



Older adults and digital inclusion

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Digital transformation or mediatization (Hjavarð, 2013), and demographic change are two metaprocesses, which influenced age and aging. Presently, the digital transformation of public and private services, such as health and social services, is one of the governmental priorities in developed and developing countries. Digitalization is expected to enhance the availability of services and secure equal to access to them. Digital technologies and media have entered the workplace and in some fields, even become ubiquitous. In addition, citizens communicate to an increasing extent through digital media such as the internet and social media in their everyday life. However, both researchers (e.g., Rasi-Heikkinen, 2022; Seifert et al., 2018) and policy-makers (e.g., Digi arkeen -neuvottelukunta, 2019; World Health Organization, 2016) have acknowledged that besides promoting digital inclusion, mediatization may have exclusionary effects for some older adults. This is because there are older adults who are unable or not willing to use the provided digital technologies, media and services, or use them in a manner that does not fully benefit their well-being, everyday life, and participation in today's digitalized society. Especially, in times of pandemics such as the Covid-19, the nonuse or limited use of digital technologies and media may have severe consequences for digital and social exclusions and a risk of obsolescence and loneliness (O'Sullivan et al., 2021).

From the perspective of developed countries, internet nonuse may seem to be a marginal phenomenon; but even in these countries, there exists a broad digital gap in access, competence and resources between older generations (European Commission, 2022; International Telecommunication Union, 2021). Especially persons aged 80 years or more and older adults living in residential facilities are confronted with digital and social exclusion, even if they could benefit from information and communication technology (ICT) and smart technologies (Doh, 2020; Hunsaker & Hargittai, 2018).

This Special Issue focuses on older adults' digital inclusion, which is here understood through two viewpoints (see Hänninen et al., 2021). First, digital inclusion is defined as the extent to which older adults in general or special segments of older persons can *participate* as part of a digitalizing society through digital technologies, media and services. Second, digital inclusion encompasses digital *engagement*: that means policies, practices, and research projects developed to promote, examine, and evaluate older people's participation in a digitalizing society. Furthermore, digital inclusion is connected to a variety of aspects such as digital skills, digital health literacy, digital empowerment, digital volunteering, and digital neighborhood.

Digital inclusion is closely related to the concept of the digital divide, as digital inclusion aims to bridge close the digital divide. Previous research has revealed the complex and dynamic nature of digital divide, which can be seen to include at least three levels (Helsper, 2021; Scheerder et al., 2019). The first-level digital divide refers to access to the internet, the second level is related to differences in internet usage, skills, and literacies, whereas the third level divide is related to differences in individuals' capacities to use the internet in a way that benefits enhances their participation in society.

Older adults' digital inclusion and exclusion have been studied within various disciplines and scientific fields such as communication and new media studies, social and cultural studies of technology, digital divide research, digital inequalities research and digital exclusion research (see Rasi-Heikkinen, 2022). Existing research has produced an extensive knowledge base about various types of digital divides, older adults' use, nonuse or limited use of digital technologies and media, and about facilitating and hindering person-related and environmental-related factors for digital inclusions. In explaining the causes and consequences of digital inequalities and exclusion, the interrelations of economic, cultural, social, and personal factors have been taken into consideration. However, research evidence of the digital inclusion of the oldest age groups, older adults living in residential facilities, and

older adults with physical and cognitive impairments is still scarce. Furthermore, there is need for more research on theoretical concepts and educational practices aimed at promoting older adults' digital skills and literacies.

This Special Issue presents and discusses recent advances of research into older adults' digital inclusion. The Issue includes multidisciplinary papers that explore the phenomenon from different perspectives. Three of the articles target older adults' digital inclusion from a *learning and skills perspective* through examining their learning or intentions to learn to use digital technologies. Starting from the premise that the use of social networking sites may help older adults reduce loneliness and increase well-being, *Ooi, Lee, Tan and Siah* interviewed Malaysian older adults to find out factors that could influence affect their intention to learn to use SNS. According to their findings, in order to close the digital skills gap, pedagogical approaches resorting to active learning and social support are of key importance, as well as learner motivation, and instructor characteristics such as patience and flexibility.

Wang and Liu investigated Taiwanese older adults' and college students' changes over six weeks in their flow states during an intergenerational course that encompassed the use of digital technologies and combined face-to-face and online learning. Their findings indicate that during the period starting from face-to-face learning to online learning, the rate of decline in flow state among young people was faster than that of older adults. The authors concluded that this difference may be due to digital distraction that young people are more prone to, and that when designing intergenerational learning, the possibility of digital distraction should be taken into account.

In their article, *Klank, Himmelsbach and Doh* present a qualitative biographical case study conducted in Germany of a 79-year-old offliner who used. The case study sheds light on the complex relations between educational and learning experiences across the life span, and learning to use ICT, leading the authors to conclude that biographical aspects should be considered when designing ICT instruction for older adults.

In another article from Germany, *Jokisch, Göbl, Schlichting, Leopold and Doh* compared older people who volunteer in the ICT sector with older volunteers who have no connection to ICT and older people who do not volunteer. The quantitative study from 2021 ($n = 331$, aged 60 to 90) showed that older ICT volunteers have lower perceived obsolescence and a higher Internet self-efficacy. Notably, there are no negative educational or age effects related to Internet self-efficacy only among this group. The findings underscore the particular resources and positive effects that can result from ICT volunteering in old age.


We will conclude this Special Issue with an article about digital service offerings for older people. In this quantitative study from China ($n = 341$, aged 55+), *Zhang and Liu* investigated age-specific factors for the acceptance of online self-learning. Based on the TAM, they were able to show that the type of residence (living with or without children) and gender are two relevant moderating factors and that differentiated marketing strategies are therefore necessary. For example, while the utility of such digital offers is high for men and for older people living without children, trustworthiness and financial costs are also important for older women.

The five contributions impressively demonstrate the complexity and heterogeneity offered by the topic of digital inclusion and digital education in old age. Nevertheless, the research area remains in flux, especially regarding the generalizability and temporal robustness of the research results. This is because mediatization and digital transformation are highly dynamic processes. Older people will therefore also be continuously confronted with negotiation and learning processes in dealing with digital technologies in their everyday lives. In addition to this environmental level, however, there is also dynamic at the personal level, particularly among older people – especially in the transition from an active and relatively healthy young age ('third age') to a vulnerable age ('fourth age'). These relational human-media constellations lead to changing processes of digital and social inclusion and exclusion. Scientific findings on this topic should therefore be located even more strongly in the temporal-historical and cultural-national context. For this reason, there is an imperative in research for longitudinal studies to analyze changes in digital inclusion and digital competencies of older people

at the environmental and person levels. Furthermore, there is still a lack of cross-cultural comparative studies to identify country- and culture-specific characteristics in the context of age and digital inclusion.

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