade Teachers at elementary school No. 2 Pelaga in Fostering Students' Citizenship Attitudes

The implementation of digital literacy in the fifth grade at ELEMENTARY SCHOOL No. 2 Pelaga was carried out through the integration of digital ethics into the Pancasila Education curriculum. Classroom teachers incorporated interactive learning media, including educational videos on online safety and simulations of ethical communication on social media, to cultivate students' citizenship values. This instructional strategy was designed not only to enhance students' digital competencies but also to strengthen their understanding of moral responsibility as digital citizens. This finding is consistent with the statement of the fifth-grade classroom teacher during the interview:

"I regularly incorporate digital ethics into discussions of Pancasila values, such as teaching students not to spread false information or hate speech through the class WhatsApp group, so that they become accustomed to behaving respectfully in digital environments just as they do in everyday social interactions."

The instructional practices implemented by classroom teachers were further reinforced by institutional policies requiring weekly digital literacy sessions. The school principal ensured that all technology-based learning activities in the fifth grade were directed toward strengthening students' awareness of legal responsibility and digital privacy in order to prevent inappropriate online behavior. This finding is reflected in the principal's interview statement:

"Our school has established strict regulations regarding the use of digital devices during school hours. Teachers are expected to guide students in understanding the basic legal consequences of cyberbullying so that citizenship education remains relevant to the challenges of today's digital era."

Parental involvement also played a crucial role in reinforcing the citizenship values introduced at school. Parents sought to regulate their children's screen time while providing guidance whenever they accessed digital content. This finding is consistent with the statement provided by the parent representative:

"We always ask our child about the activities they engage in on the internet each day and remind them of the messages conveyed by their teacher regarding the importance of respecting other people's opinions and protecting personal privacy, so that they continue to behave respectfully even when they are outside the teacher's supervision."

The collaboration between the school and the family created a consistent learning environment that supported the development of students' character as responsible citizens. Teachers also encouraged positive digital behavior by recognizing students who demonstrated tolerance and cooperation through digital communication platforms, thereby reinforcing these behaviors as part of their daily habits. These findings indicate that the successful cultivation of citizenship values in the digital era requires the active participation of all stakeholders who interact with students, extending from the classroom to the home environment.

The implementation of digital literacy in the fifth grade at elementary school No. 2 Pelaga successfully integrated ethical awareness, digital safety, and social responsibility into students' character development. The collaborative learning model involving teachers, school leaders, and parents effectively minimized the potential negative impacts of technology while encouraging students to participate responsibly in digital environments. These findings demonstrate that strengthening citizenship values through digital literacy serves as an effective approach to preparing young learners to become competent, ethical, and responsible digital citizens capable of navigating the rapidly evolving digital landscape.

3.2. Challenges Encountered by Schools, Teachers, and Parents in Fostering Citizenship Attitudes through Digital Literacy

The primary challenge in fostering students' citizenship attitudes through digital literacy was the divergence in perceptions among stakeholders, coupled with limited supervision of the digital content accessed by students outside the school environment. Fifth-grade teachers experienced considerable difficulty monitoring students' extensive use of digital media at home, resulting in ethical values introduced in the classroom often being undermined by students' uncontrolled digital habits. This finding is consistent with the statement of the fifth-grade classroom teacher during the interview:

"The greatest challenge I face is the limited opportunity to monitor students' digital behavior outside school hours. Many students are exposed to age-inappropriate content, and it is difficult to change habits that have already been shaped by the unrestricted communication style commonly found on social media."

School policies regulating students' use of digital devices also encountered practical limitations due to inadequate educational infrastructure. The school principal acknowledged that the limited availability of technological facilities constrained the implementation of comprehensive digital literacy activities, particularly those requiring practical simulations of responsible digital citizenship. This finding is reflected in the principal's interview statement:

"Our computer laboratory facilities are still unable to accommodate all students simultaneously. As a result, educational programs on data security and digital ethics often remain theoretical and provide limited opportunities for meaningful hands-on learning experiences."

Parents likewise encountered significant challenges because of their limited technical knowledge in operating parental control features on their children's digital devices. This lack of technological competence made it difficult for them to implement appropriate restrictions on children's access to digital content. This finding is supported by the statement of the parent representative:

"We genuinely want to restrict the content our children access so that it aligns with positive citizenship values. However, we are often unsure how to configure content filters or parental control applications because of our own limited technological skills."

Another significant obstacle was the communication gap between schools and parents regarding the importance of digital literacy. Differences between school regulations that restricted the use of certain social media platforms and the greater freedom provided at home often created confusion among students about acceptable and unacceptable digital behavior. This inconsistency highlights the need for more intensive communication and collaboration between teachers and parents to ensure that students are not confronted with conflicting expectations regarding appropriate conduct in both physical and digital environments.

The challenges identified in this study reflect a combination of technical limitations, infrastructural constraints, and differences in parenting practices between schools and families. Limited educational facilities, insufficient digital literacy among parents, and teachers' inability to supervise students' online behavior beyond school hours remain substantial barriers to the effective implementation of digital citizenship education. Strengthening cross-sector collaboration through parental training programs and improving schools' digital infrastructure are therefore essential to ensure that citizenship values are not merely conveyed at a theoretical level but are meaningfully internalized in the everyday lives of fifth-grade students.

3.3 The Integration of Digital Literacy in Developing the Character and Citizenship Attitudes of Fifth-Grade Students in Digital Environments

The integration of digital literacy had a substantial positive influence on students' behavioral development and ethical awareness when interacting in digital environments. Fifth-grade students demonstrated improved abilities to evaluate information critically, respect the opinions of their peers, and exercise greater caution in protecting both their own privacy and that of others. This finding is consistent with the statement of the fifth-grade classroom teacher during the interview:

"The changes I have observed are very noticeable. Students have become more selective when sharing messages in the class WhatsApp group and tend to respond to their classmates' comments more politely than they did before receiving digital literacy instruction."

The integration of citizenship values through the school's digital curriculum proved effective in strengthening students' awareness of their responsibilities as young digital citizens. According to the school principal, improvements in students' discipline and tolerance were reflected in the declining number of cyberbullying incidents reported within the school environment. This finding is supported by the principal's interview statement:

"Students who previously showed little concern for ethical standards have begun to demonstrate greater respect for others and have become more aware of the harmful consequences of inappropriate behavior on social media. This indicates that digital literacy has played an important role in developing stronger citizenship character."

Parents also reported meaningful changes in their children's attitudes. Students became more communicative and open about their daily digital activities, while their growing awareness of the social values taught at school enabled them to regulate their emotions and carefully consider the consequences of their actions before engaging in online interactions. This finding is reflected in the statement of the parent representative:

“My child has become much wiser in using digital devices. They even remind me to be careful when sharing information on social media, which indicates that the citizenship values taught at school have shaped positive character development.”

The successful integration of digital literacy has fostered an educational ecosystem that supports the development of responsible digital citizens who understand both their rights and responsibilities in digital environments. Students have progressed beyond merely acquiring technological skills to developing a strong moral foundation that enables them to navigate digital challenges responsibly. The consistent collaboration between school-based instruction and parental guidance has reinforced the internalization of citizenship values, allowing students to demonstrate respectful, critical, and tolerant behavior toward diversity in digital interactions.

The findings indicate that the integration of digital literacy has made a substantial contribution to the development of character and citizenship attitudes among fifth-grade students at elementary school No. 2 Pelaga. Improvements in students' digital competence were accompanied by greater ethical awareness, respect for others, and adherence to social norms in online environments. These findings suggest that value-based education in the digital era represents a fundamental strategy for preparing future generations who are not only technologically competent but also possess integrity, social responsibility, and the civic awareness required to become responsible citizens in an increasingly digital society.

The integration of digital ethics into the Pancasila Education curriculum for fifth-grade students at elementary school No. 2 Pelaga represents a strategic effort to align citizenship education with the realities of children's increasingly digital lives. Learning activities that incorporate educational videos and interactive simulations provide students with authentic opportunities to practice ethical behavior in digital environments. Consequently, students not only develop a conceptual understanding of the rights and responsibilities of citizenship but also gain practical experience in applying these principles in online contexts. The consistent integration of lessons addressing the dangers of misinformation and hate speech throughout classroom instruction establishes a strong moral foundation, ensuring that students' digital interactions remain grounded in socially accepted norms of respectful behavior [20].

The institutional policy requiring weekly digital literacy sessions further demonstrates the school's commitment to creating a safe, structured, and supportive learning environment for character development in the digital era. Directing technology-based learning toward strengthening students' awareness of legal responsibility and digital privacy serves as a preventive educational strategy, enabling students to protect their personal identities while respecting the privacy of others during online interactions. Similarly, the enforcement of clear regulations governing students' use of digital devices during school hours extends beyond restricting access to technology; rather, it functions as a disciplinary approach that encourages students to think critically before acting. Through this process, students gradually develop an understanding that every activity performed in digital environments carries meaningful social and legal consequences.

Parental guidance at home complements the supervision provided by the school, ensuring that citizenship values continue to be reinforced beyond the classroom. Open communication between parents and children regarding daily online activities creates a supportive environment in which students feel comfortable discussing their digital experiences while receiving guidance on maintaining respectful interactions with others. This collaborative approach helps preserve the consistency of moral and civic values introduced at school, even when students encounter the unrestricted nature of social media and other online platforms. As a result, children experience a coherent set of behavioral expectations across both school and home environments, strengthening the internalization of responsible digital citizenship [21].

Recognizing and rewarding positive behavior in digital environments also functions as an effective psychological strategy for reinforcing desirable citizenship attitudes. Teachers who acknowledge students' demonstrations of tolerance, cooperation, and respectful communication in online settings provide positive reinforcement that motivates students to maintain these behaviors in their interactions with peers. This approach gradually reshapes students' perceptions of digital media, encouraging them to view digital platforms not merely as sources of entertainment but as public spaces that require social responsibility and ethical conduct. Consequently, citizenship values become integrated into students' personal identities and are reflected consistently across various digital contexts.

The alignment between contemporary educational demands and innovative instructional practices demonstrates that the successful cultivation of citizenship attitudes cannot rely solely on the efforts of schools or teachers. Rather, it emerges through active collaboration among all educational stakeholders. The integration of technology with systematic ethical guidance has proven effective in mitigating the negative consequences of

digitalization that frequently threaten children's character development, including cyberbullying and exposure to inappropriate online content. Through a structured and collaborative implementation process, schools can foster students who are not only digitally competent but also capable of balancing technological advancement with respect for human dignity and fundamental social values [22].

The transition from predominantly face-to-face interaction to digitally mediated communication also requires a redefinition of teachers' professional roles. In addition to serving as facilitators of learning, teachers must increasingly function as mentors and protectors who guide students in navigating the potential risks associated with digital environments. The consistent integration of internet ethics into Pancasila Education has been shown to reduce the likelihood of online conflicts among students by equipping them with the knowledge and skills necessary for constructive communication and respect for diversity. These findings reinforce the importance of ensuring that character education at the elementary school level remains responsive to rapid technological and informational developments while continuing to uphold the fundamental principles of citizenship education.

Ultimately, digital literacy extends far beyond the technical ability to operate digital devices. It represents a comprehensive civic competence encompassing values, attitudes, ethical awareness, and social responsibility. The successful implementation of digital ethics education among fifth-grade students at elementary school No. 2 Pelaga provides a valuable model for other educational institutions, demonstrating that integrating digital literacy into the curriculum, supported by active parental involvement, can cultivate young people with strong integrity and responsible citizenship. Sustained practice of these values will equip students not only with cognitive competence but also with the elementary school om, ethical judgment, and civic responsibility required to make meaningful contributions to society in an increasingly digital future [23] [24].

The findings indicate that one of the primary obstacles to fostering citizenship attitudes through digital literacy is the discrepancy between the moral values promoted in the school environment and students' actual behavior in digital spaces. Teachers frequently encounter difficulties in monitoring students' use of digital technologies outside school hours, making it challenging to ensure that the ethical principles introduced during classroom instruction are consistently practiced at home. Continuous exposure to age-inappropriate online content and the widespread adoption of informal communication styles on social media further complicate teachers' efforts to reinforce appropriate digital behavior. These findings are consistent [25], who emphasize that limited supervision beyond the school environment represents a significant barrier to strengthening digital citizenship education.

The limited availability of technological infrastructure within schools further constrains the effective implementation of digital literacy programs. Although schools recognize the importance of providing practical learning experiences related to digital ethics and online safety, inadequate facilities prevent all students from participating equally in technology-supported learning activities. As a result, instruction on data security, digital responsibility, and ethical online behavior often remains largely theoretical rather than experiential. This lack of direct engagement reduces students' opportunities to develop practical competencies for responding to the increasingly complex challenges of digital environments and may diminish the long-term effectiveness of digital citizenship education.

Technical challenges also extend into the family environment, where many parents experience difficulties in operating parental control features and content-filtering applications on their children's digital devices. Limited technological competence often prevents parents from effectively supervising children's online activities and implementing appropriate restrictions when necessary. Consequently, parents may struggle to fulfill their role as the primary supervisors of children's digital behavior at home. This disparity in digital literacy between schools and families creates opportunities for children to access online content that may undermine the citizenship values consistently promoted through school-based education [26].

Another significant challenge identified in this study is the inconsistency between regulations established at school and the level of freedom permitted at home. While schools may enforce clear policies regarding the responsible use of social media and digital devices, these expectations are not always reinforced within the family environment. Such inconsistencies often create confusion among students regarding appropriate standards of digital behavior, making it difficult for them to distinguish between responsible citizenship and inappropriate online conduct. This finding highlights the importance of establishing greater alignment between educational institutions and families to ensure that students receive consistent guidance across different social contexts.

The findings further suggest that limited communication between teachers and parents represents another critical factor hindering the successful development of students' citizenship character. When parents have varying levels of awareness regarding the importance of digital literacy, school initiatives may receive insufficient support at home, reducing the continuity and effectiveness of character education. Without regular dialogue and coordinated efforts to establish shared approaches to digital parenting, the values introduced in the classroom are likely to be weakened by differing expectations and practices within individual households. These findings support the argument [27], who emphasize that effective digital literacy education requires sustained collaboration between schools and families.

The challenges identified in this study demonstrate that fostering citizenship attitudes through digital literacy involves interconnected educational, technological, and social dimensions. Limited infrastructure, disparities in parents' digital competencies, insufficient supervision beyond school hours, and inconsistent expectations between home and school collectively reduce the effectiveness of citizenship education in digital contexts. Addressing these challenges requires comprehensive collaboration among schools, families, and other educational stakeholders through improved technological infrastructure, continuous parental capacity-building, and stronger school family partnerships. Such collaborative efforts are essential to ensure that digital literacy extends beyond the acquisition of technical skills and becomes a sustainable foundation for nurturing responsible, ethical, and socially accountable digital citizens.

4. CONCLUSION

The integration of digital literacy into the Pancasila Education curriculum for fifth-grade students at elementary school No. 2 Pelaga has proven effective in fostering students' character as ethical, responsible, and law-conscious digital citizens. This success was achieved through the collaborative synergy between the school, which provided structured formal instruction, and parents, who reinforced these values through continuous guidance in the home environment. Nevertheless, the implementation process continued to face several challenges, including limited school infrastructure, inadequate technical digital literacy among parents, and ambiguity in students' behavioral standards resulting from inconsistencies between school regulations and family practices. It is recommended that schools continue to strengthen the quality of digital learning infrastructure to ensure that all students have equitable access to meaningful and practical digital learning experiences. Schools and teachers are also encouraged to establish regular communication forums with parents to promote consistent digital parenting practices and reinforce shared citizenship values across both school and home settings. Furthermore, parents should take a more proactive role in improving their understanding of digital device security features and parental control technologies to enhance children's online safety. Such collaborative efforts are expected to facilitate the sustained internalization of citizenship values introduced through school-based instruction, enabling students to demonstrate responsible digital citizenship in their everyday lives.

ACKNOWLEDGMENTS

The authors sincerely thank all individuals and institutions who contributed to the completion of this research. Special appreciation is extended to the participants and the supporting institution for their valuable cooperation and assistance throughout the study.

REFERENCES

- [1] S. M. Ahmad, "Literasi digital pada anak usia dini: Urgensi peran orang tua dalam menyikapi interaksi anak dengan," *J. Pendidik. Islam Anak Usia Dini*, vol. 5, no. 1, pp. 47–65, 2024.
- [2] A. Benny, R. E. Renitta, X. A. Mary, P. K. Dutta, C. Karthik, and E.-S. M. El-kenawy, "Machine learning algorithm review for the detection of formalin in fish," *IET Conf. Proc.*, vol. 2023, no. 44, pp. 344–349, Feb. 2024, doi: 10.1049/icp.2024.0948.
- [3] K. S. Maifianti, "Literasi digital dan etika bermedia sosial kalangan pelajar di SMAN Wira Bangsa Aceh Barat," *Community Dev. J.*, vol. 2, no. 2, pp. 301–305, 2021.
- [4] Tanti, Astalini, Darmaji, D. A. Kurniawan, and R. Fitriani, "Student Perception Review from Gender : Electronic Moduls of Mathematical Physics," *J. Pendidik. Indones.*, vol. 11, no. 1, pp. 125–132, 2022.
- [5] A. Wahab, "Literasi Digital terhadap Sikap Kewarganegaraan Siswa di Era Digital," *J. Kependidikan Media*, vol. 15, no. 1, pp. 7–14, 2026.
- [6] J. Li, A. Brar, and N. Roihan, "The use of digital technology to enhance language and literacy skills for Indigenous people: A systematic literature review," *Comput. Educ. Open*, vol. 2, pp. 1–57, 2021, doi: 10.1016/j.cao.2021.100035.
- [7] F. Az-zahra, "Kewarganegaraan Digital dan Tantangan Etika Bermedia Sosial di Era Disrupsi Informasi," *J. Pendidik. Kewarganegaraan*, vol. 9, no. 2, pp. 327–338, 2025.
- [8] F. Dwidarti, Zamzani, and M. Prabowo, "Multimedia-based dance learning in elementary school," *J. Educ. Learn.*, vol. 19, no. 1, pp. 515–521, 2025, doi: 10.11591/edulearn.v19i1.21795.
- [9] E. W. Winarni, D. Hambali, and E. P. Purwandari, "Analysis of language and scientific literacy skills for 4th grade elementary school students through discovery learning and ict media," *Int. J. Instr.*, vol. 13, no. 2, pp. 213–222, 2020, doi: 10.29333/iji.2020.13215a.
- [10] Tanti, D. A. Kurniawan, Kuswanto, W. Utami, and I. Wardhana, "Science process skills and critical thinking in science: Urban and rural disparity," *J. Pendidik. IPA Indones.*, vol. 9, no. 4, pp. 489–498, 2020, doi: 10.15294/jpii.v9i4.24139.
- [11] S. Eniyati, R. Candra, N. Santi, V. Lusiana, B. Hartono, and F. Andreas, "Improving elementary school children's digital literacy through safe and educational internet use peningkatan literasi digital anak sekolah dasar melalui penggunaan internet yang aman dan edukatif," *ARSY Apl. Ris. Kpd. Masy.*, vol. 6, no. 2, pp. 514–519, 2025.
- [12] A. D. Widyawati and C. Karinna, "Pentingnya literasi digital di sekolah dasar," *J. Ilm. Pendidik. Dasar*, vol. 5, no. 2, pp. 917–923, 2025.

- [13] A. Abulibdeh, E. Zaidan, and R. Abulibdeh, "Navigating the confluence of artificial intelligence and education for sustainable development in the era of industry 4.0: Challenges, opportunities, and ethical dimensions," *J. Clean. Prod.*, vol. 437, no. January, p. 140527, 2024, doi: 10.1016/j.jclepro.2023.140527.
- [14] L. Zanni, "Penguatan literasi digital anak usia dini dan," *J. Sci. Educ. Stud.*, vol. 4, no. 3, pp. 34–43, 2025.
- [15] A. Sukmana, "Peran pendidikan kewarganegaraan dalam meningkatkan etika digital peserta didik di media sosial," *J. Ilm. Pendidik. Dasar*, vol. 11, no. 1, pp. 105–114, 2026.
- [16] Y. Muji, A. Rahman, E. Nurjanah, and I. Fuji, "Peran pendidikan kewarganegaraan dalam membentuk etika digital peserta didik di era globalisasi teknologi dan media sosial," *Acad. Soc. Sci. Glob. Citizsh. J.*, vol. 5, no. 2, pp. 64–71, 2025.
- [17] B. W. Furidha, "Comprehension of the descriptive qualitative research method: A critical assessment of the literature," *Acitya Wisesa J. Multidiscip. Res.*, pp. 1–8, 2023.
- [18] T. J. Sowicz, J. S. Sefcik, H. L. Teng, E. Irani, T. A. Kelly, and C. Bradway, "The use of closing questions in qualitative research: results of a web-based survey," *Nurs. Res.*, vol. 68, no. 6, pp. E8–E12, 2019, doi: 10.1097/NNR.0000000000000380.
- [19] D. A. Rosyida and Z. Della Saputri, "Cultivating character education for prospective elementary school teachers through elementary social studies courses," *ROMEO Rev. Multidiscip. Educ. Cult. Pedagog.*, vol. 1, no. 3, pp. 103–112, Jun. 2022, doi: 10.55047/romeo.v1i3.339.
- [20] L. Anjarwati, D. R. Pratiwi, and D. R. Rizaldy, "Implementasi literasi digital dalam upaya menguatkan pendidikan karakter siswa," *Bul. Pengemb. Perangkat Pembelajaran*, vol. 3, no. 2, 2022.
- [21] D. A. Dewi, S. I. Hamid, F. Annisa, M. Oktafianti, and P. R. Genika, "Menumbuhkan karakter siswa melalui pemanfaatan literasi digital," *J. Basicedu*, vol. 5, no. 6, 2021.
- [22] M. R. Doko and T. Gaite, "Literasi digital sebagai upaya peningkatan civic skill mahasiswa program studi PPKn Universitas Pattimura," *Civ. J. Sains dan Hum.*, vol. 14, no. 1, 2025.
- [23] Z. Elga, M. M. Adha, and R. Rohman, "Penggunaan e-learning dalam meningkatkan literasi digital siswa pada mata pelajaran pendidikan pancasila dan kewarganegaraan," *Pedagog. J. Pendidik. dan Pembelajaran*, vol. 3, no. 1, 2022.
- [24] Meiliani, Tanti, and F. Sulman, "Student resource on newton 's law concepts reviewing from gender: identification using open-ended questions resource," *Indones. J. Sci. Math. Educ.*, vol. 04, no. 3, pp. 324–332, 2021, doi: 10.24042/ijisme.v4i3.10177.
- [25] E. H. Fudzni and S. S. Aulia, "Penguatan literasi digital untuk mendukung hak warga negara di media sosial melalui pembelajaran PPKn," *Didact. J. Kaji. Pendidik. dan Pembelajaran*, vol. 1, no. 1, 2021.
- [26] Y. Intaniasari and R. D. Utami, "Menumbuhkan budaya membaca siswa melalui literasi digital dalam pembelajaran dan program literasi sekolah," *J. Basicedu*, vol. 6, no. 3, 2022.
- [27] Naimah, M. F. Muttaqin, and Meilina, "Implementasi literasi digital pada siswa sekolah dasar," *J. Ilm. Pendidik. Profesi Guru*, vol. 7, no. 1, 2024.