


**Strengthening Digital Citizenship through Digital Learning in Elementary Schools**

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**Abstrak:** Kemajuan teknologi telah mendorong transformasi praktik pendidikan, sehingga menuntut sekolah tidak hanya mengintegrasikan teknologi dalam pembelajaran, tetapi juga membekali siswa dengan nilai-nilai kewarganegaraan digital. Penelitian ini bertujuan untuk menganalisis penerapan nilai-nilai Digital Citizenship pada siswa sekolah dasar berdasarkan sembilan elemen yang dikemukakan oleh Mike Ribble, yaitu digital access, digital commerce, digital communication, digital literacy, digital etiquette, digital law, digital rights and responsibilities, digital health and wellness, serta digital security. Penelitian ini menggunakan pendekatan kualitatif dengan studi lapangan yang dilakukan di delapan sekolah dasar di Kabupaten Sidoarjo. Teknik pengumpulan data dilakukan melalui observasi, wawancara, dan dokumentasi. Hasil penelitian menunjukkan bahwa sebagian besar sekolah telah mengintegrasikan elemen Kewarganegaraan Digital dalam kegiatan pembelajaran maupun pembinaan karakter siswa. Implementasi tersebut terlihat melalui penyediaan fasilitas teknologi, pemanfaatan media digital dalam pembelajaran, serta pemberian arahan kepada siswa mengenai penggunaan teknologi secara bijak. Namun demikian, tingkat penerapan setiap elemen masih bervariasi dan sebagian besar masih berfokus pada aspek keterampilan teknis penggunaan teknologi, sementara aspek pemahaman kritis, etika digital, serta tanggung jawab hukum dalam penggunaan teknologi belum sepenuhnya terintegrasi secara sistematis dalam pembelajaran. Keberhasilan penerapan Digital Citizenship dipengaruhi oleh ketersediaan fasilitas teknologi, kebijakan sekolah, serta kompetensi digital guru. Di sisi lain, penggunaan perangkat digital oleh siswa di luar lingkungan sekolah yang kurang terkontrol menjadi salah satu hambatan dalam implementasinya.

**Kata Kunci:** Kewarganegaraan digital, Siswa sekolah dasar, Implementasi, Tantangan

**Abstract:** Technological advancement has driven significant transformations in educational practices, requiring schools not only to integrate technology into learning but also to develop responsible digital citizenship values among students. This study aims to analyze the implementation of Digital Citizenship among elementary school students based on the nine elements proposed by Mike Ribble, namely digital access, digital commerce, digital communication, digital literacy, digital etiquette, digital law, digital rights and responsibilities, digital health and wellness, and digital security. This research employed qualitative approach with a field study design conducted in eight elementary schools in Sidoarjo Regency. Data were collected through observation, interviews, and documentation. The findings indicate that most schools have integrated elements of Digital Citizenship into learning activities as well as character development programs for students. This implementation is reflected in the availability of technological facilities, the use of digital media in learning, and guidance provided to students on the responsible use of technology.

However, the level of implementation of each element differs across schools, and most practices still focus on technical skills in using technology, while critical understanding, digital ethics, and legal responsibility in digital environments have not yet been systematically integrated into the learning process. The successful implementation of Digital Citizenship is influenced by the availability of technological facilities, school policies, and teachers' digital competencies. On the other hand, the uncontrolled use of digital devices by students outside the school environment poses one of the challenges in its implementation.

***Keywords: Digital Citizenship, Elementary School Students; Implementation; Challenges***

## **INTRODUCTION**

Digital technological developments have transformed the educational landscape, requiring schools to develop policies and strategies for integrating information and technology in the learning process (Timotheou et al., 2023). The acceleration of digitalization has also revealed several challenges, including limited digital capacity in schools, unequal access to technology, and insufficient pedagogical and ethical readiness in utilizing digital tools. Many educational institutions tend to focus on providing technological infrastructure, yet they have not fully addressed the development of students' character and responsibility as digital citizens. In addition, students' use of technology is not always accompanied by adequate digital literacy and ethical awareness (Hidayat, 2025; Ilahi et al., 2025).

The risk of digital addiction among students due to excessive exposure to the online environment may occur (Arwen & Puspita, 2020). This condition often arises when students lack critical thinking skills and the ability to assess the abundance of digital information. The prevalence of misinformation, cyberbullying, privacy violations, and the misuse of social media highlights that technical skills are not sufficient to ensure responsible digital behavior. Students need a deeper understanding of digital rights and responsibilities, online ethics, data security, as well as critical thinking skills to navigate the massive flow of information in digital environments. Schools also need to reflect on their experiences during the pandemic as a basis for strengthening digital capacity and readiness, increasing the level of technology adoption, and promoting effective and sustainable digital transformation (Timotheou et al., 2023).

Educational institutions should not be positioned as passive entities that merely adapt to social changes driven by digital technological developments, nor should they uncritically accept deterministic views that consider technology as the primary factor that automatically determines the direction of educational change (Vallès-Peris & Domènech, 2024). Therefore, the internalization of digital citizenship values and norms needs to be continuously strengthened to ensure that the use of technology does not lead to negative impacts or undesirable behaviors (Nehe, 2021). Digital citizenship cannot be understood solely as the

responsibility of teachers within the classroom; rather, it should be viewed as part of a broader ecosystem that includes technology development and innovation systems as well as various stakeholders (Vallès-Peris & Domènech, 2024).

In the context of education, the concept of digital citizenship is no longer limited to the use of devices or technology-based learning methods; rather, it encompasses broader and more critical development of digital literacy (Vallès-Peris & Domènech, 2024). In this regard, Nehe explains that digital citizenship in education refers to a learning process that involves interactions between teachers and students through the responsible and wise use of internet-based technologies. This concept refers to individual behavior characterized by awareness, literacy, and understanding of information technology developments, enabling individuals to use technology ethically, critically, and productively in their daily lives (Nehe, 2021). Furthermore, there are two main orientations in interpreting Digital Citizenship. The first views it as an effort to build character and promote safe habits in digital environments, while the second considers it an instrumental strategy for improving the quality of learning through technology. This second orientation that has encouraged the use of interdisciplinary approaches in many studies (Tadlaoui-Brahmi et al., 2022).

The effective implementation of Digital Citizenship Education (DCE) requires several supporting strategies. One important aspect is teacher training, which enables educators to acquire the knowledge and resources necessary to integrate digital citizenship education in their teaching practices. In addition, curriculum development plays a significant role in designing a comprehensive DCE curriculum that includes relevant knowledge, skills, and values and can be adapted to various educational contexts. Furthermore, the use of active, participatory, and interactive learning methods can help engage students in real-life situations related to digital citizenship. Through such approaches, students are expected not only to understand but also to apply the principles of digital citizenship in their daily lives (Saputra & Dacara, 2025).

The current generation is growing up in a social reality that is strongly influenced and shaped by the rapid development of digital technology (Vallès-Peris & Domènech, 2024). Therefore, it is essential to provide digital technology users with adequate knowledge, skills, and awareness so they can develop into responsible and competent digital citizens. Such efforts aim to reduce potential negative impacts and risks while maximizing the benefits and opportunities offered by digital technological advancements (Sondakh et al., 2023). Although schools play a strategic role in fostering digital civic engagement, studies examining the supporting factors for its implementation within school environments remain relatively limited (Biseth et al., 2021). Based on these conditions, an in-depth study is needed to examine how educational institutions design strategies and effectively implement the

strengthening of Digital Citizenship. This study is important for identifying patterns, approaches, and best practices that can serve as models for schools in building a responsible and sustainable culture of digital citizenship. This study contributes to the literature by providing empirical evidence on the implementation of Digital Citizenship among elementary school students in Indonesia using Ribble's nine-element framework. The study also highlights the relationship between digital citizenship practices, character development, and digital learning in elementary education.

This research aims to analyze the implementation of Digital Citizenship values among elementary school students based on the concept proposed by Mike Ribble (2011). The analysis focuses on the nine core elements of Digital Citizenship, namely digital access, digital commerce, digital communication, digital literacy, digital etiquette, digital law, digital rights and responsibilities, digital health and wellness, and digital security. Through this analysis, the study seeks to determine the extent to which these elements have been implemented in learning activities as well as in the habitual use of digital technology within the elementary school environment. In addition, this study aims to describe various learning practices that support the development of Digital Citizenship in elementary schools. It also seeks to identify the supporting factors and challenges in the implementation of Digital Citizenship at the elementary school level. By identifying these factors, this research is expected to provide useful recommendations for strengthening Digital Citizenship education among elementary school students. Therefore, the study is expected to provide both conceptual and practical contributions to support educational transformation that is not only oriented toward technological competence but also toward the development of ethical, critical, and responsible digital citizens.

## **METHOD**

This study employed a qualitative approach to explore the implementation of Digital Citizenship in elementary schools. The research was conducted in eight elementary schools in Sidoarjo, Indonesia, selected purposively based on the diversity of technological facilities and digital learning practices. The participants consisted of 8 school principals, 8 teachers, and 8 students who were directly involved in digital-based learning activities. School principals were selected because of their roles in formulating and implementing school policies, while teachers were chosen based on their experience in integrating digital technologies into classroom instruction.

Data were collected through semi-structured interviews, non-participant observations, and documentation. Interviews were conducted with principals, teachers, and students to explore policies, practices, and perceptions related to Digital Citizenship. Observations were

carried out to examine learning activities and students' use of digital technology within the school environment. Documentation included the analysis of curricula, teaching modules, school regulations, and other relevant documents supporting the implementation of Digital Citizenship.

Data validity was ensured through source triangulation by comparing information obtained from interviews, observations, and documentation. Data were analyzed using the interactive model of Miles and Huberman, which consists of data reduction, data display, and conclusion drawing. The analysis focused on the nine elements of Digital Citizenship proposed by Ribble, namely digital access, digital commerce, digital communication, digital literacy, digital etiquette, digital law, digital rights and responsibilities, digital health and wellness, and digital security.

## RESULTS AND DISCUSSION

### Results

The findings of this study were obtained through interviews with principals, teachers, and students, as well as observations conducted in several elementary schools in Sidoarjo. Overall, the results show that the implementation of Digital Citizenship has been gradually integrated into classroom learning, school policies, and student character development activities. Schools demonstrate efforts to cultivate responsible, ethical, and safe digital behavior among students. A summary of the main findings is presented in Table 1.

Table 1. Summary of Research Findings on the Implementation of Digital Citizenship in Elementary Schools

Aspect	Findings	Data Sources
Digital Access	Schools provide digital learning facilities such as computer laboratories, computers, smart TVs, and internet access. However, the use of these facilities in classroom learning is not yet optimal in several schools.	Observations; teacher interviews; school facilities documentation
Digital Communication	Digital platforms such as WhatsApp and school social media are used for communication between teachers, students, and parents. Communication mainly focuses on administrative information and assignment submission rather than collaborative learning activities.	Teacher interviews; observations
Digital Literacy	Digital literacy is implemented through the use of instructional videos, interactive presentations, learning applications, and computer-based activities. Some schools have introduced basic coding activities through educational games.	Classroom observations; teacher interviews

Aspect	Findings	Data Sources
Digital Etiquette	Teachers provide guidance to students regarding appropriate online behavior, such as maintaining politeness in digital communication and avoiding inappropriate content sharing. Guidance is usually given when violations occur.	Teacher interviews; classroom observations
Digital Law	Students are introduced to basic rules related to the use of digital technology, including protecting personal privacy, avoiding the spread of misinformation, and understanding digital footprints	Teacher interviews; classroom observations
Digital Rights and Responsibilities	Students are given opportunities to use digital technology in learning activities while being reminded to use technology responsibly for educational purposes.	Teacher interviews; classroom observations
Digital Health and Wellness	Teachers provide guidance regarding the potential health impacts of excessive gadget use, such as eye strain, reduced rest time, and possible technology addiction.	Teacher interviews
Digital Security	Students receive basic guidance on safe internet use, including avoiding suspicious websites and not sharing personal information online.	Teacher interviews; classroom observations
Learning Practices	Teachers integrate digital media such as instructional videos, interactive presentations, and learning applications to support student engagement in learning activities.	Classroom observations; teacher interviews
Supporting Factors	Availability of technological facilities, internet access, and teachers' ability to use digital technology support the implementation of digital citizenship	Interviews; observations
Inhibiting Factors	Students' use of digital devices outside school for entertainment purposes and limited supervision outside school become challenges in implementing digital citizenship	Teacher interviews
Learning Practices	Teachers utilize digital media (videos, presentations, applications) to enhance engagement and motivation. Technology supports access to information and fosters initial development of critical thinking skills.	Observations; teacher interviews; student interviews
Supporting Factors	Availability of infrastructure, teacher digital competence, and institutional support are key enablers of Digital Citizenship implementation.	Interviews
Challenges	Major challenges include limited teacher competence, suboptimal use of facilities, and lack of control over students' technology use outside school.	Interviews

As shown in Table 1, the implementation of Digital Citizenship in the eight elementary schools in Sidoarjo has been integrated into learning activities and student character development programs. Schools have introduced various elements of Digital Citizenship

through the provision of technological facilities, the use of digital learning media, teacher guidance, and school regulations related to technology use. Students are gradually introduced to responsible digital behavior, including digital communication, literacy, etiquette, law, rights and responsibilities, health and wellness, and digital security. However, the implementation of these elements remains uneven, with most schools focusing primarily on the technical use of technology rather than fostering critical awareness, digital ethics, and legal responsibility.

Classroom observations indicate that teachers utilize digital media, such as instructional videos, interactive presentations, and learning applications, to create more engaging learning environments and enhance student motivation. Digital platforms are also used to facilitate communication among teachers, students, and parents, although their use is still largely limited to administrative purposes. The findings further reveal that the implementation of Digital Citizenship is influenced by the availability of technological facilities, school policies, and teachers' digital competencies. While adequate infrastructure and teacher readiness support the integration of Digital Citizenship, challenges remain due to students' uncontrolled use of digital devices outside school, which often emphasizes entertainment rather than educational purposes and is difficult for schools to supervise directly.

## **Discussion**

### **Implementation of the Nine Elements of Digital Citizenship in Elementary Schools**

Based on the findings of the research conducted in eight elementary schools in Sidoarjo, Digital Citizenship among students has been implemented both in learning activities and in students' character development programs. This implementation can be analyzed based on the nine elements of Digital Citizenship proposed by Mike Ribble, namely digital access, digital commerce, digital communication, digital literacy, digital etiquette, digital law, digital rights and responsibilities, digital health and wellness, and digital security. The results of the study indicate that most schools have integrated several of these elements into learning activities, although the level of implementation differs across schools.



Figure 1. Computer Laboratory to Support Learning

In terms of digital access, the schools involved in this study have attempted to provide technological facilities to support digital learning processes, such as computer laboratories, computer devices, smart TVs, and internet access. The availability of these facilities as seen in Figure 1, reflects the awareness of educational institutions regarding the importance of technological access as a learning resource. Similar findings have been reported in previous studies indicating that schools increasingly recognize access to technology as a key component in 21st-century education (Lomos et al., 2023). However, the present study reveals that the availability of these facilities has not been accompanied by their optimal utilization in the learning process. This suggests that the availability of digital facilities does not necessarily guarantee quality digital access if it is not supported by appropriate strategies for technology use by teachers.

In this context, the availability of technological devices in schools is not the sole factor determining the successful integration of technology in learning. This finding supports the argument proposed by Szyszka & Tomczyk, (2022) that teachers' digital competence, their attitudes toward the use of technology, and institutional support from educational institutions play a more significant role in determining the extent to which technology can be effectively utilized in the learning process. This finding contributes to the existing literature by providing empirical evidence from elementary schools in the Indonesian context, showing that the integration of digital access within Digital Citizenship is not solely a matter of infrastructure provision, but also involves teacher capacity building and institutional support systems. Therefore, this study underscores the importance of moving beyond infrastructure-focused policies toward more comprehensive strategies that include teacher professional development and pedagogical innovation.

Digital media, such as WhatsApp and school social media platforms, have been utilized to facilitate communication among teachers, students, and parents, indicating the integration of digital technology into elementary school communication systems. However, their use remains largely administrative, focusing on information sharing and assignment management rather than supporting collaborative learning. This finding is consistent with Deocano-ru and Garc (2022), who noted that digital communication tools in education are often used to support learning administration rather than pedagogical interaction. As a result, the potential of digital communication to promote collaboration and knowledge construction has not been fully realized.

The findings also show that schools have integrated digital literacy through technology-based learning activities, including instructional videos, interactive presentations, educational applications, and basic coding activities. These practices reflect efforts to develop students' digital competencies from an early age and support previous

findings that exposure to digital tools can enhance engagement and foundational digital skills (Moreno et al., 2013). Nevertheless, digital literacy instruction remains primarily focused on technical skills, while critical competencies, such as evaluating and interpreting digital information, receive less attention. This supports the argument of Pangrazio and Sefton-Green (2021) that digital literacy education often remains at a functional level rather than fostering critical digital understanding and responsibility.

In terms of digital etiquette, schools have attempted to instill digital ethical values through guidance and direction provided by teachers. Teachers explain to student's appropriate behavior when using digital technology, such as maintaining politeness in online communication and refraining from uploading inappropriate content. However, the approach adopted is still largely reactive, as it is typically implemented only when violations or inappropriate behaviors occur. The findings of this study indicate that the development of digital etiquette among students is still often conducted incidentally. Therefore, digital ethics education needs to be developed more systematically through well-planned learning activities. This finding is consistent with the study by Saputra & Dacara, (2025) which shows that digital citizenship education integrated into the school curriculum can improve responsible online behavior and reduce negative behavior in digital environments.

Digital law is an important element of digital citizenship that emphasizes legal and ethical responsibility in the use of digital technology, including compliance with regulations, protection of privacy, and behavior that does not harm others in digital spaces (M. S. Ribble et al., 2021). In the context of this study, students have begun to be introduced to the rules and responsibilities associated with the use of digital technology. In this context, teachers provide guidance on the importance of protecting privacy, avoiding the spread of false information, and understanding that every activity on the internet leaves a digital footprint. However, students' understanding of digital legal aspects remains relatively basic and is mostly delivered through brief instructions before the use of digital devices. It indicates that education on digital law has not yet been fully integrated into learning curriculum.

This finding is consistent with previous study suggesting that students' limited understanding of legal regulations related to digital information, including the spread of misinformation, highlights the importance of integrating digital law education into school learning processes so students can use technology responsibly (Triastuti et al., 2022). Furthermore, students' knowledge of various elements of digital citizenship, including digital law, is still at moderate level, indicating the need for more structured educational efforts in schools to enhance students' understanding of legal responsibilities in the use of digital technology (Suson, 2019). While prior studies have emphasized the importance of introducing legal regulations, the findings of this study suggest that simply providing rules is

insufficient to foster deep understanding. Instead, students require more interactive and contextual learning experiences, such as case-based discussions or problem-solving activities, to internalize legal and ethical principles in digital environments.

Digital rights and responsibilities represent an important element of Digital Citizenship, emphasizing that every individual has the right to access and use digital technology, while also bearing the responsibility to use it ethically and responsibly (M. Ribble, 2011). Digital citizenship education provides students with an understanding of their rights and responsibilities in digital environments, including awareness of ethical technology use, privacy protection, and responsible behavior in online activities (Al-hariri & Al-mansour, 2025)(Pangrazio & Sefton-green, 2021). The findings of this study indicate that schools provide students with opportunities to use digital technology in learning activities while emphasizing the importance of responsible use. Teachers highlight that technology should be utilized for beneficial purposes, such as searching for learning related information or completing technology-based assignments. These findings indicate that schools have begun to instill awareness among students about the importance of maintaining a balance between rights and responsibilities in the use of technology. This finding is consistent with previous research indicating that schools play a key role in fostering students' understanding of ethical technology use by integrating responsibility-oriented practices into classroom activities (Pangrazio & Sefton-green, 2021).

Understanding cyber wellness is an important component of digital citizenship education, as it helps students learn how to use technology safely and responsibly while maintaining their physical and mental well-being in digital environments (Wang et al., 2023). In this study, schools have shown concern about the impact of technology use on students' health. Teachers provide guidance and awareness programs about the dangers of excessive gadget use, such as eye health problems, reduced rest time, and the potential risk of technology addiction. However, monitoring students' use of digital devices outside the school environment remains a challenge, as control over technology use largely lies within the family context. This finding is consistent with previous research highlighting that excessive exposure to digital screens among children can lead to various health issues, including sleep disturbances, vision problems, obesity, and mental health concerns such as anxiety and depression (Khanani et al., 2025). Therefore, the use of digital media needs to be balanced with time limits and parental supervision. This finding aligns with previous research emphasizing that children's digital habits are significantly shaped by home environments and parental supervision (Sianturi et al., 2023)

The concept of digital security is an important element of Digital Citizenship that emphasizes the need for education on self-protection when using digital technology (M. Ribble, 2011). In this study, students are provided with an understanding of how to use the internet safely, such as avoiding suspicious websites and not sharing personal information with others to build students' awareness of digital security. However, this understanding is still general and has not yet been supported by more in-depth learning activities related to digital security. In this regard, internet safety education needs to be introduced from the elementary school level, as children begin to use the internet at an early age. This finding is consistent with previous research suggesting that technological skills should be accompanied by an understanding of the safety and risks associated with internet use (Moreno et al., 2013). Digital security education needs to be further developed to help children understand various risks and ways to protect themselves in digital environments (Quayyum et al., 2021). Digital safety education aims to provide students with knowledge on how to protect their personal data and avoid potential risks that may arise in online environments. Through digital safety education, students can acquire more comprehensive knowledge to ensure their safety when using the internet (Herawati et al., 2024).

### **Learning Practices that Support the Development of Digital Citizenship**

The integration of digital citizenship in the learning process can enhance students' awareness of responsible behavior in digital environments and help them understand how to interact ethically in online settings (Simões & Brás, 2025). The findings of this study indicate that the implementation of Digital Citizenship is not only carried out through school policies but also through learning practices that are integrated with the use of digital technology. This suggests that Digital Citizenship is being developed not merely as a conceptual framework, but as a lived experience within everyday learning activities.

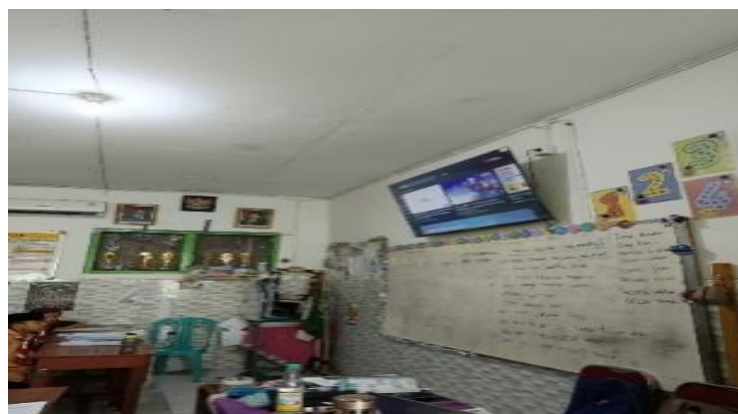


Figure 2 The Use of Technology in Learning Activities

Field observations indicate that teachers utilize various digital media, such as instructional videos, interactive presentations, and learning applications as seen in figure 2 to increase student engagement in the learning process. The use of technology in learning

has been shown to enhance students' learning motivation. Students become more enthusiastic when participating in lessons that incorporate digital media, as the learning process becomes more engaging and interactive. In addition, the use of technology enables students to access broader sources of information and develop critical thinking skills in processing information obtained from various digital resources. These findings are consistent with previous studies indicating that the integration of digital tools in teaching can enhance students' motivation, participation, and overall learning experience (Lomos et al., 2023).

The role of teachers in this process is crucial, as they function not only as providers of learning materials but also as guides in the responsible use of digital technology. The findings of this study reinforce this perspective, showing that teachers demonstrate how technology can be used wisely, for example by utilizing the internet to search for learning related information or to complete technology-based assignments. This finding is consistent with the argument stated by Schmidt et al., (2009) that through the integration of pedagogical, content, and technological competencies, teachers can guide students to use technology effectively and responsibly in the learning process. Thus, the learning process does not only focus on mastering subject matter but also on shaping students' character as responsible digital citizens.

The findings also reveal variations in the implementation of Digital Citizenship across the eight elementary schools involved in this study, that are mainly influenced by three key factors: the availability of technological facilities, school policies, and teachers' digital competencies. Schools with more adequate technological facilities tend to integrate digital technology into the learning process more effectively. This condition enables students to experience more diverse forms of digital learning. In contrast, schools with limited technological facilities tend to implement digital learning in a more restricted manner.

In addition, school policies regarding the use of digital devices also influence the implementation of Digital Citizenship. Several schools enforce restrictions on the use of personal smartphones during school hours in order to prevent the misuse of technology. Such policies indicate the school's effort to create a more controlled and responsible digital learning environment.

### **Supporting and Inhibiting Factors in the Implementation of Digital Citizenship**

The implementation of Digital Citizenship in elementary schools is influenced by various factors that affect its effectiveness. One of the main supporting factors is the availability of adequate technological facilities within schools. Facilities such as computers, internet networks, and digital learning media enable teachers to integrate technology into learning processes more effectively. In addition, teachers' competence in utilizing technology also plays a crucial role in supporting the implementation of Digital Citizenship.

Technological infrastructure, including computers, digital devices, and internet connectivity, constitutes an important prerequisite for supporting digital-based learning. However, several studies indicate that the availability of infrastructure is not sufficient to ensure the effective use of technology if it is not accompanied by appropriate pedagogical strategies and teachers' readiness to utilize technology in the learning process (Lomos et al., 2023).

Teachers' competence in utilizing digital technology plays a crucial role in supporting the implementation of Digital Citizenship. Teachers who possess strong digital literacy are generally more capable of developing technology-based learning and guiding students in using digital technology wisely. This aligns with prior studies emphasizing that teacher readiness and pedagogical competence are key determinants of successful technology integration in education (Pangrazio & Sefton-green, 2021).

However, several challenges remain in the implementation of Digital Citizenship. One of the major challenges is the use of digital devices by students outside the school environment, which is often difficult to be controlled. Some students still use digital devices primarily for entertainment purposes, which may reduce the effectiveness of learning and increase the risk of exposure to inappropriate content. This finding is consistent with previous studies indicating that children's digital media use is often dominated by entertainment-oriented activities, which can negatively impact learning outcomes and digital behavior (Common & Census, 2025).

Furthermore, some digital content accessed by children through online video platforms does not always have educational value and may expose them to content that is not appropriate for their age (Common & Census, 2025). Therefore, collaboration between schools and parents is essential in supervising students' use of technology. Cooperation between teachers and parents plays a crucial role in ensuring that the values of Digital Citizenship taught in schools are consistently applied in students' daily lives. The development of digital citizenship is a shared responsibility between the education system and the broader system of knowledge development and technological innovation. Such efforts require collaboration among teachers, students, researchers, and policymakers in order to create integrated and sustainable digital citizenship practices (Vallès-Peris & Domènech, 2024). In addition, teachers and parents can utilize digital technology as a medium for communication and collaboration to monitor and guide students' use of technology more effectively (Sianturi et al., 2023)

## CONCLUSIONS

This study concludes that Digital Citizenship has been integrated into learning activities and character development programs in elementary schools in Sidoarjo through the

use of digital learning media, teacher guidance, and school policies regulating technology use. Students are gradually introduced to responsible digital behavior, including ethical communication, online safety awareness, and the appropriate use of technology for learning purposes. However, the level of implementation varies across schools depending on the availability of technological facilities, school policies, and teachers' digital competencies. These findings highlight the importance of strengthening the integration of Digital Citizenship within classroom learning and school culture by enhancing teachers' digital competencies and promoting collaboration between schools and parents to support responsible technology use among students. Future studies are recommended to examine Digital Citizenship implementation in different educational contexts through comparative or longitudinal approaches.

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