

Digital Exclusion of Older People in the Era of Digital Transformation: The Role of Generation Z as Mediators of Technology Access

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Abstract

Digital transformation has transformed various aspects of people's lives, yet not all groups have been able to adapt effectively, particularly older adults who are vulnerable to digital exclusion. This study aims to examine the forms of the digital divide among older adults and the role of Generation Z as mediators in bridging access to digital services. The method employed is a descriptive qualitative approach through a literature review, analysing various relevant academic sources. The findings indicate that the digital divide among the elderly is multidimensional, encompassing limited access to technology, low digital literacy, limited technical skills, information gaps, psychological factors, and digital service designs that are not yet inclusive. Furthermore, social factors such as limited social networks also reinforce digital exclusion among older adults. In this context, Generation Z plays a crucial role as mediators who not only provide technical assistance but also act as technology interpreters, facilitators of informal learning, and providers of psychological support. Interactions between older adults and Generation Z reflect the role of social capital in enhancing digital inclusion through trust and interpersonal relationships. Therefore, intergenerational collaboration is a key strategy in creating an inclusive digital transformation and empowering older adults to adapt independently in the digital age.

Keywords: *digital divide, older people, Generation Z, digital literacy, social capital.*

1. Introduction

The development of digital technology has driven a major transformation in various aspects of people's lives, including access to public services, social communication, and information dissemination. This transformation requires all layers of society to be able to adapt to continuously evolving technology. However, the reality on the ground shows that not all groups have the same ability to face these changes. One of the most vulnerable groups is the elderly, who often experience limitations in accessing and utilizing digital technology optimally (Nizwa & Iskandar, 2025). The digital gap among the elderly is not only related to limited access to devices and the internet but also includes low digital literacy skills. Research shows that the ability of the elderly in aspects of digital skills is still at a low to moderate level, while in aspects of digital safety it tends to be low (Nisa et al., 2023). This condition makes the elderly more vulnerable to various risks in the digital world, such as the spread of hoax information and cybercrime.

In addition, the elderly also face challenges in understanding and evaluating information obtained from digital media, particularly in the context of health information. Although some elderly people have used digital devices in daily life, many still have difficulties in assessing the accuracy of the information they access (Muljati et al., 2024). This indicates that the use of technology by the elderly is not yet fully accompanied by adequate literacy skills.

The issue of digital inequality among the elderly is also influenced by various other factors, such as cognitive limitations, unequal access to technology, and learning methods that are less suitable for the characteristics of the elderly (Wiguna & Alodia, 2025). Elderly individuals who were previously accustomed to analog technology must adapt to complex digital systems, often requiring more time and effort to learn them (Sarbani et al., 2024). This condition reinforces the position of the elderly as a “digital immigrant” group that experiences difficulties in keeping up with technological developments. On the other hand, digital transformation also opens opportunities to improve the quality of life for the elderly if they are able to access and utilize technology effectively. A properly designed digital literacy program has been proven to help the elderly access digital-based public services, increase social participation, and strengthen interactions with their surrounding environment (Utami & Nur Anisya, 2025).

In this context, the role of the younger generation becomes very important, especially Generation Z, who have higher digital skills because they grew up in the technology era. The involvement of the younger generation in assisting the elderly can be a strategic solution to reduce the digital divide. This assistance not only helps the elderly in the technical aspects of using technology but also boosts their confidence and expands their access to various digital services.

Thus, the digital divide among the elderly is a multidimensional phenomenon involving technical, cognitive, social, and psychological aspects. Therefore, collaborative efforts are required, including the active role of the younger generation, to create a more inclusive digital transformation. This study is important for understanding the forms of digital divide experienced by the elderly, as well as examining the role of Generation Z in helping to improve access to and digital skills of this group.

2. Method

The research method in this article employs a qualitative approach with a descriptive research type through a literature study. This approach was chosen to gain an in-depth understanding of the phenomenon of digital exclusion experienced by the elderly and the role of Generation Z in facilitating access to digital-based services, in accordance with the two research questions focused on in this study, namely the forms of digital divide among the elderly and the role of Generation Z as mediators of technology access. The research is not oriented towards quantitative measurement but rather on exploring the meanings, concepts, and patterns of social relations that emerge in various academic studies. The research data were obtained through a literature review sourced from scientific journals, research articles, and academic literature relevant to the topics of digital divide, digital exclusion of the elderly, and the role of Generation Z in the context of digital transformation. The selection of sources was carried out selectively by considering their relevance to the research focus, particularly those related to the discussion of digital exclusion among the elderly and the role of Generation Z in mediating access to digital services. In this article, the analysis is focused on the results of studies related to the first and second problem formulations, which are then elaborated in a discussion regarding the forms of digital inequality among the elderly and the role of Generation Z as intermediaries in accessing digital technology.

The data collection technique was conducted by identifying, reviewing, and synthesizing various selected literature. Subsequently, the data were analyzed using a descriptive-analytical technique by organizing the findings into main themes, connecting concepts, and systematically interpreting the data. This analysis process is aimed at producing a comprehensive understanding of the dynamics of digital exclusion among the elderly and the role of Generation Z as a mediator in bridging the gap in access to digital services.

3. Results and Discussion

Digital transformation has brought fundamental changes to various aspects of social life, particularly in public service systems, the economy, and communication. The transition of services from conventional to digital-based systems indeed offers efficiency, convenience, and faster access. However, these changes are not always accompanied by the readiness of all societal groups, especially the elderly who did not grow up in a digital technology ecosystem. This condition creates an age-based digital divide that has the potential to widen social disparities in modern society.

Digital Exclusion of the Elderly in Accessing Digital-Based

Digital Exclusion among the elderly is a phenomenon that cannot be separated from the dynamics of rapid digital transformation. The elderly, as a group without early experience with digital technology, tend to face difficulties in adapting to technology-based service systems. This exclusion not only reflects individual limitations but is also the result of interactions between structural, social, and psychological factors. One of the main forms of digital divide is the limited access to devices and infrastructure (Akbar, 2024). Not all elderly individuals have smartphones with adequate specifications or stable internet access. Economic limitations are one of the factors influencing this condition, resulting in uneven access to digital services. In rural areas or regions with limited infrastructure, this condition is further exacerbated by the minimal internet network and lack of supporting facilities. Digital transformation in rural communities still faces structural challenges in the form of infrastructure inequality and uneven access to technology (Putra et al., 2024). Although technology is becoming more affordable, gaps still occur because not all groups have the ability to adopt it optimally.

In addition, the digital literacy gap becomes a significant challenge. Older adults are generally not familiar with the use of applications, digital navigation, or technical terms used in technology-based service systems (Nisa et al., 2023). This causes them to experience difficulties in understanding the procedures for using digital services, such as online registration, using health applications, or digital financial transactions. Digital literacy in this context not only encompasses operational abilities, but also the ability to understand, evaluate, and use information critically. Digital literacy has become an important prerequisite for individuals to actively participate in digital society.

The gap in technical skills also poses a significant barrier in the adaptation process of the elderly to technology. Processes such as downloading applications, registering accounts, uploading documents, and verifying data are often considered complex and confusing. These obstacles are not only related to a lack of experience, but also to cognitive limitations naturally experienced by the elderly. Low technical proficiency makes the elderly highly dependent on the assistance of others in operating technology (Hidayati et al., 2023). This dependency has the potential to hinder the independence of the elderly in the long term if it is not balanced with ongoing learning processes. On the other hand, the information gap further exacerbates the condition of digital exclusion. Elderly individuals often do not receive adequate information regarding the transition of service systems from manual to digital (Hukum et al., 2024). The lack of inclusive outreach causes the elderly to be unaware of digital services or to not understand how to access them. As a result, they fall behind in utilizing services that could actually improve their quality of life.

Elderly digital exclusion becomes even more complex when linked to access to healthcare services. Digital transformation in the healthcare sector, such as the use of health applications, telemedicine, and online registration systems, requires both digital literacy and health literacy skills. However, many elderly individuals experience difficulties in understanding health

information presented digitally. Elderly people often have difficulty interpreting medical information, understanding medication instructions, and evaluating the credibility of health information sources. Low health literacy affects the elderly's ability to make decisions related to their health. Elderly individuals with low health literacy tend to experience difficulties in understanding health information, have low medication adherence, and suboptimal utilization of health services (Sari & Putri, 2023). In the digital context, this condition becomes more complex because the elderly not only have to understand health information but also be able to access it through digital media.

In addition to technical and cognitive factors, psychological factors also play an important role in shaping digital exclusion among the elderly. Fear of making mistakes, concerns about digital fraud, and low self-confidence become significant internal barriers. In this context, concerns about personal data security have become an increasingly relevant issue in the digital era. Elderly individuals tend to feel vulnerable to cybercrime risks, such as online fraud and misuse of personal data (Pratama et al., 2022). This high risk perception causes the elderly to prefer avoiding the use of digital technology, even though they actually have access to such devices. Concerns about digital security are also reinforced by the low level of elderly understanding regarding personal data protection. Skills in digital safety aspects are still at a low level, making the elderly more susceptible to various forms of crime in the digital space (Nisa et al., 2023). Therefore, enhancing digital literacy for the elderly should not only focus on technical skills but also on aspects of security and digital awareness.

In addition to technical and cognitive factors, psychological factors also play a significant role in shaping digital exclusion among the elderly. Fear of making mistakes, concerns about digital fraud, as well as low self-confidence are significant internal barriers. In this context, concerns about personal data security have become an increasingly relevant issue in the digital era. The elderly tend to feel vulnerable to cybercrime risks, such as online fraud and misuse of personal data (Pratama et al., 2022). This high perception of risk leads the elderly to prefer avoiding the use of digital technology, even though they actually have access to these devices. Concerns about digital security are also reinforced by the elderly's low understanding of personal data protection. The ability in the aspect of digital safety is still at a low level, making the elderly more vulnerable to various forms of crime in digital spaces (Nisa et al., 2023). Therefore, improving digital literacy for the elderly should not only focus on technical skills but also on security and digital awareness aspects.

In addition, the design of digital services that is not yet inclusive also contributes to the gap. Many digital applications and platforms are designed without considering the needs of the elderly, such as navigation complexity, the use of technical language, and less user-friendly interfaces. This indicates that digital exclusion is not only caused by individual limitations but also by non-inclusive system structures. Furthermore, social aspects also play an important role in determining the level of digital exclusion among the elderly. Elderly individuals who have strong social networks, such as digitally literate family members or communities, tend to find it easier to access and utilize technology (Muljati et al., 2024). Conversely, elderly people who live alone or have limited social relationships are more vulnerable to experiencing digital exclusion. Social interaction serves as an important means in the process of transferring digital knowledge and skills. Therefore, the presence of social support becomes a key factor in reducing the digital divide among the elderly.

The Role of Generation Z as Mediators in Elderly Digital Access

In facing various forms of digital divide, Generation Z plays a strategic role as a mediator in bridging elderly access to digital services. Generation Z is known as digital natives with a high adaptability to technology, enabling them to understand and utilize various digital platforms

more easily. The role of Generation Z in this context is not only limited to technical aspects but also encompasses social and cultural dimensions. Technically, Generation Z assists the elderly in operating digital devices, accessing applications, and completing various online administrative processes. This assistance allows the elderly to remain connected with increasingly digitalized public and social services.

However, a more important role is as a technology translator. Generation Z is able to explain the use of technology in simpler language that is easier for the elderly to understand. This process is very important because many of the obstacles faced by the elderly are not only in using technology but also in understanding the concepts and logic of digital systems (Nisa et al., 2025). In addition, Generation Z also plays a role as a facilitator of informal digital learning. Learning processes that are conducted directly, repeatedly, and contextually allow the elderly to learn according to their abilities and needs (Ramayanti et al., 2025). Another equally important role is in providing psychological support. The presence of Generation Z in the mentoring process can enhance the elderly's self-confidence and reduce anxiety in using technology. Elderly people become more courageous to try and are not afraid of making mistakes due to the support from individuals they trust.

Generation Z also helps the elderly expand their social access through technology. With the help of Generation Z, the elderly can use social media, communication applications, and other digital platforms to interact with family and their social environment. This not only enhances digital skills but also strengthens the social connectedness of the elderly. The role of Generation Z as a mediator is not only instrumental but also relational. They not only assist in the use of technology but also build trust, provide emotional support, and strengthen intergenerational social relationships. In addition to providing technical assistance, Generation Z also plays an important role in reducing the psychological barriers that the elderly face when dealing with digital services. Support from the younger generation has been shown to enhance perceptions of ease of use, usefulness, and the elderly's trust in digital services, which ultimately encourages them to be more willing to utilize internet-based services, including in the health sector.

Furthermore, social support also plays a role in reducing fear of technology by increasing the elderly's self-confidence and digital literacy skills. Therefore, when Generation Z patiently accompanies older adults, provides repeated explanations, and creates a learning experience that is comfortable and non-judgmental, they not only provide practical assistance but also contribute to building a sense of capability, safety, and psychological comfort for the elderly in using technology.

Social Capital as a Mechanism for Digital Inclusion

The interaction between the elderly and Generation Z in the context of digital access can be understood through the perspective of social capital. Social capital refers to networks, trust, and norms that enable individuals to gain access to resources. In digital society, social capital becomes an important factor in determining an individual's ability to adapt to technology. In this context, Generation Z serves as bridging social capital that connects the elderly with the digital world. Through the social relationships that are formed, the elderly gain access to knowledge, skills, and digital services that were previously difficult to reach. This indicates that digital access is not only determined by device ownership, but also by the quality of social networks that individuals possess (Nainggolan & Mesra, 2025).

This finding aligns with various studies in Indonesia which indicate that social interaction and assistance are important factors in improving digital literacy among the elderly. Research by Wiguna and Alodia (2025) emphasizes that a participatory communication approach in digital

literacy programs can reduce the digital divide among the elderly. Community-based programs have also proven effective, as shown in the study by Utari & Anisya (2025), which states that digital training can enhance the elderly's access to public services and social interaction. Trust is an important element in social capital that enables the digital mediation process. The elderly tend to trust family members or individuals with whom they have an emotional closeness, making the mentoring process more effective. Without trust, the knowledge transfer process will be difficult to occur. Digital transformation in this context not only creates gaps but also opens up opportunities for the formation of new social capital based on intergenerational relationships. Technology becomes a medium that brings together generations with different levels of proficiency, thereby creating complementary patterns of interaction.

Research in Indonesia also shows that the use of digital technology can strengthen social connections and improve the well-being of the elderly if supported by an adequate social environment. The study by Poerwanti et al. (2025) reveals that digital technology can increase social participation and self-confidence among the elderly, but it still requires social support as a key contributing factor. Nevertheless, it is important to ensure that the relationships formed are participatory and empowering. If the elderly only become passive users without gaining digital independence, then these relationships have the potential to reinforce inequality. Therefore, the mediation process needs to be directed towards empowering the elderly so that they are able to adapt independently in the long term (Tjiptasari & Azizah, 2025). This is also reinforced by the research of Andriati & Patria (2025), which shows that guidance based on interactive and personal training can enhance the elderly's ability to use digital media independently.

4. Conclusion

The digital divide among the elderly is a complex phenomenon influenced by technical, cognitive, social, and psychological factors, and exacerbated by the lack of inclusive service design. This situation makes the elderly vulnerable to exclusion in accessing digital-based services. Generation Z has a strategic role as a mediator capable of bridging this gap through technical assistance, simplification of technology understanding, and social and emotional support. This intergenerational interaction also strengthens social capital, which contributes to increased digital inclusion. Therefore, continuous collaborative efforts are needed to promote the empowerment of the elderly so that they do not merely become passive users, but are able to adapt and be autonomous in facing digital transformation.

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