Article

Catching the Digital Train on Time: Older Adults, Continuity, and Digital Inclusion

Cora van Leeuwen [1,2,]*, An Jacobs [1], and Ilse Mariën [1]

[1] imec-SMIT, Vrije Universiteit Brussels, Belgium
[2] CoLab for eInclusion and Social Innovation, University of the Western Cape, Bellville, South Africa

* Corresponding author (cora.van.leeuwen@vub.be)

Abstract
As society has become more reliant on digital technology, it has changed the perception of the ageing experience to now include a digital component. However, not every older adult perceives digital technology as essential to their way of ageing. In this article, we asked 76 older adults with different patterns of digital technology use how they experience and perceive the role of digital technology in the context of their ageing. The thematic analysis results point to a more nuanced understanding of the importance of familial support, the role of personal history or continuity in older adults' digital inclusion, and how they see the role of age in relation to digital technology. Furthermore, our findings show that ageism is both a barrier and a motivational factor for older adults. When ageism is based on the level of digital inclusion, it can cause a different ageing experience, one that is perceived as superior by those using digital technology. This leads to a precarious situation: It becomes essential to maintain digital skills to avoid the non-digital ageing experience even as it becomes more difficult to maintain their skills due to the evolution of technology. Prior to the study, we created a conceptual framework to understand ageing in a more digitalised world. We used the findings of this study to test the conceptual framework and we conclude that the framework can clarify the role (or lack) of digital technology in the ageing experience of older adults.

Issue
This article is part of the issue "Expanding the Boundaries of Digital Inclusion: Perspectives From Network Peripheries and Non-Adopters" edited by Rob McMahon (University of Alberta), Nadezda Nazarova (Nord University Business School), and Laura Robinson (Santa Clara University).

1. Introduction

The growing reliance on digital technology means that the ability to use said technology is essential for full participation in society. However, the special expert for the UN has called for attention to the precarious position of many older adults in relation to digital technology (Mahler, 2020). Additionally, a recent study concluded that 46% of Belgians aged between 16 and 74 are at risk of digital exclusion due to a lack of progression in their digital skills (Koning Boudewijnstichting, 2022). The Koning Boudewijnstichting report designated the population aged 65 and older as especially vulnerable to digital exclusion (Faure et al., 2022). Research has theorised that digital exclusion works on four interacting levels: access, skills, usage, and outcomes (Helsper, 2021; van Dijk, 2020). Hunsaker and Hargittai (2018) found that older adult users employ unique strategies compared to those younger than them. For older non-users, research shows that they apply four strategies, which include substitution and minimal use (Dolničar et al., 2018; Gallistl et al., 2021). Although there has been significant research into the digital inclusion mechanisms surrounding older adults, there has not been a detailed examination providing a comprehensive perspective by older adults of their ageing experience within a more

digitalised society. Our research question, therefore, is: How do older adults negotiate their ageing experience in the digital context?

2. Ageing in a Digital World

Often ageing is framed as a problem for which technology can offer a solution (Peine et al., 2021; Peine & Neven, 2020). This view on both ageing and technology perceives these as two distinct areas of study, and disregards how they are entangled (Peine & Neven, 2019). Wanka and Gallistl (2018) argue the necessity of seeing age not as a biological attribute but as a process that is done via multiple agents and actors, one of which is technology. By viewing ageing as enmeshed with digital technology, older adults feel more empowered in their choice of (non-)use of digital technology. It changes the relationship from a binary dimension (use/non-use) into a more nuanced understanding of different types of use and non-use among older adults (Gallistl et al., 2021). Previous studies have shown that older users are more likely to have work experience or a prior interest in technology, and this motivates them in their continued use of various digital technologies such as the Internet (Hargittai & Dobransky, 2017; Olsson & Viscovi, 2020; Van Leeuwen et al., 2022, 2023). One theory from ageing studies that has been used to understand this phenomenon is continuity theory, which assumes that habits and views prior to retirement help determine the outlook and habits of the older adult (Atchley, 1999; Diggs, 2008). Manor and Herscovici (2021) argue that continuity should not be understood as a barrier to new habits but rather as a coping strategy that enables older people to engage with new technologies and situations in their later lives. This is confirmed by studies that have found older users as innovators of technology both in its intended form (Peine et al., 2017) and in adopting the technology for their needs and requirements (Bergschöld et al., 2020).

A non-binary approach to older adults' technology use also provides more room for understanding the role of the social network. Previous studies have shown that social support is important in the introduction of new technology to older adults (Outila & Kiuru, 2021; Peek et al., 2016). Furthermore, the children and grandchildren of (grand)parents who use(d) technology play a significant role in the continued use of digital technology (Barbosa Neves et al., 2019; Cheng et al., 2021; Courtois & Verdegem, 2016; Eynon & Helsper, 2015; Luijkx et al., 2015). However, research by Asmar et al. (2020) shows that there are different types of support needs. We assume that the support network becomes one of the actors within the ageing experience, which can have an impact on the use of digital technology. The support network's assistance can range from solving incidental issues to using the technology as a proxy-user for older adults (Asmar et al., 2020; Gallistl et al., 2021; Hunsaker et al., 2020).

Ageism has been found to be another important factor for the use of technology in later life. Neven (2010, pp. 10–11), for example, found that "even if technology could be beneficial to the health and wellbeing of elder users, elder users who feel that they are being positioned as old, lonely and frail may rightly refuse to be positioned as such and consequently refuse to use the technology." Ageism is here defined as discrimination based on age, which is externalised towards older adults in discriminatory assumptions and representations by society (Hargittai & Dobransky, 2017; Ivan & Cutler, 2021; Neven, 2010; Rosales & Fernández-Ardèvol, 2019; Schreurs et al., 2017) and internalised through a process in which older adults accept these ageist views and unintentionally replicate them in their own interactions and world view (Köttl et al., 2021; McDonough, 2016; Van Leeuwen et al., 2022). For example, during a longitudinal study of 86 Portuguese older adults, the internalising of ageist views had a detrimental effect on technology use. The study found that older adults were afraid to confirm a certain stereotype and hence decided to avoid the use of technology (Mariano et al., 2020). This avoidance of technology use due to internalised ageism was noted by Köttl et al. (2021, p. 5) "to constitute an invisible barrier to older adults' EICT engagement."

3. Methodology

This study used a qualitative research design with in-depth semi-structured interviews. The choice of qualitative methods was based on the understanding that it "attempts to make sense of, or interpret, phenomena in terms of the meanings people bring to them" (Denzin & Lincoln, 2008, p. 4). Interviews are a traditional method of collecting qualitative data (Creswell, 2003). In this study, the interview method allows for the capture of experiences and perceptions of the ageing experience of older adults using their own words. The purpose of this study was to test a framework conceptualised by the first author as a result of previous studies (Van Leeuwen et al., 2022, 2023). This section is organised as follows: We will first discuss the conceptual framework and the various works that inspired its creation. Secondly, information about the participants is provided; finally, we will discuss the analysis process.

3.1. Conceptual Framework

The conceptual framework that guides this research is displayed in Figure 1. This framework combines theoretical concepts from the field of digital inclusion with previous studies conducted by the authors (Asmar et al., 2020, 2022; Van Leeuwen et al., 2022, 2023). We use the definition of Asmar et al. (2022) for digital exclusion, who see it as an interaction between social and digital mechanisms that lead to differences in usage and ultimately in the outcomes that might be enjoyed by an individual as the result of their (lack of) engagement with digital
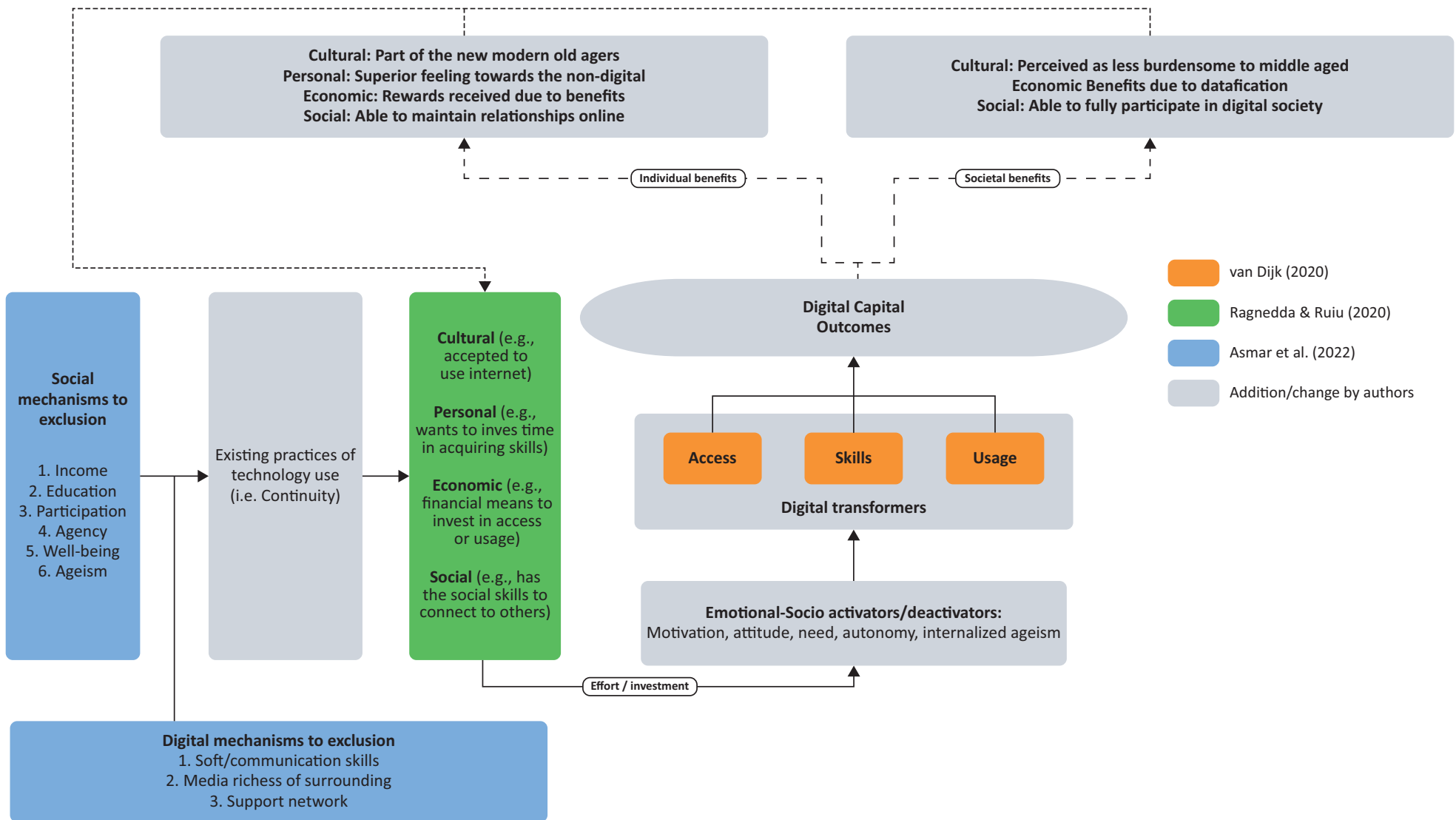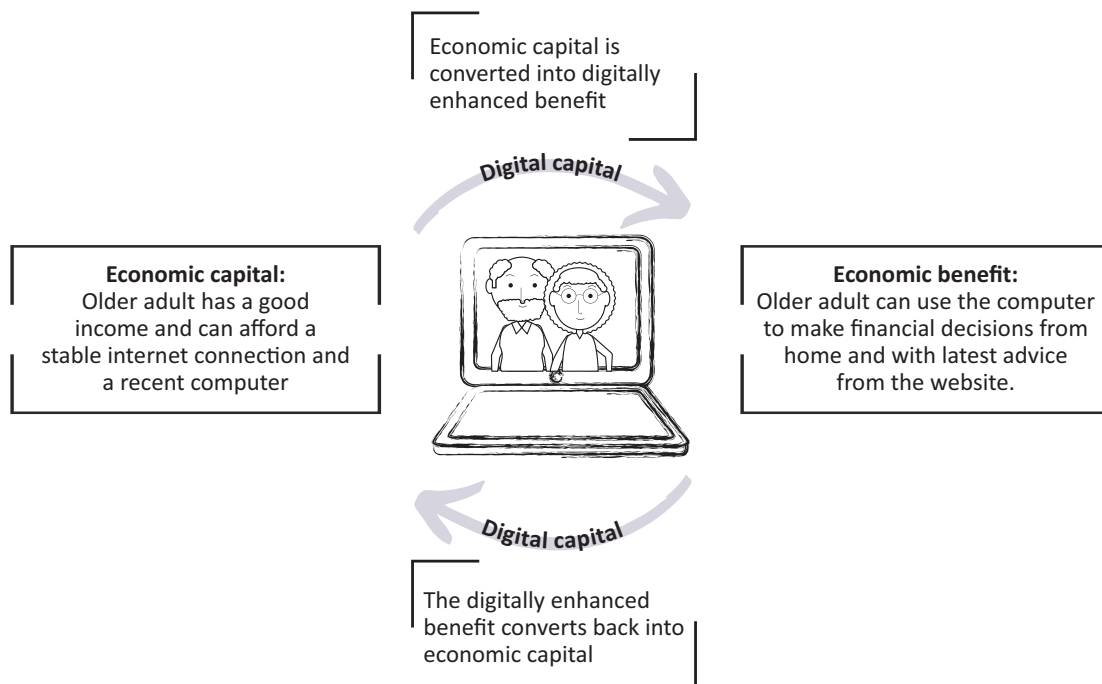
Figure 1. Conceptual framework to understand the role of technology in old age.

technology. For example, one of the social mechanisms is agency, as it impacts how much decision-making power a person has in terms of "how" and "if" they engage with digital technology. This social mechanism allows for the possibility that non-use is a conscious choice, even for those in a more socially precarious situation (Asmar et al., 2022; Gallistl et al., 2021; Townsend et al., 2020). Approaching digital exclusion in such a way helps to account for those that are unexpectedly included or excluded as it goes beyond the socio-demographic explanations and really looks at the individuals' situation and accounts for their agency in their own digital inclusion (Asmar et al., 2022). Furthermore, this specific placing of social and digital mechanisms enables us to understand that these influence and strengthen each other as proposed by Helsper (2012). In Figure 1, these mechanisms are indicated in blue. Ageism was added to the social mechanisms as we theorised that it influences the technology adoption of older adults. The mechanisms lead to practices that are informed by continuity theory and are therefore determined by one's level of interest or previous experience with technology. These practices are then altered by the Bourdieusian capitals, which consist of the accumulation of available resources in the field of digital technology use. The following list of examples for each capital is not exhaustive but serves to illustrate the resources that can be accumulated in these capitals. Personal capital includes the resources tied to one's capacity to learn, while social capital includes the support from one's social circle that can be relied on for digital technology issues. Economic capital is determined by the available financial resources to buy, for example, a new laptop. Finally, cultural capital deals with how acceptable the use of digital techno-

logy is perceived to be. The acceptability of technology use can be determined by age-norms, as they determine the appropriate behaviour according to age (Dannefer & Settersten, 2010). The discussed capitals influence the "emotional" socio-activators/deactivators. These are directly activated by the resources one has in various capitals. For example, one's perception of age-appropriate behaviour influences one's attitude towards technology.

The (de)activators lead to the "digital" transformers. These consist of two of the levels that are present in the digital divide—access and skills and usage—as argued by van Dijk (2020). The digital transformers are foreseen to determine the way older adults interact with digital technology. We have combined the last identified level, that of outcome, with a capital that was theorised by Ragnedda (2018) and Ragnedda and Ruiu (2020), namely, the "digital capital outcome." Ragnedda (2018, p. 2367) theorised that there should be a digital capital that consists of "the accumulation of digital competencies (information, communication, safety, content-creation and problem-solving), and digital technology." They perceive this capital as a bridge capital able to transform opportunities enjoyed online into offline opportunities, and vice versa. Ragnedda and Ruiu (2020) further explored this concept in connection to digital competencies and material access. They argued that both form part of the digital capital, which enables a transfer and/or accumulation into different Bourdieusian capitals. Furthermore, as it is a bi-dimensional relation, it results in a digitally enhanced outcome. Figure 2 shows an example of this transformative power.

The conceptual framework leads to two types of benefit, namely, individual benefit, which can be the increase of savings due to an online deal, and societal benefit,

Economic capital is converted into digitally enhanced benefit

Digital capital

Economic capital:
Older adult has a good income and can afford a stable internet connection and a recent computer

Economic benefit:
Older adult can use the computer to make financial decisions from home and with latest advice from the website.

Digital capital

The digitally enhanced benefit converts back into economic capital

Figure 2. Example of how a digital capital can convert another Bourdieusian capital.

which is created through the process of data collection and data processing inherent to our use of digital technology. Sourbati and Behrendt (2020) describe this process as datafication, which encompasses the collection and processing of data that results in tracking and predictive analysis. Datafication can lead to societal bonuses as, for example, the city policymakers can create policies based on data collected in their municipality. Finally, although Ragnedda and Ruiu (2020) argue that by using the Bourdieusian capitals the existing inequalities are preserved, to obtain a more nuanced view we combined and added to the work of various authors to allow for both structural and institutional inequalities and to provide a more nuanced view on technology (non-)use in later life.

3.2. Participants

The data collection was organised in two waves. The first wave of 37 participants were interviewed from March to May 2021. The aim was to recruit self-identified digitally skilled older adults in Belgium. This was necessary as it involved online interviews due to the Covid-19 restrictions. Three PhD researchers were responsible for the data collection and received extensive training in online interview techniques, similarly to the methods described by Heiselberg and Stępińska (2022). The second wave of 39 interviews took place offline from October to November 2021. These interviews were in person and conducted by second-year communication studies students as part of the course "Introduction to Qualitative Studies." The first author performed a quality check that included reviewing the grade assigned by the assessors, conducting a thorough read-through, and verifying that the demographic requirements were met. Most of the participants were in their seventies (N = 41), with a median age of 71, ranging from 65 to 91 years old. Interviews were transcribed by either a professional transcription service or the students, and all the participants gave their consent following our ethical approval. Figures 3 and 4 provide information about the civil status and educational level of the participants respectively.

Participants were also divided into three user types: avid user, user, and non-user. These user types were determined by the first author and emerged during the analysis. The definitions for each user type are presented in Figure 5, and the process of their creation is explained in further detail in the next section. The distribution based on user type and age group is shown in Figure 6.
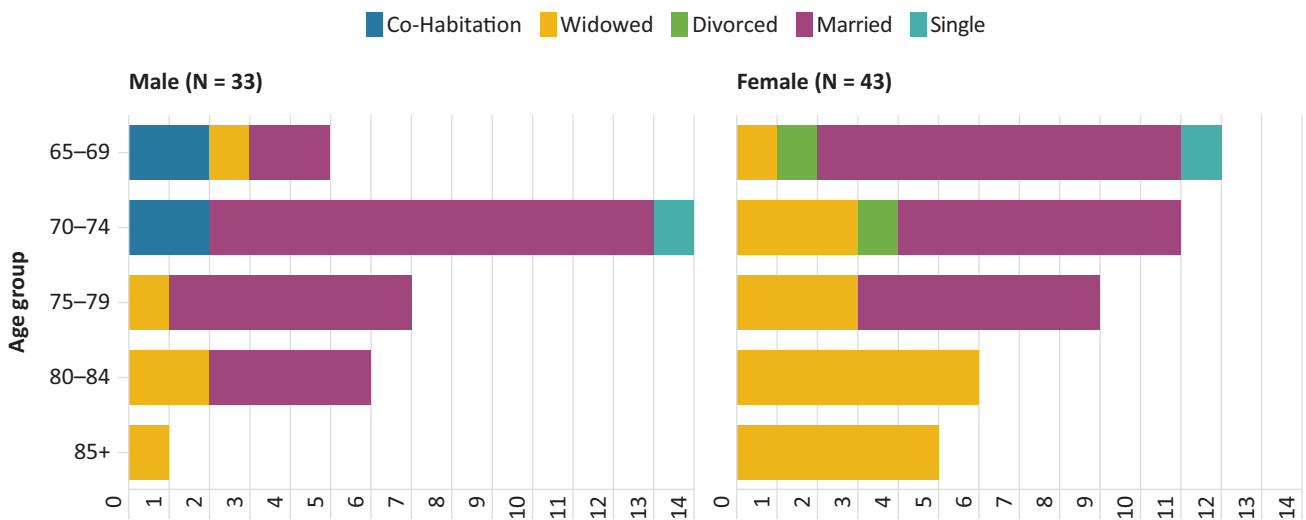

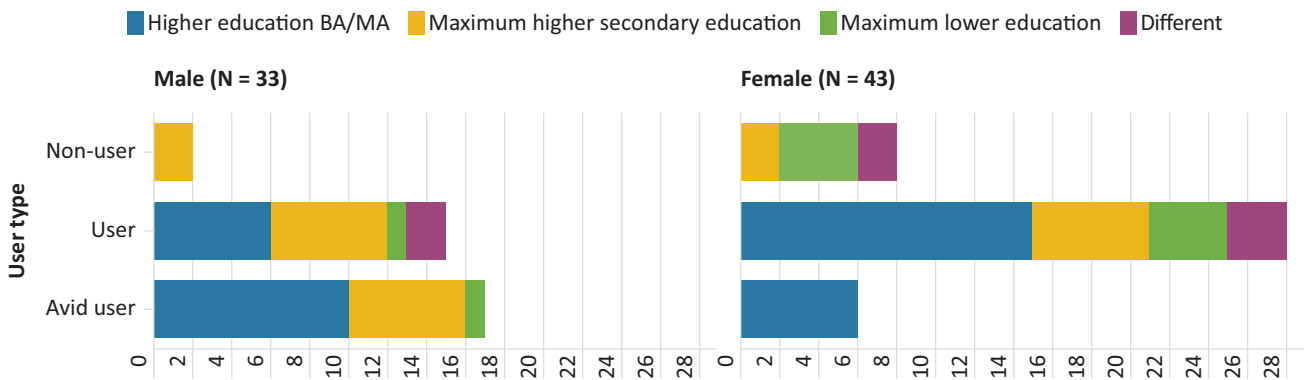**Figure 3.** Civil status of participants: Participants are divided by age group and gender (overview).

Figure 4. Educational level of participants: Participants are divided by user type and gender.

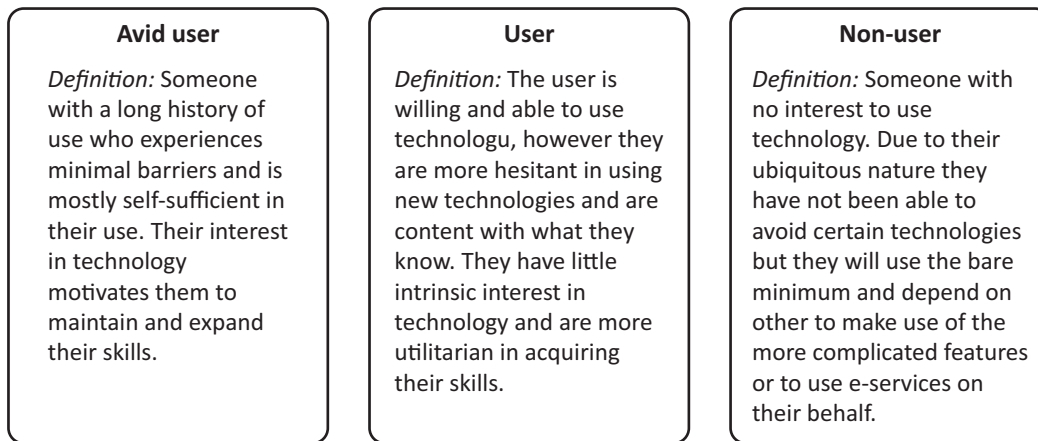| **Avid user**	**User**	**Non-user**
Definition: Someone with a long history of use who experiences minimal barriers and is mostly self-sufficient in their use. Their interest in technology motivates them to maintain and expand their skills.	*Definition:* The user is willing and able to use technologu, however they are more hesitant in using new technologies and are content with what they know. They have little intrinsic interest in technology and are more utilitarian in acquiring their skills.	*Definition:* Someone with no interest to use technology. Due to their ubiquitous nature they have not been able to avoid certain technologies but they will use the bare minimum and depend on other to make use of the more complicated features or to use e-services on their behalf.

Figure 5. Definition and criteria of each user group.

3.3. Thematic Analysis

The collected interviews were analysed following the thematic analysis procedure by Braun and Clarke (2006). The data was approached from the social construction-ism paradigm as it places "the social practices people engage in as the focus of enquiry" (Andrews, 2012, p. 45). Furthermore, central to this paradigm is the "interaction, processes, and social practices" (Young & Collin, 2004, p. 377) of older adults in relation to ageing in a digital world. The first author initially coded 37 interviews using the inductive method, described by Charmaz (2014), for open coding. This included utilising the words of the participant and/or using verbs within the code to reconstruct the ageing experience in the participant's words. During the process of open coding the conceptual framework was not used. However, it was applied as a sensitising concept when themes were created because a sensitising concept provides the focus in an inductive research design (Bowen, 2006). Each theme emerged from the codes and was given a short definition by the first author. During the weekly meetings, the themes were presented to the other authors. They chal-

lenged the definition and if a consensus could not be reached about a theme, collaboration between the first and second authors would lead to the creation of a new definition, which was presented to the third author. This was an iterative process until all three of the authors agreed with the definitions. The result of these discussions was a code book to be used in the other interviews. However, the first author did use open codes where the code book insufficiently captured the perception of the participant, which allowed for emergent sub-themes during this stage of the analysis. These were then subjected to the above process. During this process, a definition of the various user types was created by the first author and discussed and re-defined together with the other authors. The result of this discussion can be found in Figures 5 and 6. The analysis was supported by the software MAXQDA 2020 and MAXQDA 2022.

4. Findings

In the following paragraphs, we will describe three themes that are used by older adults to position their ageing experience within a digital context. Each section
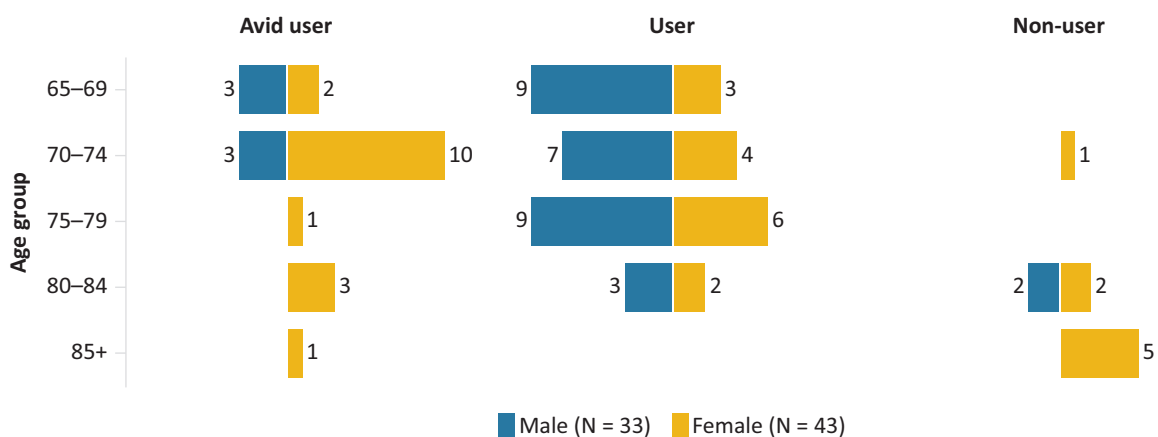

Figure 6. Distribution of user type: Participants are divided by age group and gender.

will provide perspectives of users and non-users. For each of the participants, we have indicated their user type: A for avid user, U for user, and N for non-users.

4.1. The Importance of Personal Context

Personal context consists of three sub-themes, namely, education, employment, and interest. This is closely related to the theory that habits and life choices of older adults are a result of their efforts to maintain a fac-simile of their lives prior to retirement (Atchley, 1999), which means pre-retirement habits influence the level of interest and skill of older adults. Most of our users reported that their education and employment provided them with both material access and support for a sig-nificant period before digital technology became widely available. This early introduction means they were often able to follow the evolution of the devices, and the learn-ing curve remained manageable. According to them, this contributed to existing skills and a basic awareness of technology that informs their current use, or as Dirk (M, 65, A) explained: "I think that if I hadn't had a job where it was necessary, that it would have taken a longer time [to use computers]." Another example is Kareltje (F, 72, U), who explained that her first intro-duction to the computer was in 1984 when her com-pany was optimising the work floor. Others became inter-ested by attending university, where they either stud-ied technological studies (such as engineering) or were granted access to computers in the late sixties. However, this introduction was often combined with an interest in technology, as explained here by Gert (M, 82, A): "There arrived one computer at the school and I said: 'That one is mine.' And the computer was given to me." Another example is Laurent (M, 70, A) who said: "I have always been interested in everything related to elec-tronics….And yes, the computer is a logical follow-up, that naturally follows up on it." The users often attrib-uted this combination of interest and early access to their current level of technological comfort. Our data-set revealed that there were not many non-users in our sample who gained experience through their employ-ment, and subsequently stopped using the technology. However, we had one participant, Koen (M, 85, A), who declared that the introduction of technology prompted his early retirement, as he retired at 60 to avoid having to follow additional courses although he later became proficient in using technology due to his own renewed interest therein.

On the other hand, non-users often cited a lack of interest in technology as a reason for their non-use. For example, Tim (M, 82, N) said he never had an interest, even if he had ample opportunity to learn, while Jopie (F, 87, N) said she has no interest, "because we have too little knowledge, and I think that we are not supported enough." In addition to the lack of interest, participants who did not use technology often mentioned other activ-ities they engage in, such as gardening, walking, crafts, or

watching television. This aligns with the perception that older users age without technology. An example is Dirk (M, 65, A), who explained: "As soon as people enjoy being outside, and are busy, is [sic] internet still not essential." However, we also found that their own disinterest does not exclude digital services used on their behalf, which we will explore in a later section.

4.2. Age as a Complicated Indicator

Our participants described an ageing experience in which the presence of digital technology is not based on chro-nological age, but rather on whether the digital tech-nology is seen as appropriate for someone their age. Our participants limited to non-use often stated that they are too old to learn new things and they perceive this as a barrier. Learning new things appears to be judged as inappropriate or difficult for older people. For example, Janette (F, 89, N) said: "Because at this age you do not understand everything anymore!" They also used their age as an excuse to not learn anymore, such as Christina (F, N) who said: "And because I am now 85 years old…I think that I do not have to learn those things anymore." Some of the users expressed the belief that some people might be too old to learn, such as Maarten (M, 70, A) who said most people above 80 will not be interested as they did not grow up with it. Katinka (F, 72, U) said that even though her 102-year-old mother expresses interest in her smartphone, she deems her mother too old to learn how to use it. Furthermore, par-ticipants limited to non-use indicated that they feel as if older adults are ignored when it comes to digital tech-nology. Francesca (F, 82, N) mentioned that "you are dependent on someone if you cannot use it," and Jopie (F, 87, N) stated that, "yes, they should have involved the elderly ten years ago, lessons for older people."

Another way in which perceptions of ageing are involved is when the older users clearly differentiate between their own experience and that of non-digital older adults. There are several ways in which this is achieved. The first is by associating themselves with younger cohorts. For example, Elena (F, 67, A) said she does not like to follow courses with people her own age because the younger people are more up to her speed. Secondly, older adults state that a problem is especially difficult for those older than them. For example, Miriam (F, 66, U) said: "But I think that for example for someone aged 85 or, or 89 or there abouts, that there is no interest anymore, but that is normal. I mean…the interest in everything lessens." When they are no longer able to make this distinction due to their advanced age, older adults provided evidence to the interviewer that they are an exception to the rule. Gert (M, 82, A) explained how he tried to introduce the smartphone to friends. They were categorically not interested, and he said that "it has become too big for [them] to take the leap." This tended to be a reaction of the avid users, while the users and non-users do tend to blame chronological age

for their lack of interest in using new technologies. For example, when a virtual birthday party was described, Jana (F, 74, U) laughingly said: "Oh boy….I am too old for that." When asked what she thought of the ubiquitous presence of digital technology, Christina (F, 85, N) said: "I am too old for that….And I do not have the inclination." However, we also found that older adults are open to new technology that they previously dismissed. Maurice (M, 72, A), for example, initially surprised his nephews and close friends with his reluctance to use a smartphone, which he described as follows: "How is it possible, that you, especially you do not have a smartphone! That is social pressure." However, since the pandemic, he is now very happy with his smartphone and the connection it provides within his neighbourhood:

> We have a [WhatsApp] group in the neighbourhood, because I have a lot of support [as a] single [man]—so I live alone, with a wheelchair. But if there's is a problem, my neighbours—I have fantastic neighbours—and we have such comity, and that is on WhatsApp, the Bootcomité. That is such fun.

4.3. Digital Support Network

This concept links to the previous statement of Maurice (M, 72, A) about connection to others and how this interacts in different ways for older adults. the connections in our findings can be both a motivation and a deterrent for older adults to use technology.

Firstly, there is the motivation that stems from having a partner interested in technology. We call this the "coupled bonus." It occurs when each member of a couple specialises in a different area of technology use. For example, in the case of Manon (F, 65, A), her husband "knows quite a bit about computers, course [sic] he had to learn that by experimenting. But sometimes he would already have the solution. Or I….Yes, we complement each other." Another example can be found in the social use of technology. Here our participants reported that women tend to manage the social aspects. Often the women were tasked with sharing the pictures and stories received via social media, such as WhatsApp and Facebook.

The second sub-theme is the role of the family in providing support for older adults in their use of digital technology, which appears to be essential for their continued engagement with it. This is evidenced by the many participants' accounts of the assistance provided by their children and/or grandchildren. It is possible to see a difference in the way users and non-users ask for help. First, users tend to ask for help from their children's generation for highly technical problems, and often after attempting to resolve the problem on their own without success. This younger generation has in common that they are recognised by the older user for having superior IT expertise. Maurice (M, 72), for example, indicated that he asks his adult nephews. Diederik (M, 67, A) said:

> You will look for it yourself. Afterwards, I have a son who works in computers. He designs apps. If I really encounter certain problems, then I will give him a call: "Phillip, my boy, you have to explain such and such to me or set that right for me."

The users ascribe this expertise to the younger generation because of their technical education or employment in the IT industry. This level of expertise is not required by older non-users from their proxy-users. This will be further examined later. However, for smaller, less technical issues they ask the younger generations to assist, especially as this generation is seen as natural users due to their age, or in the words of Kevin (M, 73, U): "That is already present in their genes probably." They also motivate the older adults to go or remain online as contact is easy and provides easy assistance as "they are the ones busy with it, the whole day and who have the time for it" (Fernand, M, 66, U). To summarise: older users use their own expertise at first, and the family helps occasionally and incidentally. However, their assistance is not structural or a substitute for their own usage.

For the non-users, the assistance of the younger generation is substantially different. Because they do not have an interest to obtain or maintain their own digital skills, they are required to have a proxy-user to assist them with the digital requirements of today's society. For example, obtaining prescription medication via their ID card or making transfers via e-banking services. One remarkable finding is that these proxy-users are often female, with daughters being most often tasked for proxy use regarding health, financial, or self-care tasks. Furthermore, proxy use requires a basis of trust; when the proxy-user is a close family member this is easier to achieve, as explained by Aaltje (F, 91, N) who said she is lucky that she can trust her daughter: "I don't think that our Ellen would ever abuse that [trust]. That is what I think." Tini (F, 81, N) is another non-user who, through her daughter, has access to Internet services. She feels ambiguous about it, as stated in her own words:

> It is good and not good. For the people who [are] aware of it, it is good, but I do not think that you must force everyone to use it. That it [should be able] to use the old way. I cannot imagine that every old person knows about it.

Most of the non-users conveyed a type of resignation to the loss of their autonomy and have accepted that they will burden their children with these tasks.

5. Discussion

In this section we will discuss the themes in connection to the conceptual framework and how both help with understanding how older adults negotiate ageing with digital technology. The first theme concerns the personal context, which corresponds broadly with the

principles of continuity theory (Atchley, 1999). It shows that, for our participants, the experience prior to retirement affects the integration of digital technology later in life. Additionally, this theme also provides insight into how the continuity theory can also apply to non-users, as most of our non-users indicated that they were never introduced to technology via work experience or never had an interest in using digital technology. However, there is a second link to the conceptual framework, namely how the personal context appears to influence the way participants view old age and what can be considered normal for their age. Both types of users perceive digital technology as interwoven with ageing. For the avid user, digital technology seems to be essential to part of their ageing process and identity. This seems to be aided by the fact that they experience the technological evolution over time. Users commented on the fact that they were able to jump on the technology "train" at the right time, while some non-users mentioned they missed the opportunity. The participants seemed to feel that it is difficult for non-users to begin using technology. In a form of internalised ageism, both users and non-users view age as the cause for a divide in usage or skills. This is evident in the comments of non-users who indicated that they are too old for learning, especially when they compare themselves unfavourably to younger generations. The younger generations, especially youngsters, are seen by our participants as naturally gifted and genetically predisposed to digital technology. Additionally, this perception of the younger generations as "natural users" implies that there is something missing in their own experiences with technology, which concurs with Gallistl et al. (2021) who found that older adults perceive their use as wrong or unskilled.

The older users seemed to perceive themself as an exception and are often aware that their use is not common in their generation or cohort. This translates into the confidence to look for their own solutions before approaching others for support. Indeed, the reliance on network support differs between users and non-users. While both would connect with their support network for assistance, the form of support requested is different. The non-users have a more dependent relationship with their support network compared to the users. Furthermore, our digitally active participants were able to determine when and who they approached for which type of assistance. They often expressed a preference for their grandchildren in the case of technology introduction or small issues, while engaging with tech-savvy children to provide technical support for more complex issues. This clear preference has not been found in previous research, and therefore adds to the existing literature on warm experts (Hänninen et al., 2020; Martínez & Olsson, 2022; Olsson & Viscovi, 2018), and aligns with the need for constant maintenance of ICT skills (Olsson & Viscovi, 2018). Additionally, there is an implied vulnerability in this situation as their own expertise and support network might not be sufficient in the future, which

might result in the enlistment of proxy-users to take over their ICT tasks. However, a limitation to the current findings is that expectations on future use were not part of the interview, and more research focussed on this needs to be conducted as we expect that questions directed to this line of inquiry would provide an understanding of how older adults anticipate the (possible) loss of digital technology use. Our non-users tend to have one of their children as a dedicated proxy-user responsible for ensuring that their parents' ICT affairs are in order. The non-user seemingly selects this proxy-user based on their trust in them rather than their technological capability. This differs from how users seemingly select their children for support, which is based on perceived ICT capabilities. Furthermore, the interviews suggest that the proxy-user is involved in a variety of support activities beyond the technological (e.g., groceries). Further examination of the role of gender is needed as our data suggest a skewness towards daughters. The requirements and support needs for providing digital forms of informal care are a future avenue of research.

Finally, we would like to address the way users experience ageing differently from non-users. In our findings, it became evident that the older users prefer a digital ageing experience and have taken steps to avoid a non-user experience. They did this by expanding their own technological skills through engaging in various forms of support, such as formal support (e.g., lessons) or network support (e.g., spouse). In the conceptual framework, there are individual outcomes that can only be accessed by those that have digital skills and can transform their original Bourdieusian capitals into a digital enhanced outcome. We argue that our users use their digital capital outcome to avoid becoming unable to use digital technology. The current data set does not allow for further exploration of the implications of the precarity of losing the expertise needed to maintain their current engagement with digital technology. We found that the older user is in a vulnerable position as their current ageing experience is dependent on their technological expertise. Maintaining digital skills becomes more difficult over time (Olsson & Viscovi, 2018) and might therefore result in a loss of the preferred ageing experience. A further topic of research is therefore to determine what happens with the self-perception of older self-sufficient users if they become dependent on a proxy-user.

6. Conclusion

The empirical analysis has tested the conceptual framework and found that it is able to explain the nuances in the digital technology use and inclusion of older adults. The findings underscore that this population is heterogenous in their use and expectations in terms of support needs. These findings align with the conceptual framework. This study is strengthened by having used two data sets to obtain views from a wide variety of ages and distinct types of uses. Although the quality of

the second data set was checked, it was evident that opportunities for further in-depth questions were overlooked due to students' lack of experience. This means further research into non-users will enable a more in-depth study of their technology use to compare it to findings from other studies such as Gallistl et al. (2021). Although a line of inquiry in expected future use was not part of these interviews, it became evident during the analysis that such an inquiry would have been an interesting perspective. However, this might be best addressed by using different interactive methods to elicit future scenarios. Even without these expectations of future use, our research has shown that there is an inherent vulnerability in the self-perception of older adults in terms of digital technology. Educational efforts need to be catered to those already skilled to enable them to maintain their competence and therefore their self-image. The effect of internalised ageism on both the user and non-user needs to be addressed sensitively and an empowering balance needs to be found. For example, ensuring that older non-users are introduced to the benefits of technology by their peers might counter the internalised ageism of the non-user, while at the same time, it can help older users obtain a more nuanced view on ageing without technology.

Acknowledgments

Conflict of Interests

The authors declare no conflict of interests.

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About the Authors

Cora van Leeuwen joined imec-SMIT at VUB, Belgium, in 2018 as junior researcher on the H2020 project ProACT. In 2020 she became part of the Digital Ageing Consortium as a PhD researcher. This is a joint PhD between VUB and the University of the Western Cape (South Africa). Her research focuses on the role of technology and ageism on the ageing experience of the older adults.

An Jacobs is a sociologist who joined imec-SMIT at VUB in 2005. Currently, she is a part-time associate professor in the Department of Media and Communication Studies, teaching Interpretative research methods at the VUB. She is also principal investigator at SMIT, leading the research unit Digital Health and Work.

Ilse Mariën joined the imec-SMIT at VUB in 2007, where she has worked on several research projects related to the social implications and policy aspects of digital media. Ilse is currently part-time professor in the Department of Media and Communication Studies, teaching several courses in policy making. She is the unit lead for the Digital Inclusion and Citizen Engagement unit and principal investigator on several projects.