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## Individual and shared digital repertoires – older adults managing digital services

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### ABSTRACT

The rise of public and other non-recreational digital services is based on the idea of catering to the daily needs of the citizens cost-efficiently and with ease. Previous research has approached the use of digital services mainly from the perspective of an individual, while the significance of shared practices of use has attracted only a little attention. In this article, we (1) examine the incentives and limitations associated with the use of non-recreational digital services, which either encourage or discourage older adults to use them. Based on the first question, we then ask (2) how older adults in this study manage those non-recreational digital services they have chosen to use. Our qualitative analysis is based on participant-induced elicitation (PIE) interviews ( $n = 21$ ) carried out in Central Finland with older adults aged between 65 and 89. Our findings suggest that there are conflicting views about digital services – they simultaneously evoke both positive and negative associations among interviewees. The incentives and limitations of digital services are expressly heterogeneous among older adults and vary depending on the individual and shared digital repertoire of each user. We describe how participants in this study employed multiple strategies, such as sharing digital repertoires with warm experts, to actively manage using digital services in their daily lives.

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### KEYWORDS

Digital service; older adult; digital repertoire; media repertoire; uses and gratification theory; warm expert

## Introduction

The service sector in many societies is becoming increasingly digitalised, but this process affects people in an unequal fashion (e.g., Hansen et al., 2018; Van Deursen & Van Dijk, 2011; Yu, 2006). The strategies employed to manage the consequences of digital disruption vary according to age and other sociocultural factors, such as gender, level of income or ethnicity, that in previous research (Nimrod, 2017; Olphert & Damodaran, 2013; Tsatsou et al., 2018) are typically considered determinants of digital divides in access, skills and use, or in the benefits of digital inclusions.

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In this article, we focus on older adults who constitute a large, albeit very heterogeneous, user group of non-recreational digital services. Along with age, the need for overall assistance with everyday activities typically increases (Desai et al., 2001; Kröger et al., 2019). This underlines the importance of investigating the role of shared practices of service use along the individual factors shaping digital divides. If users are not acquainted with or willing to take up digital services, they can become more dependent on external support in running their everyday errands. It is against this backdrop that we explore how interviewees manage the use of digital services in their everyday lives. To work towards this end, we introduce the notion of digital repertoire (see Donner, 2015; Khazraee & Losey, 2016; Stevenson, 2013) and adapt it to age studies with the aim to provide a more holistic view, including both individual and shared perspectives, to the use of digital services.

Digital or electronic services refer to non-material activities transmitted by technology and online networks such as the internet (Kvasnicova et al., 2016; Scupola et al., 2009). In this study, the most frequently used digital services by interviewees were mobile banking and online customer services while the public digital services they used included ordering a passport, retrieving electronic receipts, booking healthcare appointments, doing taxes, and applying for social allowances online. In our analysis we focus on those public and non-recreational services (henceforth referred to as ‘digital services’) that are characterised by high necessity and reduced provision of equivalent in-person services; online banking is a good example of this. Finland provides an interesting context for this study, as it makes extensive use of public digital services (European Commission, 2019), and there is a relatively high internet user rate among the oldest age cohorts (Eurostat, 2020).

In our analysis we (1) first examine the incentives and limitations associated with the use of digital services, which either encourage or discourage older adults to adopt them. Based on their answers, we then ask (2) how older adults manage the digital services they have chosen. The analysis is based on 20 participant-induced elicitation (PIE) interviews carried out in Central Finland with older adults aged between 65 and 89. The theoretical framework for this research rests on the concepts of warm expert (Bakardjieva, 2005), digital repertoire (Donner, 2015; Khazraee & Losey, 2016; Stevenson, 2013) and uses and gratification theory (UGT) extensively applied in media studies. In the first section of this analysis, we examine the incentives and limitations of digital services as seen by the older adults participating in the research and conclude that this depends on multiple factors, including the digital repertoire of each individual. In the second section, we develop the rationale behind this by looking more precisely at how digital services are managed by the interviewees in their daily lives and how the concept of digital repertoire can be brought to bear on this.

## **Theoretical and conceptual starting points**

### ***Uses and gratification theory and warm experts***

Uses and gratification theory (UGT) that dates to the 1940s is an audience-centred approach to understanding mass communication. It aims to explain media use in terms of the gratification it provides users, based on the goal-oriented idea that they

will actively choose a certain media to fulfil their specific everyday needs (Katz et al., 1973). Guided by their past gratification experiences, users will make choices between various modalities and select the media that best serves their daily lives.

Although UGT has been criticised for not meeting the standards of a proper theory, for being overly reliant on self-reported needs, and for emphasising the importance of individual and socio-physiological factors in how people select their media (Ruggiero, 2000), it has withstood the test of time and has a new relevance today with the increasing prevalence of modern mobile devices and the internet. Recent research has applied and further developed UGT to investigate how people manage increasingly personal, social, and interactive media (e.g., Quan-Haase & Young, 2010; Vaterlaus, 2017). These studies have also paid attention to the ways that these forms of media might not gratify users' everyday needs (Raacke & Bonds-Raacke, 2008; Vaterlaus, 2017). In this study, older adults' use of digital services involves some idiosyncrasies that require particular attention. Many of these services, such as banking or health care, are catering to older adults' basic needs that have to be fulfilled in one way or the other. Indeed, the possibility of choosing between a digital service and its non-digital equivalent is becoming increasingly rare in countries such as Finland. While the accessibility and usability of digital services are gradually improved, traditional services are simultaneously made less attractive and visible (e.g., limited office hours, online booking required for appointments, higher service fees).

Being between a rock and hard place, older people can try to come to terms with digital services either with the help of non-professional 'warm experts' who are 'persons who mediate between the technological universal and the concrete situation, needs and background of the novice user with whom he is in a close personal relationship' (Bakardjieva, 2005) or professional IT support ('cold experts'). According to previous research, older adults often prefer warm experts over cold because, as the term implies, warm experts are typically in a closer relationship with the person in need of help (e.g., Olsson & Viscovi, 2018; Taipale, 2019). Nonetheless, older adults also challenge the appropriateness of younger warm experts' communicative practices and online behaviours at times (Colombo et al., 2018; Comunello et al., 2017). In comparison with professional IT support, warm experts typically have some in-depth knowledge of an older user's particular needs and digital skills and can, therefore, facilitate their use of digital services in a more meaningful way (Hänninen, 2020; Olsson & Viscovi, 2018). Co-use of digital services with the help of warm experts also highlights the collaborative basis of both media use and gratification.

### **Towards the concept of digital repertoire**

Age plays an important role in what we call here a person's individual 'digital repertoire'. According to Kim (2016), older users of media are more likely to engage with traditional platforms, such as television and newspapers, rather than digital technology – a phenomenon that Nimrod (2017) refers to as 'media use traditionalism'. There are also several studies suggesting that, in most cases, older cohorts are not such avid users of digital technology as younger cohorts (Jacobetty & Fernández-Ardèvol, 2017; Sawchuk & Lafontaine, 2020; Shultz et al., 2015) and that the connectivity and frequency of digital technology use remain at a relatively low level among older adults (Choi & DiNitto, 2013; Friemel, 2016; Nimrod, 2017). Because ageing often affects the physical characteristics

of older adults (such as their cognitive and motor skills or eyesight), it also instructs the semantics of how older adults perceive digital technology in terms of meaning and their personal relationship with it (Charness & Boot, 2009; Fernández-Ardèvol, 2011).

The concept of digital repertoire, based on the everyday practices of the older adults in question, shares a close theoretical affinity with the concept of media repertoire (Hasebrink & Popp, 2006). According to Hasebrink and Domeyer (2012), the 'media repertoire of a person consists of the entirety of media he or she regularly uses'. Thus, in general terms, the concept of media repertoire could also apply to circumstances in which using digital technology can be beneficial (Gallistl & Nimrod, 2020). Thus, it will explain why a given media or content has been selected over a myriad of other options in the context of a variety of theories, including UGT (Hasebrink & Domeyer, 2012; Huang & Chang, 2020).

As Nimrod (2017) points out, previous research on media repertoires has focused on single media use of individual persons instead of employing a more holistic perspective that would take into account the social, shared aspects of technology use in multi-media contexts. Similar emphasis can also be found in the research on digital repertoires (Donner, 2015; Khazraee & Losey, 2016; Stevenson, 2013). In this study, however, the notion of digital repertoire that initially emerged from the thematic analysis of our interview data highlights not only the independent use of digital technology and services in later life but also co-use, supported use (with warm experts) and non-use of services among the older adults participating in the study.

According to Schwarzenegger (2020), the role, meaning, and significance of the idea of repertoire should be understood in terms of how older people attach meaning to digital technology and make sense of it. Thus, rather than being based on rational, pragmatic decision-making, digital repertoires are 'a set of meaningful practices' (Hasebrink & Domeyer, 2012) closely linked to the social connections older people most value and any changes in their everyday lives.

As Schwarzenegger (2020) points out, media repertoires manifest themselves in the individual lifestyle of a person and in a social context, so they must be studied in terms of their practical meaning (Hasebrink & Popp, 2006). Drawing from the qualitative interview data, we argue that older adults participating in the study used digital technology according to personalised digital repertoires based on personal interests, skill sets, and availability of devices and applications. The concept of digital repertoire thus includes both the devices on which digital services are used and the content, that is, what is done in response to the older adult's everyday needs via these devices.

## **Older adults using digital technology and services in Finland**

According to International Digital Economy and Society Index (iDESI), Finland is a global front-runner when it comes to the performance of the digital economy and society (European Commission, 2021). In 2016, the Finnish government agreed that messaging and public services will be primarily digital in the future and proposed that by 2020, public services would be easily and safely accessible online for everyone (European Commission, 2019; Ministry of Finance, 2012; Ministry of Finance, 2016).

Over the last six years, daily use of the internet in Finland has increased year on year among all citizens aged between 16 and 89 (Official Statistics of Finland (OSF), 2019a).

For instance, in 2019, 73% of Finnish people aged between 65 and 74 had used online banking, while the figure for the same age group in the whole of Europe was only 31% (Eurostat, 2020). Although older adults in Finland are willing to use digital services, there is still a noticeable variation in the digital literacy and familiarity with digital services for this age group (Rosenlund & Kinnunen, 2018).

Although Finland is one of the biggest users of digital technology and services, over 65-year-olds are nevertheless using digital services less than younger age cohorts (OSF, 2019b). In fact, there is a steep decline in the use of digital services after the age of 65 (OSF, 2019b). Changes and challenges to physical and cognitive abilities can have an impact on how frequently digital services are used (Chang et al., 2015), and because older adults are a heterogeneous group from a range of different backgrounds, their incentives to use digital services (or not use them) vary to a great extent.

## Materials and methods

The research material includes a total of 23 interviewees. The PIE interviews were conducted in November and December 2018. The participants were all Finns aged between 57 and 89. In the present study, we focus only on the interviewees aged 65 or over, which is the common definition of an older person in developed countries according to the United Nations. The retirement age in Finland is in the range of 63 and 68 years (FCP, 2021), while 65 years is a general retirement age among the European Union countries. Therefore, 21 out of the total of 23 interviewees were included in the analysis. About 12 of them were female and 9 were male. The interviews were also photographed in order to document the fieldwork and to give the researcher a concrete way to contextualise participants' technology use through visual references (Collier, 1957; Harper, 2002; Hänninen et al., 2021a).

The interviewees were recruited from a housing association that provides communal housing services to older adults over the age of 55. All participants owned either a smartphone or feature phone, and most also had other technological devices at their disposal, such as tablets or laptops (Kuoppamäki et al. (in press); Hänninen, 2020). The main themes of the interviews covered how and what kind of digital technology they used in their daily lives and the problems and benefits they had experienced with digital technologies and services (Kuoppamäki et al., in press). The average length of each interview was approximately one hour. The fieldwork was conducted following the General Data Protection Regulation (GDPR).

PIE is an interview technique based on photo-elicitation (Collier, 1957; Harper, 2002), where the interviewee is asked to take photographs dealing with the topics of the research (Bignante, 2010; Epstein et al., 2006). In general terms, elicitation refers to a process in which a response, meaning, or answer, is evoked from the interviewee by using, for example, photographs or (in this case) digital devices and applications – which also serve as a starting point for the interview (Hänninen, 2020). As many of the aspects of digitalisation are often embedded in the daily life of the person participating in the research, they become so habituated to them that it is difficult to remain consciously aware of them (Hine, 2015). It was, therefore, helpful to have the digital devices and applications older adults used on a daily basis in the interviews with them. Another benefit of PIE was that it made the concept of digital technology more accessible to

the older adults and allowed us to discuss the meanings attached to digital technology on a more personal level in detail (Downs et al., 2019; Hänninen et al., 2021a, 2021b; Kaufmann, 2018; Padgett et al., 2013). PIE also provided us with a necessary point of reference in cases where older adults described their use of digital technology in a different way than they actually used it (see more Hänninen, 2020).

As the data was collected for a broader purpose, we made restrictions on the material, including only the sections that concerned the use of digital, non-recreational services, which comprised 75 of the total 336 pages of research data. The thematic analysis (Clarke et al., 2015) was conducted in three parts: as the interviews dealt with digital technology on a general level, we first examined discussions on *digital services* in particular; in the second part, we examined the *incentives and limitations* older people associated with using digital services; and in the third, we looked in greater detail at how these services were *managed by older adults*.

## Results

### *Incentives and limitations associated with the use of digital services*

Our research data featured a wide range of both positive and negative accounts regarding the impact of digital services on everyday life. In the negative accounts, it was frequently argued that digital technology and services were not something that interviewees wanted to or could incorporate into their everyday lives. Some of them reported using digital services only because they were obliged to, as there was no offline alternative, while others would have liked to use them more but needed someone to help them try out digital services that were unfamiliar or difficult for them to use. Meanwhile, at the other end of the spectrum, there were older adults who were curious about digital technology in general, and this helped them adopt new services. For example, Anna (aged 69) said she was now ‘running her whole life’ via her tablet computer by using it to manage her financial affairs, make doctor’s appointments and search for all kinds of information.

The main positive aspects of digital services highlighted by the older adults participating in the research included accessibility, convenience, and economic incentives (see also Blažič & Blažič, 2020; Hargittai et al., 2019; Seifert & Rössel, 2019; Tsatsou et al., 2018). As a way of managing services, digital technology was considered handy, practical, inexpensive, or various combinations thereof, as the account below illustrates of Maria (aged 71).

At some point I was using a tablet to pay my bills and then there was a time when I was using a payment ATM. But now we have a shared laptop [in the common facilities of a housing unit], so I’ve been using that one. It is cheaper to use than the payment ATM and now they [the bank] have removed the machine anyway [from the corridor by a local supermarket] because they are trying to get more people to use digital services.

As well as accessibility, convenience, and economic incentives, which highlighted the personal aspects of digital services and the ways they were perceived in interviewees’ private lives, there was also a social aspect that emerged from the interviews. Some of the older adults who had a more positive take on digital services saw them as a means to maintain their independence in old age, frequently associating the services with a sense of security and comfort. Security and convenience were regarded as necessary to feel in charge of both one’s personal finances and health – for example, booking a



doctor's appointment, renewing online prescriptions, and managing health records. Many older adults were also concerned about peers who had, in terms of digital literacy, got left behind and so could not fully take care of themselves independently anymore, as Elias (aged 77) explains below.

The world is getting more complicated, and I suppose it is ageing [which makes adopting digital technology and digital services difficult ...]. Everybody is saying go online, just do it online, but there are people who just cannot do it. Some don't want to, and others just can't and that's what's bad about it.

According to our interview data, older adults used devices according to an individual digital repertoire they had developed from practices associated with their personal interests, skills, and abilities to access digital devices and applications. It is also important to note that 'traditional' and 'digital' could also coexist in the everyday lives of older adults and were not mutually exclusive. Indeed, digital repertoires typically comprised several interdependent online and offline elements, which clearly need to be examined simultaneously (Gallistl & Nimrod, 2020). In this study, digital services were often regarded as a practical alternative to traditional services as long as they corresponded with the given digital repertoire of the individual interviewee and could genuinely circumvent or solve everyday problems for them. Whether or not there was sufficient support available – in the form of both warm and cold experts – was an important factor in adopting digital services too. Many of the incentives for some interviewees to use digital technology mentioned here were, however, seen as limitations to others. Some of the older adults reported, for instance, that the devices required for accessing digital services, the broadband connection, and the technical support were all too expensive for them, underlining the economic and socio-economic contexts of digital repertoire. This was especially the case among those interviewees who already had a generally more critical view of digital technology.

Similarly, although digital services were generally regarded as a convenient and time-saving way to run errands and manage one's everyday life in theory, it could be quite a different matter in practice. If older adults felt they lacked the skills required to use a given digital service, then digital services had the opposite effect. Instead, interviewees felt unable to benefit from their 'convenience' – effectively defeating the whole purpose.

Other limitations associated with the use of digital services included uncertainty about one's own digital skills, problems with physical features of the digital devices (small screens and keyboards), managing login and passwords, internet safety, and difficulty or unwillingness in asking for technical help either from relatives, friends or help desks. Regarding warm experts, interviewees reported not wanting to burden them with their digital problems or that they lived too far away for them to provide effective daily support. Meanwhile, cold experts, such as commercial help desks, were commonly regarded as too expensive to use.

Again, there was a social element in interviewees' accounts of digital technology limitations: relying too heavily on digital technology often meant there was less face-to-face contact with people in the physical world. Leo (aged 72) was one interviewee that particularly felt this about the discontinued bank services in his region.

I'd much rather go to the bank in person so I could actually see the girls [bank clerks] there but there's no bank to visit anymore. I've had to settle for my computer and will have a go at relying on [digital technology] instead.

In this section, we have argued that interviewees followed their own individual ‘digital repertoires’. Based on the interview data, it is evident that these repertoires have been developed from practices associated with their personal interests, skills and abilities to access digital devices and applications. Drawing from this view, we also concluded that digital services were seen as a practical alternative to traditional services as long as they corresponded with the individual’s repertoire and could genuinely circumvent or solve everyday problems for the interviewees. The concept of ‘relevance’ was the key here to older adults’ gratification when using digital services. According to the research data, the relevance of any given digital service was determined by the degree to which it fitted in with the everyday needs of older adults and their digital repertoires. It is also important to note that lack of personal interest, or relevance, was not a limitation as such but rather a precondition for using digital technology and services.

### **Managing digital services in everyday life**

In the section above, we have argued that accessibility, convenience and economic incentives provide the basis for older adults to use digital services. This was confirmed both by our interview data and by previous studies (Blažič & Blažič, 2020; Hargittai et al., 2019; Kuoppamäki, 2018; Seifert & Rössel, 2019; Tsatsou et al., 2018). Limitations and problems with digital services were, however, a recurring topic of conversation among interviewees. To actively manage these problems and stay on top of the digitalisation of their lives, they had developed a range of coping strategies.

Some interviewees used digital devices that were available for communal use in the building where they lived, but most of the older adults relied on their own personal devices to, for example, pay their bills, as we saw earlier with Maria. Another coping strategy was to ensure that the device or app worked properly and could adequately meet their daily needs. Anna, for example, got around the technical problems of having an outdated operating system by using two tablets for different purposes.

When [the bank] updated their software, I couldn’t use the service anymore with my tablet and I looked into the problem and found out that if your tablet’s too old, updates won’t come through. [...] I had to buy a new tablet [...]. So now the way I do it is to use two tablets. On the old device everything works except for the digital bank, which I find a very convenient and fast way to pay bills. In the end I could have managed it with just the old device, but because it’s a bit tedious, I thought [...] why not buy [a new tablet] anyway.

It was also common that the digital services were managed with the help of more traditional forms of service (see also, Hansen et al., 2018). The service need was not simply gratified with the help of digital technology, as the UGT theory would suggest, but by drawing from the wider repertoire of technologies at hand. In the case of Paula (aged 84), when the digital subscription of a newspaper became problematic, she felt she could just phone them up.

It was only yesterday, when I noticed that [in the local newspaper] there was an advert reminding me that I also have digital access as a newspaper subscriber. We used to have the digital version open on our laptop; in fact, the icon is still there, but when I click on it, it always asks me for the password and username, which I don’t know as it was my husband that subscribed to the paper and now it’s me. The digital version of the paper has not

been updated to be under the new name, so yes, I will call them today ... as long as I remember to.

As Gallistl and Nimrod (2020) argue, digital and traditional media are no longer separate parts of everyday life for older adults; they are converging (Jenkins, 2006) – meaning that older adults must necessarily engage with and manage digital services, even if the latter becomes temporarily inaccessible for some reason. Based on the interview data, a similar strategy of resorting to more traditional forms of communication took place when interviewees either did not have the necessary skills to use online health services (e.g., booking a doctor’s appointment or checking one’s laboratory results), or if they found the online service inconvenient. What they meant by ‘convenience’ varied radically between individuals, however. For some, it was due to age-related limitations, such as poor eyesight, while others did not like using digital services. Interestingly, this latter view was found not only in the accounts of interviewees who were already using digital services regularly but also among those who found digital services useful.

One of the most common ways older adults overcame the challenges they faced when using digital services was to ask relatives and friends for help. There were also a few cases, as we already briefly mentioned above, where some interviewees explained they did not use digital services simply because they felt they were too expensive. Nevertheless, the main reason given for using friends and relatives as warm experts was that the interviewees felt they alone did not have the necessary technological skills to operate the devices, software, and apps that digital services rely on. Warm experts (Bakardjieva, 2005) could take care of everyday ‘digital errands’ that these older adults felt unable to do, as Henrik (aged 82) describes his relationship with digital banking.

I don’t use the digital banking service myself. Everything is still paid through the digital service though, because my daughter pays my bills. I haven’t had to learn to do it [...]. They did try to teach me in the local bank of [the previous location the interviewee used to live], but I found it too difficult. [...] My daughter started to handle the bills and it has been great. It saves so much money using digital banking.

Technical support from warm experts varied from providing advice, to solving a problem, or exploring a new digital service together. It was also possible, as in Henrik’s case, that the warm expert would completely take over using the digital service on behalf of the older person. In practical terms, the warm experts were sharing their own digital repertoires, part of which included the very same digital service they were helping the older adult understand. This support ensured that the older adults could still reach many of the same digital services that other older adults were accessing and using independently. The concept of digital repertoire is important here: by sharing even a limited digital repertoire with the warm experts, these less technically savvy interviewees were showing their willingness and dedication to overcome the difficulties they were having with digital services.

On a discursive level, one of the recurring themes regarding the management of digital services was the idea that we call in analytical terms ‘negotiating a balance’ between the existing digital repertoires of the interviewees and the repertoire required by the digital service in question. From this perspective, digital services were not something a person would necessarily actively seek, but as they were already there and the older adult could

cope with them, the digital services had now become a part of their everyday life as Emma (aged 65) describes her take on digital technology and services:

I have everything I need, but then again, this is exactly what I thought earlier [when the interviewee did not use digital technology or services]. But then they [digital technology, applications and services] just took over.

The idea of negotiating a balance was frequently used to refer to the optimal amount of effort required – one which would ensure minimum digital use without losing too many of the perks associated with digitalisation. This also brings out the limitations of the UGT theory – the interviewees did not rush headlong to gratify their needs by using digital services. Instead, they made careful choices in order to control the amount of efforts invested in them. In this context, some interviewees also emphasised the security risks involved with digital technology in general as Linda (aged 73) points out: ‘I find [digital services] helpful and useful, but you have to exercise common sense in using them and you have to be careful’. Another interpretation of this sense of balance emerging from the interview data was framed by interviewees who described themselves as falling somewhere between those older adults who used digital technology and services excessively, and those who did not use digital technology at all. It was also common to underline the importance of only using digital services that were relevant to oneself and not to get ‘sucked into’ technology that was not necessary, as Paula also notes.

There are just so many apps. I feel that there are way too many, and I don’t even need them. I’m not used to them, and I don’t even know how to miss them [...]. I think I have enough [digital technology] available to me at the moment, perhaps too much. I don’t have the energy to use them all, maybe it’s because I can’t use them, or maybe I just don’t bother.

At first glance, it may seem that Paula did not want or need any of the apps she mentions. However, on closer inspection, it is evident that it was not the necessity of the digital technology as such, but rather her post-rationalising as to why she had not yet started using the apps. The equilibrium older adults were seeking through negotiating a balance was one way for them to deal with the cognitive dissonance they may have experienced when faced with digital technology and services. Negotiating a balance like this seemed to take place especially in situations where the digital repertoire was not broad or versatile enough to adequately cater to the everyday needs of the older adult.

In a broader perspective, negotiating balance provided an explanation as to why older adults did not use or hesitated to adopt digital technology and services in their everyday lives by underlining the fact that personal interests, (lack of) skills, social aspects of using (digital) services and financial issues are all included in the individual digital repertoire. This finding closely resembles the idea of ‘doing it my way’ argued by Fernández-Ardèvol (2016; Fernández-Ardèvol et al., 2020) in the context of inter-generational media use and the non-use of digital technology among older adults underlining the individual basic structure of digital repertoire.

## Discussion and concluding remarks

In accordance with UGT (Katz et al., 1973), we have examined how older adults participating in our study adopted public and other non-recreational digital services, and

the ways they used these services in order to gratify their everyday needs. In response to our first research question on the incentives and limitations involved with this, we showed that digital services constitute a complex and contradictory segment of digital technology, which evokes both positive and negative associations among older adults. According to the interview data, the relevance of a given digital service is assessed in relation to a personalised digital repertoire, which is constructed in and through the practices that rely on personal interests, skills and access to technology. Besides these personal and technological factors, digital repertoire is shaped by the contextual factors of everyday life, such as the availability of warm experts and alternative forms of service provision. This is an often-neglected aspect in digital inclusion studies that typically promote technology and service-use simply through improving accessibility and usability (Friemel, 2016; Hsieh et al., 2011). Based on our analysis, we argue that these factors alone are insufficient incentives for older adults to use digital services. According to the interviewees, they may be content with alternative in-person and offline services, or they do not perceive the current practices of digital service use as meaningful.

In the light of our second research question, we examined how interviewees managed the use of non-recreational digital services in their daily lives. One of the key findings was that warm experts shared their digital repertoires with older adults, and that this is, in fact, one of the ways older adults manage digital services in their everyday lives. Repertoire sharing should be considered as a dedicated effort to gratify needs in technological terms challenging contexts, such as inadequate user interfaces and other defects, that otherwise could not be met. This calls for a research approach that goes beyond an individual perspective to digital divides and extends to social practices and meanings ascribed to digital services. According to our research material, sharing can be rather a one-directional practice from a warm expert to an older adult and thus indicates the older adult's dependency on external assistance. However, based on our interview data sharing may also act as a more balanced effort in which the repertoires partially complement each other, creating interdependent use of digital services. Repertoire sharing would not be possible if a warm expert did not recognise the strengths and limitations of an older adult's repertoire and daily needs, and vice versa. This empirical observation echoes with and adds to the UGT that has allegedly placed too much emphasis on the importance of individual and socio-physiological factors in media selection (Ruggiero, 2000). According to our findings, digital repertoire sharing clearly underlines the importance of collective efforts in the selection and use of digital services among older adults.

Although the interviewees had a diverse range of socio-economic backgrounds and personal histories, the research material is likely to reflect interviewee self-selection that is typical for this type of qualitative data. Nevertheless, theoretical and conceptual contributions of the research including the concept of digital repertoire could also lend themselves to other study designs and contexts outside Finland. In future research, the applicability of digital repertoire as a concept could be tested, for instance, in other social environments, such as families with children or young people's social networks. In other words, the concept is likely to have an interpretative capacity beyond the study of older adults and digital services.

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