

# Exploring Digital Citizenship Awareness among Middle School Students in Surabaya: An Empirical Study on Current Perspectives and Educational Implications

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## ABSTRACT

**Objective:** To analyze the understanding of junior high school students in the city of Surabaya related to Digital Citizenship, which includes (1) digital access, (2) digital commerce, (3) digital literature, (4) digital ethics, (5) digital law, (6) digital rights and obligations, (7) digital health, and (8) digital security. **Method:** The approach in this study is Quantitative, with a survey design with research subjects of as many as 200 junior high school students in the city of Surabaya. The sampling technique uses a random area: West, North, East, and South. **Results:** The critical importance of digital citizenship education in shaping responsible, ethical, and intelligent behaviour among students in the digital realm. The data indicates a high level of digital access, significant internet usage, and active involvement in various online activities. In this context, digital citizenship education emerges as a key factor in guiding students to navigate the digital world responsibly, understanding online ethics, and promoting a balanced approach to technology use. **Novelty:** The absence of detailed insights into specific online activities and the limited data on students' awareness and engagement with emerging technologies, such as artificial intelligence. Future research could explore specific online behaviours and reasons behind limited AI use, and conduct longitudinal studies to assess the long-term impact of digital citizenship education on students' behaviours.

## INTRODUCTION

The development of Science, Technology, and Art Technology brings fundamental changes in human life, especially those caused by advances in transportation and communication tools. Advances in communication technology bring changes to the interaction pattern between humans. The presence of mobile-based Android makes things easier, as in the phrase what do you see, what do you get, which, of course, contributes to the pattern of human behavior (Cappuccio et al., 2021; Lutfiani et al., 2022; Murakami et al., 2023; Prahani et al., 2022).

Digital citizenship has become a very interesting topic in recent years, especially for those pursuing Civic Education. Digital access students in the form of connectivity and interaction with a wider range of sources influence the rate of information exchange that can cross boundaries of place, time, time and age (Gürdür Broo et al., 2022; Liddle et al., 2020; Madge et al., 2019; Mohamed Hashim et al., 2022). For digital citizenship students, digitalization learning will increase effectiveness, efficiency, and ease of learning. With digitalization, this learning must also be further developed. This is related to efforts to adjust the expectations, abilities, and mindset of the new generation who live their entire lives accompanied by all-digital technology. The rapid development of digital learning encourages students to face very dynamic changes. This is because students are the future

of Indonesian human resources. In addition to students, teachers need to obtain as much information as possible to be able to appreciate life better and contribute to life, especially for the world of education and the progress of the nation (Chankseliani et al., 2021; García-Rico et al., 2021; Pregowska et al., 2021). Teachers can proficiently assist students on the good and correct use of digital technology and supervision of misuse of digital technology by students both in the learning process and daily behavior (Starks & Reich, 2023).

Digital citizenship as digitalization in understanding, realizing, and implementing the rights and obligations of citizens is an absolute thing to do digitally. Citizens carry out civic knowledge, skills, and disposition digitally in the context of citizenship, including students as young citizens. The importance of digital citizenship for students is connectivity and interaction with a wider range of others; affect the rate of information exchange that can cross the boundaries of place, time, time and age; adjustment of expectations, abilities, and mindset of the new generation who live their entire lives accompanied by digital technology (Blaj-Ward & Winter, 2019; Buchholz et al., 2020; Ghosn-Chelala, 2018; Milenkova & Lendzhova, 2021).

By investigating the level of awareness and comprehension among junior high school students in Surabaya, this research seeks to address the gaps in our understanding of how the youth engage with the digital world. The findings of this study are anticipated to provide valuable insights for educators, policymakers, and parents, helping to shape effective strategies for cultivating responsible and informed digital citizens. In essence, the research problem at the core of this study is not merely an academic exercise but a proactive response to the evolving needs of our digitally interconnected society. The novelty of this research is to analyze how the understanding of junior high school students in Surabaya relates to Digital Citizenship. Thus, this study aims to analyze the understanding of junior high school students in the city of Surabaya related to Digital Citizenship which includes (1) digital access, (2) digital commerce, (3) digital literature, (4) digital ethics, (5) digital law, (6) digital rights and obligations, (7) digital health, and (8) digital security.

## RESEARCH METHOD

The approach in this study is Quantitative, with a survey design with research subjects of as many as 200 junior high school students in Surabaya. The sampling technique uses a random area: West, North, East, and South. Data collection techniques using closed and open questionnaires online. Second, by using FGD to deepen the results of the questionnaire. Questionnaire data analysis technique using percentages. Meanwhile, the FGD data were analyzed qualitatively. Software is used to analyze qualitative data using NVivo 12 for Windows software, referring to the data analysis steps from Jamieson, with data analysis steps, namely: (1) data preparation, namely the conversion of written text or import data into the form used; (2) immersion in the data, namely immersion of textual data through repetitive reading activities. (3) coding is marking transcripts and analyzing data to find meaning; (4) generation of theme, which groups code into themes, and (5) abstraction, which is synthesizing to produce explanations (Down et al., 2023;

Jayasundara et al., 2022). For data in the form of numbers analyzed in percentage form and represented tendencies from the data.

## RESULTS AND DISCUSSION

### Results

Based on the research that has been done, survey results were obtained on several aspects to meet the research objectives as in Tables 1, 2, and 3.

**Table 1.** Student-owned facilities for digital access

Aspects	Respondents' Answers (%)				
Have a smartphone that can access the internet	Yes	No			
	97.5	2.5			
WiFi facilities in the house	Yes	No			
	60.0	40.0			
The school has WiFi facilities that students can access	Yes	No			
	100.0	0.0			
Spending on Internet Access for Smartphones	> 200,000 IDR	150,000-199,000 IDR	100,000-149,000 IDR	50,000-99,000 IDR	<50,000 IDR
	10.5	15.3	17.5	48.4	8.3%
The intensity of using the internet by using smartphones / computers every day	Never	Infrequently	Sometimes	Often	Always
	0.0	1.5	10.0	15.0	73.5
Average time using smartphone/computer for digital access	> 8 hours	6-7 hours	4-5 hours	2-3 hours	< 2 hours
	0.5	3.8	83.9	11.5	0.3
Requirements in accessing the internet	Learn/Search for information	Games Online	Media Social	Watch Video	Shopping
	100.0	89.0	100.0	67.0	87.0
The intensity of teachers in giving assignments using sources from the internet	Never	Infrequently	Sometimes	Often	Always
	0.0	2.5	25.2	0.0	8.2

**Table 2.** Digitalization in Learning for Public Junior High School Students in Surabaya City

Aspects	Respondents' Answers (%)				
Do you rely on <i>browsing</i> the internet to do schoolwork?	Never	Infrequently	Sometimes	Often	Always
	0.0	2.5	25.2	0.0	8.2
ApDo you use applications based on artificial intelligence (AI) such as ChatGPT to complete schoolwork?	Never	Infrequently	Sometimes	Often	Always
Are you looking for information on the internet to increase	Never	Infrequently	Sometimes	Often	Always

Aspects	Respondents' Answers (%)				
knowledge other than sources from teacher					
Do you have a subject book in digital form?	None	A small percentage	Most	All of the aspects	
Do you collect assignments in the form of softcopy	Never	Infrequently	Sometimes	Often	Always

**Table 3.** Digital Ethics of Public Junior High School Students in Surabaya City

Aspects	Respondents' Answers (%)				
How is your understanding of digital ethics in exploring the internet	Very Understand 15.0	Understand 44.5	Lack of Understanding 30.0	Don't Understand 10.5	
Have you ever experienced cyberbullying or trolling	Often 0.0	Sometimes 0.0	Infrequently 28.5	Never 71.5	
Have you ever witnessed online harassment such as cyberbullying or trolling?	Often 0.0	Sometimes 65.0	Infrequently 29.0	Never 6.0	
How do you behave online in interactions with others?	Always be respectful 40.0	Frequent respect 44.5	Sometimes respectful 15.5	Disrespect 0.0	
Do you respect other people's online privacy?	Very careful 40.0	Be careful 44.5	Not really 14.5	Never Think about privacy 1.0	
Have you ever accidentally shared personal or sensitive information on the internet?	Always 0.0	Often 0.0	Infrequently 67.0	Never 33.0	
To what extent do you care about the security of your data when using online platforms?	Very caring 2.5	care 23.0	Less care 72.0	No bother 2.5	
Have you ever used social media to spread false or dubious information?	Often 0.0	Sometimes 1.0	Infrequently 61.0	Never 38.0	
How do you respond to online content that may contain hate or discrimination?	Report the content 0.0	Leave a negative comment 39.0	Don't do anything 55.0	Join in negative comments 6.0	
Do you have an understanding of copyright and	Very Understand 0.0	Understand 0.0	Lack of Understanding 38.0	Don't Understand 62.0	

Aspects	Respondents' Answers (%)			
intellectual property when sharing content				
How often do you check for authenticity before sharing it on social media or other online platforms?	Always check 12.5	Check frequently 44.5	Rarely check 42.0	Never check 1.0
Have you ever engaged in phishing practices or hacking certain websites?	Yes, often 0.0	Yes, sometimes 0.0	Yes, it's rare 8.0	Never 92.0
How do you behave in an online game or gaming community?	Polite and Respectful of Rules 43.5	Sometimes Behave Badly 29.0	Often behave badly 26.0	Not playing online games 1.5
Have you ever engaged in unlawful online activity?	Yes, the squirming 0.0	Yes, sometimes 0.0	Yes, it's rare 23.5	Never 76.5
Have you ever seen unlawful online activity?	Yes, often 39.0	Yes, sometimes 45.0	Yes, it's rare 12.5	Never 3.5
How do you commit to practicing digital ethics in your day-to-day online life?	Very committed 38.5	committed 51.0	Lack of commitment 6.0	Noncommittal 4.5

### Discussion

The data findings indicating high digital access among students, significant internet usage intensity, and involvement in various online activities highlight the profound relevance of digital citizenship education. In the context of widespread digital access, digital citizenship education can serve as a crucial foundation for students to understand and manage their responsibilities in using digital technology. The data shows that the majority of students have smartphones with internet access (97.5%), and digital citizenship education can guide them to utilize the sophistication of this technology responsibly. The intensity of daily internet usage (73.5%) and the average time spent by students (83.9%, more than 4 hours) underscore the need to understand online ethics and a balanced approach to technology use. With digital citizenship education, students can be taught to recognize the consequences of excessive time spent in the digital world and develop awareness of the need for a healthy usage balance (GülcanÖztürk, 2021; Lauricella et al., 2020).

Student involvement in online activities such as shopping (87.0%) and social media usage (89%) emphasizes the urgency of learning online ethics. Digital citizenship education can provide insights into ethical participation in online activities, explain the implications of online actions, and equip students with skills to interact positively while respecting the privacy rights of others (Chong & Pao, 2022; Erdem et al., 2023; Gudmundsdottir et al., 2020; Martzoukou et al., 2020; Vajen et al., 2023). Finally, the high intensity of teachers using Internet resources (25.2%) to assign tasks indicates the

necessity of digital citizenship education among educators. This education can help teachers better integrate the principles of digital citizenship into their teaching, ensuring that students gain technical knowledge and a profound understanding of ethics, responsibility, and safety in the digital world. By linking these data findings to digital citizenship education, we can illustrate how essential this education is in shaping students who are intelligent, responsible, and ethical in their everyday use of digital technology (Chen et al., 2021; Karim, 2020).

The data in Table 2 depicts the patterns of students' behavior in using digital technology for educational purposes. Most students do not always rely on the internet (Never or Rarely) to complete school assignments; however, a significant percentage stating Often or Always indicates a group of students who depend on the Internet regularly. This emphasizes the importance of digital citizenship education in guiding students on responsible technology use (Çetin, 2021; Chan, 2023; Falloon, 2020). Meanwhile, the limited data in the column regarding using artificial intelligence (AI) applications makes interpretation more challenging. Nevertheless, the use of AI technology for school assignments still appears to be less common among the respondents, raising questions about students' awareness of the existence and potential of AI technology in education (Chounta et al., 2022; Holmes et al., 2022; Renz & Hilbig, 2020; Velandar et al., 2023).

The importance of digital literacy and citizenship is reflected in the fact that most students (Often or Always) seek information on the internet to enhance their knowledge, even beyond what teachers teach. This indicates that students rely on material from teachers and proactively seek additional knowledge independently, aligning with the explorative and innovative aspects of digital citizenship. The connection with digital citizenship arises from students' understanding of how to use technology responsibly, critically search for information, and utilize digital resources productively. Digital citizenship education can provide a strong foundation for shaping positive attitudes and wise behaviors in the digital world, including in the context of using technology for educational purposes (Gabriel et al., 2022; Harrison & Polizzi, 2022; Rahmatullah, 2022; Renz & Hilbig, 2020; Sharma et al., 2022; Smith & Sevensma, 2019; Velandar et al., 2023).

The data provides valuable insights into respondents' understanding of digital ethics and their behaviors in the online realm, emphasizing the crucial link to digital citizenship. Many respondents understand digital ethics while navigating the internet, showcasing a positive foundation for responsible digital behavior. The majority reporting that they have never experienced cyberbullying or trolling suggests a relatively safe online environment, indicative of a community that values respectful online interactions. The data also reveals that many respondents have occasionally witnessed online harassment, emphasizing the need for cultivating a positive digital culture and the importance of digital citizenship education in fostering empathy, kindness, and constructive online engagement. Furthermore, the majority claiming to behave respectfully in online interactions underlines the potential positive impact of digital citizenship education in promoting courteous and ethical behavior in the online space (Rahmatullah, 2022).

Regarding online privacy, the data indicates a notable percentage of respondents expressing some level of caution in respecting others' online privacy. This aligns with the

principles of digital citizenship, emphasizing the importance of responsible and considerate behavior when interacting with others in the digital realm. Additionally, the findings regarding sharing personal information inadvertently on the internet and the commitment to practicing digital ethics in daily online life highlight the need for ongoing digital citizenship education. This education can play a vital role in reinforcing responsible online conduct, cultivating a sense of accountability, and empowering individuals to contribute positively to the digital community (Rahmatullah, 2022). In summary, the data underscores the intertwined nature of digital ethics and digital citizenship, emphasizing the significance of promoting responsible and respectful behavior online.

The findings of this study underscore the critical importance of digital citizenship education in the lives of junior high school students in Surabaya. As evidenced by the high levels of digital access, significant internet usage, and active engagement in various online activities, students are immersed in the digital realm. The implications of these findings highlight the urgent need for comprehensive digital citizenship education to guide students in responsibly navigating the complexities of the digital world. High levels of digital device usage highlight the need for inclusive digital citizenship education to bridge the digital divide and ensure equitable opportunities for all students. Active participation in online activities, particularly digital commerce, emphasizes the importance of instilling ethical considerations through digital citizenship education, and guiding responsible decision-making. Qualitative analysis reveals key themes, with digital literacy emerging as a central focus. This includes accessing information and critically evaluating and ethically engaging with it. Themes related to responsible online behavior, digital rights and obligations, and digital security highlight the need for a comprehensive approach to digital citizenship education, addressing the multifaceted challenges of the digital landscape. In conclusion, the study suggests that digital citizenship education is vital for cultivating responsible, ethical, and intelligent behavior among students in the digital age, offering insights for targeted educational strategies and policymaking.

## CONCLUSION

**Fundamental Finding:** The critical importance of digital citizenship education in shaping responsible, ethical, and intelligent behavior among students in the digital realm. The data indicates a high level of digital access, significant internet usage, and active involvement in various online activities. In this context, digital citizenship education emerges as a key factor in guiding students to navigate the digital world responsibly, fostering an understanding of online ethics, and promoting a balanced approach to technology use. **Implication:** The data emphasizes the urgent need for comprehensive digital citizenship education among both students and educators. It highlights the demand for education that goes beyond technical skills, focusing on ethical online participation and promoting a balanced approach to technology use. **Limitation:** The absence of detailed insights into specific online activities and the limited data on students' awareness and engagement with emerging technologies, such as artificial intelligence. **Future Research:** Future research could explore specific online behaviors, reasons

behind limited AI use, and conduct longitudinal studies to assess the long-term impact of digital citizenship education on students' behaviors.

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