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ARTICLE

Modes of relating to the new ICTs among older internet users: a qualitative approach

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Abstract

Older people have increasingly been using the new information and communication technologies (ICTs), namely the internet. Seeking to contribute with substantive information on their digital inclusion, this paper focuses on the adoption and use of ICTs by older adults, highlighting their experiences and considering their plurality. Taking a qualitative approach, the core goal of the empirical research underlying this paper was to understand what mechanisms and modalities configure the relationship of older internet users with the new ICTs. With that objective in mind, interviews were conducted with 20 internet users over the age of 60. Those interviews, which included a biographical element, were subjected to multi-categorical analysis. Results suggest a typology of modes of relating to the new ICTs among older internet users that reflects different trajectories, practices, skills, significances and impacts. The analysis shows how life trajectories and differentiated uses are reflected in equally differentiated impacts for older adults, contributing to their quality of life in different ways and to different degrees. Digital skills play a fundamental role in enhancing or limiting those effects. The results of this research help break down the stereotypes associated with the older generations and may have relevant implications for the design of digital inclusion policies and initiatives.

Keywords: older adults; digital inclusion; modes of relating to information and communication technologies (ICTs); life trajectories; interviews

Introduction

Various researchers emphasise the benefits of a society in which everyone, including older generations, knows how to use digital resources to their advantage (Gil and Amaro, 2010; Helsper *et al.*, 2015) – benefits that have become especially visible during the COVID-19 pandemic (Beaunoyer *et al.*, 2020; Llorente-Barroso *et al.*, 2021). However, older generations, and mainly the less qualified among them, still present substantial indices of info-exclusion in Europe (Eurostat, 2020). In Portugal, where the study presented in this paper was carried out, 76 per cent of the overall population, but only 34 per cent of the 65–74 age group, use the internet (INE – Statistics Portugal, 2019).

Patterns of social inequality are reflected in the older population's use of the digital network. Attributes such as greater academic capitals, English-language skills or more technicity-based occupations are associated with internet use (Eynon and Helsper, 2010; Van Deursen and van Dijk, 2014; Coelho, 2019). On the other hand, factors like low levels of schooling, late contact with information and communication technologies (ICTs), or sensorial and cognitive alterations related with the ageing process (Selwyn *et al*., 2003; Amaro and Gil, 2011; Van Deursen and van Dijk, 2014) constitute additional obstacles. Internalised ageist stereotypes can also have a negative impact on technology adoption by older people (Ivan and Cutler, 2021).

In contrast to more stereotyped and reductive perspectives of generational differentiation (Prensky, 2001), some specialists underline two tendencies in the relationship between the older generations and technology. These tendencies are evolution, and differentiation, in the double sense that older adults' relations with ICTs have been changing, and also vary from one person to another (Helsper and Reisdorf, 2017).

Older adults have increasingly been using the internet, and this suggests they have also progressively been incorporating technology into their daily lives in accordance with their needs and circumstances (Silverstone, 2006; Nimrod and Edan, 2022). Some authors identify a trend towards a progressive digitalisation of the 'new older generation' (Colombo *et al*., 2014), which is occurring in parallel with multiple European and national digital inclusion policies.

A few research projects linked to digital inequalities have looked at gradations of use and differentiations between users (Hargittai, 2002; Van Dijk, 2005; Dutton *et al*., 2013; Blank and Groselj, 2014). Some survey-based studies associate adults' individual and social characteristics with skills and the relationship with the internet (Eynon and Helsper, 2015). The level of digital skills is one of the main factors (along with motivation) that explain both the use and modes of use of digital media (Van Deursen and van Dijk, 2014).

After analysing the nuances in internet use among older adults, a study has concluded that the differences between users are based on social context, stage of life and psychological characteristics (Van Deursen and Helsper, 2015). Specialists point to the social interaction and cultural integration component of the motivation to use the internet (Milligan and Passey, 2011; Friemel, 2016). Having children in the household is also a factor that motivates adults to get involved with the internet (Helsper, 2008; Freeman *et al*., 2020). The literature suggests that, while on the one hand, ICT use is also linked to post-retirement lifestyles or levels of activity outside the home, on the other, the domestic context is a crucial element in the support for the 'good use' of ICTs (Colombo *et al*., 2015), bearing in mind the problematic issues associated with online security (Ellis and Coughlin, 2014).

Using data from surveys, a research project (Van Boekel *et al*., 2017) concluded that older adults are a diversified group in terms of their internet activities, identifying different usage profiles, depending on whether use is more practical or more social, more extensive or more limited. Another project (Quan-Haase *et al*., 2016) highlights different ways in which ICTs are integrated into older adults' daily practices. Analysing data from the Eurobarometer, more specifically variables that measure the extent to which European older people are involved in communication

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activity and in using paid internet services, as well as the frequency of their internet usage, one research project (Vulpe and Crăciun, 2020) identifies three types of older internet user. The profiles include communicators who are more digitally immersed, communicators who prefer asynchronous activities, and others who enjoy the phone and do not explore the digital spaces and services too often. In a psychological approach (Hannon and Bradwell, 2007), specialists also identified different attitudes towards technology, uses and skills among older adults. It is also worth noting an extensive study (Blank and Reisdorf, 2012) that analyses content creation on the web, with results that suggest it is older generations and retired people who least participate in this type of online activity, which is in turn explained by a lack both of trust in the internet and technical capacity.

Several research projects highlight the impacts of ICT use among older adults, showing that it can improve their quality of life and contribute to their active ageing (Helsper *et al*., 2015; Llorente-Barroso *et al*., 2015). The results of a qualitative study (Llorente-Barroso *et al*., 2015) suggest that the internet is a 'source of opportunities' for older adults and that the internet's potential encompasses categories such as information, communication, transactions and administration, and leisure and entertainment. One of the aspects the research particularly emphasises is the internet's role in promoting relations of sociability and improving the emotional variables of older adults (Cotten *et al*., 2013; Leist, 2013; Smith, 2014). Researchers also highlight the new forms of connection and sharing that characterise the 'digital family' (Taipale, 2019). According to them, intergenerational digital communication practices mean that ICTs can be used to maintain family interactions, caring relationships and family solidarity.

Questions which specialists have highlighted as pertinent to research in this area and require more in-depth investigation include both the importance of considering differentiated life trajectories in order to reveal the different benefits of using the internet (Milligan and Passey, 2011), and the need for more qualitative work, thereby providing a more holistic understanding of the role technology plays in individuals' daily lives (Eynon and Helsper, 2010). Authors also emphasise the relevance of re-thinking categorisations of technology use/non-use to provide a better understanding of meanings and practices of usage, non-usage and its continuum (Neves *et al*., 2018).

Inasmuch as older adults present different social conditions and life patterns and projects and go through different ageing processes (Mauritti, 2004; Silver, 2014), it is relevant to consider their life histories within the equation of their relationship with ICTs (Lahire, 2002). What is more, some authors note that older persons have varying levels of physical and cognitive capacity and their life experiences are likely to vary more than those of young people – whose lives are shorter (Chisnell and Redish, 2004).

Online practices should not be studied in isolation from the various dimensions of daily life (Wellman and Haythornthwaite, 2002; Quan-Haase *et al*., 2016). It is important to contextualise the adoption of technology and the acquisition of digital skills, and to understand the processes in which they occur and the results achieved in different life spheres in the wake of ICT use. This analysis should also consider that new forms of internet use have been emerging, with a multiplication of both the objectives of that use and the digital devices by which the internet is accessed (Cardoso *et al*., 2015).

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Rather than analysing cross-cutting aspects of older adults' relationships with the new ICTs, this paper explores its differentiating aspects, considering those adults to be a heterogeneous group. The core goal of the empirical research underlying this paper was to understand what mechanisms and modalities configure the relationship of older internet users with the new ICTs. The analysis focused on new ICTs, especially the internet, but to understand and contextualise their use we explored ICT use more generally. Our qualitative research was guided by the following research questions:

RQ1: How are different modes of relating to the new ICTs configured among older adults?
RQ2: How are those modes substantively characterised?
RQ3: What is the significance of different life trajectories and trajectories towards contact with ICTs within those modes of relating?
RQ4: How are those modes reflected in terms of impacts on the lives of older adults?

Methods

This paper centres on the results of the application of a qualitative methodology – more specifically, interviews – in order to analyse older adults' relationships with the new ICTs. The empirical reference for this analysis focuses on the experiences of 20 persons over the age of 60 who used the internet.

It is important to note that this analysis benefited from a set of methodological stages and processes that formed part of a larger research project.[1] That research combined both quantitative and qualitative methodological operations – in addition to interviews, documentary and statistical analyses, including the analysis of an extensive database resulting from the application of a survey to a representative sample of the Portuguese population. The quantitative analysis, which preceded the qualitative procedure presented here, made it possible to explore and identify axes and modes of ICTs' use among older adults (Coelho, 2019). The results of the interviews corroborated those of the quantitative analysis to quite a large extent.

The interviews gave the interlocutors the opportunity to reflect on their own practice and explicitly describe their motivations and perceptions. This qualitative information highlights the cultural and contextual dimensions and reveals the significances the actors attribute to their actions (Costa *et al.*, 2013).

The interviews included a biographical element. Using them to revisit individuals' life paths in terms of their contacts with ICTs enabled us to analyse singularities in their relationship with broader structural dynamics (Bertaux, 1997). It seems to us that the biographical aspect is relevant to a deeper knowledge of the issue of the older population's digital inclusion.

Data collection and analysis

The interviews took place in late 2017 and early 2018. The interviewees were selected and recruited in three ways: (a) contacts with institutions; (b) searches on social networks; and (c) the 'snowball' sampling technique (Bryman, 2012), using a network of interpersonal relationships.

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Ethical questions were addressed. All procedures performed in this study were in accordance with the Code of Ethical Conduct in Research of Iscte – University Institute of Lisbon. The Committee expressed its opinion on the ethical aspects of the study, confirming that the voluntary nature of the study was ensured, adequate technical and organisational measures were adopted in terms of personal data protection, and the confidentiality of the data collected was guaranteed.

Each participant was fully informed about the aim and procedure of this study and the voluntary nature of their participation prior to giving consent to participate and to authorise the reproduction of their statements. No selected interviewees were in a situation of dementia. The identities of the interviewees were immediately coded and all identifying characteristics were removed from transcripts. We collected only the personal data strictly necessary to carry out the study and we converted it into anonymous data.

The interviews were based on a semi-structured script, which was employed in a very flexible manner. The topics that were covered entailed different dimensions of the relationship with ICTs (Table 1).

These dimensions and topics matched the research questions, seeking to both highlight and characterise the different modes of relating (RQ1 and RQ2). The first dimension – *i.e.* the trajectories – is central to an exploration of how its connection with the other dimensions – *i.e.* the practices/uses and the skills, significances and impacts (RQ3). Identifying impacts of using the new ICTs and exploring how those impacts vary between older users with differentiated profiles is another of the research goals (RQ4).

After the interviews, we transcribed their contents and analysed them using MaxQDA software. This thematic analysis included the construction of categories (informed both by theory and by statistical indicators) that were capable of leading to a typification regarding the relationship with ICT. These categories materialise the above-mentioned dimensions and topics, permitting a detailed comparison between the different interviewees. The analysis included descriptive, comparative and interpretative aspects, following the guidelines proposed by Bardin (1977). A rigorous analysis of the content of the interviews particularly sought to understand and interpret the modes of relating to ICTs, and was supported by the quantification of occurrences in order to determine the frequency and convergence of topics and ideas, albeit while attaching particular value to the participants' experiences, opinions, behaviours and social contexts (Kuckartz, 2014).

Participants

While the interview process did not seek representativeness, we did ensure the diversity of the interviewees' social profiles and digital uses and skills (Table 2).

The individuals who took part in the study were evenly matched in gender terms: ten women and ten men. Their ages ranged from 61 to 82 years (median = 70). Where their education was concerned, seven interviewees had only completed basic primary school (four years of schooling), nine had completed lower secondary education, two upper secondary and two their tertiary studies.

Almost all the interviewees were retired. Their current or last occupations were quite diverse in terms of their socio-professional group and category. All the

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Table 1. Older adults' relationship with information and communication technologies (ICTs): analytical dimensions and topics

Dimensions	Topics
Trajectories	• Characterisation of interviewees • Life history related to ICTs • Motivations for beginning to use ICTs/internet
Practices/uses	• Purposes and regularity of use • Digital devices • Domains of use • Integration of ICTs/internet into daily life
Skills, significances and impacts	• Skills, difficulties and learning • Perceptions regarding security and trust on the internet • Significances of use and perception of the importance of ICTs/internet in their life • Impacts/results achieved since beginning to use ICTs/internet

Table 2. Characterisation of interviewees

Identifier (gender/number)	Age	Occupation (current or last)
F1	73	Janitor
F2	81	Domestic employee
F3	72	Secretarial technician
F4	79	Education assistant
F5	61	Laundry worker
F6	72	Administrative employee
F7	65	Factory worker
F8	69	Senior local civil servant
F9	70	Office employee
F10	70	Cultural content producer
M1	62	Trader
M2	82	Businessman
M3	67	Bus driver
M4	79	Manufacturing director
M5	68	Electrical and electronic technician
M6	69	Businessman
M7	65	Electronic equipment repairman
M8	70	Vocational trainer
M9	70	Regional director of a government department
M10	66	Aircraft maintenance technician

Notes: N = 20. F: female. M: male.

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interviewees lived in Portugal, but in different social and geographic contexts. Eight had already participated in digital inclusion initiatives (*e.g.* IT courses at universities for older adults).

Modes of relating to the new ICTs among older internet users: a typology

In an attempt to deepen the differentiation between older internet users in terms of their relations with the new ICTs, analysing the interviews allowed us to establish a typology, which reflects the observation of distancing patterns and summarises the diversity we found, based on a set of analytical parameters. As part of this process, we used the modes of relating concept (employed in research such as that conducted by Costa *et al.*, 2002). *Trajectories*, *practices/uses* and *skills, significances and impacts* are the three analytical dimensions that underpin the typology of modes of relating to the new ICTs among the older population.

We identified four distinct modes, which distribute older internet users into four groups and whose designations seek to reflect the main characteristic of each one: restrained, relational, instrumental and comprehensive. Table 3 systematises the dimensions and indicators we considered, and makes it possible to develop a comparative perspective in relation to the four profiles that highlights each one's particularities.

The groups are derived from aspects that can be considered predominant in relation to the set of indicators and are not exclusive to or totally homogeneous among the users. We should also assume that each individual's place within these modes of relationship is changeable, inasmuch as how they relate to ICTs can change over time, depending on skills they acquire, interests they develop and aspects of their lives that are modified.

We will now characterise each profile, with systematic resort to interview excerpts that illustrate the above-mentioned aspects.

Restrained

The restrained group were older adults with few qualifications and with limited trajectories in terms of contact with the new ICTs. They had recently begun using the internet and still experienced a lot of difficulties in its use, which was less regular and diverse. These are the users who come closest to being non-users.

The individuals in this group began using the internet more recently than their counterparts in the other profiles. They had not used computers at work (their perception was that computers were for people with higher education), and only set out to learn about and use the internet once they had retired. Their paths were thus more counter-tendential (more unlikely or atypical) in terms of contact with the new ICTs. They also tended to use devices like mobile phones well after the point in time at which they first appeared:

> I only got my first mobile phone a few years ago … But I didn't know how to deal with that. They're innovations. (F1)

These older adults were motivated to try the internet by the desire to be up-to-speed with other people who use it, be in touch with someone or extract

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Table 3. Modes of relating to the new information and communication technologies (ICTs): characterisation by dimensions

	Restrained	Relational	Instrumental	Comprehensive
Trajectories:				
Education[1]	–	–/+	+/++	+/++
Type of trajectory to contact with the new ICTs[2]	More counter-tendential	Neutral/ counter-tendential	Neutral/tendential	More tendential
First internet use	Recent	Intermediate/recent	Intermediate/recent	More initial
Used computers at work	No	No (predominantly)	Yes (predominantly)	Yes
Used internet before retirement	No	No (predominantly)	Yes (predominantly)	Yes
Motivation for internet use	Keep up with others who use it, be in touch, or obtain basic information	Be in touch, pass the time, show own artistic talent/activity	Professional need, specific objectives, manage daily life and hobbies	Improve professional practice or respond to interests, natural use
Practices/uses:				
Regularity/duration of current use	–	+	+	++
Variety of access devices (computer/mobile phone)	–	+	+/++	+/++
Primary domains of use	Less varied (more simple activities, communication and/or diverse information)	Communication/social networks	Diverse information/ utilitarian	More varied, news (also communication, diverse information, production, *etc.*)
Production of content on the net	–	+ Relations and interests	–	+ Interests, knowledge and intervention
Support for causes and online petitions	–	–/+	–/+	+/++
Activities linked to online goods and services	–	–	+	+

Skills, significances and impacts:				
Digital skills	Limited/incipient	Intermediate	Intermediate	More advanced
Significances of internet use	Autonomy, one-off needs, some distancing; associated with younger generations	Sociability, company, antidepressant, sharing and recognition of talents	Instrument, information, knowing how to do things, making daily life easier	Knowledge, way to keep up to date, response to intellectual interests, expression of opinions, contact and sharing
Perception of the internet's importance in their life	–	+/++	+	++
Impacts of internet use	Limited by difficulties with use	Quite significant in terms of sociability	Significant, response to concrete needs and objectives	Quite broad

Note: 1. In some indicators we use the minus and plus signs, and their combination, to express whether these are less or more high/frequent in each mode of relating (in a range from "–" to "++"). 2. One can distinguish three main types of trajectory towards contact with ICTs: *tendential*, *neutral* and *counter-tendential*. These designations position the interviewees in relation to the most common/typical user situations, in terms of the condition and paths that, from a statistical point of view, are most closely associated with use of these technologies.

some basic information from it. The mentors in relation to this use – those who drove it – were often family members (*e.g.* to be able to contact them more easily), and the fact is that older adults sometimes offered a certain resistance to the idea, but ended up seeing advantages and following that stimulus:

> I was interested, because in the meantime I have a son living abroad. And then to be able to talk to him … my son installed Skype for me. (F1)

Although computer and internet use is often triggered by family events, to quite a large extent learning and use result from the self-determination and resilience of the older adults themselves, who are looking to derive benefits for their lives. In this profile, we found some paths to contact with the new ICTs in old age that are highly improbable, but show how those technologies can constitute an instrument that matches a desire for a transposition away from a life marked by constraints and impossibilities. The interviewees we quote below were already over the age of 80 and are the ones who encountered the internet latest in life, when they were around 76/77:

> I was 76. My female partner gave me a computer as a present, but I didn't even know how to turn it on … But I spent hours with it until I started to understand how it worked. (M2)

> When I was single, my mother was in charge, when I was married, my husband was in charge, now that I'm a widow, I'm in charge … I do what I want … [I bought the computer] about five years ago … I'm like that, I really like doing everything. (F2)

The internet was not used as regularly in this mode as in the others – it was not accessed every day. The discourse of the restrained users denotes a greater detachment in relation to the internet compared to the other users, and accessing it was not part of their daily lives to the same extent.

These older adults' digital skills were limited. They talked about learning difficulties associated with the novelty these subjects represented for them, and how they forgot things when they did not use the internet for a long time. Restrained users sometimes displayed a desire to engage in a particular online activity that would be beneficial for them, but were often blocked by the difficulty they experienced in actually doing so.

In this mode of relating, internet use got a lot of support from relatives or other people who were close to the older adults. When that family support did not exist close by or was not immediately available, they turned to other informal contacts, such as neighbours or other members of the local community:

> I sometimes also encounter a certain difficulty working with that! It's new stuff … but when I find it difficult, you know how it is, I call my daughter … and she always gives me a hand. (M1)

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> Then I ask here, I ask there, I go to the bakery: 'Look, I'd like to do this.' 'Look, go here, go there', and I go home and do it. (F2)

The restrained users felt a bit frustrated because the internet is hard to use, but also because it is dangerous. It is not just the difficulties themselves that limit use, but simultaneously the resulting fear of 'getting themselves into trouble':

> We do it up to a certain point, and when we get there I have to stop, otherwise I can find myself in some kind of trouble … A person doesn't know how, isn't familiar [with it], and it doesn't take much to get problems, does it?! (M2)

These limited digital skills were reflected in uses that were not very varied and entailed simpler activities involving communication and/or a range of information. Searches concerned practical day-to-day matters. These older adults were also distinguished by the use of a less-varied range of access devices.

In the life of restrained users, the internet meant autonomy, personal fulfilment or the answer to a need, but they did not attach too much importance to it. They felt a little more distant from a technological context which, according to them, is mainly useful for younger people. To these users, the internet is 'a world' that to some extent transcends them:

> I think [the internet] was a good thing that they invented. But it's not for everyone! … I'd like to be younger, so as to learn more things there. (F2)

Some restrained users found it hard to reflect on the results of their internet use. Having said that, impacts in terms of closeness to family, self-esteem, emotional wellbeing or empowerment in relation to certain daily practices were perceptible throughout their discourse:

> Anyone who has a child abroad … talks to them [via the internet] … it's how people deal with the feeling of missing loved ones. (F1)

> I've also learnt things like that here [about embroidery], on the internet. (F2)

The benefits these older adults derived from using the new ICTs were limited by the difficulties or the fear that characterise that use.

Relational

In this profile type, the use of the new ICTs was very centred on its relational and interpersonal contact aspect, with frequent use of digital social networks. In this group's representations, the social networks were conceptually quite closely linked to the internet.

This is a feminised profile with little contact with the internet prior to retirement. Here we found more neutral and variable paths to contact with ICTs (*e.g.* people who used computers at work, but not the internet). These adults' motivation for using the internet had a lot to do with the desire to be in touch with others, pass

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the time, or show off a talent or an activity. Half of the interviewees who prefigured this mode of relationship did not leave home much and did not have much offline social activity. The attraction of the internet's social element led them to use it regularly (daily) and interestedly.

Relational users' digital skills were intermediate where the modes of relating that polarise this typology are concerned. They managed to perform tasks within the contexts they used most and where they felt relatively at ease. Most of them used both computers and mobile phones to access cyberspace. While their use was very often initially influenced and supported by family members, relational users used the internet more autonomously and with less continuous support than restrained users.

Communication was the main domain in which the older adults linked to this mode of relating used the new ICTs. The time relational users spent online was marked by activities that involved interaction with other users and personal expression. In this profile, the internet was thus used as a social tool.

Relational users spoke to or texted family and friends, 'closely' followed the people they were most interested in; their tastes, opinions and activities went hand in hand with whatever was happening in the local community, and sometimes they also followed public figures:

> Sometimes when it's nearly two in the morning, there are still friends who are awake at that time, and then via Messenger … they start talking to me and there I am sometimes. (F3)

> It's just to go and see – and there we are – 'gossip', as my granddaughter calls it! … so I go to see, to be nosy …! [You go there to see what your friends are doing…] So that's what I like to do … sometimes even I don't believe it … That's how I get news. (F4)

Their production had a lot to do with the scenario of the social networks and was oriented by personal relations and interests. They commonly expressed feelings and emotions and let off steam:

> I sometimes kind of vent, sometimes when I feel I'm suffocating here … my daughter calls me straight away: 'Mum, what happened?', 'Nothing, it was just letting off steam!' (F5)

Memories and re-encounters clearly marked this group's use of the digital networks. In online spaces, they kept in touch with former work colleagues, or re-encountered people they had not seen for a long time and who left a mark on relevant phases of their lives:

> I was born in Angola … I put my surname on Facebook to see if I could find people from the time when I was at school in Angola … And I even manged to find some! (F3)

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Relational users also talked quite a lot about their interest in photographs. They liked to see and share pictures on social networks, often from when they were younger, or of milestones in their life trajectories, or also more current ones with people they care about.

These older adults often joined groups on social networks, where they shared their personal interests and interacted with people who had the same interests (*e.g.* poetry, arts and crafts, animal volunteer work). The groups also constituted a space in which to exchange information and experiences (*e.g.* in the health field). This interaction was quite frequently mentioned by this category of user:

> Since my teens, I have always written poetry, and I have always loved poetry … I put my poems [on Facebook groups], I see the poems of other poets, I give my opinion about their poems and I receive their opinions. (F6)

Some relational users also used other social platforms to disseminate talents or art. The next quote is from an interviewee with a YouTube channel where she shared tutorial videos in which she taught the art of embroidery. This is an example of combining a traditional form of know-how with the digital world:

> One day my grandson told me: 'Oh grandma, why don't you post your embroideries?' … My grandson made the first film of the embroideries with me teaching the stitches, and I gradually progressed … I started posting the embroideries and sharing it with other people. (F7)

For the older adults in this group, the social web was also a way to get to know new people. One of the female interviewees used dating platforms, and found her current partner through them. In such cases, the relational dimension takes on another projection and is directly reflected in people's lifecourses:

> We began by Facebook, then it was the dating website, that was when I met my partner … It was thanks to the internet that we met each other. The internet has already helped us a lot! (F5)

Relational users also engaged in entertainment activities, such as playing games on Facebook or watching videos that are shared there.

The internet was perceived as being important in these persons' lives. To these older adults, the internet represented a 'window' to other people. It meant company, relating to people, being in touch, remembering the past, sharing interests. For those with a more depressive tendency, the internet was described as a way of calming themselves or means of escape:

> I have a chronic depression … and that's how [the internet] ends up being a [source of] company, because I'm at home all day … It's a company that I sometimes say is my antidepressant. (F5)

> I'm a widow, I live alone … [The internet] is a form of company, it's a bit of fun to take my mind off things. (F4)

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In this mode of relationship, the impacts of using the internet were quite significant and were related to the feeling of closeness to family and friends, fostering relations of sociability, and broadening networks of sociability:

> [The internet] familiarises us more with the people we know, and that's good. (F6)

> I also don't know many people … now I know quite a lot! … lately, well, that's how [via the internet] I have met a lot of people. (F3)

or the incentive to keep up hobbies, the feeling of increased personal worth, the increase in self-esteem and emotional wellbeing:

> I even think that, if it weren't for the internet, I might even have stopped writing poetry. … I've already had a poem with 101 likes! … to me, that's an incentive. (F6)

> There are days when, I don't know, I'm bored … look at the day I posted that tablecloth … and look, there were 300 views! … I like feeling useful … I'm really pleased. (F7)

or the perception of a greater participation in social life and the consolidation of a feeling of belonging to a community or group:

> I talk to my friends [on Facebook] every day … the people from the company I used to work at … And I'm still part of that range of people who worked there, I still am. (M3)

The above-mentioned impacts are particularly relevant to the quality of life of older people.

Instrumental

The instrumental mode of relating is primarily distinguished by a utilitarian use of the new ICTs. Instrumental users engaged in a use that is directed towards specific goals and is centred on searching for a variety of information, and the management and simplification of daily life, without a significant use of social platforms.

Here we found people with higher levels of education than those in the previous groups. Among 'instrumentals', the trajectories that led to contact with ICTs vary, but the predominant situation entails an initial use of computers in a working context and using the internet prior to retirement. That use arose out of a professional need in some cases, but did not always entail acquiring skills that would be desirable for a really proficient use.

Outside that context, these older adults used the internet for instrumental reasons that increased the efficiency of their personal and professional lives, as a tool to obtain a variety of information or use resources that made their life easier, allowed them to save time, *etc*. The next interviewee explained the need he felt to know how to use computers and the internet in order to live in this 'new world':

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> I reached the conclusion that to be able to live in this new world, for day-to-day things, even in retirement, it was indispensable to have some knowledge [about IT] … because it's so necessary that people who don't know IT can't even manage to do the annual income tax return. (M6)

These older adults' digital skills were intermediate, although some of them stood out in that they display slightly more advanced skills, thereby coming close to the next profile. Compared to comprehensive users, instrumentals presented a less-varied use, without much emphasis on social networks or production, but with a more instrumental agenda.

In this profile type, internet use was daily, but online time was relatively limited. The users resorted to the web for things like managing and investing their savings, planning trips, researching hobbies, watching tutorial videos, consulting public transport timetables, making doctor's appointments, using home-banking or comparing consumer products. They had a passive use of the internet, with the production/creation of contents being less frequent. This group clearly presented a use of search engines and utilitarian facilities. Another leading element is the consultation of public service and company websites that enabled them to obtain information and perform useful tasks more easily:

> I do Google searches on how to invest certain amounts that I managed to obtain over the course of my life … because I'm always thinking about where I'm going to invest, and I follow the possible information via the internet. (M6)

> I go to the net to see what I'm interested in seeing. If I want to know what time the bus is, I go to the net … It's convenient for me in relation to health too, it's handy because of prescriptions, isn't it? (M4)

Technical know-how-related questions can also occupy these older adults on the internet. The next interviewee used the internet to watch technical tutorial videos about how to repair electronic equipment:

> And when I have doubts, I go to the internet and YouTube … For example, I'm repairing this television, all via the internet … I do the search and then I go ahead and do the repair. (M7)

These users revealed a certain fascination regarding the possibility of finding all sorts of information on the internet. It is important to note that the majority also accessed news online, albeit not to the same extent as the next group. Membership of email newsletters was common. Other mobile phone applications were used to contact specific people more easily.

Instrumental users are clearly distinguished by a distancing in relation to online social networks like Facebook. Non- or infrequent use of social networks was explained by both disinterest – cases in which some associated use with the exposition of private life – and a lack of trust in the privacy of personal data in this context:

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> I don't like Facebook … There are people who splash their whole life across Facebook … That doesn't interest me, truly. (M4)

> I don't use [social networks], because I think there's a lack of privacy … Various people have told me: 'Oh! You're in the Stone Age!', kidding around like that. (F8)

The internet possessed a substantial importance among instrumentals and was seen as indispensable to certain tasks. For these older adults, it represented an instrument, a simplification of daily life, information, know-how:

> I have a really big need to … if I want to do something, I have to go and find out how to do it … Things have to be simplified to the maximum … And it's all that that I look for on the internet … if some problem arises, I go and look for the solution. (M7)

Among instrumental users, the impacts of using the new ICTs were related to the response to concrete needs and objectives. In addition to the more cross-cutting types of impact, the results were linked to the fact that these individuals felt more informed and changed the way in which they managed their daily lives, *e.g.* by avoiding having to physically go to places by performing tasks online:

> [With the internet] I'm more informed … And it's not as much bother as having to go somewhere, is it? … The internet … facilitates people's lives. (M5)

These users also felt empowered by using online features and taking personal advantage of them, *e.g.* in leisure-related matters:

> [What did the internet change in your travels?] It changed a lot … Now I'm going to Italy … I've already gathered information on all the monuments I'm going to visit … To me, the net is a hugely powerful weapon. (M4)

The above statement shows how the internet can change the travel experience for older users.

Comprehensive

This profile type represents older adults who undertook a more diverse range of activities on the internet, compared to the other users in this age group – namely activities with more advanced degrees of complexity in both the informational and the communicational and social fields. This segment presented a more consolidated relationship with ICTs, with a greater degree of proximity and a more continuous and diverse use. They took a more active stance on the internet, accessed the news and expressed opinions. They placed a major emphasis on the internet as a source of knowledge and a response to both intellectual interests and the innumerable possibilities for communication.

Their levels of formal education were similar to those of the previous profile, and higher than those of the first two. In this mode of relating, the internet had been

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used for longer, generally since the 2000s or even the 1990s. All the users in this group used or had used computers in a working context and had also begun using the internet in that way, so we consider these older adults' trajectories to contact with the new ICTs to be more tendential/likely. Integrated into occupational environments in which contact with the new ICTs existed, these older adults gradually got involved with the internet and the use of these new resources in a more natural way.

Comprehensive users' skills were generally more advanced than in the other modes of relating. They encompassed knowledge needed to work in a more varied range of contexts in cyberspace, use the internet independently and employ different access devices. However, they still experienced difficulties and wanted to know more (they quite often mentioned the need to update knowledge, given how fast technology evolves). In this profile, we found a major investment in both lifelong vocational training and self-taught studies, as elements that favour a greater proximity to and mastery of ICTs:

> A lot of persistence, a lot of hours of lost sleep … I went and took a computer training course, which was a novelty at the time … Then I took an AutoCAD course … At the level of the internet, [things] arose naturally. (M8)

The use of the new ICTs by these users continued or even became more accentuated following retirement. They had free time and intended to enjoy it, and that also entailed using the internet: to read, know more about topics that interest them, share questions regarding current affairs or other contents they like, give opinions and intervene, keep in touch with other people, find out about outdoor events, plan or make purchases, *etc*. This group of older adults immersed themselves in the internet as part of their daily lives, and used it assiduously. Some went so far as to describe this practice as addictive:

> That really is a drug, isn't it? A person sits there and the hours fly by … I even [use it] too much, for too long. Sometimes I'm still there at two in the morning. How stupid! (F10)

The interviewees in this profile often referred to their 'thirst' for knowledge. They were careful in their choice of sources of information, selecting ones with references and subscribing to digital versions of newspapers. Sharing information and ideas online with peer groups was also often mentioned. Social networks, for example, were used to that end. The following quotes illustrate these aspects:

> You know those series with people who hoard things…? Well, I'm the equivalent, but in terms of information … because I subscribe to newspapers, newsletters of global warming sites, economics sites, blogs. (M9)

> I do lots of things on Facebook! … I read really cool texts … I'm in the journalists' group … and I receive a huge number of things, so cool that I think they're blogs! (F10)

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Comprehensive users used search engines quite a lot as well. They took advantage of the internet as a portable source of knowledge which permits an answer to any question anytime and anywhere, and which makes it possible to explore and delve more deeply into a variety of topics:

> There have been some very good scientific programmes on television …, and then if I have any doubts, I go to the net … I want to know something, and I always use Google, even if it's in the street. (F9)

The older adults in this group also used various communicational and social functionalities, namely videocall and chat applications. In the case of the social networks, they did not just use the most common platforms, but also others to which access is less widespread. Like the instrumentals, they can be distinguished from users whose social network use centres on their personal lives, but unlike the previous group, they nevertheless use those networks regularly:

> [I use the internet] for Facebook, Instagram, Facetime … I have Twitter, I have all of that stuff. I really like photography, I used to use Flickr. (F9)

Comprehensive users were more frequently engaged in activities with a high level of complexity and creativity, such as writing blogs or commenting about current social problems on social networks. These older adults actively used the virtual space. The things they wrote online were very largely directed towards knowledge and information, social intervention and political criticism:

> I have a dormant blog … It had some political and economic opinions … It's a way of expressing opinions, about things that worry me. (M9)

> Just this morning I heard an article … there, that irritated me so much, so much, that I thought: 'I'm going to write something right now!' … a thing that was full of demagoguery about euthanasia. (F10)

Some of the older adults in this profile also signed petitions. A lot of them also resorted to the internet to make complaints or suggestions or praise entities in relation to situations they came across in their daily lives:

> On the underground, if the chargers are out of order, I use the phone straight away … as a means of getting the council's attention … These are things where we have an obligation. And it's easier via the net. (F9)

These users also engaged in other online activities, such as listening to music or reading e-books. Some regularly made use of e-commerce.

The older adults in this profile were internet enthusiasts and considered it quite important in their lives and to society in general. But they also perceived less-positive aspects, namely those linked to personal data security. Having said that, they considered that they controlled those dangers to some extent by the way they protected themselves and managed their internet use.

The impacts among this group of older adults of using the new ICTs were broad. The cognitive impact and the learning stood out for the greater ease with which they obtained information on the widest range of subjects. The interviewees said that the digital world enhanced personal and intellectual practices and interests and made them more efficient:

> The internet resolves that problem of information, doesn't it?! … To me, the Kindle is a magnificent instrument. I have personally gained a huge amount with it. (M9)

Their discourse also revealed a perceptible strengthening or facilitation of civic participation, associated with the increased possibility of disseminating socially relevant messages. These users also displayed empowerment in communicational and social terms, thanks to the more agile form of contact and the greater closeness to friends and relatives, which in turn contributed to a feeling of greater social integration:

> [Does using the internet make you feel more interventive?] Yes, much more … That way, when I see something that people should know about, I share, and then it spreads massively … If I stopped using [the internet], I would be isolated. Because I feel I'm always in the middle of things! (F10)

We should also mention the change in practices related to wellbeing (adoption of healthier living habits) or consumption (better choices as consumers) that was favoured by obtaining information online.

Discussion and conclusion

The qualitative research presented in this paper shows that older adults appropriate the new ICTs, especially the internet, in different ways, and take advantage of the latter in different spheres of their life and to differing degrees. The results contribute to breaking the stereotypes and generalisations associated with internet use by persons from older generations. The research results suggest answers to the research questions.

RQ1

The heterogeneity of modes of relating to the new ICTs among older internet users is expressed in the form of a typology that entails different dimensions of the relationship with ICTs. Practices are a central dimension, and when we analysed them we found two relevant axes, which have already been suggested by quantitative data (Van Boekel *et al.*, 2017; Coelho, 2019): the intensity/complexity of the use, and its main nature/aspect (more relational/social or more utilitarian/informative). Conjugating the practices, on the one hand, with the trajectories and skills, significances and impacts on the other suggested four distinct modes of relating to the new ICTs among older internet users.

RQ2

The typology includes: older adults whose professional lives already involved dealing with the internet, which they use several times a day for various and advanced purposes,

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who have more digital skills, who really incorporate ICTs into their lifestyles, and who take advantage of a broad range of impacts (Comprehensive mode of relating); a contrasting set of adults who have never used computers at work, who came into close contact with ICTs later on and with a more incipient/restricted use, who do not possess much digital literacy, and who often see the impacts of their use limited by the difficulties they experience (Restrained); and yet other groups of older adults who adopt intermediate modalities and whose uses are more oriented towards social matters (Relational) or towards information and the utilitarian aspect of the new ICTs (Instrumental).

In addition to characterising profiles, it is important to mention a number of additional aspects which were revealed by the interviews and which point to the existence of a degree of heterogeneity.

(a) The polysemic nature of the older adults' online activities

The identification of different modalities of undertaking the same activity was one of the relevant elements we gained from the interviews. For example, the use of social networks possesses a polysemic nature: more than 'being' on the networks in a passive way, in this context some older adults explore areas of interest and share talents, while others use them as a blog to express opinions about current affairs, politics, *etc*. This component is not very visible in the research on the topic, especially that based merely on quantitative data.

(b) Older adults' advanced, creative and proficient uses in cyberspace

We found older adults using the internet in a very natural way, be it writing a blog, using dating services, maintaining YouTube channels, *etc*., in some cases combining traditional forms of know-how with the new technologies. Comprehensive users in particular were especially active, informed and quite complete digital environment users.

RQ3

Life trajectories and trajectories towards contact with ICTs present an important significance within those modes of relating. The interviews suggest that not only the adoption, but also the proficiency of use of the ICTs and the nature of the relationship, project multiple social trajectories and inequalities beyond lifestages and ageing processes. The capacity to move to more advanced thresholds in terms of proficiency in the use of ICTs reflects unequal social conditions (different educational and cultural capitals, more or less of the types of skill that can be transposed to IT know-how, different types of profession, earlier or later contact with the ICTs in life trajectories, *etc*.); and also the nature of the relationship, which has to do with interests and needs that somehow reflect those inequalities. As other authors also conclude, post-retirement internet use is greatly influenced by pre-retirement computer use (Friemel, 2016), and individuals who were already advanced in years when internet use became widespread have the lowest degree of digital skills among older adults (Hargittai and Dobransky, 2017). On the other hand, those in advantaged societal positions have higher-level internet skills and are more likely to use the internet for diverse types of activities from which they may benefit (Hargittai and Dobransky, 2017).

Having said that, and again like other authors, we would emphasise the complexity of technology adoption and use among older adults (Neves *et al*., 2018).

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Our results suggest that social conditions of existence do not entirely condition a beneficial use of the new ICTs. Our research shows that older adults, including less-qualified ones, are not precluded from having a fruitful relationship with the new ICTs. They are conditioned by their position in the social structure, but also pursue personal projects and relate to their own social roles and conditions in different ways (Archer, 2003). The results suggest that both metacognitive abilities, such as autonomy or resilience, and social capital favour use of ICTs among older adults with less schooling. Family plays a key role in various respects: stimulating the will to use; facilitating access; supporting use. The strong effect of encouragement of older adults' internet use by family and friends is also highlighted by other research (Friemel, 2016). Non-formal adult education and digital literacy projects also constitute fundamental channels for getting close to the new ICTs (Baker *et al.*, 2017).

RQ4

The impacts on older adults of using the new ICTs can be more limited or broader, and are reflected in different spheres of their lives (in harmony with categories linked to the internet's potential, as presented in previous research, such as that by Llorente-Barroso *et al.*, 2015). In the restrained mode of relating, impacts are limited by difficulties with use, but we would especially note the feeling of closeness to family, self-esteem, emotional wellbeing and empowerment in relation to daily practices. In the relational mode of relating, we would emphasise the fostering of relations of sociability, the incentive to keep up hobbies, the increase in self-esteem and emotional wellbeing, the perception of a greater participation in social life, and the consolidation of a feeling of belonging to a community or group. The main impacts in the instrumental mode of relating are the response to concrete needs and objectives, the empowerment derived from feeling more informed and by using online features, and changing the way in which these users manage their daily lives and leisure-related matters. Finally, the impacts in the comprehensive group are broader; we would especially point to the cognitive impact and the learning, the enhancement of personal interests, a perceptible strengthening of civic participation, empowerment in communicational and social terms, and a change in practices related to wellbeing or consumption.

As the literature has been suggesting, it is important that digital engagement translates into real benefits in the everyday life of older adults (Helsper *et al.*, 2015). The present research enabled us to clearly understand how a lack of digital skills can very significantly limit uses (it places constraints on a diversified and advanced use that could bring relevant benefits). This aspect was particularly evident during the COVID-19 pandemic.

The COVID-19 pandemic, which has caused profound changes in peoples' lifestyles since early 2020, has decisively contributed to accelerate the transformations under way in current societies, by increasing the importance of digital communication (Beaunoyer *et al.*, 2020). Going online has become a necessity for individuals (Jacob and Coelho, 2020; Xie *et al.*, 2020) to, for example, find alternatives to face-to-face interaction or access information and health care.

Researchers point to the increasing differentiation between people with the skills needed to manage their lives using online resources and those whose lives have

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become more difficult because they do not have those skills (Aggarwal *et al*., 2020). Recent research results also demonstrate negative associations between technophobia – a phenomenon that is especially common among older adults – and the scope and intensity of internet use during the COVID-19 pandemic. That research shows how fear of or discomfort with modern technologies affected older adults' ability to use the internet in a beneficial manner during the pandemic (Nimrod, 2021).

The social isolation of older adults during the pandemic and the ensuing negative emotional impact of the confinement on their emotional wellbeing are two of the problems that have been most heavily stressed in the literature (Xie *et al*., 2020; Llorente-Barroso *et al*., 2021). Research studies also show that digital disadvantage is associated with COVID-19 exposure risk profiles (Robinson *et al*., 2020). Recent empirical research shows that ICTs are important when it comes to mitigating this type of pandemic effect (Llorente-Barroso *et al*., 2021).

Returning to our user profiles, the comprehensive users were probably the older adults who were best prepared to find digital answers to the restrictions caused by the pandemic. The instrumental users probably had a clearer view than ever before of the advantages which the digital world offers when it comes to resolving day-to-day issues, such as using home-banking or accessing health-care solutions. The relational users possibly made extensive use of social networks to facilitate their involvement with family and friends, and reduce their sense of isolation during the confinement. Albeit less excluded from the digital world than non-users, the restrained group were probably the least prepared to connect and to access health care, public services and information in a pandemic context.

According to the European Commission and some researchers, this is the ideal time to help low-skilled adults improve their literacy levels in general and their digital skills in particular (European Commission, 2020; Van Jaarsveld, 2020). Where the motivation to learn to use the internet is concerned, we confirmed that it is decisive for individuals to perceive what the concrete advantages for their lives are. For example, communicating with relatives, especially when there is geographic separation between them, is an important motivator for older people to access the internet (as also noted by Ivan and Fernández-Ardèvol, 2017; Freeman *et al*., 2020).

Our research results thus further highlight the current importance of promoting digital literacy among the older generations and ensuring that its promoters possess in-depth knowledge about older adults' relationships with ICTs, in terms of both their specificity and their diversity. The typology presented herein can be of use in the design of digital inclusion policies, ICTs themselves and training contents. For example, training programmes can be directed towards the interests of older adults, considering different modes of relating. Digital facilitators can provide different types of assistance with daily life. Health information programmes can employ different communication strategies; and e-health services and self-care technology can be personalised in accordance with older users' profiles, needs and skills. As Vulpe and Crăciun (2020: 133) said, personalisation 'would make the digital arena more accessible to seniors'.

As a conceptual and analytical tool, the typology of modes of relating to the new ICTs among older adults would itself gain from more depth and additional applications, namely in other countries. Inasmuch as the research we have presented

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here is based on a non-representative sample, a future research agenda could also include exploring the quantification of and articulation between modes of relating and social structures. The main limitation of our research is that it was undertaken in a pre-COVID-19 scenario, and we therefore consider that it would be important to analyse the changes that have occurred in the meantime. A new application of the interviews would be of the greatest interest in understanding how ICT use by older people evolves in the post-COVID-19 scenario.

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Ethical standards. The procedures performed in this study were in accordance with the Code of Ethical Conduct in Research of Iscte – University Institute of Lisbon. The Committee expressed its opinion on the ethical aspects of the study, confirming that the voluntary nature of the study, the protection of personal data and the confidentiality of the data collected were ensured.

Note

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References

Aggarwal N, Cowls J, Floridi L, Mokander J, Morley J, Taddeo M, Tsamados A, Wang V and Watson D (2020) Covid-19 and the digital divides. *Oxford Internet Institute Blog*. Available at https://www.oii.ox.ac.uk/blog/covid-19-and-the-digital-divides/.

Amaro F and Gil H (2011) ICT for elderly people: 'Yes, "they" can!'. In *2011 e-CASE & e-Tech International Conference, Tokyo, Japan, 18–20 January 2011*. Available at http://hdl.handle.net/10400.11/820.

Archer MS (2003) *Structure, Agency and the Internal Conversation*. Cambridge: Cambridge University Press.

Baker S, Warburton J, Hodgkin S and Pascal J (2017) The supportive network: rural disadvantaged older people and ICT. *Ageing & Society* **37**, 1291–1309.

Bardin L (1977) *L'analyse de contenu*. Paris: Presses Universitaires de France.

Beaunoyer E, Dupéré S and Guitton MJ (2020) COVID-19 and digital inequalities: reciprocal impacts and mitigation strategies. *Computers in Human Behavior* **111**, 106424.

Bertaux D (1997) *Les récits de vie. Perspective ethnosociologique*. Paris: Éditions Nathan.

Blank G and Groselj D (2014) Dimensions of internet use: amount, variety, and types. *Information, Communication & Society* **17**, 417–435.

Blank G and Reisdorf B (2012) The participatory web. *Information, Communication & Society* **15**, 537–554.

Bryman A (2012) *Social Research Methods*, 4th Edn. Oxford: Oxford University Press.

Cardoso G, Costa AF, Coelho AR and Pereira A (2015) *A sociedade em rede em Portugal. Uma década de transição*. Coimbra, Portugal: Almedina.

Chisnell D and Redish J (2004) *Designing Web Sites for Older Adults: A Review of Recent Research*. Washington, DC: AARP. Available at https://assets.aarp.org/www.aarp.org_/articles/research/oww/AARP-LitReview2004.pdf.

Coelho AR (2019) *Seniores 2.0: Inclusão digital na sociedade em rede* (Doctoral dissertation). Iscte – Instituto Universitário de Lisboa, Lisbon. Available at http://hdl.handle.net/10071/19753.

https://doi.org/10.1017/S0144686X22000605 Published online by Cambridge University Press

Colombo F, Aroldi P and Carlo S (2014) 'Stay tuned': the role of ICTs in elderly life. In Riva G, Marsan PA and Grassi C (eds), *Active Ageing and Healthy Living*. Amsterdam: IOS Press, pp. 145–156.

Colombo F, Aroldi P and Carlo S (2015) New elders, old divides: ICTs, inequalities and well-being amongst young elderly Italians. *Comunicar* **23**, 47–55.

Costa AF, Ávila P and Mateus S (2002) *Públicos da ciência em Portugal*. Lisbon: Gradiva.

Costa AF, Pegado E, Ávila P and Coelho AR (2013) Mixed-methods evaluation in complex programmes: the national reading plan in Portugal. *Evaluation and Program Planning* **39**, 1–9.

Cotten SR, Anderson WA and McCullough BM (2013) Impact of internet use on loneliness and contact with others among older adults: cross-sectional analysis. *Journal of Medical Internet Research* **15**, e39.

Dutton WH, Blank G and Groselj D (2013) *Cultures of the Internet: The Internet in Britain. Oxford Internet Survey 2013*. Oxford: Oxford Internet Institute.

Ellis D and Coughlin JF (2014) Just when we need it most: trust, technology, and navigating old age. *Public Policy & Aging Report* **24**, 18–20.

European Commission (2020) *European Skills Agenda for Sustainable Competitiveness, Social Fairness and Resilience*. Brussels: European Commission.

Eurostat (2020) *Survey on ICT Usage in Households and by Individuals [isoc_i]*. Available at https://ec.europa.eu/eurostat/web/digital-economy-and-society/data/database.

Eynon R and Helsper E (2010) Adults learning online: digital choice and/or digital exclusion? *New Media & Society* **13**, 534–551.

Eynon R and Helsper E (2015) Family dynamics and internet use in Britain: what role do children play in adults' engagement with the internet? *Information, Communication & Society* **18**, 156–171.

Freeman S, Marston HR, Olynick J, Musselwhite C, Kulczycki C, Genoe R and Xiong B (2020) Intergenerational effects on the impacts of technology use in later life: insights from an international, multi-site study. *International Journal of Environmental Research and Public Health* **17**, 5711.

Friemel TN (2016) The digital divide has grown old: determinants of a digital divide among seniors. *New Media & Society* **18**, 313–331.

Gil H and Amaro F (2010) Active ageing and the role of ICT and assistive technologies: reflections and discussion for their use in Portugal. In *Proceedings of the 2010 e-CASE & e-Tech International Conference*, Vol. **1**, pp. 2750–2760. Available at https://repositorio.ipcb.pt/bitstream/10400.11/819/1/Henrique%20Gil%202750.pdf.

Hannon C and Bradwell P (2007) *Web I'm 64: Ageing, the Internet and Digital Inclusion. Report*. London: Demos.

Hargittai E (2002) Second level digital divide. Differences in people's online skills. *First Monday* **7**. Available at https://doi.org/10.5210/fm.v7i4.942.

Hargittai E and Dobransky K (2017) Old dogs, new clicks: digital inequality in skills and uses among older adults. *Canadian Journal of Communication* **42**, 195–212.

Helsper E (2008) *Digital Inclusion: An Analysis of Social Disadvantage and the Information Society*. London: Department for Communities and Local Government.

Helsper E and Reisdorf B (2017) The emergence of a 'digital underclass' in Great Britain and Sweden: changing reasons for digital exclusion. *New Media & Society* **19**, 1253–1270.

Helsper E, van Deursen A and Eynon R (2015) *Tangible Outcomes of Internet Use. From Digital Skills to Tangible Outcomes Project Report*. Oxford: Oxford Internet Institute.

INE – Statistics Portugal (2019) *Inquérito à Utilização de Tecnologias da Informação e da Comunicação pelas Famílias 2019*. Available at https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=354447153&DESTAQUESmodo=2.

Ivan L and Cutler SJ (2021) Ageism and technology: the role of internalized stereotypes. *University of Toronto Quarterly* **90**, 127–139.

Ivan L and Fernández-Ardèvol M (2017) Older people and the use of ICTs to communicate with children and grandchildren. *Transnational Social Review* **7**, 41–55.

Jacob L and Coelho AR (2020) Atividades online nas universidades seniores em tempos de pandemia. *Interacções* **16**, 126–143.

Kuckartz U (2014) *Qualitative Text Analysis. A Guide to Methods, Practice and Using Software*. London: Sage.

Lahire B (2002) *Portraits sociologiques. Dispositions et variations individuelles*. Paris: Nathan.

Leist AK (2013) Social media use of older adults: a mini-review. *Gerontology* **59**, 378–384.

Llorente-Barroso C, Kolotouchkina O and Mañas-Viniegra L (2021) The enabling role of ICT to mitigate the negative effects of emotional and social loneliness of the elderly during COVID-19 pandemic. *International Journal of Environmental Research and Public Health* **18**, 3923.

Llorente-Barroso C, Viñarás-Abad M and Sánchez-Valle M (2015) Internet and the elderly: enhancing active ageing. *Comunicar* **23**, 29–36.

Mauritti R (2004) Padrões de vida na velhice. *Análise Social* **171**, 339–363.

Milligan C and Passey D (2011) *Ageing and the Use of the Internet. Current Engagement and Future Needs*. Oxford: Nominet Trust.

Neves BB, Waycott J and Malta S (2018) Old and afraid of new communication technologies? Reconceptualising and contesting the 'age-based digital divide'. *Journal of Sociology* **54**, 236–248.

Nimrod G (2021) Not good days for technophobes: older internet users during the covid-19 pandemic. *Educational Gerontology* **47**, 160–171.

Nimrod G and Edan Y (2022) Technology domestication in later life. *International Journal of Human Computer Interaction* **38**, 339–350.

Prensky M (2001) Digital natives, digital immigrants: part 1. *On the Horizon* **9**, 1–6.

Quan-Haase A, Martin K and Schreurs K (2016) Interviews with digital seniors: ICT use in the context of everyday life. *Information, Communication & Society* **19**, 691–707.

Robinson L, Schulz J, Khilnani A, Ono H, Cotten SR, McClain N, Levine L, Chen W, Huang G, Casilli AA, Tubaro P, Dodel M, Quan-Haase A, Ruiu ML, Ragnedda M, Aikat D and Tolentino N (2020) Digital inequalities in time of pandemic: COVID-19 exposure risk profiles and new forms of vulnerability. *First Monday* **25**. Available at https://doi.org/10.5210/fm.v25i7.10845.

Selwyn N, Gorard S, Furlong J and Madden L (2003) Older adults' use of information and communications technology in everyday life. *Ageing & Society* **23**, 561–582.

Silver MP (2014) Socio-economic status over the lifecourse and internet use in older adulthood. *Ageing & Society* **34**, 1019–1034.

Silverstone R (2006) Domesticating domestication: reflections on the life of a concept. In Berker T, Hartmann M, Punie Y and Ward KJ (eds), *Domestication of Media and Technology*. Maidenhead, UK: Open University Press, pp. 229–248.

Smith A (2014) *Older Adults and Technology Use*. Washington, DC: Pew Research Center. Available at http://www.pewinternet.org/2014/04/03/older-adults-and-technology-use/.

Taipale S (2019) *Intergenerational Connections in Digital Families*. Cham, Switzerland: Springer.

Van Boekel L, Peek S and Luijkx K (2017) Diversity in older adults' use of the internet: identifying subgroups through latent class analysis. *Journal of Medical Internet Research* **19**, e180.

Van Deursen A and Helsper E (2015) A nuanced understanding of internet use and non-use among the elderly. *European Journal of Communication* **30**, 171–187.

Van Deursen A and van Dijk J (2014) *Digital Skills: Unlocking the Information Society*. New York, NY: Palgrave Macmillan.

Van Dijk J (2005) *The Deepening Divide: Inequality in the Information Society*. Thousand Oaks, CA: Sage.

Van Jaarsveld GM (2020) The effects of Covid-19 among the elderly population: a case for closing the digital divide. *Frontiers in Psychiatry* **11**, 577427.

Vulpe S and Crăciun A (2020) Silver surfers from a European perspective: technology communication usage among European seniors. *European Journal of Ageing* **17**, 125–134.

Wellman B and Haythornthwaite C (eds) (2002) *The Internet in Everyday Life*. Oxford: Blackwell Publishing.

Xie B, Charness N, Fingerman K, Kaye J, Kim MT and Khurshid A (2020) When going digital becomes a necessity: ensuring older adults' needs for information, services, and social inclusion during Covid-19. *Journal of Aging & Social Policy* **32**, 460–470.

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