

BRIDGING LOCAL ACTION TO GLOBAL CITIZENSHIP:
SERVICE-LEARNING IN INDONESIA'S DIGITAL ERAObby Taufik Hidayat¹, John Gyun Yeol Park²¹⁾ Universitas Muhammadiyah Surakarta, Surakarta, Indonesia;²⁾ Gyeongsang National University, Jinju, South Korea.Author Correspondence Email: *oth785@ums.ac.id

INFO ARTIKEL

Keywords:*Digital Citizenship;**Global Citizenship;**Higher Education;**Service-learning;**Sustainability.***Kata Kunci:**

Kewarganegaraan Digital;

Kewarganegaraan Global;

Perguruan Tinggi;

Service-learning;

Keberlanjutan.

Citation:

Hidayat, O. T., & Park, J. G. Y. (2026). Bridging Local Action to Global Citizenship: Service-learning in Indonesia's Digital Era. *Jurnal Kewarganegaraan*, 23(2), 451-470.

<https://doi.org/10.24114/jk.23.2.76705.451-470>

Article History:

Submitted: 23-08-2026

Revised: 19-09-2026

Accepted: 19-09-2026

Published: 30-09-2026

ABSTRACT

Rapid technological advances in the digital era have brought both significant benefits and new challenges to global citizens, compelling higher education institutions to transform their approaches by adopting innovative learning methods that connect academic study with real-world societal issues. Consequently, this study aims to identify how Service-Learning pedagogy fosters Global Citizenship among university students in the digital era through direct community-based learning experiences. This study used a qualitative, multiple-case study design and collected data through observation, semi-structured interviews, and document analysis. The findings reveal that Service-Learning serves as a multidimensional space for cultivating Global Citizenship, encompassing Digital Citizenship development, covering aspects such as digital access, literacy, ethics, and security, as well as citizenship oriented toward sustainability and the shared well-being. The results indicate that reflecting on learning experiences in society bridges local issues with global responsibilities. Furthermore, the study recommends strengthening Service-Learning as a form of global citizenship education and encourages further relevant research and comparative studies to examine its impact.

ABSTRAK

Pesatnya kemajuan teknologi di era digital telah membawa manfaat signifikan sekaligus tantangan baru bagi warga dunia, sehingga mendorong perguruan tinggi untuk mengubah pendekatan mereka dengan mengadopsi metode pembelajaran inovatif yang menghubungkan pembelajaran akademik dengan isu-isu masyarakatan di dunia nyata. Oleh karena itu, penelitian ini bertujuan untuk mengidentifikasi bagaimana pedagogi *Service-Learning* dalam menumbuhkan kewarganegaraan global di kalangan mahasiswa pada era digital melalui pengalaman belajar langsung di tengah masyarakat. Penelitian ini menggunakan desain *multiple-case study* yang bersifat kualitatif, dengan pengumpulan data melalui observasi, wawancara semi-terstruktur, dan analisis dokumen. Temuan penelitian menunjukkan bahwa *Service-Learning* berfungsi sebagai ruang multidimensi untuk menumbuhkan Kewarganegaraan Global, yang mencakup pengembangan Kewarganegaraan Digital meliputi aspek akses, literasi, etika, dan keamanan digital, serta kewarganegaraan yang berorientasi pada keberlanjutan dan kesejahteraan bersama. Hasil penelitian mengindikasikan bahwa refleksi terhadap pengalaman belajar di masyarakat mampu menjembatani isu-isu lokal dengan tanggung jawab global. Lebih lanjut, penelitian ini merekomendasikan penguatan *Service-Learning* sebagai bentuk pendidikan kewarganegaraan global serta mendorong penelitian lanjutan yang relevan dan studi komparatif untuk mengkaji dampaknya.

DOI: <https://doi.org/10.24114/jk.23.2.76705.451-470>

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Available on <https://jurnal.unimed.ac.id/2012/index.php/jk>

INTRODUCTION

The era of globalization has significantly accelerated digital technological advancements across various aspects of life, including how people communicate, work, conduct financial transactions, and interact socially (Beheshti & Kerridge, 2025; Fan, 2025). However, current digital developments also bring new challenges and threats to global society, such as cybercrime, identity and personal data theft, cyberbullying, and other forms of online fraud (Fauzi et al., 2023; Simangunsong, 2020). These issues within the digital environment not only jeopardize individual security and privacy but also pose real risks to the stability and well-being of societies worldwide, including in Indonesia. A case in point is the surge in illegal online lending/*pinjaman online (pinjol)* and online gambling/*judi online (judol)* in West Java, Indonesia (Yulianti et al., 2024). According to the Financial Services Authority, data indicates that by early 2026, total online loan debt in West Java had reached a staggering IDR 23 trillion (Otoritas Jasa Keuangan, 2026). This serious financial issue highlights the Indonesian population's vulnerability in the digital realm. Many members of the public, particularly those lacking digital and financial literacy, have fallen victim to illegal online loans (predatory lending) and digital fraud (Sugiarto et al., 2026). Easy access to these rapid, illegal online loans, often obtained without a clear understanding of the terms and conditions, frequently traps borrowers in a vicious cycle of debt and financial instability (Hati & Latip, 2024). Furthermore, because transactions occur online, fraudsters can easily exploit borrowers' negligence and lack of knowledge and digital literacy, further exacerbating the problem.

Another challenge of digitalization affects not only vulnerable society but also the academic environment of higher education: concerns about academic and moral integrity in the face of Artificial Intelligence (AI), particularly the blurred boundaries between legitimate technological assistance and academic dishonesty (Awad et al., 2026). Many students, and even faculty members, use Generative AI by copying AI-generated text and code verbatim and claiming it as their own (Lund et al., 2025). This practice can signal a moral decline manifesting as plagiarism, which constitutes a form of cybercrime (Pudasaini et al., 2025). Furthermore, a negative consequence of this technological advancement is the erosion of students' critical thinking skills when formulating arguments or analyzing course material; many rely excessively on AI, fostering a mindset that prioritizes quick, instant solutions (Gesnot, 2025; Naz et al., 2025). Additionally, studies indicate that using AI to analyze faculty research data carries a high risk of data leakage (Pikhart & Al-Obaydi, 2025). Current societal phenomena regarding various forms of digital vulnerability and issues of academic morality stemming from the use of AI highlight a common underlying issue: the importance of ethics and responsibility in the use of technological advancements. Consequently, addressing this issue requires concrete and comprehensive strategies to educate the public on the safe and wise use of digital tools.

In response to the evolving lives of global citizens amidst the advancement of digital technology, the United Nations, through UNESCO, has taken the initiative to prioritize Global Citizenship in international education; the aim is to foster the knowledge, skills, values, and attitudes learners need to address global challenges through active and responsible citizenship (Sim & Choo, 2025). Meanwhile, alongside the rapid development of artificial intelligence (AI)-driven digital technologies, the scope of Global Citizenship has expanded beyond cross-cultural understanding and global awareness to encompass responsible digital participation, critical evaluation of AI-generated information, ethical reasoning, democratic engagement, and Digital Citizenship (Casma et al., 2023; Hidayat, 2023). Consequently, higher education institutions are expected to redesign learning

experiences that prepare graduates to become informed and responsible global citizens capable of navigating an increasingly complex digital landscape (Mulyani et al., 2024).

Among the various pedagogical approaches in higher education, Service-Learning is internationally recognized as an innovative, experiential learning method that integrates academic study with meaningful community service and structured critical reflection (Choi et al., 2026; Hidayat & Balakrishnan, 2024a). This pedagogy is particularly relevant to the vulnerabilities Indonesian society faces in the current digital landscape; through Service-Learning, students deepen their understanding and mastery of digital-era citizenship practices by engaging directly with real-world community issues. At the same time, the community benefits from Service Learning programs, which foster global citizenship amid digital advancement. In this study, service learning is positioned not only as a response to grassroots issues but also to the various forms of digital vulnerability different segments of society face. This approach lets students apply their knowledge and digital citizenship skills to address the community's real-world settings. Meanwhile, previous research consistently demonstrates that Service-Learning promotes moral development, civic responsibility, cross-cultural competence, social awareness, empathy, collaborative problem-solving, and community engagement; crucially, the method also deepens students' understanding of theoretical concepts previously studied in the classroom (García-Rico et al., 2021; Hidayat & Balakrishnan, 2024a; F. A. Nugroho et al., 2023). Furthermore, Service-Learning is globally acknowledged as a transformative pedagogical approach that strengthens citizenship for both students and the community, as well as ethical awareness and social responsibility (Hidayat et al., 2025; Watson, 2024; Yodpet et al., 2023).

Meanwhile, prior studies consistently indicate that Service-Learning can enhance social responsibility, active civic engagement, moral cultivation, and character development (Hidayat & Balakrishnan, 2024a). However, most studies still focus on civic engagement (McDougle & Li, 2023; Mironesco, 2021; Tan & Soo, 2020), rather than preparing students to face the complex challenges posed by rapid digital advancement. Furthermore, many prior studies on civic engagement have predominantly emphasized the knowledge (cognitive) aspect, with few systematically exploring civic engagement through service-learning programs. Concurrently, the emergence of AI, Big Data, and other forms of digital advancement has prompted many researchers to investigate digital citizenship, such as Prasetyo et al. (2021), which focused solely on digital competency frameworks and internet skills. Few studies have explicitly examined the relationship between Global Citizenship and Service-Learning in higher education as a way to prepare students for an AI-digital society. To date, instruction in both Global Citizenship and Digital Citizenship has focused more on knowledge aspects than on direct community application through meaningful experience. Consequently, a significant research gap remains, as studies on Service-Learning, Global Citizenship, and Digital Citizenship have largely developed within separate academic spheres.

To address this gap, the present study employs a cross-disciplinary approach that integrates Global Citizenship, Service-Learning, and Digital Citizenship. This approach aligns with Indonesia's National Research Priorities on digitalization, specifically the goal of developing human resources that can respond responsibly to artificial intelligence and emerging digital technologies. The study examines service-learning pedagogy as a strategy for fostering global citizenship in the digital age, utilizing the theoretical frameworks of experiential learning (Kolb, 1984) and transformative learning (Mezirow, 1990). Kolb (1984) defines experiential learning as a systematic and continuous process in which individuals acquire knowledge through diverse experiences. Within this framework, students engage actively at both intrapersonal and interpersonal levels. Experiential learning also enables

students to develop knowledge, skills, and values relevant to current technological advancements (Balakrishnan et al., 2022). The second framework, transformative learning as described by Mezirow (1990), posits that learning involves reinterpreting or enriching the meaning of experiences, thereby shaping students' future understanding, appreciation, and actions. Operationally, the Kolb cycle commences with students' concrete experiences in community-based service activities, followed by reflection on the social and digital challenges encountered. Through critical reflection and re-examining assumptions, consistent with Mezirow's approach, these experiences can shift students' perspectives toward greater awareness of digital ethics, responsible participation, and sensitivity to diverse viewpoints. This process ultimately fosters a spirit of Global Citizenship in the digital era.

Two theoretical frameworks underpinning this study show that Service-Learning goes beyond experiential pedagogy and can transform student learning by fostering civic competence (McDougle & Li, 2023; Salam et al., 2019). From a Global Citizenship perspective, this transformation is particularly significant because it enables students to learn about global issues, understand both local and global challenges, including those arising in the digital realm, and respond to them in a critical, ethical, and responsible manner (Balakrishnan, 2022). Consequently, this research positions Service-Learning as a pedagogical vehicle that bridges students' local experiences with Global Citizenship issues in the digital era. Furthermore, the study examines how Service-Learning in higher education cultivates Global Citizenship among university students by analyzing experiential learning processes and shifts in perspective, while also identifying the dimensions of Global Citizenship that emerge through student engagement with the community in the digital era

METHOD

This study uses an exploratory qualitative multiple-case study design to examine how Service-Learning contributes to the development of Global Citizenship in Indonesian higher education in an AI-driven digital society. This study was conducted at a public university in Indonesia that offers teacher training and education programs. Although the study focused on students from the same institution, each case was treated as a distinct Service-Learning implementation unit, with unique community contexts and attributes (see **Table 1**). Therefore, the study utilizes a multiple-case study design to explore participants' experiences and synthesize the findings into a validated conceptual framework (Yin, 2018).

Table 1. The Participants of This Study

Case	Service-Learning Context	Focus/ Community Group
Unit 1	The program of Service-Learning w	Teachers and vocational high school students
Unit 2	The program of Service-Learning x	Teachers, principals, and other educational staff at an elementary school
Unit 3	The program of Service-Learning y	Women in social or religious groups in a vulnerable community
Unit 4	The program of Service-Learning z	Students at a junior high school

Based on **Table 1** above, each case is treated as a Service-Learning program implementation unit characterized by distinct activities, student experiences, and community contexts. The researcher subsequently conducted two stages of analysis: a within-case analysis to understand the experience associated with each case, and a cross-case analysis to identify patterns, differences, and similarities across the cases.

1. Participants

A qualitative approach is appropriate because this study aims to understand and explore participants' experiences, perceptions, and meaning-making processes, rather than test a predetermined hypothesis (Agazu et al., 2022; Leach Sankofa, 2022). Participants were selected using purposeful sampling, whereby the researcher chose individuals best positioned to provide insight into and understand the phenomenon under study (Creswell, 2012). Thus, participant selection was based on theoretical reasons rather than statistical criteria. Furthermore, the researcher applied specific inclusion criteria to recruit participants for this study, as presented in **Table 2**, along with the number of participants with a **total of 15 participants**. Additionally, an inclusion criterion required participants to have voluntarily received an orientation on Service-Learning pedagogy.

Table 2. The Number of Participants

Category	Number of Participants	Criteria	Involvement
Students	6	1. prior community service experience. 2. Sociology education students in West Java who understand social phenomena there 3. a satisfactory academic record. 4. being in their final year of study (aged twenty to twenty-one).	implementation program
Lecture	1	1. having at least three years of experience supervising the <i>Kuliah Kerja Nyata</i> (Student Community Service) program. 2. being between thirty and forty years old. 3. having prior experience in community service initiatives.	supervisor
Community partner	8	vulnerable communities from various segments at risk of online fraud or cybercrime in West Java	community partner

2. Data Collection

Meanwhile, the research data collection period is around March-June 2025. Data were collected using three complementary techniques: semi-structured interviews, participant observation, and document analysis (including Service-Learning guidelines, daily and weekly journals, reflection reports, institutional policies, and other relevant documents). Indonesian was used as the official language during the interviews conducted at the Indonesian higher education institution. Each face-to-face interview lasted about 20 to 40 minutes; the researcher recorded participants' responses on a voice recorder and later transcribed them. The researcher then highlighted key responses and categorized the participants' feedback based on its relevance to the research questions. Regarding research ethics and participant protection, the researcher did not disclose participants' names or identities or the research location. Furthermore, the researcher used informed consent to clearly explain the study's objectives and procedures to participants and to ensure they understood that their involvement was entirely voluntary.

Moreover, to minimize participant bias from inaccurate information, the researcher did not rely on a single data source or primary participant; instead, the researcher conducted Focus Group Discussions (FGDs) with other participants to obtain data that accurately addressed the research questions. Comparing data across various sources or participants is

essential to ensure accuracy and minimize informant bias (Pahwa et al., 2023; Tomaszewski et al., 2020). Furthermore, the researcher sought to achieve data saturation, the point at which no new themes emerge to answer the research questions through additional interviews or FGDs. The researcher monitored this saturation throughout the data collection and preliminary analysis phases by comparing data across interviews, observations, and cases.

3. Data Analysis

Subsequently, the data were analyzed using reflexive thematic analysis, following the iterative process outlined by Braun & Clarke (2023), which includes data familiarization, coding, category development, theme determination, and cross-case comparison. This analysis aims to identify the key dimensions, relationships, and educational processes contributing to Global Citizenship through service learning. The following provides an operational explanation of the data synthesis process, from coding to theme formation, within the multiple-case study, as illustrated in **Table 3**.

Table 3. Analysis Process Matrix In The Multiple-Case Study

Stage	Analysis Process	Outcome
Familiarization	Rereading interview and fgd transcript	Initial data understanding
Coding	Identifying relevants units of meaning	Initial code
Theme developement	Grouping related code	Candidate themes
Within-case analysis	analyzing patterns in each Service-learning case	Theme/ pattern of each case
Cross-case analysis	Comparing similairities and differences between cases/ units	Cross-case pattern
Thematic synthesis	Reviewing, combining, and naming themes	Key research themes in qualitative approach

To strengthen the accuracy of the findings, this study has triangulated data by verifying and comparing information from multiple sources (Patton, 2014). To further ensure accuracy, the study used member checking and collaborative interpretation with Indonesian researchers and international research partners. For instance, Professor John Gyun Yeol Park of Gyeongsang National University, South Korea, as an international member-checking partner in this collaborative research, played a crucial role in enhancing the trustworthiness and credibility of the data analysis results. The final stage of the research synthesizes the empirical findings into an evidence-based conceptual framework on Global Citizenship through Service-Learning in higher education in the digital era

RESULTS AND DISCUSSION

Analysis of research data from semi-structured interviews, observations, and document analysis indicates that the student activities and work programs implemented to empower the local community as part of this Service-Learning initiative not only provide students with meaningful academic experiences but also strengthen civic competencies relevant to life in the digital era. Through direct, tangible engagement in addressing community needs and issues, and by following a structured learning process grounded in prior classroom instruction, students gain concrete experiences. They subsequently reflect upon and derive meaning from these experiences within the context of their roles and responsibilities as informed, responsible citizens. Furthermore, a thematic analysis conducted to address the research questions identified three main themes representing this process: (1)

Service-Learning Pedagogy as a Space for Global Citizenship Transformation, (2) the development of digital civic competence as a dimension of Global Citizenship, and (3) citizenship oriented toward sustainability and the common good. These themes suggest that service-learning pedagogy in higher education can connect students' experiences in local communities with broader dimensions of citizenship in the digital era, while also serving as a platform for transforming Global Citizenship

1. Service-Learning Pedagogy as a Space for Global Citizenship Transformation

This service-learning program begins with a pre-Service-Learning phase, during which students, supervising lecturers, government agency partners, and community representatives hold a series of hybrid meetings or discussions to identify community issues and needs that align with the academic knowledge or course material the students have already studied, such as the pre-service-learning meeting shown in **Figure 1** below.

Figure 1. Pre-Service-Learning Hybrid Discussion Involving Students, Lecturers, Partners, and the Community



Source: Research Results (2025)

After gathering information on community needs and issues through hybrid discussions during the pre-Service-Learning phase and subsequently formulating relevant work programs, the students moved into the Service-Learning implementation phase. During this stage, motivated and encouraged by their supervising lecturer, the students carried out various activities and work programs to address community needs and issues. Data analysis from the Service-Learning period revealed that the work programs enabled students to bridge the academic knowledge acquired in the classroom with direct experience of social realities; this fostered a shift in their perspectives regarding their responsibilities and roles as good citizens. Students said their involvement in service learning went beyond simply completing tasks; instead, they acted as learners confronted with the community's needs, diverse perspectives, and complex social issues, a sentiment echoed by student informant ML1.

"While carrying out the work program for this service-learning initiative, we were not merely event executors; when our lecturer encouraged us to connect the experience to the material we had studied, we learned many new things that might not have been fully grasped in the classroom." (interview with a student MSL1)

The findings indicate that students' Service-Learning experiences prompt them to re-examine the knowledge or course material they have studied, as well as their prior

assumptions, particularly regarding the interplay between individual interests, community needs, and social responsibility. Consequently, they can reconstruct new knowledge and shape their character based on the experiences gained through the service-learning program. These findings align with García-Romero & Martínez-Lozano (2022), and Resch & Schritterser (2023), who state that Service-Learning fosters transformative learning; students' social engagement goes beyond the mere practice or application of knowledge, generating new insights into their role in society and as citizens responsible for addressing issues that extend beyond personal interests.

Meanwhile, the learning transformation occurring during the Service-Learning phase reveals a shift in students' civic orientation, moving from local, situational engagement toward a broader awareness of the connections between community issues and global challenges. For instance, a pressing issue facing Indonesian society is the prevalence of online fraud, a concern one of the students highlighted.

“In this era of the digital revolution, many Indonesians have fallen victim to online fraud; therefore, our communities and we must understand digital resilience. As technological advancements enable global connectivity, this issue has become a global concern, and we, as members of the academic community, must help address it.” (interview with a student MSL2 and FSL1)

The findings indicate that students in vulnerable communities during the digital era perceive their challenges as interconnected with broader dynamics, such as technological change, social interaction patterns, environmental sustainability, and public health. This perspective frames local experiences as foundational for understanding that global citizenship entails integrating community-level actions with values and issues of broader significance, rather than aban

doning local contexts. The results further suggest that service learning serves as a pedagogical framework that links local engagement to cultivating a global citizenship orientation in the digital age (Selmo, 2020). This aligns with Ali & Hidayah (2021), who suggests that service learning can foster global citizenship in students, enabling them to address contemporary global challenges, by starting with tangible actions within local communities.

While Service-Learning experiences typically enhance students' social awareness and global citizenship, the process is often non-linear. Students face multiple challenges when engaging with communities that differ in social characteristics, generational composition, and digital literacy. In particular, students may struggle to adapt their language and delivery methods when working with vulnerable groups, especially when the community's understanding of digital technology differs from students' expectations. These disparities underscore the digital divide and require students to adjust their communication strategies to align with the community's specific social and cultural context (D. A. Nugroho et al., 2026).

Additional challenges arose from technical constraints and the community's response to the program. Inadequate internet access or unreliable connectivity in some areas impeded activities that depended on digital technology. Moreover, community participants did not always readily adopt behavioral changes related to digital ethics and responsibility. Some students observed that their pre-planned strategies were not fully compatible with local conditions. This misalignment resulted in disappointment and, at times, differing perspectives between students and vulnerable society. As a result, students modified their

methods, materials, and communication approaches, and negotiated with group members and the community to keep the activities going.

These findings indicate that the development of Global Citizenship through Service-Learning is neither a linear nor a seamless process. Instead, the digital divide, sociocultural differences, community resistance, and discrepancies between plans and on-the-ground realities constitute significant aspects of the students' learning experience. From Kolb's perspective (1984), such situations provide concrete experiences that prompt students to re-examine their strategies and assumptions. Meanwhile, from Mezirow's perspective (1990), experiences that are challenging or inconsistent with expectations can foster critical reflection and a re-evaluation of previously held perspectives. Thus, the development of Global Citizenship is shaped not only by successful community interactions but also by the students' ability to navigate uncertainty, negotiate differences, resolve conflicts, and ethically adapt their actions within complex social (Arpanudin et al., 2025).

Furthermore, the learning transformation facilitated by Service-Learning does not manifest as a single form of civic capacity but rather evolves across several interconnected domains (Ferdiansyah et al., 2022). The data indicate that students' Service-Learning experiences cultivate awareness and competencies in the critical and safe use of digital technology, ethical digital interaction, concern for community sustainability, and responsibility for collective health and well-being. These four domains empirically reflect students' developing Global Citizenship in an increasingly digitized context.

2. Development of Digital Citizenship Competence as a Dimension of Global Citizenship

In response to local and global issues arising from advances in digital technology and AI, the student experience in Service-Learning programs has expanded to include an understanding of Global Citizenship as a multidimensional concept, one that includes Digital Citizenship. As human life becomes increasingly digitized, citizenship issues are no longer confined to physical spaces; they also emerge in digital realms and carry cross-border implications. This argument is reinforced by an interview with a student currently involved in a program that helps the community use gamification applications to guard against digital fraud.

"I am deeply saddened right now because so many people in the community have fallen victim to phishing, illegal online loans, online gambling, and various scams perpetrated by individuals across borders; this situation requires intervention through digital literacy and digital security awareness." (interview with a student MSL2).

Based on students' views, Digital Citizenship competence is essential in this global dimension to address challenges, such as online fraud, personal data misuse, misinformation, and other forms of digital vulnerability, characteristic of the Industry 4.0 era. These findings align with Balakrishnan et al. (2022) and Hidayat et al. (2025), who notes that contemporary citizenship practices extend beyond fostering nationalism, virtue, and the foundations of political life; they also emphasize applying Digital Citizenship competencies in a borderless world driven by pervasive digital technology. According to Ribble & Bailey (2011) and Ribble (2015), the elements of digital citizenship include digital literacy, digital rights and responsibilities, digital security and privacy, digital communication and collaboration, digital commerce, digital access, digital etiquette, digital health and welfare, and digital law. **Table 4** presents examples of Service-Learning programs that impact Digital Citizenship competence, viewed as a dimension of Global Citizenship in the digital era.

Table 4. The Impact of Service Learning on Enhancing Elements of Digital Citizenship

The Form of Service-Learning Activities in Indonesian Higher Education	Ribble and Bailey's Key Elements (2011)
Students and teachers at a vocational high school, or Sekolah Menengah Kejuruan (SMK), in West Java are recording a podcast to discuss current digital issues and how to prevent them.	Students and the West Java community (teachers and vocational high school students) have increasingly strengthened their digital literacy as a foundation for understanding technology and using it wisely.
Students trained teachers, principals, and other educational staff at an elementary school in West Java to help them understand digital tools. Teachers and principals were instructed on access rights at school and at home, emphasizing that students from diverse socioeconomic backgrounds need equal access to learning materials and other resources, whether at school or at home.	Students and the school community, including teachers and principals, now better understand the importance of equitable digital access for all students. Furthermore, teachers and principals are developing the sensitivity needed to ensure that every student, regardless of their background, has equal access to digital resources, enabling them to grow and thrive in the digital era.
Students organized a workshop on preventing digital fraud and identity theft for women in social or religious groups in a vulnerable community in West Java, offering practical tips for navigating the online world safely.	Students and community members (including homemakers and older people) have enhanced their digital security and privacy, making safety and security a constant priority in their lives. They now better understand how to protect their devices, for example, by installing firewalls, against digital threats and attacks.
Students demonstrated an engaging gamification application to students at a junior high school in West Java, where about 80% of students come from broken homes, resulting in minimal parental supervision of their digital activities.	Students and young people are becoming more ethical in their social media use, demonstrating better digital etiquette, despite the prevalence of hate speech and bullying online. Furthermore, they are gaining a deeper understanding of digital standards (encompassing both legal regulations and prevailing social norms). They are increasingly mindful of others' feelings and perspectives when using digital devices. They are becoming individuals of integrity, both in the classroom and in the boundless digital realm.

Source: Research Results (2025)

Table 4 above shows that service-learning activities not only yield practical benefits for the community but also provide a space for students to learn about Digital Citizenship. Student engagement in addressing the community's digital needs reveals the interconnectedness of community service experiences, digital competency development, and the cultivation of civic responsibility within the digital realm. These findings are particularly evident across four elements of Digital Citizenship: digital literacy, digital security and privacy, digital access, and digital etiquette.

Regarding digital literacy, service-learning activities indicate a shift in the definition of digital literacy, moving from mere technical proficiency toward the capacity to use technology critically and responsibly. When confronted with the community's digital needs, students must not only operate technology but also understand how information is acquired, selected, verified, and used in daily life. Thus, the students' Service-Learning experiences align with Prasetyo et al. (2023) perspective, which positions digital literacy as

a component of civic practice; the ability to comprehend and evaluate information is a prerequisite for meaningful community participation in an increasingly digitized social landscape. This interpretation is consistent with Ribble's framework, which identifies digital literacy as a fundamental element of Digital Citizenship.

Furthermore, findings on digital security and privacy show that Digital Citizenship also includes a protective dimension. Students' experiences dealing with digital security issues in the community demonstrate that protecting personal data, securing accounts, recognizing fraud schemes, and exercising caution when sharing information are not merely technical matters; rather, they are part of a citizen's responsibility to safeguard themselves and their community as a means of building digital resilience (Feriaryansyah et al., 2026). Within Ribble's framework, digital security emphasizes the protective measures needed to keep technology users safe. In this study, Service-Learning provides a social context for this understanding. Students do not simply learn that digital security is important; they can see firsthand how digital vulnerabilities can directly affect community members' lives (McDougle & Li, 2023; Mironesco, 2021). This shifts the understanding of cybersecurity from an individual matter to one of collective citizenship: the security of the digital space depends on every citizen's ability to protect information, recognize risks, and act responsibly (Selmo, 2020; Susanto & Budimansyah, 2022).

Meanwhile, findings regarding digital access indicate that Digital Citizenship is inextricably linked to equitable digital access. Student involvement in Service-Learning shows that the ability to function as a digital citizen depends not only on individual willingness or competence but also on access to devices, connectivity, information, and the support systems that enable people to use technology. Thus, Service-Learning fosters an awareness among students that the digital divide is a citizenship issue; limited access can curtail an individual's ability to obtain information, communicate, access services, and participate in social life. From a global citizenship perspective, access is crucial because participation in global society is increasingly mediated by digital technology (Khalid & Kurowska-Pysz, 2024; Yemini et al., 2018). Consequently, ensuring equitable digital access at the community level can be viewed as part of the effort to expand citizens' opportunities to participate in an increasingly globally interconnected social sphere (Suriaman et al., 2026).

Regarding digital etiquette, the Service-Learning experience involved demonstrating gamification (see **Figure 2**), an engaging application for adolescent learners designed to teach positive moral values for interaction and communication in digital spaces. This illustrates that digital participation requires behavioral norms that facilitate safe, respectful, and responsible interactions. Student interactions with the community in a digital context show that technology does not eliminate the need for civic values such as tolerance, empathy, mutual respect, and moral awareness of the impact of one's actions on others. These findings align with Ribble's concept of digital etiquette, which positions behavioral standards in technology use as a key element of digital citizenship. Thus, digital etiquette can be understood not merely as a set of polite communication rules for digital environments, but as an expression of civic ethics within the digital realm (Prasetyo et al., 2024). As students help community members understand the consequences of how they communicate, share information, and respond to others online, they simultaneously learn that freedom of expression is always linked to responsibility toward others.

Figure 2. Demonstration of a Gamification Application for Fostering Digital Etiquette Among Adolescent Students.



Source: Research Results (2025)

Overall, these four elements show that Service-Learning's contribution to digital citizenship is multidimensional. Digital literacy provides the cognitive capacity to understand and evaluate information; digital security and privacy offer the protective capacity to safeguard oneself and the community; digital access opens avenues for more inclusive participation; and digital etiquette establishes an ethical foundation for interactions within the digital space. These four elements do not operate in isolation but complement one another in fostering the digital resilience required for citizens to participate critically, inclusively, safely, and responsibly in digital society (Prasetyo et al., 2025).

The Digital Citizenship framework developed by Ribble and Bailey (2017; 2011) consists of nine interconnected elements. This analysis concentrates on four specific elements: digital literacy, digital access, digital security and privacy, and digital etiquette. These elements were most prominent in the data and are particularly relevant to the community's digital vulnerabilities, including the digital divide, cyber fraud, and illegal online lending. The focus on these four does not diminish the importance of the remaining five but is guided by the study's context and empirical findings.

Within the framework of multidimensional Global Citizenship, these findings indicate that the issues communities encounter during service learning, such as online fraud, limited access, information vulnerability, and digital communication ethics, are concrete manifestations of contemporary citizenship challenges. These issues link students' local experiences to challenges that transcend geographical boundaries; consequently, Global Citizenship develops not only through understanding real-world global issues but also through the ability to respond to challenges in everyday digital life (Saleem et al., 2022). Thus, service learning serves as a space where local action, digital learning, and Global Citizenship responsibilities converge (Hidayah, 2022; Salam et al., 2019).

3. Citizenship Oriented Towards Sustainability and Shared Well-being

Furthermore, in the third stage, post-service learning, students and community members show that Service-Learning broadens students' civic orientation, shifting the focus from concern for individual issues to responsibility for community sustainability and

well-being. Student engagement in addressing community needs helps them see that sustainability, health, and well-being are shared concerns that require collective participation and action. From a Global Citizenship perspective, this local experience gives students a space to connect community needs with broader challenges, including sustainability and the quality of community life. Notably, this process does not conclude at the "during-Service-Learning" stage. Still, it extends into the post-service learning phase through reflection and evaluation workshops with institutional partners, as illustrated in **Figure 3**.

Figure 3. Post-Service Learning Stage: Reflective and evaluation Processes with Various Partners to ensure the Sustainability of Digital Resilience as a Dimension of Global Citizenship



Source: Research Results (2025)

The reflection and evaluation process illustrated in **Figure 3** opens a space for dialogue among students, the community, and stakeholders to identify needs related to sustainability and shared well-being. During this stage, students also gain the confidence to offer input grounded in critical thinking that fosters sustainability and the collective well-being of all parties. This process helps students develop a deeper understanding of concepts and practices such as social responsibility, problem-solving, empathy, conflict resolution, management skills, time management, and authenticity, thereby strengthening their soft skills. This argument is supported by findings from interviews with service-learning supervisors, as follows:

"I always adopt a "break the boundaries" approach; I treat them as partners and discussion peers, upholding equality so they don't view me as the sole source of information and knowledge. I assign them individual responsibilities and check their progress periodically. Just as importantly, I foster a relaxed atmosphere that encourages them to keep learning and growing holistically." (interview with a lecturer LSL 1)

For students, this experience fosters an understanding of sustainability and community well-being while shaping civic agency and social responsibility (Hidayat et al., 2025; Tan & Soo, 2020). Engaging with real-world issues helps students better understand community needs, cultivate empathy, and recognize their capacity to help solve shared challenges. Consequently, students do not merely learn about sustainability and well-being; they learn through action to become citizens who can help create more sustainable and prosperous communities. The workshop and evaluation processes involving partners

during the post-service learning stage reinforce these benefits, as students can reflect on their experiences, discuss the limitations of their interventions, and understand how community-level experiences can translate into more systematic recommendations. At this stage, students evolve from mere implementers of activities into reflective civic actors who can identify issues, evaluate actions, and consider potential changes at both institutional and policy levels.

These findings reinforce the view that global citizenship is multidimensional; it is manifested not only through knowledge of global issues but also through the ability to respond to real-world challenges concerning sustainability and collective well-being (Lough & McBride, 2014). In this context, service learning provides concrete experiences that help students connect local issues with their broader responsibilities as global citizens. This process can be understood through the lens of experiential learning, where direct community engagement serves as a source of learning and reflection, and transformative learning, where such reflection drives a shift in how students perceive their roles and social responsibilities.

Furthermore, institutional partners' involvement during the post-service learning stage shows that the transformation of citizenship need not stop at individual student capacity (Hidayat & Balakrishnan, 2024b; Yodpet et al., 2023). Collaborative workshops and evaluations create space to translate student experiences and reflections into shared knowledge relevant to program and policy development. Thus, service learning can foster a broader cycle, extending from student experience and reflection to dialogue with the community and stakeholders, ultimately leading to recommendations that strengthen practices and policies supporting sustainability and community well-being (Mtawa & Nkhoma, 2020; Petersen & Henning, 2018; Selmo, 2020).

While prior research shows that Service-Learning contributes to students' social and civic competencies (Salam et al., 2019), studies explaining how Service-Learning experiences shape global citizenship in a multidimensional way, within an increasingly digitized society, remain limited. In particular, researchers have not yet extensively examined the interconnections among Service-Learning, Digital Citizenship, sustainability, and the shared well being in an integrated way. This study addresses this gap by employing experiential and transformative learning perspectives to understand how students' experiences and reflections during service learning shape their Global Citizenship capacity. The study's novelty lies in conceptualizing Service-Learning as a space for global citizenship transformation that links digital dimensions, including digital literacy, security and privacy, access, and digital ethics, with an orientation toward sustainability and the common good, while also considering the potential for sustained impact through post-service learning processes and stakeholder dialogue.

CONCLUSION

This study shows that Service-Learning is a transformative learning space that connects students' real-world experiences with the development of multidimensional global citizenship. Through experience, reflection, and community engagement, students develop Digital Citizenship competencies, encompassing digital literacy, digital security and privacy, digital access, and digital etiquette, while cultivating an orientation toward sustainability and the common good. These findings underscore that Global Citizenship in the digital era entails not only understanding global issues but also responding to local problems with global implications in a critical, ethical, secure, and responsible way. However, the study is limited by its multiple-case study approach within a restricted context and participant pool (a single

public university), so the findings cannot be broadly generalized. Future research could employ comparative or longitudinal studies involving a wider range of institutions, students, and community groups, while further examining the sustainability of Service-Learning's impact and its potential to drive institutional and policy changes

DECLARATIONS

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Conceptualization: OTH and JGP; Methodology: OTH; Software: OTH; Validation: JGP; Formal Analysis: OTH; Investigation: OTH; Resources: OTH; Data Curation: OTH; Writing—Original Draft Preparation: OTH; Writing—Review and Editing: JGP; Visualization: OTH; Supervision: JGP; Project Administration: OTH; Funding Acquisition: OTH. All authors have read and agree to the final published version of the manuscript.

3. Conflicts of Interest

The authors have no competing interests to declare relevant to this article's content.

4. Generative AI and AI-Assisted in the Writing Process

The authors used Grammarly as an AI-assisted tool solely to enhance the language quality, grammar, readability of the manuscript. The authors bear full responsibility for the content and scientific integrity of the manuscript.

5. Data Availability Statement

Data supporting the findings of this study are available from the corresponding author upon reasonable request. The data are not publicly available due to participant privacy and confidentiality considerations

6. Funding

This research was supported by Universitas Muhammadiyah Surakarta in Grant No. 767.1/A.3-II/FKIP/VI/2025.

7. Acknowledgments

The authors sincerely thank Universitas Pendidikan Indonesia (UPI) for its institutional support and contributions to this research. The authors also gratefully acknowledge the Sasakawa Young Leaders Fellowship Fund (SYLFF) Leadership Initiatives (SLI) Program of the Tokyo Foundation, Japan for supporting the community service project that provided of the context for this study.

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