Vol. 12, No.2, October 2024, pp. 143-151 ISSN: (print) 2339-2681 | (online) 2621-2579

Inclusive Disability Empowerment: Utilization of Digital Applications in Accessing Information for People With Disabilities

Sheila Lestari Giza Pudrianisa[a,1], Devi Wening Astari[b,2], Dwi Pela Agustina[b,3*]

[a,b,c] Universitas Amikom Yogyakarta, Jl. Ring Road Utara, Condong Catur, Sleman, Yogyakarta, 55283, Indonesia
[1] sheilagiza@amikom.ac.id; [2] deviweningastari@amikom.ac.id ; [3] dwipela@amikom.ac.id
* Corresponding author

ARTICLE INFO

Article history
Received: August 13, 2024
Revised: October 03, 2024
Accepted: October 25, 2024

Keywords
Digital accessibility;
Digital information;
Disability inclusion;
Social support theory

ABSTRACT

Digital inclusion is one of the initiatives by the Telecommunication and Information Accessibility Agency under the Ministry of Communication and Informatics. It aims to ensure that all individuals can easily access digital technology and the internet. However, digital inclusion has not been fully realized, particularly in terms of providing digital information access for people with disabilities. The purpose of this Digital Accessibility Study for Empowering Disability Inclusion is to examine the significance of digital information accessibility as a crucial factor in enhancing the inclusion and empowerment of individuals with disabilities. This study emphasizes the use of digital technology to improve information accessibility, thereby fostering independence among people with disabilities. It also aims to identify the obstacles and challenges these individuals face in achieving equal access to digital information. Utilizing qualitative descriptive methods, data for the study was collected through observations and Focus Group Discussions (FGDs) with the disability community, as well as through documentation. The findings indicate that the accessibility of information through digital applications has begun to show positive effects, particularly for individuals who are deaf or blind. Applications such as TalkBack, VoiceOver, Cash Reader, Be My Eyes, Voluntary, Infusion, Special Help, WhatsApp, Facebook, Instagram, and others, along with specialized hardware, contribute to the independence of people with disabilities. However, while information can be accessed, it remains insufficiently friendly to all disabilities. Both deaf and blind participants expressed that governmental support needs more emphasis, and they highlighted the necessity for enhanced social support from family, friends, and the community to help bridge the gap for individuals with disabilities.

DOI: https://doi.org/10.12928/channel.v12i2.996

This is an open-access article under the CC–BY-SA license

INTRODUCTION

Throughout human history, disability has been a complex and widespread phenomenon. It is a condition that can significantly affect individuals' functional abilities, participation in society, and overall health and well-being (Kapsalis et al., 2024). People with disabilities often face exclusion and humiliation. Their social interactions, the challenges of navigating their communities, the need to request accommodations when accessible designs could have mitigated those requests, and persistent social discrimination all contribute to a distinct daily experience compared to non-disabled individuals (Isaacson, 2021).

According to data from the Coordinating Ministry for Human Development and Culture, the number of people with disabilities in Indonesia reached approximately 22.97 million in 2023, making up about 8.5% of the population (Supaji, 2023). Those living with disabilities may experience various limitations, disorders, and challenges related to behavioral, physical, and intellectual capacities (Putra et al., 2021; UMN, 2017). It is essential to address these challenges so that individuals with disabilities can access digital information with the same ease and opportunities as everyone else, anytime and anywhere.

ISSN: (print) 2339-2681 | (online) 2621-2579 Vol. 12, No.2, October 2024, pp. 143-151

The growth of digital technology in Indonesia presents numerous opportunities. Currently, both the government and the market are focused on developing innovative and engaging content while utilizing digital technology platforms to reach a broader segment of society and enhance community participation. To achieve this, it is essential that digital technology reflects the needs of all societal levels, including individuals with disabilities. Additionally, fostering inclusive development for people with disabilities aligns with the Sustainable Development Goals (SDGs), which aim to ensure that no group is left behind in the development process. A new set of tools, brought about by digitalization, must be calibrated effectively to ensure both their sustainability and intelligent deployment. The ability to make informed decisions regarding the use of resources and services significantly impacts sustainability and equitable access. However, several challenges must be addressed to ensure that these goals are met successfully (Appio et al., 2021; Mondejar et al., 2021; Poerwanti et al., 2024).

Ensuring equal access to electronic information and services is a critical concern for individuals with disabilities and society as a whole, especially given the growing importance of information and communication technologies (ICT) in everyday life. These technologies have the potential to eliminate, or at least reduce, many barriers that restrict individuals with disabilities from engaging in various activities, offering significant promise for the disabled community (Moon et al., 2019; Vicente & López, 2010). Accessibility is crucial for people with disabilities, enabling their independence and participation in all aspects of life within society. The discourse regarding accessibility covers a wide range, including communication and information in the digital age (Hoogerwerf, 2016). Digital accessibility refers to the modifications made to digital products so that they can be accessed by all users, including those with disabilities (Fauzan, 2021). The goal of this accessibility is to ensure that all users have the same access to information, regardless of any disabilities they may have. According to Bowe (2007), individuals with disabilities can benefit from the use and deployment of ICT in four key areas: quality of life, work, communication, and healthcare. Notably, ICT□s remarkable communication capabilities promote social engagement by facilitating virtual interactions among people with disabilities (Vicente & López, 2010).

Digital accessibility can foster digital inclusion. According to Sanders (2020), digital inclusion refers to the involvement of all segments of society in finding solutions to issues related to opportunities, access, knowledge, and skills concerning technology, particularly the Internet. Other terms that are synonymous with digital inclusion include digital capability, participation, and literacy. This underscores the importance of community engagement in leveraging digital technology, especially the internet, to enhance their lives and address various challenges. There are several key components essential for achieving digital inclusion, which include access to motivation, materials, skills, and the ability to use technology. Access to motivation is influenced by people's attitudes towards technology, particularly for individuals with disabilities. Access to materials represents the resources and means available for engaging with technology. The next component is access to the skills necessary to utilize technology effectively. This involves acquiring the expertise needed to operate technology efficiently. Finally, access to the use of technology encompasses the actual ability to interact with and benefit from technological tools (Poerwanti et al., 2024).

One initiative by the Telecommunication and Information Accessibility Agency within the Ministry of Communication and Information aims to ensure that all individuals have the ability to access digital technology and suitable internet services. However, digital inclusion, particularly in providing access to digital information for people with disabilities, is not yet fully realized. There remains a significant gap in universal access to digital information, which limits the application of advancements in technologies such as AI, Big Data analysis, cloud computing, and cybersecurity (Manzoor & Vimarlund, 2018). Another major challenge to the use of smart devices for those with disabilities is the concept of "self-management." This refers to how the Internet of Things can operate independently without human intervention. By promoting inclusive design and integrating active feedback loops at every stage of device and system development, we can gain a deeper understanding of the digital divides faced by people with disabilities and develop appropriate solutions (Moon et al., 2019).

The issue arises from the disparity in accessing digital information, which significantly differs for individuals with disabilities compared to those without (Setu, 2021). This highlights the urgent need for research focused on ensuring that people with disabilities can access digital information equally, empowering them despite their limitations. By concentrating on this aspect, we can develop and present universal digital inclusion strategies that benefit everyone, including individuals with disabilities. Ensuring equal access to digital information for people with disabilities provides crucial advantages in fulfilling their rights to obtain information to the fullest extent (Maftuhin, 2018).

For instance, there are several ways smart technologies can accommodate the needs of those with disabilities: 1) Smart, context-aware devices that can be reconfigured through sensors and adaptive intelligence to meet specific user needs. 2) Specialized IoT-connected assistive devices designed to enhance living conditions at home. 3) Specific interfaces that allow users to control and automate home or workplace devices. Thus, usability and accessibility are vital concepts in creating connected communities and smart homes (Vicente & López, 2010).

It has long been acknowledged that digital technology can benefit individuals with disabilities. However, while the capabilities of digital devices have been advancing significantly, it is a common misconception that accessibility is improving at the same pace. Unfortunately, accessibility for people with disabilities is neither guaranteed nor consistent; it

Vol. 12, No.2, October 2024, pp. 143-151 ISSN: (print) 2339-2681 | (online) 2621-2579

requires a deliberate and systematic effort to ensure that the potential of digital technologies for inclusion is fully realized. The best way to understand digital accessibility is as a chain of dependencies, where standards, hardware, software, training, and content must work together harmoniously and be viewed as dynamic processes (Botelho, 2021a).

Digital Inclusion is fundamentally rooted in humanity. It represents a significant step toward ensuring digital access as a means of empowering individuals with disabilities. This can be achieved through programs designed to enhance digital skills (Dhahir, 2019). The findings of this study aim to illustrate the efforts involved in implementing digital inclusion programs for people with disabilities, thereby promoting comprehensive and sustainable digital access. This initiative fosters equality for individuals with disabilities and mobilizes all stakeholders to commit to fostering positive energy, nurturing a sense of humanity, enhancing competencies, and achieving the goal of empowering everyone. Additionally, this study is supported by Sarafino and Smith's social support theory (Chadwick et al., 2022; Porter, 2021), which identifies four key aspects: emotional, instrumental, informational, and togetherness support.

Research on disability in Indonesia often emphasizes equality regarding job accessibility in both the public and private sectors. For instance, Demartoto's study (2019) reveals that access for workers with disabilities to inclusive workplaces remains suboptimal. Likewise, Dahlan and Anggoro (2021) indicate that affirmative policies have not provided equal opportunities for people with disabilities. Poerwanti's study (2017) outlines both supporting and inhibiting factors for employees with disabilities (Dahlan & Anggoro, 2021; Demartoto, 2019; Poerwanti, 2017; Pudrianisa, 2022) and contributes to the discourse on digital inclusion. Notably, Eckhardt et al. (2017) expand the understanding of digital inclusion and its implications for communities and policymakers in the digital realm. However, research specifically focusing on digital inclusion and disability accessibility in Indonesia is still quite rare (Eckhardt et al., 2017).

Despite the longstanding nature of this research, development in this area has been limited. Syafi'ie's study (2014) highlights that although Indonesia has established regulations regarding accessibility for people with disabilities, their implementation is often ineffective, and discrimination persists. Furthermore, research by Hidayat (2023) and Haniko et al. (2014) addresses the challenges in accessing and utilizing digital technology, emphasizing the positive impact of digital inclusion in fostering an inclusive and equitable digital society (Haniko et al., 2023; Hidayat, 2014).

Overall, the research indicates that issues related to accessibility and digital inclusion remain underexplored. This study seeks to offer new insights by delving deeper into topics such as digital information accessibility, information acquisition strategies, and the obstacles that could facilitate the realization of empowered and sustainable inclusion for people with disabilities. This exploration is particularly relevant in the context of utilizing digital applications designed for individuals with disabilities, in line with social support theory.

METHOD

This research focuses on the accessibility of digital inclusion for people with disabilities. It aims to promote equality and uphold the rights of individuals with disabilities in accessing digital information, which is increasingly important in our technologically advancing world (Haniko et al., 2023). The study employs a qualitative descriptive methodology within a constructivist paradigm, allowing for the natural construction of meaning, phenomena, or symbols that emerge in the field, with human experiences serving as instruments for understanding social realities.

The study's main objective is to assess the accessibility of digital information to foster the inclusivity of empowered individuals with disabilities. The subjects of the research include members of the deaf community, specifically those from the Movement for the Welfare of the Indonesian Deaf (Gerkatin) and the Indonesian Blind Association (Pertuni). Data for the research were collected through observations, focus group discussions (FGDs), and documentation.

The research was conducted in several stages: 1) The research team began with field observations to understand the challenges faced by the disabled community in obtaining digital information that can empower them. Careful selection of the community participants was essential. 2) Data collection was then conducted through FGDs involving selected groups of people with disabilities, which included participants from the Pertuni and Gerkatin communities. For effective communication with the deaf participants, FGDs were facilitated by a sign language interpreter. 3) Data analysis involved processing the results from observations, FGDs, and documentation. This process aimed to reduce and select data that addressed the research problems, ultimately revealing the realities related to the inclusivity of people with disabilities in accessing digital information. 4) The results of the analysis were tested theoretically using social support theory. This involved reviewing literature from relevant journals to address the research problems through a detailed description of digital information accessibility, strategies, and the obstacles faced by the community. The validity of the data was ensured through source triangulation by comparing field data from FGDs held with both Gerkatin and Pertuni members against identified issues and problems. This restructuring clarifies the study's purpose, methodology, and findings, presenting the information in a more coherent manner.

FINDINGS AND DISCUSSION

ISSN: (print) 2339-2681 | (online) 2621-2579 Vol. 12, No.2, October 2024, pp. 143-151

Since the emergence of digital computers, digital and electronic technology has presented new opportunities for society. However, the rapid development of this technology has not always been beneficial for individuals with special needs, such as those with disabilities. This study aims to explore the strategies and barriers that people with disabilities face in accessing digital information. Examining the concept of digital equality (Molnar, 2003) reveals three types of digital equality. First is equality of access, which refers to the right to access digital technology. Second is the use aspect, often referred to as the primary digital gap, which involves how communities with access utilize digital technology for information and communication. Third is the quality of use, known as second-tier digital equality, which focuses on how individuals with disabilities interact with digital technology in their daily lives. Field observations and focus group discussions revealed that a major barrier to accessibility for people with disabilities is the difficulty in navigating platforms that are not designed to be disability-friendly.

A. Accessibility of Digital Information for People with Disabilities

Based on a review of information accessibility, individuals with disabilities have both civil and human rights to access the same digital content simultaneously and at the same cost as those without disabilities. In many cases, technology already offers solutions to achieve this level of accessibility. Conversations with my blind and deaf friends have shown that digitalization provides significant conveniences in their daily lives, such as improved interaction and easier access to information. Online communication allows individuals with impairments to keep their disabilities private until they choose to disclose them. Information and Communication Technology (ICT) can, therefore, be viewed as a valuable tool that helps the disability community overcome the shame and loneliness that can sometimes accompany having a disability. Friends with disabilities are increasingly using various applications and software available for free or at a cost.

For instance, blind friends utilize applications such as TalkBack, VoiceOver, Cash Reader, Be My Eyes, Voluntary, Infusion, and Special Help, as well as platforms like WhatsApp, Facebook, and Instagram. Similarly, deaf friends actively engage with WhatsApp, Instagram, Facebook, and other similar services. In general, friends with disabilities access and share information across various platforms. Unfortunately, not all applications created by the government or the private sector meet the needs of individuals with disabilities. One blind friend noted during a discussion that many applications are not accessible or user-friendly for those with visual impairments. This issue often arises from complexities in usage, such as the requirement to fill out captchas.

> *"Unfortunately, some government services do not have it yet. The biggest challenge is the captcha. Sometimes, the image form is the most obstructive. The captcha is usually in the form of numbers and puzzles, then select the image; that may be the obstacle for me. The solution is I ask for help from non-disabled friends." (Bayu, Teman Netra, July 10, 2024)*

Seeing the difficulties experienced by my blind friends highlights important issues related to accessibility. Many Internet protocols are closed, undocumented, encrypted, and patented, resulting in proprietary protocols and file formats that leave individuals with disabilities completely dependent on the controlling entities (Blanck & Sandler, 2000; Sawetrattanasatian, 2019). Fortunately, there is an application called Netraku designed to help blind individuals communicate more easily. This app uses AI to identify objects when users point their cameras at them, and it audibly announces the names of those objects. However, usability analyses of the Netraku application have revealed several obstacles, indicating a need for a project to further develop it (Maulina, 2023).

Deaf individuals in the Gerkatin community face similar challenges, as access to digital information often depends on written text and the availability of Sign Language Interpreters (JBI). When they encounter difficulties accessing information, they rely on assistance from community members or JBI. In addition to the Gerkatin community, organizations such as Omah Krapyak, the Indonesian Disability Association (PPDI), and the World Federation of Deaf (WFD) are working to empower deaf individuals by providing increased access.

The findings indicate that people with disabilities continue to face numerous obstacles when trying to access websites and applications related to government services, educational institutions, and online shopping. These barriers extend to essential services like emergency notifications and other forms of support. However, there is some progress, as several websites and applications are becoming more disability-friendly. For instance, blind individuals can now easily recognize currency using cash reader applications on their smartphones, as well as access services through platforms like JKN, KAI Access, Tokopedia, and Shopee.

Meanwhile, websites such as Detik, Kompas, Jawa Pos, and Tempo are considered easy to access by my blind friends, as they provide menu options specifically designed for individuals with disabilities. Although digital technologies like smartphones, applications, and websites have created new avenues for inclusion for blind people, many aspects of accessibility have often been overlooked in their development.

Vol. 12, No.2, October 2024, pp. 143-151 ISSN: (print) 2339-2681 | (online) 2621-2579

This aligns with previous studies by Haury et al. (2022), which highlighted both positive and negative user experiences, as well as the obstacles, challenges, and opportunities that blind individuals face when using video conferencing tools. Similar accessibility issues are experienced by individuals who are deaf or hard of hearing. While they can see and read, their main obstacles arise from overly complex language or when information is primarily presented in audio-visual formats without accompanying written content or sign language.

For instance, deaf individuals require interoperability between hearing aids and telephones, and there is a need for digital and physical standards to work in tandem to ensure accessibility. During the COVID-19 pandemic, many deaf individuals encountered challenges accessing information regarding the virus and adjustments to daily life, including online learning that lacked subtitles. This issue was compounded when text, sign language interpreters, or other written formats were separate from the information presented on television or online. As noted by one participant in a Focus Group Discussion, Titi (2024), many broadcasts in Indonesia still lack sufficient subtitles. Additionally, limitations and differences in vocabulary associated with Indonesian Sign Language (JBI) make information access even more challenging.

Communication difficulties are particularly pronounced for deaf individuals when conversing with people who do not understand sign language. Likewise, blind individuals face challenges when trying to communicate with deaf individuals. An article titled "Android-Based Communication Media Application for People with Disabilities" suggests the development of an Android-based mobile application that would enable communication between deaf and hearing individuals over long distances. This application is designed to facilitate interactions between blind users and sighted users while providing features accessible to both groups. Deaf users can utilize a text-to-speech function, while blind users can make use of speech recognition technology (Mamase et al., 2018).

The study of information accessibility within these two communities still highlights several barriers, underscoring the necessity to reconsider how we ensure that digital technology is usable for all individuals with disabilities. It is important to recognize that the challenges faced by individuals with disabilities should not be generalized. Each group has distinct needs. As Layton (2012) points out, it is more beneficial to view digital accessibility not as a fixed condition but as an interactive process that is constantly evolving. This perspective mirrors the concept of disability itself, as it arises from the interaction between individuals and their physical and cultural environments, which can vary significantly in terms of the pace and frequency of change across different contextual factors (Botelho, 2021b).

B. Digital Information Access Strategy for Disability

Accessibility issues in Indonesia are addressed in Law No. 8 of 2016 concerning Persons with Disabilities. The government has initiated various training programs for individuals with disabilities, but these efforts have not always been as targeted as they should be. Improved access to digital information can foster independence and empower individuals to overcome obstacles related to accessibility. In this context, it is crucial to consider and implement types of social support, including emotional, instrumental, informational, and appreciation-based support. Social support also reflects mutual respect, love, and honor among individuals (Bilgin & Taş, 2018; Eagle et al., 2019; Lee & Ybarra, 2017).

One form of governmental social support attempted has been the provision of training programs. While some of these training initiatives have effectively reached people with disabilities, others have not. Individuals who are blind and those who are deaf have expressed differing views regarding these programs. The blind community notes that training programs have been relatively plentiful; however, it is vital to ensure that follow-up occurs after the training to maintain momentum. In contrast, the deaf community often feels unaware of training opportunities, which can be dependent on local community awareness.

The results of this study align with previous research indicating that technical and social barriers continue to hinder digital information accessibility for individuals with disabilities (Jaafar et al., 2020; Smith et al., 2024). These findings reinforce the need for strategies such as technology training and policy enhancements to promote digital inclusion. This aligns with the aspirations of the blind community:

> *"It is important to carry out various strategies such as counseling or sensitivity from the environment to be more inclusive. Also, the minimum age for blind friend workers must be reviewed again. Education should be made free, and there should be more free access for blind people because apart from friends who do not get enough support from their parents, at least the government can provide support so that we can also be like non-blind friends in general." (Taufi, Teman Netra, July 10, 2024)*

Social support for friends with disabilities can take various forms, including instrumental support, such as assistive technology in the shape of image-based communication applications or devices enabling text-based communication for deaf friends and voice-based communication for blind friends. Additionally, informational support is provided through education, training, and emotional support, including moral and motivational encouragement. The introduction of technology training, software adaptation, and the provision of specialized hardware has enhanced the abilities of blind friends and fostered the development of user-friendly applications for individuals with disabilities. This aligns with one

ISSN: (print) 2339-2681 | (online) 2621-2579 Vol. 12, No.2, October 2024, pp. 143-151

instrument of the social support theory, which emphasizes instrumental support (assistive technology tools). The use of assistive technology and special hardware constitutes significant instrumental support. Furthermore, informational support in the form of training and education on using digital technology serves as crucial assistance (Drageset, 2021; Lee & Ybarra, 2017). The strategy used to facilitate access to digital information draws on social support theory, where instrumental and informational support play essential roles in helping individuals with disabilities access digital information more easily. However, there remains a lack of public awareness, leading to insufficient understanding of disability conditions. For instance, when a blind friend requires assistance from a walking guide, it is important for the sighted person to offer their hand or shoulder to walk alongside rather than pull them. Similarly, deaf friends face challenges during work situations, as they must explain their needs through text.

Challenges in accessing technology for individuals with disabilities include limited access to advanced technological devices, low public awareness regarding accessibility needs, and non-inclusive policies. The social support theory fundamentally relies on emotional and assessment instruments. Emotional support from family and friends and assessment support in the form of feedback from both the community and professionals are vital in overcoming such obstacles. To improve digital skills, training programs should include both face-to-face and online sessions, the creation of training modules, and skills certification. This is related to social support, which provides the necessary informational support for enhancing the digital skills of individuals with disabilities. Additionally, a technology support network can function as a group of technology volunteers, mentors, and online communities that offer emotional, instrumental, and assessment support.

Awareness and advocacy campaigns can be conducted through seminars, workshops, social media outreach, and collaboration with governmental bodies. The principles of social support theory can be applied by increasing public awareness, advocating for inclusive policies, and offering assessment support. Meanwhile, the Technology Innovation Incubator aims to foster innovation in accessibility technology by providing grants and support. The social support theory also aids in advancing the development of accessible technologies for people with disabilities by providing instrumental support. In analyzing these findings, it is clear that despite strides made in technology accessibility, there remains significant room for improvement. Applying social support theory to understand and address these barriers sheds light on how social interventions can lead to greater digital inclusion. The researchers argue that achieving true digital inclusion necessitates both technical efforts and broad social support. This support should focus on enhancing technical infrastructure while also fostering a deeper understanding and awareness within the community regarding the accessibility needs and rights of individuals with disabilities. This study underscores the importance of social support theory in improving access to digital information for people with disabilities. The research findings suggest that even amid ongoing challenges, there is considerable potential for improvement through the implementation of well-supported strategies.

Accessibility for people with disabilities varies across different platforms, with some still being challenging to access. Digital accessibility can be understood as a chain of dependencies where training, hardware, software, content, and standards must work together harmoniously. Each of these elements is part of a dynamic process (Botelho, 2021b). Strong social support from family, friends, community members, and IT professionals plays a crucial role in overcoming barriers to accessing digital information. Social support theory highlights the importance of emotional support and assessment in addressing these obstacles. To enhance digital accessibility, special technology training tailored to the needs of people with disabilities is essential, coupled with public awareness initiatives that educate the community about its importance. Research by Susanti et al. (2023) emphasizes that public communication in the digital era should focus on the need for ongoing research to align expectations with outcomes, offering valuable insights for policymakers and practitioners aiming to optimize public communication strategies in an ever-evolving digital landscape. This aligns with public campaigns that raise awareness about the needs of people with disabilities to achieve inclusive policies.

Efforts to develop more inclusive policies and regulations at both national and local levels are underway. Involving people with disabilities in research is vital, as it helps uncover issues that researchers or users may otherwise overlook. We cannot expect solutions to emerge for situations we have never witnessed. When we fail to recognize a problem, we can inadvertently contribute to it (Isaacson, 2021). Individuals with disabilities can actively collaborate with designers, developers, and manufacturers to meet unmet social, cultural, and technical needs, as the design of these devices and their services remains largely open and adaptable. An inclusive design process that considers the diverse needs of users during the conceptualization phase—rather than post-development—can effectively address issues like technology discontinuance or abandonment (Moon et al., 2019).

The findings of this study reinforce earlier research conducted by Kirinić (2016), which examined how accessibility is addressed in information literacy documentation, information technology standards, recommendations, models, and frameworks. This earlier work highlights the skills, attitudes, and knowledge necessary to facilitate the inclusion of people with disabilities through accessible digital information (Kirinić, 2016). Furthermore, our study underscores the critical role of social support in enhancing access to digital information and empowering individuals with disabilities. Strong support from family, community, and public policy can help overcome barriers and promote broader digital inclusion, encouraging individuals with disabilities to become more empowered. The results of this study are consistent

Vol. 12, No.2, October 2024, pp. 143-151 ISSN: (print) 2339-2681 | (online) 2621-2579

with research by Poerwanti et al. (2024), which identified key barriers to establishing an inclusive digital space, including awareness, motivation, access and affordability of digital technology, digital skills, adaptive technology, assurance of digital protection and security, and supportive policies and regulations.

CONCLUSION

The accessibility of information for friends with disabilities is still limited to screen readers and specialized hardware that contributes to the independence of individuals with disabilities. Digital applications such as TalkBack, Voice Over, Cash Reader, Be My Eyes, Voluntary, Infusion, Special Help, WhatsApp, Facebook, Instagram, and others also contribute to accessibility, but the information available is still less disability-friendly.

Through social support theory, sustainable digital inclusion requires joint efforts from all parties, including the government, stakeholders, and the general public. Support from the government, family, friends, community, and social environment can encourage the creation of inclusivity for individuals with disabilities. As a result, the development of digital technology can be fully utilized while overcoming the obstacles that arise due to the ever-changing interaction between public policy and technical progress.

To implement inclusivity for individuals with disabilities, it is necessary to focus on developing more inclusive and sustainable policies and to increase investment in widespread technology training. Public awareness must also be enhanced to create a more supportive environment for individuals with disabilities accessing digital information. Thus, we hope that the results of this study can significantly contribute to broadening horizons and improving accessibility for individuals with disabilities in the future, while also serving as a foundation for enhancing policies and implementing more effective digital inclusion programs.

ACKNOWLEDGMENT

The researcher would like to express his gratitude to the Ministry of Education, Culture, Research, and Technology for funding this research under contract number 107/E5/PG.02.00.PL/2024, enabling it to be conducted properly and on schedule. Additionally, we thank the members of the Movement for the Welfare of the Indonesian Deaf (Gerkatin) and the Indonesian Blind Association (Pertuni) for their support in the data collection process, which was vital for the success of this research.

REFERENCES

Appio, F. P., Frattini, F., Petruzzelli, A. M., & Neirotti, P. (2021). Digital Transformation and Innovation Management: A Synthesis of Existing Research and an Agenda for Future Studies. *Journal of Product Innovation Management*, *38*(1), 4–20. https://doi.org/10.1111/jpim.12562

Bilgin, O., & Taş, İ. (2018). Effects of Perceived Social Support and Psychological Resilience on Social Media Addiction among University Students. *Universal Journal of Educational Research*, *6*(4), 751–758. https://doi.org/10.13189/ujer.2018.060418

Blanck., & Sandler, L. A. (2000). ADA Title III and the Internet: Technology and Civil Rights. . . *Mental and Physical Disability Law Reporter*, *24*(5), 855–859.

Botelho, F. H. F. (2021a). Accessibility to digital technology: Virtual barriers, real opportunities. *Assistive Technology*, *33*(sup1), 27–34. https://doi.org/10.1080/10400435.2021.1945705

Botelho, F. H. F. (2021b). Accessibility to digital technology: Virtual barriers, real opportunities. *Assistive Technology*, *33*(sup1), 27–34. https://doi.org/10.1080/10400435.2021.1945705

Chadwick, D., Ågren, K. A., Caton, S., Chiner, E., Danker, J., Gómez□Puerta, M., Heitplatz, V., Johansson, S., Normand, C. L., Murphy, E., Plichta, P., Strnadová, I., & Wallén, E. F. (2022). Digital inclusion and participation of people with intellectual disabilities during <scp>COVID</scp> □19: A rapid review and international bricolage. *Journal of Policy and Practice in Intellectual Disabilities*, *19*(3), 242–256. https://doi.org/10.1111/jppi.12410

Dahlan, M., & Anggoro, S. A. (2021). Hak atas Pekerjaan bagi Penyandang Disabilitas di Sektor Publik: Antara Model Disabilitas Sosial dan Medis. *Undang: Jurnal Hukum*, *4*(1), 1–48. https://doi.org/10.22437/ujh.4.1.1-48

Demartoto, A. (2019). The workers with Disabilities' Access to Workplace Inclusion in Postmodern Model Perspective. *Jurnal Studi Pemuda*, *7*(1), 25. https://doi.org/10.22146/studipemudaugm.39157

Dhahir, D. F. (2019). RANCANGAN STRATEGI KOMINFO DALAM UPAYA MENGURANGI KESENJANGAN DIGITAL. *Jurnal PIKOM (Penelitian Komunikasi Dan Pembangunan)* , *20*(2).

Drageset, J. (2021). Social Support. In *Health Promotion in Health Care – Vital Theories and Research* (pp. 137–144). Springer International Publishing. https://doi.org/10.1007/978-3-030-63135-2_11

ISSN: (print) 2339-2681 | (online) 2621-2579 Vol. 12, No.2, October 2024, pp. 143-151

Eagle, D. E., Hybels, C. F., & Proeschold-Bell, R. J. (2019). Perceived social support, received social support, and depression among clergy. *Journal of Social and Personal Relationships*, *36*(7), 2055–2073. https://doi.org/10.1177/0265407518776134

Eckhardt, J., Kaletka, C., & Pelka, B. (2017). *Inclusion Through Digital Social Innovations: Modelling an Ecosystem of Drivers and Barriers* (pp. 67–84). https://doi.org/10.1007/978-3-319-58706-6_6

Haniko, P., Sappaile, B. I., Gani, I. P., Sitopu, J. W., Junaidi, A., Sofyan, & Cahyono, D. (2023). Menjembatani Kesenjangan Digital: Memberikan Akses ke Teknologi, Pelatihan, Dukungan, dan Peluang untuk Inklusi Digital. *Jurnal Pengabdian West Science*, *2*(05), 306–315. https://doi.org/10.58812/jpws.v2i5.371

Haury, I., Hamideh Kerdar, S., & Kirchhoff, B. M. (2022). Barrierefreiheit digitaler Arbeitswelten am Beispiel von Webkonferenztools. *Sicher Ist Sicher*, *1*, 8. https://doi.org/10.37307/j.2199-7349.2023.01.08

Hidayat, Y. (2014). Kesenjangan Digital di Indonesia (Studi Kasus di Kabupaten Wakatobi). *Jurnal Pekommas*, *17*(2).

Isaacson, L. (2021). Why People With Disabilities Must Be Included in Research. *International Journal of Market Research*, *63*(5).

Jaafar, S. M. R. S., Maarof, R., Hisam, M. J., & Husin, N. N. F. A. (2020). Inclusion Setting for Disabilities in Higher Education: A Systematic Review of Issues and Challenges in Disabilities Research. *Proceedings of the International Conference on Student and Disable Student Development 2019 (ICoSD 2019)*. https://doi.org/10.2991/assehr.k.200921.030

Kapsalis, E., Jaeger, N., & Hale, J. (2024). Disabled-by-design: effects of inaccessible urban public spaces on users of mobility assistive devices – a systematic review. *Disability and Rehabilitation: Assistive Technology*, *19*(3), 604–622. https://doi.org/10.1080/17483107.2022.2111723

Kirinić, V. (2016). *Accessibility of Digital Information: Standards, Frameworks, and Tools Related to Information Literacy and Information Technology* (pp. 179–189). https://doi.org/10.1007/978-3-319-52162-6_18

Lee, D. S., & Ybarra, O. (2017). Cultivating Effective Social Support Through Abstraction. *Personality and Social Psychology Bulletin*, *43*(4), 453–464. https://doi.org/10.1177/0146167216688205

Maftuhin, A. (2018). HAMBATAN INKLUSI MAHASISWA DIFABEL DALAM KULIAH KERJA NYATA (KKN) DI UIN SUNAN KALIJAGA YOGYAKARTA. *Edukasia : Jurnal Penelitian Pendidikan Islam*, *12*(2), 331. https://doi.org/10.21043/edukasia.v12i2.2735

Mamase, S., Mohidin, I., & Fadli Hulopi, Muh. (2018). Aplikasi Media Komunikasi Bagi Penyandang Disabilitas Berbasis Android. *Jurnal Teknologi Informasi Indonesia (JTII)*, *3*(1), 7. https://doi.org/10.30869/jtii.v3i1.180

Manzoor, M., & Vimarlund, V. (2018). Digital technologies for social inclusion of individuals with disabilities. *Health and Technology*, *8*(5), 377–390. https://doi.org/10.1007/s12553-018-0239-1

Maulina, D. (2023). Analisis Usability Sistem Aplikasi Netraku Menggunakan Metode Usability Testing. *Jurnal Teknik Informatika Unika ST. Thomas (JTIUST)*, *8*(2).

Molnar, S. (2003). The Explanation Frame of the Digital Divide. *Proceedings of the IFIP Summer School 'Risks and Challenges of the Networked Society*.

Mondejar, M. E., Avtar, R., Diaz, H. L. B., Dubey, R. K., Esteban, J., Gómez-Morales, A., Hallam, B., Mbungu, N. T., Okolo, C. C., Prasad, K. A., She, Q., & Garcia-Segura, S. (2021). Digitalization to achieve sustainable development goals: Steps towards a Smart Green Planet. *Science of The Total Environment*, *794*, 148539. https://doi.org/10.1016/j.scitotenv.2021.148539

Moon, N. W., Baker, P. M., & Goughnour, K. (2019). Designing wearable technologies for users with disabilities: Accessibility, usability, and connectivity factors. *Journal of Rehabilitation and Assistive Technologies Engineering*, *6*. https://doi.org/10.1177/2055668319862137

Poerwanti, S. D. (2017). Pengelolaan Tenaga Kerja Difabel untuk Mewujudkan Workplace Inclusion. *INKLUSI*, *4*(1), 1. https://doi.org/10.14421/ijds.040101

Poerwanti, S. D., Makmun, S., & Dewantara, A. D. (2024). Jalan Panjang Menuju Inklusi Digital bagi Penyandang Disabilitas di Indonesia. *Journal of Urban Sociology*, *1*(1), 44. https://doi.org/10.30742/jus.v1i1.3536

Porter, S. G. ; G. K. ; M. C. K. E. (2021). Access and Inclusion of Students with Disabilities in Virtual Learning Environments: Implications for Post-Pandemic TeachingAccess and Inclusion of Students with Disabilities in Virtual Learning Environments: Implications for Post-Pandemic Teaching. *International Journal of Multicultural Education*, *23*(3), 43–61.

Pudrianisa, S. L. G. (2022). Komunikasi simbolik kelompok Gay Semarang. *Jurnal Studi Komunikasi (Indonesian Journal of Communications Studies)*, *6*(2), 699–718. https://doi.org/10.25139/jsk.v6i2.4929

Vol. 12, No.2, October 2024, pp. 143-151 ISSN: (print) 2339-2681 | (online) 2621-2579

Putra, R. S., Marpaung, Y. N. M., Pradhana, Y., & Rimbananto, M. R. (2021). PESAN KESETARAAN PENYANDANG DISABILITAS MELALUI INTERAKSI SIMBOLIK MEDIA SOSIAL. *Interaksi: Jurnal Ilmu Komunikasi*, *10*(1), 1–11. https://doi.org/10.14710/interaksi.10.1.1-11

Sanders, R. (2020). *"Digital Inclusion, Exclusion, and Participation."* Https://Www.Iriss.Org.Uk/Resources/Esss-Outlines/Digital-Inclusion-Exclusion-and-Participation.

Sawetrattanasatian, O. ,. (2019). Access to information of disabled people on the web: A dispute between accessibility and digital rights management. *Global Academy of Training; Research (GATR) Enterprise*.

Setu, F. (2021, August). *Atasi Kesenjangan Digital, Menkominfo Dorong Transformasi Digital Inklusif* - . Https://Www.Kominfo.Go.Id/Content/Detail/36185/Siaran-Pers-No268hmkominfo082021-Tentang-Atasi-Kesenjangan-Digital-Menkominfodorong-Transformasi-Digital-Inklusif/0/Siaran_pers.

Smith, E. M., Layton, N., Bould, E., & Waller, A. (2024). Diversity beyond Disability in Assistive Technology. *Assistive Technology*, *36*(1), 1–2. https://doi.org/10.1080/10400435.2023.2286797

Supaji. (2023, June). *Pemerintah Penuhi Hak Penyandang Disabilitas di Indonesia*. Https://Www.Kemenkopmk.Go.Id/Pemerintah-Penuhi-Hak-Penyandang-Disabilitas-Di-Indonesia.

Susanti, T., Anom, E., & Iswadi, I. (2023). Optimizing Public Communication in the Digital Era: A Case Study of the Ministry of Communication and Information Technology in Indonesia. *CHANNEL: Jurnal Komunikasi*, *11*(2), 144–149. https://doi.org/10.12928/channel.v11i2.468

Syafi'ie, M. (2014). Pemenuhan Aksesibilitas Bagi Penyandang Disabilitas. *INKLUSI*, *1*(2), 269. https://doi.org/10.14421/ijds.010208

UMN. (2017, October). *Penggunaan Teknologi Untuk Membantu Disabilitas*. Https://Www.Umn.Ac.Id/Penggunaan-Teknologi-Untuk-Membantu-Disabilitas/.

Vicente, M. R., & López, A. J. (2010). A Multidimensional Analysis of the Disability Digital Divide: Some Evidence for Internet Use. *The Information Society*, *26*(1), 48–64. https://doi.org/10.1080/01615440903423245.