Digital Inclusion for Seniors: Assessing Chat Application Skills in Senior Digital Academy Programs

Rita Gani[1]*, Citra Rosalyn Anwar[2], Mutiara Dwi Sari[3]

[1]Department of Communication Science, Faculty of Communication Science, Universitas Islam Bandung, West Java, Indonesia
[2]Department of Educational Technology, Faculty of Educational Science, Universitas Negeri Makassar, Indoensia
[3]Universiti Muhammadiyah Malaysia, Malaysia
*Corresponding author, E-mail: ritagani911@gmail.com

ABSTRACT

The digitalization of modern society compels older generations to adapt to internet-based communication, yet age-related limitations often hinder this transition. This research explores the proficiency of elderly participants in using chat applications through the Senior Digital Academy (ADL) program by Tular Nalar Mafindo. Employing a descriptive qualitative method, the study conducted surveys and in-depth interviews with 61 senior participants. Findings reveal that while seniors generally understand basic chat application features and recognize their potential negative impacts, they face significant challenges, including digital literacy gaps, technological anxiety, and physical limitations. Many struggle with advanced functions such as multimedia sharing, privacy settings, and group management. Additionally, vision impairments, reduced motor skills, and cognitive decline further complicate their ability to engage with digital tools. Despite these obstacles, participants expressed a strong willingness to learn and acknowledged the importance of staying connected through digital platforms. The study highlights the need for tailored digital literacy programs that address the specific needs of older adults, enabling them to navigate the digital world more effectively. Empowering seniors through digital literacy not only promotes social connectivity and independence but also helps mitigate risks such as misinformation, hate speech, and fraud—ensuring their inclusion and safety in an increasingly online society.

Keywords: Akademi Digital Lansia; Chat Applications; Digital Literacy; Tular Nalar

ABSTRAK

Dalam masyarakat modern yang serba digital, mengharuskan generasi yang lebih tua untuk beradaptasi dengan komunikasi berbasis internet, tetapi keterbatasan terkait usia sering kali menghambat transisi ini. Penelitian ini mengeksplorasi kemahiran peserta lansia dalam menggunakan aplikasi obrolan melalui program Akademi Digital Lansia (ADL) oleh Tular Nalar Mafindo. Penelitian ini menggunakan metode kualitatif deskriptif, dengan pengumpulan data berupa survei dan wawancara mendalam dilakukan dengan 61 peserta lansia. Temuan menunjukkan bahwa meskipun para lansia memahami fitur-fitur dasar aplikasi obrolan dan potensi dampak negatifnya, mereka menghadapi tantangan seperti kesenjangan literasi digital, kecemasan teknologi, dan keterbatasan fisik. Banyak lansia yang kesulitan dengan fitur-fitur canggih seperti berbagi multimedia, pengaturan privasi, dan pengaturan grup percakapan . Gangguan penglihatan, keterampilan motorik yang berkurang, dan penurunan kognitif semakin mempersulit mereka dalam menggunakan alat-alat digital. Meskipun ada kendala-kendala ini, para peserta menyatakan keinginan yang kuat untuk belajar dan menyadari pentingnya tetap terhubung melalui platform digital. Studi ini menekankan perlunya program literasi digital yang disesuaikan untuk memenuhi kebutuhan khusus lansia, sehingga memungkinkan mereka untuk menjelajahi dunia digital dengan lebih efektif. Memberdayakan para lansia melalui literasi digital tidak hanya meningkatkan konektivitas sosial dan kemandirian, tetapi juga mengurangi risiko seperti misinformasi, ujaran kebencian, dan penipuan, serta memastikan inklusi dan keamanan mereka dalam masyarakat yang semakin daring.

Kata Kunci: Akademi Digital Lansia, Aplikasi Percakapan, Literasi Digital, Tular Nalar

126

INTRODUCTION

The advancement of internet-based communication technology now targets everyone, both in developed and developing countries, becoming an integral part of modern daily life. Like a coin with two sides, this progress offers significant benefits to many, such as increased convenience and time efficiency, which support various aspects of human life. However, it also presents challenges for those unable to adapt—particularly the elderly—who often struggle to keep pace with technological developments. This group faces difficulties learning new skills and may contribute to digital-related issues as both victims and inadvertent perpetrators (Digitalcommons@usu & Bean, 2015).

The elderly are a vulnerable demographic in the digital landscape. Their limitations in adopting new technologies can lead to significant problems, particularly as digital applications become increasingly prevalent. Addressing these issues is crucial, as supporting elderly adaptation to technology represents a form of social inclusion that contributes to healthy aging (Gallo et al., 2024; Lu et al., 2024). However, the adjustment process is sometimes hindered by an egoistic attitude among some elderly individuals who feel that their life experiences negate the need to learn from younger generations.

We cannot avoid the rapid growth of the elderly population, as Indonesia is currently entering the phase of an aging population, which refers to an increase in the proportion of elderly people. This demographic shift presents both opportunities and challenges. On the one hand, the aging population can offer a "second demographic bonus" if elderly individuals remain productive contributors to the national economy. On the other hand, if they are no longer productive, they may become a social and economic burden. To mitigate this, various initiatives are being implemented to keep the elderly active, such as training programs aimed at preventing cognitive decline (Gani, 2023).

Naturally, the elderly experience a decline in bodily functions, which is the accumulation of cellular and molecular damage that occurs over time, also known as aging (Pangribowo, 2022). According to the Indonesian Statistics Bureau (BPS), in 2023, people aged 65 and older made up 10.82% of the total population, or roughly 28 million individuals. This increase underscores the impact of aging on internet technology usage among the elderly. While some elderly individuals have successfully adapted to digital technologies, many fall victim to scams and misinformation due to their limited digital literacy (Šolcová, Zaťková, Franta, & Tokovska, 2025). This highlights the urgent need for digital literacy initiatives supported by family and community environments (Indra & Santi, 2023; Astuti, Satyawati, & Bernadeta, 2024).

The adaptation of the elderly to technology or the digital world involves a process of changing attitudes, skills, and understanding of the elderly towards various technologies, such as electronic devices, digital applications, and the internet. This adaptation is crucial to improve the quality of life for the elderly, enabling them to stay connected with their families, maintain their health, and access information or entertainment easily (Sun et al., 2020). This demand is evident from the increasing number of elderly people actively participating in various technology-based activities, one of which is the Akademi Digital Lansia training initiated by Tular Nalar Mafindo.

This also aligns with the rising penetration of internet users in Indonesia. According to the 2024 APJII data, 221,563,479 people, or 79.5% of the total population of 278,696,200 people in Indonesia, use the internet in various aspects of their lives. Mansur, Saragih, Ritonga, and Damayanti (2021) emphasize that the internet is now the primary source of information. Millennials (born 1981–1996) are the most dominant users, with a 93.17% usage rate. Meanwhile, Baby Boomers (born 1946–1964), currently aged 60–78, show a 60.52% penetration rate, and even 32% of Pre-Boomers (aged 79 and above) are connected to the internet (Hongkong, 2023). These figures demonstrate that age is not necessarily a barrier to digital engagement.

However, Nisa, Nisak, and Fatia (2023) note that the elderly remain the demographic with the lowest digital technology usage, largely due to a generational skills gap. The low penetration of internet use among the elderly and their low adoption of social media technology drives the need for programs introducing and encouraging the use of this technology among the elderly (Ashari, 2018). Unfortunately, digital literacy programs seldom prioritize the elderly, reflecting a societal bias that sees older adults as a "helpless" group who no longer need digital tools (Quinn, 2018).

In reality, however, many elderly people are active in the online world. For example, Ibu Grace Simon, a famous singer from the 1970s and the 2022 elderly ambassador of Tular Nalar, shared during the first class of the Digital Elderly Academy in Bali that she owns two smartphones and can use them well. She is also skilled in mobile banking and can shop on various marketplace apps without assistance

from other family members. According to Ibu Grace, this process was not easy; she slowly learned about the various features of these smart devices with the support of her family environment. The need to communicate and interact with relatives motivated Ibu Grace to adapt to the technology used as a communication medium today. Of course, not many elderly people successfully adapt to technology like Ibu Grace, because the features of smartphones and various applications are not easy for the elderly to use (Sarbani, Mulyati, & Astuti, 2024). Therefore, mastering basic information (basic literacy) becomes a necessity for the elderly, so they can stay connected with the outside world through the smartphones they hold (Ngiam et al., 2022).

Despite increasing internet usage among the elderly, many remain vulnerable due to weak digital literacy skills. This group is at high risk of being misled by hoaxes, digital scams, and misinformation (Kimani, 2024). This situation has become a global issue, affecting both developed and developing countries, which face the same challenges with the increasing number of elderly people, a trend that shows a rise every year. Digital literacy is not only the ability to listen and understand the impact of using digital products, but also the ability to use them well. According to the Global Framework for Digital Literacy developed by UNESCO (2018) , digital literacy encompasses the ability to access, manage, evaluate, and create digital content safely and effectively. It includes competencies such as computer literacy, ICT literacy, information literacy, and media literacy. Users must also engage with digital media productively (Kurnia & Wijayanto, 2020; Kurnia & Astuti, 2017; Rasi, Vuojärvi, & Ruokamo, 2019).

In every session of the Akademi Digital Lansia (ADL) organized by Tular Nalar Mafindo, the researcher heard various stories about the elderly's interactions with the digital world. These stories not only relate to their "technological ineptitude" with various smartphone features but also to their unpreparedness in understanding what should or should not be done during these interactions. In many cases, seniors tend to share any information they receive without filtering it first. They often open various messages in WhatsApp groups, leading to digital fraud, open all photos or videos received in these groups, which quickly depletes their data quota, and so on. These incidents are undoubtedly detrimental to the elderly, making it reasonable to categorize them as a vulnerable group exposed to the negative impacts of digital technology (Kuran et al., 2020). They can end up as individuals who spread hoaxes because they do not know how to verify the information or as targets of various crimes perpetrated through the internet.

Generally, seniors receive such information through messaging apps, although there are some cases of digital fraud occurring via landline phones. Meanwhile, digital crimes conveyed through SMS have become quite rare, as seniors are now mostly connected to messaging apps. The various negative incidents experienced by seniors do not automatically close off opportunities for them to use smart technologies. Access to information and communication technology can help seniors stay connected with their families and foster greater independence in meeting their needs. Data from the March 2023 National Socioeconomic Survey (Susenas) shows that 11.75% of the elderly population has access to information and communication technology through mobile phones, computers, and, in recent years, internet usage. Nearly half (49.56%) of seniors use mobile phones, and approximately one in five (22.87%) have access to the internet. By age group, about one in four (25.35%) older seniors and two in five (40.32%) middle-aged seniors have access to mobile phones. This shows an increase compared to data presented by) (Angelia, 2022), which reported that 46.79% of seniors used mobile phones and 14.1% were connected to the internet. The ease of access to mobile phones and the internet is more commonly enjoyed by younger seniors (aged 60-69), those living in urban areas, non-disabled seniors, and those from households with higher levels of welfare.

In recent years, various initiatives have emerged to involve seniors in digital literacy training across different fields. Seniors are not only taught basic knowledge on how to use certain applications but also the impacts and effects of their activities in the digital world. The importance of mentoring seniors is necessary to mitigate their behavior, as they are increasingly active on social media. Facebook, Instagram, TikTok, and YouTube are common platforms used by seniors for various activities, such as accessing news, entertainment, or communicating with old friends. This assumption is supported by a Pew Research Center survey, illustrated in Figure 1, which revealed that in 2021, 72% of adults aged 50 to 64 and 45% of adults aged 65 and above used social media. Therefore, various training programs for seniors aim to teach them how to use digital technology and the internet effectively. This ranges from using social media to interact with friends or family to engaging in e-commerce activities. This aligns with (Notley, Chambers, Park, & Dezuanni, 2021), who stated, "Increased social media use and overall media use are also strongly associated with believing that

128

connecting with friends and family is important." The concept emphasizes that the use of ICT improves health outcomes for older adults by connecting them with social networks, gaining social support, and engaging in activities of interest (Ngiam et al., 2022). In many regions of the world, digital media is no longer accessed only by younger populations. Older adults are increasingly turning to digital media and information sources, sometimes out of necessity, such as when government services transition online, and sometimes for leisure, such as staying connected with family members via social media (Kimani, 2024).
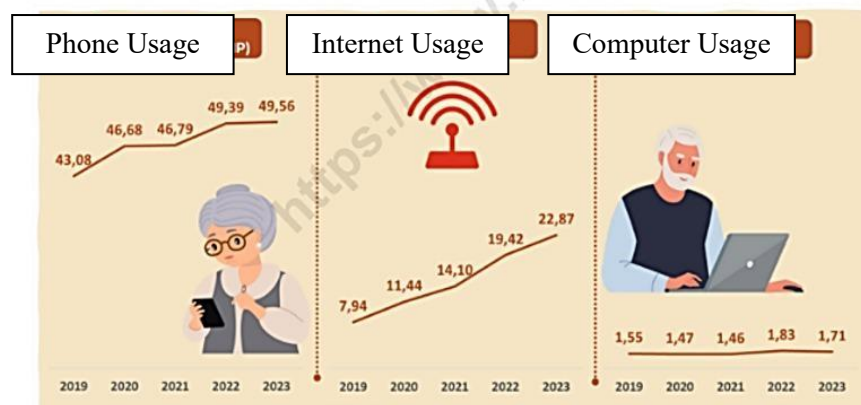

Figure 1. Percentage of Seniors with Access to Information and Communication Technology (ICT)
by Type of Facility, 2019-2023
Source**:** (Anggraeni, 2023)

Access to information and communication technology (ICT) can help seniors stay connected with their families and support greater independence in meeting their daily needs (Šolcová et al., 2025). The COVID-19 pandemic in 2020 significantly transformed patterns of social communication and interaction, pushing society—including older adults—toward digital means (Murciano-Hueso, Martín-García, & Cardoso, 2022). With the enforcement of social distancing, mobility restrictions, and limits on face-to-face interactions, ICT became one of the main alternatives for seniors to remain engaged with their surroundings.

Fortunately, by the time the pandemic emerged, internet-based platforms had already become embedded in daily life in Indonesia. According to APJII data from 2020, the country's internet penetration rate stood at 73.7%, equating to approximately 196.71 million people out of a total population of 266.91 million. This digital shift also influenced how seniors conducted their daily activities, as they adjusted to changes in interaction patterns (Anggraeni, 2023). Many of us recall how video calls became a lifeline for elderly individuals yearning to connect with their children and grandchildren during lockdowns and travel bans.

However, the integration of seniors—particularly those from the baby boomer generation—into the internet-based digital world did not occur overnight. Adapting to this new environment required time and support. While some seniors successfully transitioned with assistance from relatives, others remained reluctant, preferring the familiarity of traditional communication methods.

Digital literacy is critical for older adults, especially when mastering the basic functions of messaging applications. A lack of digital competence in both hardware and software usage has led to underutilization of digital media. This deficit has contributed to numerous challenges, particularly in the context of information sharing and digital communication. In reality, society now demands more than just the ability to operate ICT devices; users must be able to leverage these tools effectively for personal and communal benefit. For example, the growing prevalence of hoaxes on messaging apps and social media has become increasingly concerning. This issue is further exacerbated by inadequate skills in data sharing, information verification, and digital interaction (Zainuddin Muda Z. Monggilo & Novi Kurnia, 2021).

Based on the above explanation, the research problem encompasses several key areas, including seniors' ability to effectively use messaging applications and avoid negative digital consequences (Kidron, 2021). The core research questions focus on evaluating seniors' knowledge of messaging app

usage and their ability to recognize potential harms stemming from digital interactions. The objectives of this study are twofold. First, it examines the extent to which seniors understand and use messaging applications. Second, this study analyzes how they engage with these platforms during the Akademi Digital Lansia training program. The broader benefits of this research include enhancing our understanding of digital literacy among the elderly, improving the quality of their digital interactions, and applying theoretical insights to uncover the root causes of their challenges in the digital era.

METHODS

Research on digital literacy materials specifically designed for the elderly remains scarce (Indra & Santi, 2023). Moreover, Indonesia currently lacks a formal digital literacy curriculum tailored for senior citizens. In light of this gap, the researcher opted for a straightforward approach to analyze the data. A qualitative descriptive method was employed, utilizing qualitative data elaborated through descriptive analysis. This approach is particularly suited to exploring subjective experiences, offering deep insights often unattainable through quantitative methods (Hall & Liebenberg, 2024).

Qualitative descriptive research is commonly applied to investigate phenomena, events, or social conditions. It is well-suited for analyzing the interactions between the elderly and the digital world, especially their use of messaging applications. Data collection involved a literature review addressing the research problem, the distribution of questionnaires, and interviews with several elderly participants to enrich the analysis.

The research process commenced with the Akademi Digital Lansia (ADL) training, followed by the dissemination of questionnaires to collect quantitative data, which served as the foundation for subsequent analysis. A total of 100 respondents completed the questionnaire: 61 were elderly individuals, 33 were pre-elderly (aged 45–59), and six were companions under 30 years old. The inclusion of companions—who constituted less than 10% of participants—was viewed positively, as they supported the elderly in adapting to digital tools.

Figure 2. Research Process

Questionnaire data were analyzed alongside observations and interviews conducted with selected elderly participants, with permission from the organizing committee. The interviewees were chosen based on their active participation in ADL activities and their ability to articulate their experiences using messaging applications effectively. To ensure data validity, the researcher employed triangulation by cross-referencing information from in-depth interviews, field observations, and activity documentation. Three distinct informant groups—participants, facilitators, and implementers—were involved to verify the consistency of findings. Any discrepancies between interview and observation data were addressed through participant validation sessions. The following steps outline the research process.

RESULT AND DISCUSSION

Research on vulnerable groups has been conducted extensively, focusing on children, women, persons with disabilities, and seniors. However, studies on digital literacy targeting seniors remain scarce, despite the fact that they are increasingly exposed to the digital world and are particularly vulnerable to the impacts of internet-based technological advancements. From the 100 participants attending the training held on August 11, 2023, at Unisba's campus, 61 were seniors aged 60 and above. The remaining participants comprised pre-seniors (ages 45–59) and a small number of companions under 30 years old. These participants were members of the Majlis Taklim at the Al-Asyari Mosque, located in the campus neighborhood on Jl. Tamansari, Bandung. To ensure the validity of results and maintain focus, the researcher collected data exclusively from the senior participants.

Generally, these seniors already own smartphones and use them for everyday purposes. The integration of digital technologies such as smartphones, computers, and the internet has become essential in modern society. However, seniors often face challenges in keeping pace with rapid technological advancements (Peralta & Arps, 2021). This indicates that smartphones have become an

130

important part of seniors' daily lives. They not only use them for communication purposes but also to interact on social media.

The Taman Sari district's central location in Bandung contributes to the prevalence of smartphone ownership among its senior residents. In urban settings, smartphones have become indispensable tools for everyday life. This observation is supported by research conducted by Google and GfK (2015), which found that 61 percent of urban populations in cities such as Bandung, Semarang, Surabaya, and the Jabodetabek area owned smartphones, with an average daily usage of 5.5 hours.

The Akademi Digital Lansia program offers seniors guidance on managing information in the digital space, particularly focusing on their interaction with internet-based content related to election campaigns. The research findings identify the social media platforms most frequently used by seniors, their activities within group chats, the types of information they receive, and how they respond to this information.

Engagement with digital technologies positively impacts seniors' mental health, with evidence showing greater happiness among elderly internet users compared to non-users. Happiness indicators were assessed through four categories: insulting others, despair, anger, and depression. Consequently, promoting social media use as a communication tool among seniors may enhance their mental well-being (Hongkong, 2023). These findings align with this study's results, indicating that elderly individuals use the internet not only to access information but also to interact socially, contributing to their overall happiness.

An interesting insight from this study reveals seniors' perception of messaging applications: they do not categorize LINE as a messaging app in the same way as WhatsApp. Similarly, Facebook and Telegram are also not viewed as messaging applications by these seniors. Figure 3 illustrates the answers of the respondents regarding the question 'What is not included as a Messaging App'.
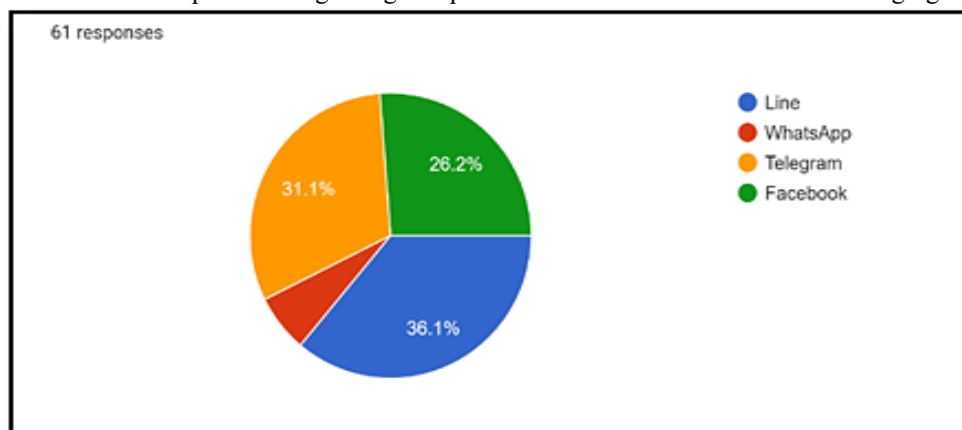

Figure 3. What is not included as a Messaging App?

Among the four applications—LINE, WhatsApp, Telegram, and Facebook—36.1% of elderly participants did not consider LINE to be a messaging application. This perception is intriguing given that LINE is widely recognized as a messaging app, notably due to its popular sticker feature, which WhatsApp and Telegram only later incorporated. LINE was launched in Japan on June 23, 2011, whereas WhatsApp has been available globally since February 2009. LINE was once popular in Indonesia, but its prominence declined after WhatsApp introduced free downloadable stickers and a story update feature, which attracted many users. During the study, researchers found that several elderly smartphone users either did not have LINE installed or were unaware of its existence.

Despite these differences in app recognition, elderly participants generally understood the core functions of messaging applications. About 90% acknowledged uses such as conducting business transactions, exchanging information, supporting education, and facilitating social interaction or problem clarification, while the remaining participants selected at least one of these functions. However, despite this understanding, many seniors still faced challenges using messaging applications effectively. This finding aligns with research by Wallcook, Nygård, Kottorp, and Malinowsky (2021), who studied older adults in Sweden and found that technology interfaces often fail to accommodate age-related cognitive and motor limitations. The study recommended user-centered and inclusive design to improve digital accessibility for seniors.

Physical limitations, especially vision impairments, along with difficulties in technology use, are major barriers for seniors when communicating via messaging apps on smartphones. Similar challenges were reported in a study of elderly WhatsApp users in Sidoarjo, Indonesia, which concluded that WhatsApp had become an essential communication tool for seniors to stay connected with family and loved ones or to obtain important information. Their recognition of WhatsApp's importance motivated them to overcome various interpersonal, structural, and functional barriers (Bianchi, 2021).

Regarding app features, elderly participants demonstrated good awareness of common messaging functionalities. Features such as text messaging, emojis, and video calls were widely used in WhatsApp communication (Sanecka, 2020). Interestingly, 72.1% of the seniors stated that "weather" was not a feature found in messaging apps, citing that they had never seen weather forecasts shared freely via such platforms. This indicates a basic but accurate understanding of app capabilities. Some participants expressed particular enjoyment of emojis and stickers, which aided those with difficulties typing text and also provided entertainment due to their humorous and diverse designs.

Throughout the training, seniors shared various experiences interacting with the internet, including accessing YouTube channels with content tailored to their interests and needs. Nearly 98% of participants used smartphones from various brands, and even those without smartphones were familiar with internet concepts and related terminology. They also recounted incidents linked to internet use, though they did not always fully understand the causes or mechanisms behind these issues.

Of the ten questions posed in the questionnaire, six were selected as most relevant to this paper's discussion. Among the 61 senior respondents, most were able to correctly distinguish what constitutes a messaging application and what does not. The use of diverse social media and messaging platforms places seniors in a vulnerable position as internet users, necessitating focused efforts to improve their digital literacy and safe usage practices.

Barriers and Support for Seniors in Using Social Media and Messaging Applications
In the context of social media usage, seniors face multiple barriers that can be categorized into three main types (Ashari, 2018). First is intrapersonal barriers. Intrapersonal barriers typically arise from a lack of self-confidence, influenced by the general assumption that seniors are inherently less technologically adept. Other obstacles may stem from their fear of damaging the devices they use and their perceived inability to repair them. These intrapersonal barriers are often linked to psychological challenges, such as worry, fear, and a lack of confidence in using digital technology.

The second is structural barriers. Structural barriers generally relate to the availability of internet access, which can present unique technical characteristics or challenges in selecting appropriate data plans. In this context, seniors need guidance or support in choosing the most suitable internet services. The third is functional barriers. Functional barriers are associated with physical health challenges that seniors increasingly face. For instance, typing messages on mobile phones often results in errors, with many typographical mistakes in their text messages.

According to Kuran et al. (2020), a vulnerable group is defined as "a population within a country that has specific characteristics that make it at a higher risk of needing humanitarian assistance than others or being excluded from financial and social services." In times of crisis, these groups require additional support and special consideration. In Indonesia, Law No. 39 of 1999 (UU No. 39/1999), Article 5, Paragraph (3), explicitly identifies vulnerable populations as including the elderly, children, the poor, pregnant women, and persons with disabilities.

As a recognized vulnerable group, the elderly require targeted attention and support in digital engagement. One pressing issue is the high incidence of misinformation or hoaxes spread by seniors, largely attributed to their limited understanding of digital information flows on messaging platforms and social media. Their lower digital literacy levels compared to younger populations exacerbate this risk.

To mitigate these challenges, it is essential to implement comprehensive digital literacy training tailored to the needs of older adults. Marzal, Huda, and Effendi-Hasibuan (2022) emphasize that with proper guidance from the family, community members, and well-designed training programs, seniors can adapt to digital technologies. Disengaging seniors from technological developments is not a viable solution, as digital tools can significantly enhance their independence and overall quality of life.

Efforts to improve digital literacy among seniors can be implemented through structured programs. Recent studies have underscored the need to identify and address the specific barriers that hinder older adults from adopting digital technology (Sari, Rosidi, & Djollong, 2024). One such initiative is the Tular Nalar program by Mafindo, supported by Google.org and Love Frankie. Launched

132

in 2020, the program has reached all 38 provinces in Indonesia with training activities focused on various aspects of digital literacy.

Starting in 2022, Tular Nalar introduced two major training curricula: Sekolah Kebangsaan (SK), designed for youth, particularly first-time voters, and Akademi Digital Lansia (ADL), which specifically targets seniors. ADL employs a microteaching approach—one facilitator for every ten participants—allowing for personalized and effective instruction. Implementation partners include Mafindo's 44 regional branches, universities, and community organizations (Riski, 2023).

The Akademi Digital Lansia program provides an essential platform for elderly participants to receive training and mentorship. The program's appeal lies in its accessible and engaging content, delivered in small-group settings that facilitate hands-on practice with messaging applications. This model of instruction has proven to be highly effective in enhancing digital engagement among seniors, as it allows for better information retention and practical application (Anggraeni, 2023; Nurliah, Juwita, Boer, & Sari, 2025).

Elderly and the Negative Impacts of Messaging Apps

The use of messaging applications among the elderly offers numerous benefits; however, improper usage can lead to significant issues. A major contributing factor is the limited technological knowledge among the elderly. Since the internet only became widespread during their later years, many older adults have not fully grasped the dynamics of the digital environment. As a result, they tend to "consume" all information received via messaging apps and often lack the skills to verify the credibility of the sources. This makes it important to explore how well the elderly understand the potential impacts of these platforms.

Survey results reveal that 83.1% of elderly participants are aware that messaging apps are vulnerable to the spread of hoaxes, incitement or hate speech, and unsolicited messages (spam). These findings, as illustrated in Figure 4, align with the three main issues highlighted in the study—hoaxes, hate speech, and spam—which were correctly identified by the respondents as negative consequences of using messaging apps. Furthermore, 11.9% of respondents firmly stated that messaging apps could serve as a platform for spreading hoaxes.
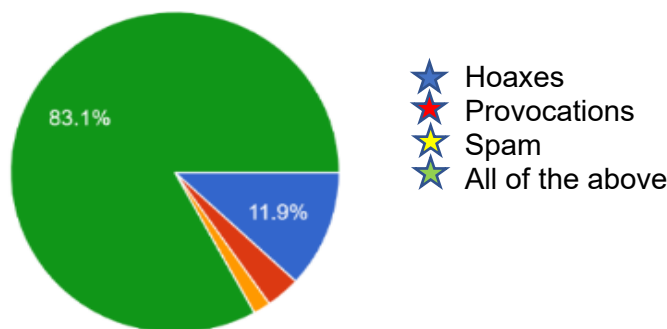

Figure 4. Impacts of Messaging Apps

This corresponds with findings from Mafindo's Hoax Landscape 2024, which identified the top five platforms for hoax distribution in the first semester of 2024: Facebook (30.4%), YouTube (21.8%), TikTok (16.9%), Twitter (15.2%), and WhatsApp (7.4%). Facebook remains the most widely used platform for spreading misinformation due to its diverse and extensive user base. While WhatsApp accounts for a smaller share, it remains a significant channel, especially given its private and encrypted nature.

According to Prathama, Hasani, and Akbar (2022), hoax dissemination channels can be grouped into two categories: internet-based media (new media) and conventional media. Internet-based platforms, which include social media (87.5%), chat applications (67%), websites (28%), and email (2.6%), dominate hoax circulation. Meanwhile, conventional media such as television (8.1%) and print media (6.4%) continue to play a smaller but still relevant role. These findings underscore the challenge of detecting and curbing hoaxes within private, difficult-to-monitor platforms.

A hoax can be defined as false information deliberately crafted to appear truthful, with the goal of causing public confusion, insecurity, and discomfort. This often results in people—especially the elderly—making poor or misguided decisions (Trninić, Kuprešanin Vukelić, & Bokan, 2021). The elderly are frequently both targets and inadvertent spreaders of hoaxes due to their limited digital literacy.

To mitigate the widespread dissemination of hoaxes among elderly users, the Akademi Digital Lansia (ADL) training program includes modules that help participants recognize the basic characteristics of hoax messages and develop strategies to verify their authenticity. One of the most critical competencies to promote through this training is the enhancement of critical thinking skills. This is essential to reduce the tendency among elderly users to share unverified information.

As part of the broader digital and information literacy index, the ability to access, search, filter, and use information across digital platforms is an essential skill for Indonesian society (Hendrarso & Habib, 2022). For elderly users, in particular, developing critical thinking is also closely tied to the awareness and protection of personal data.

In today's digital landscape, sharing personal data is often a prerequisite for accessing services and applications. However, many elderly individuals—classified as digital immigrants—struggle to differentiate between which data can be safely shared and which should remain confidential. Digital immigrants are those born before the digital age who have adopted technology later in life. Their characteristics typically include lower digital proficiency and a limited understanding of evolving technologies (Marzal et al., 2022).

As a result, many elderly individuals rely on assistance from their children, grandchildren, or more digitally literate relatives when navigating the digital space. During the ADL training sessions, a survey found that 95% of participants could correctly identify personal data as information that can be used to recognize or identify a person. According to Kusnadi (2021), personal data comprises identifiable elements such as codes, symbols, letters, or numbers that are personal and confidential. Some personal data may be publicly known, but other information—especially sensitive data—should remain private.

The researcher divided personal data into two categories: specific personal data, such as health data, biometric data, genetic data, criminal records, children's data, financial data, and other data as stipulated by laws and regulations; and general personal data, such as full name, gender, nationality, religion, marital status, and other combined data to identify an individual. Many elderly participants demonstrated an understanding of the importance of protecting specific personal data. For instance, Ibu Erni (65) recounted an incident involving a friend from her religious study group who unknowingly gave her ID card information to a stranger while buying a product. Reflecting on the event, she advised, "Do not carelessly share your ID card number because it could be misused." Such online fraud tactics—ranging from phishing via WhatsApp links and video calls to voice calls and deceptive online shopping offers—often target elderly users (Biantoro, 2018; Arnidah & Anwar, 2024). The vulnerability of this demographic highlights the importance of digital literacy programs that equip them not only with technical skills but also with the critical awareness necessary to navigate the online environment safely and confidently.

Elderly's Favorite Information Search Engines

At the end of the discussion session, the researcher asked the elderly about the information search engine they most commonly use when browsing the internet. It was found that 93% (see Figure 5) of the elderly typically use Google as their search engine for various reasons, including speed, ease of access, clarity, and the availability of a wide range of information. Others use Yahoo and Facebook to search for information. The elderly prefer Yahoo as one of the search engines because the platform has been around for a long time. Yahoo was founded in 1994 in New York City, so it is quite familiar to the elderly. Some elderly participants mentioned that before the WhatsApp messaging app existed, they used Yahoo Messenger as a communication tool.
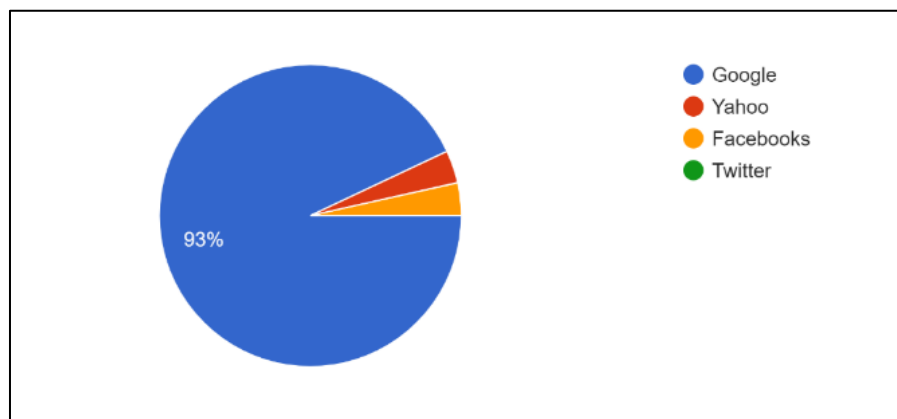
134

Figure 5. Search engines in the internet

Interestingly, among the four answer choices, none of the elderly participants selected Twitter (now X) as their search engine. Despite Indonesia having approximately 27.5 million Twitter users as of October 2023—making it the fourth-largest user base in the world (We Are Social, 2023)—the platform remains unfamiliar to the elderly. This is likely due to its recent rebranding and interface changes. None of the elderly participants reported having an account on X. In contrast, Facebook remains a preferred platform, largely because it was the first social media service adopted by many elderly individuals. It continues to serve as a space where they connect with long-time friends, more so than newer platforms like Instagram or TikTok.

CONCLUSION

Messaging applications play a vital role in maintaining communication and social connections among the elderly. However, their lack of digital literacy often hinders effective and safe use. To address this gap, targeted training and support are essential to equip elderly users with basic digital skills. This, in turn, will help them filter the information they receive and avoid sharing misleading content. The Academy of Digital Literacy for the Elderly, initiated by Tular Nalar Mafindo, serves as a valuable program to introduce foundational digital literacy to elderly individuals. They should not be viewed merely as passive recipients but as active, productive, and influential members of society. Thus, efforts in education, research, and digital mentoring for the elderly are not only important but necessary.

REFERENCES

Angelia, D. (2022). Lansia Indonesia Makin Melek Internet. Retrieved from goodstats.id website: https://goodstats.id/article/lansia-indonesia-makin-melek-internet-CydFJ

Anggraeni, N. riana sari kurniawan tri yulianto rida agustina hendrik wilson sigit wahyu nugroho ganish. (2023). Statistik Penduduk Lanjut Usia. *Badan Pusat Statistik*, *Volume 20,* 6. Retrieved from https://www.bps.go.id/id/publication/2023/12/29/5d308763ac29278dd5860fad/statistik-penduduk-lanjut-usia-2023.html

Arnidah, Citra Rosalyn Anwar, F. (2024). *Bimbingan Teknis Literasi Digital, Upaya Menjaga Keamanan Digital Anggota Lembaga Lansia Indonesia Kota Makassar Provinsi Sulawesi Selatan*. 10270.

Ashari, R. G. (2018). Memahami hambatan dan cara lansia mempelajari media sosial. *Jurnal Ilmu Komunikasi*, *15*(2), 155–170. Retrieved from https://ojs.uajy.ac.id/index.php/jik/article/view/1245

Astuti, S. I., Satyawati, N., & Bernadeta, D. T. (2024). Tular Nalar Curriculum to Promote A Culture of Critical Thinking among The Elderly. *Jurnal Vokasi Indonesia*, *12*(1). https://doi.org/10.7454/jvi.v12i1.1213

Bianchi, C. (2021). Exploring how internet services can enhance elderly well-being. *Journal of Services Marketing*, *35*(5), 585–603.

Biantoro, B. (2018). Awas, netizen lansia jadi target empuk penipuan online. *MERDEKA.Com*.

Digitalcommons@usu, D., & Bean, R. C. (2015). *Romantic Relationship Quality and Technological Communication: Romantic Relationship Quality and Technological Communication: Examining the Roles of Attachment Representations and Examining the Roles of Attachment Representations and Rejection Sensitivity*.

Gallo, A. M., Laranjeira, C., Araújo, J. P., Marques, F. R. D. M., Baccon, W. C., Salci, M. A., & Carreira, L. (2024). The experiences of daily smartphone use among older adults in Brazil: A grounded theory analysis. *Heliyon*, *10*(15), e35120. https://doi.org/10.1016/j.heliyon.2024.e35120

Gani, R. (2023). Lansia Melek Digital. Retrieved from Neazone.id website: https://neazone.id/1361/2023/02/lansia-melek-digital/

Hall, S., & Liebenberg, L. (2024). Qualitative Description as an Introductory Method to Qualitative Research for Master's-Level Students and Research Trainees. *International Journal of Qualitative Methods*, *23*. https://doi.org/10.1177/16094069241242264

Hendrarso, P., & Habib, M. A. (2022). The role of teachers in the application of digital literacy to create a digital literate generation. *Technium Soc. Sci. J.*, *32*, 267.

Hongkong, D. O. E. H. (2023). Skillfull Communicating with Eldery.

Indra, R. gani A., & Santi, I. (2023). MENGGAGAS MATERI LITERASI DIGITAL BAGI WARGA LANSIA UJICOBA KELAS PILOT LANSIA KOTA BANDUNG. *Penelitian Fikom UNISBA*. Retrieved from https://sinta.kemdikbud.go.id/authors/profile/260331/?view=researches

Kidron, E. (2021). How to close the digital gap-for-the-elderly/.

Kimani, R. (2024). Digital Media and Information Literacy for adults over 60: Five insights for media development.

Kuran, C. H. A., Morsut, C., Kruke, B. I., Krüger, M., Segnestam, L., Orru, K., … Gabel, F. (2020). Vulnerability and vulnerable groups from an intersectionality perspective. *International Journal of Disaster Risk Reduction*, *50*, 101826. Retrieved from https://www.sciencedirect.com/science/article/pii/S2212420920313285

Kurnia, N., & Astuti, S. I. (2017). Peta gerakan literasi digital di Indonesia: studi tentang pelaku, ragam kegiatan, kelompok sasaran dan mitra. *Informasi*, *47*(2), 149–166. Retrieved from https://d1wqtxts1xzle7.cloudfront.net/70438781/pdf_1-libre.pdf?1632856967=&response-content-disposition=inline%3B+filename%3DPeta_Gerakan_Literasi_Digital_DI_Indones.pdf&Expires=1734432610&Signature=eC9LJoQKaYoI4PpstK-OowDYj6S5bB1RmcRb5QItRgf3nT7lwl-pywNj

Kurnia, N., & Wijayanto, X. A. (2020). Kolaborasi sebagai kunci: Membumikan kompetensi literasi digital Japelidi. *Dalam N. Kurnia, L. Nurhajati, SI Astuti, Kolaborasi Lawan (Hoaks) COVID-19: Kampanye, Riset Dan Pengalaman Japelidi Di Tengah Pandemi. Yogyakarta: Program Studi Magister Ilmu Komunikasi, Departemen Ilmu Komunikasi, Universitas Gadjah Mada*. Retrieved from https://www.researchgate.net/profile/Xenia-Wijayanto-2/publication/350121118_Kolaborasi_Sebagai_Kunci_Membumikan_Kompetensi_Literasi_Digital_Japelidi/links/60520a2a458515e8345166df/Kolaborasi-Sebagai-Kunci-Membumikan-Kompetensi-Literasi-Digital-Japelidi.p

Kusnadi, S. A. (2021). Perlindungan Hukum Data Pribadi Sebagai Hak Privasi. *AL WASATH Jurnal Ilmu Hukum*, *2*(1), 9–16. Retrieved from https://www.journal.unusia.ac.id/index.php/alwasath/article/download/127/113

Lu, S. Y., Yoon, S., Yee, W. Q., Heng Wen Ngiam, N., Ng, K. Y. Y., & Low, L. L. (2024). Experiences of a Community-Based Digital Intervention Among Older People Living in a Low-Income Neighborhood: Qualitative Study. *JMIR Aging*, *7*, e52292. https://doi.org/10.2196/52292

Mansur, S., Saragih, N., Ritonga, R., & Damayanti, N. (2021). Fake news on social media and adolescent's cognition. *Jurnal ASPIKOM*, *6*(1), 29–41. Retrieved from https://mail.jurnalaspikom.org/index.php/aspikom/article/view/827

Marzal, J., Huda, N., & Effendi-hasibuan, M. H. (2022). *Digital- Immigrant Lecturers' Perceived Easiness About and Acceptance towards E-Learning during the Pandemic Era*. *11*(3), 552–560.

Murciano-Hueso, A., Martín-García, A. V., & Cardoso, A. P. (2022). Technology and Quality of Life of Older People in Times of COVID: A Qualitative Study on Their Changed Digital Profile.

136

International Journal of Environmental Research and Public Health, *19*(16). https://doi.org/10.3390/ijerph191610459

Ngiam, N. H. W., Yee, W. Q., Teo, N., Yow, K. S., Soundararajan, A., Lim, J. X., … Tham, C. Y. X. (2022). Building digital literacy in older adults of low socioeconomic status in Singapore (project wire up): nonrandomized controlled trial. *Journal of Medical Internet Research*, *24*(12), e40341. Retrieved from https://www.jmir.org/2022/12/e40341/

Nisa, U., Nisak, C. L. C., & Fatia, D. (2023). Literasi Digital Lansia Pada Aspek Digital Skill dan Digital Safety. *Jurnal Komunikasi Global*, *12*(1), 143–167. Retrieved from https://jurnal.usk.ac.id/JKG/article/view/31667

Notley, T., Chambers, S., Park, S., & Dezuanni, M. (2021). *Adult media literacy in Australia: Attitudes, experiences and needs*. Retrieved from https://researchdirect.westernsydney.edu.au/islandora/object/uws:59400/

Nurliah, N., Juwita, R., Boer, K. M., & Sari, K. A. (2025). *Breaking Down Hoaxes in Elections, Samarinda Youth and Students Learn Politics Through the Sekolah Kebangsaan Tular Nalar-Mafindo*.

Pangribowo, S. (2022). Infodatin: Lansia Berdaya, Bangsa Sejahtera. *Jakarta: Kemenkes RI*. Retrieved from file:///C:/Users/Asus/Downloads/17169680516656da737d4a52.38795664.pdf

Peralta, K. J., & Arps, S. (2021). A community does not exist. *Community-Based Service Delivery, Query Date: 2024-06-06 10: 36*, *37*, 76–91. Retrieved from https://ebrary.net/178810/sociology/community_exist

Prathama, N. A., Hasani, M. J. R., & Akbar, M. I. (2022). SARA hoax: Phenomena, meaning, and conflict management. *Jurnal ASPIKOM*, *7*(2), 129–142. Retrieved from http://jurnalaspikom.org/index.php/aspikom/article/download/1117/286

Quinn, K. (2018). Cognitive Effects of Social Media Use: A Case of Older Adults. *Social Media and Society*, *4*(3). https://doi.org/10.1177/2056305118787203

Rasi, P., Vuojärvi, H., & Ruokamo, H. (2019). Media Literacy for All Ages. *Journal of Media Literacy Education*, *11*(2), 1–19. https://doi.org/10.23860/JMLE-2019-11-2-1

Riski, P. (Voa I. (2023). Akademi Digital lansia upaya mafindo lawan Hoax.

Sanecka, A. (2020). Social Barriers to Effective Communication in Old Age. *Journal of Education Culture and Society*, *5*(2), 144–153. https://doi.org/10.15503/jecs20142.144.153

Sarbani, Y. A., Mulyati, H., & Astuti, S. I. (2024). Literasi Digital, Lansia, dan Konstruktivisme: Pendekatan Pembelajaran untuk Meningkatkan Resiliensi Para Imigran Digital. *Scriptura*, *14*(1), 72–81. Retrieved from https://scriptura.petra.ac.id/index.php/iko/article/view/27180

Sari, A. R., Rosidi, M. I., & Djollong, A. F. (2024). DIGITAL LITERACY AMONG THE ELDERLY: LITERATURE REVIEW AND IMPLEMENTATION IN COMMUNITY SERVICE. *JOURNAL OF COMMUNITY DEDICATION*, *4*(3), 455–465. Retrieved from https://adisampublisher.org/index.php/pkm/article/view/757

Šolcová, J., Zaťková, T. Š., Franta, A., & Tokovska, M. (2025). Enhancing Old Age: Smart and Welfare Technologies Use Among Older Adults. *TEM Journal*, *14*(1).

Sun, X., Yan, W., Zhou, H., Wang, Z., Zhang, X., Huang, S., & Li, L. (2020). Internet use and need for digital health technology among the elderly: a cross-sectional survey in China. *BMC Public Health*, *20*, 1–8.

Trninić, D., Kuprešanin Vukelić, A., & Bokan, J. (2021). Perception of "fake news" and potentially manipulative content in digital media—a generational approach. *Societies*, *12*(1), 3.

Wallcook, S., Nygård, L., Kottorp, A., & Malinowsky, C. (2021). The use of everyday information communication technologies in the lives of older adults living with and without dementia in Sweden. *Assistive Technology*, *33*(6), 333–340. https://doi.org/10.1080/10400435.2019.1644685

Zainuddin Muda Z. Monggilo, Novi Kurnia, & S. I. A. (2021). Modul Cakap bermedia digital. *Kementerian Komunikasi Dan Informatika, Japelidi, Siberkreasi*, 1.