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Digital Literacy and Smartphone Consumption Patterns in the Elderly Group of Indonesia and Pakistan

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Abstract

This study explores the evolving use of smartphones by the elderly in Indonesia and Pakistan, focusing on their engagement with digital technology in everyday life. The elderly are often perceived as incompatible with digital technologies, due to beliefs that these technologies are complex and not user-friendly. As a result, many older adults have been reluctant to learn and engage with digital media or access the internet. Using a qualitative approach, this research employs in-depth interviews to gather insights into the digital habits of elderly users. The Mobile Device Proficiency Questionnaire was utilized to assess digital skills and the digital culture index among participants. Findings reveal a significant shift in the way elderly individuals interact with smartphones, with many transitioning from passive to active users of digital media. They face several barriers, including a fear of making mistakes, which often leads to anxiety when encountering technical issues. Elderly users are increasingly faced with ethical dilemmas in digital spaces. Caution prevails in their use of social media, especially in relation to sharing personal information or commenting on public posts. This research underscores the need for addressing these barriers and fostering a supportive digital environment for the elderly in both Indonesia and Pakistan.

Keywords: digital culture, elderly, digital literacy, smartphone, Indonesia, Pakistan.

1. Introduction

The discovery of digital technology, although it brings significant transformational potential, does not immediately create a society that can fully adopt the technology in everyday life. Ideally, an information-rich network society should emerge, allowing individuals to be more empowered and connected (Castells, 2005). However, the reality shows a striking gap between the digital native and the digital migrant generations. Digital migrants are those who grew without close engagement with the digital technology such as smartphones, include the elderlies. Elderly group is the weakest in terms of digital technology usage and consumption.

Smartphone features tend to be confusing for the elderly, compounded by low levels of digital literacy among them. This inadequate digital literacy has the potential to hinder their ability to understand and use various applications and services that could improve their quality of life. However, with adequate understanding and support, digital technology can provide significant benefits. Elderly who use smartphones feel more engaged with their communities and supported physically and mentally (Iancu, Iancu, 2017). Engagement with communities include socialization with friends and group interaction for the spiritual and religious purposes through social media like WhatsApp and Youtube (Iancu, Iancu, 2017).

Around 18 % of seniors in Indonesia, particularly those aged 50 and above, use smartphones. This figure highlights a lack of attention to digital literacy issues and smartphone usage patterns



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among the elderly (Iancu, Iancu, 2017). It also reflects the limited in-depth research on how this group interacts with technology and how they can make the most of it.

Similar to Indonesia, smartphone usage in Pakistan is dominated by the younger age group (digital natives), while less than 10 % of the elderly population uses smartphones (Castells, 2005). Although both countries exhibit similar patterns of digital technology adoption, there are notable differences in the social and cultural contexts influencing the level of digital literacy and smartphone usage among the elderly. Data from this study can help devise better strategies to address the challenges elderly users face in using smartphones. Moreover, the study is expected to provide valuable recommendations to the government and content creators to produce more user-friendly content for the elderly to improve their quality of life and social engagement in the internet era.

The purpose of this study is to determine the level of digital literacy among the elderly in major cities in Indonesia and Pakistan, identify the factors influencing this level of literacy, and analyze patterns of smartphone usage within the elderly population in these two countries.

2. Materials and methods

This study uses a qualitative approach to explore in depth the aspects of digital literacy and patterns of smartphone use and utilization among the elderly. A qualitative approach was chosen because it provides a deeper understanding of individual perspectives, experiences, and social contexts that influence their interactions with technology (Creswell, 2013). Thus, this study aims to explore the nuances in smartphone user behavior that cannot be explained by a quantitative approach.

The in-depth interview method was applied to obtain rich and comprehensive primary data. Semi-structured interviews were conducted to provide space for informants to explain their experiences and views on digital literacy and smartphone usage. Informants were selected through the snowballing technique, where one informant recommends another informant, to obtain variation in experiences and backgrounds (Noy, 2008). To measure smartphone usage, this study used questions developed by the Mobile Device Proficiency Questionnaire (MDPQ), which was compiled using a Likert scale (Roque, Boots, 2018). This instrument is designed to evaluate the level of competence and comfort of individuals in using various smartphone features. The absence of specific data on the number of elderly people who use smartphones required this study to use the intercept technique to identify informants (Guest et al., 2013).

This study was conducted in two major cities, Karachi in Pakistan and Surabaya in Indonesia. These two locations were chosen because they have significant geographic, demographic, and psychographic diversity. The number of informants in each country was around 15 people, resulting in a total of around 30 informants. The subjects of the study were elderly individuals who used smartphones, with the definition of elderly referring to the WHO definition, namely individuals aged 60 years and over (WHO, 2020). The BPS also groups the elderly into three categories: young elderly (60– 69 years), middle elderly (70–79 years), and old elderly (80 years and over).

Primary data in this study were obtained through in-depth interviews with elderly informants who use smartphones. These interviews were designed to explore their experiences, views, and patterns of digital media use, as well as their digital literacy. Meanwhile, secondary data were obtained through a literature search that included previous studies on digital literacy and digital media use among the elderly. This search also included examining the social and cultural contexts that influence technology adoption in Indonesia and Pakistan (Iancu, Iancu, 2017; Castells, 2005). Secondary data served to map the profile of digital literacy and patterns of digital media use, enriching the research results with broader and deeper perspectives.

3. Discussion

Digital literacy is a fundamental skill that is essential in today's information age. Digital Literacy literacy includes the understanding and use of information in various formats produced by computer technology. It is not just a technical skill but also includes a deep understanding of how information is presented, accessed, and used in the context of everyday life. With the increasing amount of online sources of information, central to the success in life is the capability to use and deal with such massive information (Gilster, 1997).

Several key competencies form the basis of digital literacy. One of them is the ability to assess the accuracy and credibility of information found online. In a world filled with abundant and diverse information, the ability to distinguish between facts and hoaxes is essential. Individuals need to be trained to question the source of information, check the background of the author, and understand the context in which the information is presented. In addition, the competence to read electronic texts is a crucial aspect. This involves understanding how digital texts work, such as navigating websites, recognizing hyperlinks, and understanding interactive elements that may be present in the text (Hague, Payton, 2020).

Digital literacy includes not only assessing information but also the ability to construct credible information. This means that a person must have the ability to process information from various sources so that they can create accurate and relevant stories. For example, to create digital content, a person must understand how to integrate various sources and data logically, as well as have evidence to support their reasoning. In order to obtain information that suits the user's needs, it is also important to use effective search strategies. Users must understand various search techniques, such as the use of appropriate keywords, and search filters, and understanding the search algorithms used by search engines (Pangrazio, Sefton-Green, 2021).

Digital literacy is divided into two main categories of understanding: functional literacy and critical literacy. Functional literacy includes practical skills in using digital technology-based media, such as using effective search strategies and reading electronic texts. Critical literacy, on the other hand, emphasizes the importance of being able to select and sort information carefully. This includes evaluating the credibility of sources, analyzing biased information, and being able to make decisions based on analyzed information (Livingstone, Helsper, 2023).

A scholar named Belshaw identified eight essential components necessary for the development of comprehensive digital literacy. These components include cultural elements that relate to the social and cultural context in which digital media is used. This is important for understanding how societal norms influence digital interactions. The cognitive element emphasizes the ability to think critically and analytically, which is necessary for making logical conclusions from information (Belshaw, 2011). The communicative aspect emphasizes the importance of understanding how social networks and communication function in the digital world, while the constructive aspect emphasizes creativity in content creation.

Digital literacy requires creativity. People must be able to adapt and create new solutions in an ever-changing and innovative environment. Social responsibility is also becoming increasingly important, especially given the influence of digital media on society. It is essential to understand our ethics and responsibilities when interacting on the internet to create a safe and respectful environment. This includes knowledge of privacy, data security, and the effects of spreading misinformation. Ultimately, mastering digital literacy is essential, especially for groups less exposed to technology, such as the elderly (Ferari, Punie, 2023).

Digital literacy has become a critical component in determining how individuals and societies use communication technologies in the modern era, especially in developing countries in Asia. With the rapid growth of internet and *mobile device users*, understanding and using these technologies effectively is increasingly urgent (Kass-Hanna et al., 2022). Digital literacy includes not only the basic ability to use devices, but also the ability to search, evaluate, and use information responsibly and critically. In such a situation, digital literacy is a multifaceted ability that includes technical, cognitive, and moral elements in using information technology.

Digital literacy levels in many developing countries, such as Indonesia, India, and the Philippines, vary widely. There are a number of variables that influence this variation; these include education level, access to technology, and community support (Kass-Hanna et al., 2022). These differences lead to significant digital inequality. Some communities are able to use technology to improve their quality of life, while others are trapped by limitations due to lack of knowledge and access. This suggests that better digital literacy is essential to creating equal opportunities and access to information.

Social and cultural factors, such as stigma against technology use by older generations, also contribute to the rate of technology adoption across different community groups (Dirgatama et al., 2024).

According to Rogers, technology adoption is the process by which people choose to use digital technology as a whole. Diffusion, "the process by which an innovation is communicated over time through certain channels among members of a social system", is an important component of this situation (Rogers, 2003). This highlights the interplay among the adoption of the technology, the innovation that comes along, the supportive social system, the media to distribute it and the time consumed. Rogers divided societies into five groups based on the speed and manner in which

technology is used.

First, the first group is innovators, who dare to take risks and have characteristics such as relatively young age, higher social background, and wealth. Only about 2.5 % of the population consists of this group. In addition, some individuals adopt technology earlier than innovators known as early adopters. They are usually about 13.5 % of the general population and usually can influence the opinions of others, also known as opinion leaders.

Then there is the initial category of the majority, which consists of people who are slower to adopt technology. About 34 % of the population contributes to them, but they do not have a significant influence on public opinion. After that, the last minority is those who are skeptical of technology and are more careful when adopting something. They consist of about 34 % of the general population and usually have lower financial capabilities. Finally, the laggards group are the people who are the slowest to adopt technology. They are usually older, from a lower social class, and have little money. About 16 % of the population consists of groups that focus on tradition and rarely interact with innovators. Through this division, Rogers shows that the adoption of technology is not a uniform phenomenon; it is influenced by many different social and individual factors, as well as the amount of time it takes for each group to complete the adoption process.

Access to social media, streaming video and music, and educational applications such as ebooks are some examples of how smartphones have changed the way we interact with information. In addition, smartphones serve as control centers for various smart household devices, as well as tools for running various applications that help contemporary lifestyles, including health, travel, and shopping applications. Since their introduction, these multifunctional devices have replaced many traditional tools and integrated various functions into one device. By combining the functions of a conventional telephone and a computer into one practical device, smartphones have become one of the most innovative inventions (Ting, Chen, 2020).

The ease of use of smartphones drives interesting and complex consumption patterns, reflecting changes in communication, shopping, working, and entertainment behavior. According to data compiled by Gil Press, the number of social media users has reached more than 6.8 billion worldwide and is expected to reach 7.1 billion by the end of 2024, with an increase of around 9.5 % per year from 2016 to 2023. Interestingly, this device is most widely used by the younger generation, especially generation Z and millennials. In the United States, for example, 96 % of the 18–29 age group actively use smartphones making this group the most connected to each other (Olson et al., 2023; Pang, 2021).

The elderly exhibit different online behaviors compared to younger generations. While Gen-Z and millennials tend to be more open and less mindful of politeness ethics, older adults, in contrast, prioritize courteous interactions and steer clear of behaviors that could incite division (Missier, 2022).

However, recent studies have shown that smartphone usage among the elderly in this modern era needs to be updated. With massive technological advances, smartphones now make it easier for the elderly in various aspects of life. They can stay connected with their families through messaging and video call applications, as well as access information and entertainment through social media and online platforms. In addition, smartphones offer benefits in non-social activities, such as managing health with health applications and activity tracking, which allows the elderly to better monitor their health conditions and get the support they need (Busch et al., 2021).

Few scholars have conducted an in-depth study on the use of smartphones as a technology that can improve the quality of life of the elderly and help them. According to the study, smartphones are an excellent tool for tracking individual health conditions, allowing the elderly to stay connected to the community through the internet. Users can consult with medical personnel, schedule appointments, and access relevant health information through features such as health apps and telemedicine. In addition, interactions that can be done through smartphones can help reduce feelings of loneliness often experienced by the elderly, who are often isolated from their social environment. Their emotional health is increased along with the use of social media platforms, especially social network services and audio visual calls, that let them to mingle with their relatives and friends (Iancu, 2017).

In line with this situation, there are variables that affect the way elderly engage with smartphone found in this study. Lesser ability to listen and see plays as the significant factor to impede their ability to stay connected to the technology. Additionally, conditions such as dementia and Alzheimer's can make it more difficult for them to understand and use smartphones effectively.

Additional factors, such as the increasing need for health assistance, also play a significant role in the adoption of this technology. In this regard, Iancu and Iancu found that variables that influenced the adoption and acceptance of smartphones by older adults included demographics, perceptions of the usefulness of smartphones, perceptions of the ease of use of smartphones, and attitudes, behaviors, and motivations for using smartphones.

Another group of scholars emphasized what drives the elderly to use smartphones, which they called "self-engagement". This concept emphasizes the smartphone features that are most frequently used by the elderly, such as contact lists, cameras, alarms, and telephones. They are considered easy to use and support social interactions, as well as time and health management. However, other features such as GPS, music, and email are often considered unimportant or too complicated to use. In addition, the study found several problems faced by the elderly when using smartphones. These include the unergonomic physical size of the smartphone, small fonts, difficult-to-reach navigation buttons, overly sensitive touchscreens, and too short backlights, all of which can make interacting with the smartphone more difficult (Subramanyam et al., 2020). These researchers also divided older adults into three types of smartphone users: practical users, minimalist users, and social users. Practical users typically use smartphones for basic tasks such as calling and texting, without delving into its features. Social users, on the other hand, use smartphones in a limited way and prefer to focus on activities and activities that are familiar to them. However, social users demonstrate a better understanding of technology by using their smartphones to interact with others through communication and social media applications. This classification highlights the variety of influencing factors that affect the way older adults engage with the technology. The influencing factors are technical skill, individual motivation and social necessities. This study emphasizes the importance of understanding the needs and preferences of older adults to develop more inclusive and user-friendly technologies for them, thereby increasing smartphone adoption and use among them.

4. Results

This study explored the use of smartphones among participants aged 65 years and above in Indonesia and Pakistan. The study involved 33 individuals, with 15 participants from Indonesia and 18 from Pakistan, representing diverse professional backgrounds, including teachers, engineers, nurses, civil servants, and accountants. Participants' educational qualifications ranged from high school to university degrees. The findings revealed that smartphones are integral to their social interactions, access to information, and daily activities.

Preliminary data from the questionnaire highlighted that the elderly actively use smartphones, with most participants having used them for over two years. Specifically, 100 % of participants reported daily smartphone usage. Notably, 30.91 % had been using smartphones for more than three years, while smaller fractions had started within the last two years (1.9 %) or the current year (2.6 %). These figures underscore the integration of smartphone technology into the routines of older adults, aiding their daily lives with greater ease and convenience. Such trends align with broader studies that highlight the outstanding rate of smartphone adoption individually aged 75 plus that expand by 20 % from 2019 to 2020 (Pang, 2021).

Smartphone adoption has transcended socio-economic barriers, indicating increased inclusivity. Education levels of elderly smartphone users revealed an even distribution: 15.45 % attended college, 13.39 % completed high school, and 5.15 % completed junior high school. Economic diversity was also evident, with participants spending varying amounts on internet packages — 9.27 % spent around \$5, 11.33 % spent \$6-10, 3.9 % spent \$11-15, and 10.30 % spent \$16 or more. These findings highlight that smartphones are no longer exclusive luxury items but accessible tools utilized across varying economic and educational strata.

The intuitive design and accessibility features of smartphones, such as touchscreen navigation, adjustable screen brightness, and clear icons, contribute to their usability for seniors. Applications designed specifically for older users, with larger text and simplified interfaces, further enhance this experience. For instance, 22.66 % of participants found accessing email and social media easy, though 7.21 % reported difficulties. Similarly, activities like sending emails, uploading social media content, and managing contacts were deemed fairly easy by 23.69 % of respondents, with a small minority (5.15 %) reporting difficulties. The data suggests that while most seniors adapt well to digital technology, there remains a subset that faces usability challenges.

Social media platforms have emerged as vital tools for the elderly, enabling them to stay informed and connected. Popular activities included watching videos, seeking health-related news, and exploring local community updates. However, ethical behavior and caution characterized their digital interactions. For instance, 31.94 % strongly disagreed with capturing and sharing private chats without consent, while 30.91 % strongly opposed posting rude comments online. Additionally, a majority refrained from sharing political content or sensitive information, emphasizing a preference for maintaining social harmony and privacy.

Elderlies in Indonesia involve in online spiritual and health activities through platforms such as Youtube and Halodoc online health consultation application via their smartphones. On the other hand, Pakistani seniors prioritize family-centered interactions, often joining Facebook groups to maintain social bonds and engage in shared hobbies. This highlights how cultural contexts shape the ethical use of digital platforms. Moreover, both groups demonstrate caution in sharing personal information online, reflecting cultural values emphasizing privacy and social harmony.

Digital literacy varied significantly across respondents. While some participants demonstrated proficiency in using smartphones for essential functions, others relied heavily on family or community support. This reliance was particularly evident in resolving technical issues, as fear of making mistakes often deterred independent exploration. Regarding security, participants expressed concerns about potential fraud and privacy risks. Notably, a majority could identify fraudulent messages and take preventive measures, such as blocking suspicious contacts. However, gaps in understanding advanced security measures, like using anti-malware software or backing up personal data, persisted.

GPS usage also highlighted disparities in digital security awareness. Many participants left GPS settings perpetually enabled, citing convenience, but lacked awareness of the associated privacy risks. Similarly, password practices varied; some preferred simple passwords or opted not to use passwords due to fear of forgetting them, leaving devices vulnerable to unauthorized access.

Pakistani seniors exhibited higher dependence on family members for digital troubleshooting compared to Indonesian seniors, who appeared to rely more on community-based learning initiatives. Both groups, however, showed gaps in understanding advanced security practices such as using anti-malware software or distinguishing phishing attempts, underscoring the need for targeted educational interventions.

The study revealed notable similarities and differences in smartphone use between elderly individuals in Indonesia and Pakistan. In both countries, social applications like WhatsApp were central to communication, with WhatsApp Groups playing a significant role in sharing information. Participants emphasized maintaining group harmony, often removing disruptive members without prior notice. However, misinformation spread through WhatsApp Groups was a common concern, and seniors in both countries relied on independent verification to counter such issues.

Indonesian seniors leveraged smartphones for a broader range of activities, including health and religious engagement. The use of virtual religious platforms and health apps highlights their adaptive response to the digitalization accelerated by the COVID-19 pandemic. In contrast, Pakistani seniors used smartphones primarily to maintain family ties and participate in hobbyrelated communities, showcasing a preference for social interactions centered on familial and community bonds. Despite these differences, the emphasis on privacy and ethical engagement with digital platforms was consistent across both countries.

Culturally, Indonesian seniors were more inclined to share content celebrating traditional arts and community practices online, while Pakistani seniors showed caution in discussing politically sensitive topics, avoiding potential conflicts. These differences underscore how cultural norms and societal values shape digital behavior among the elderly in both regions.

5. Conclusion

The widespread adoption of smartphones among older adults in Indonesia and Pakistan highlights a significant shift in how this demographic engages with technology, social interactions, and information access. Disregard the relatively low level of digital literacy, accessibility and digital security issues faced by older adults, they have engaged with the smartphones as the media to boost their life quality. Key findings from this study show the significant role of smartphone in supporting their social networks through the use of messaging apps and video calls. The use of these features offered by the device have proven to decrease lack of social connections particularly within the COVID-19 pandemic.

Older adults in both countries demonstrate a strong awareness of digital ethics, particularly in terms of privacy and responsible data sharing. However, they remain vulnerable to misinformation and fake news due to difficulties in verifying the accuracy of information they encounter online. In addition, older adults limit their digital independency due to technical support from the relatives that they need. This need to some extents block their capability to browse and engage autonomously with the smartphones advanced technology.

Despite these challenges, the increasing use of digital platforms by older adults reflects their adaptability and willingness to integrate technology into their daily lives. They are not merely passive consumers of information but also active contributors to the preservation and promotion of cultural heritage through digital means. This transformation underscores the potential for older adults to play a meaningful role in the digital society.

To further empower older adults and ensure their inclusion in the digital world, targeted educational initiatives and inclusive policies are essential. These efforts should focus on improving digital literacy, providing accessible and affordable technology, and addressing the unique needs of older adults, particularly those with disabilities or limited economic resources. By fostering a more inclusive digital environment, older adults can continue to adapt to technological advancements, enhancing their social connections, independence, and overall quality of life.

In conclusion, the integration of smartphones into the lives of older adults in Indonesia and Pakistan represents a significant step toward bridging the digital divide. With the right support and resources, older adults can fully participate in the digital era, contributing to a more connected, informed, and culturally rich society.verall, smartphone use among elderly populations in Indonesia and Pakistan underscores a broader trend of technological adaptation among older adults. Despite facing challenges related to digital literacy and security, seniors are increasingly utilizing smartphones to enhance their quality of life. Their cautious and ethical approach to digital interactions, coupled with efforts to preserve cultural heritage, highlights the nuanced ways in which older adults navigate the digital landscape. These findings underline the need for inclusive policies and targeted education initiatives to bridge digital literacy gaps and empower seniors in the digital age.

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