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The internet multiple – How internet practices are valued in later life

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Abstract

Internet practices of older adults are multifaceted and go beyond a "use" and "non-use" binary. In this article, we suggest a valuation approach towards Internet practices in later life that explores Internet practices not as "use" or "non-use," but rather asks which forms of Internet practices are valued in later life, and which ones are de-valued. For this valuography, we draw upon different data sources, including interviews with older adults, to explore the multiple "goods" and "bads" through which Internet use in later life gets valued. The findings suggest two registers of value: autonomy and innovation. Valued Internet practices in later life are therefore done by an autonomous, older individual and include innovative technologies. We conclude that a performative, reflexive, and value-oriented understanding of Internet practices sheds light on the "Internet Multiple," or the many different shapes the Internet takes in older people's lives that go beyond a "use" and "non-use" binary.

Keywords: socio-gerontechnology, digital cultures, technology use, valuation studies, valuography.

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Introduction

We live in a digitized society in which engagements with technologies to access and use the Internet are omnipresent. Gerontological research indicates that older adults generally use the Internet less often, that they have less Internet competencies, and that significant age disparities in the uptake of and attitudes toward new technologies persist (Chen & Chan 2011; cf. Lee et al. 2019; Peek et al. 2014). There is also considerable evidence highlighting that most older adults *do engage* with the Internet in one way or the other; they might, however, do it in different ways than usually expected by studies on technology use in later life (Bergschöld et al. 2019; cf. Kania-Lundholm 2020; Loe 2010).

This ambivalence points to the fact that in a digitized world, there is arguably no such thing as a complete non-use of digital technologies, and the boundaries between using and not using the Internet are not fixed, but rather processual and fluid. Research has indicated that Internet practices encompass not only using or not using the Internet but also involve a plurality of engagements with the Internet, with usage practices (e.g. using the Internet for the first time), non-usage practices (e.g. stop using the Internet after failing to use it in a desired manner), hybrid or proxy practices (e.g. letting others use the Internet for them), to name a few. Using and not using the Internet is, therefore, are heterogenous phenomena that need to be studied in the context of both users' and non-users' everyday lives (Müller et al. 2015; Reisdorf & Groseli 2017), and focusing only on Internet use in later life runs the risk of making other valuable engagements with this technology invisible, and, in the long run, harming the self-perceptions of older adults as "incompetent" or "non-users," as "technology may be influenced by (perceptions of) ageing and in turn change what it means to age which can in turn influence perceptions of ageing" (Peine & Neven 2020: 2859).

Highlighting the diverse and manifold engagements that can be found in older adults' lives – even in the lives of those older adults who are usually understood as Internet "non-users" (Gallistl et al. 2021), however, open up the question why these engagements are made less visible in research and policy discourses on digitalization in later life. As most studies in this field usually apply binary conceptualizations of Internet use and non-use in later life (Fernández-Ardèvol 2016), they run the risk

of ignoring such valuable engagements with the Internet that take place outside of a "use vs. non-use" binary. Why are these engagements with digital technologies less visible in the research and policy discourse on digitalization and later life?

In this article, we suggest that this does not take place by accident; rather, it is the result of *valuation practices* that value some forms of Internet use in later life more than others. We argue that the relevant difference that shapes Internet engagements in later life is not the one between using and not-using the Internet; however, engaging with it in a way that is generally *valued* versus engaging with it in a way that is not *valued*. Drawing upon the sociology of valuation (Helgesson & Muniesa 2013; Lamont 2012), we therefore ask which forms of Internet practices are valued in later life, which ones are de-valued, and what are the registers of value with which Internet practices become (de-)valued, mapped, and categorized into "goods" or "bads"? And how do these registers relate to the binary of *using* and *not using* the Internet in later life?

To answer these questions, we present a valuography (Dussauge et al. 2015) of empirical data from different sources based on which we identify and discuss two registers of value, which are important in ordering Internet practices in later life: autonomy and innovation. *Valued* Internet practices in later life, as we argue, are reduced to Internet use that is done by an autonomous, older user, which consequently *devalues* practices of shared or proxy usage. Furthermore, *valued* Internet practices in later life are *innovative,* or done with and through new technologies, which consequently devalues the engagement with (older) technologies that are already embedded in the lives of older adults. Finally, we discuss our results against the backdrop of the current literature and argue how aging research can profit from deploying a valuation approach, as well as what valuation studies can gain by focusing more attention on later life.

A Valuation Approach toward Internet Practices in Later Life

The concept of value, in its manifold meanings, has been an ongoing subject of debate in aging research. On the one hand, a gerontological approach toward value has become visible when discussing the valuation

of (later) life itself, especially when the research focuses on the end of life. Such studies often draw upon the self-evaluations of biographies in which older adults are asked to reflect on the value their life has or has had (Lawton et al. 1999, 2001; Jopp et al. 2008). These studies explore the value of and the attachment to life in old age, and the concept of value is often applied to describe "the meaning and purpose of the individual's total life" (Lawton et al. 2001: 26), which usually covers and is measured using items such as "Life has meaning for me" or "I feel hopeful right now" (Gitlin et al. 2016). Research in the field of critical gerontology, on the other hand, has drawn upon questions surrounding values and worth to explore how some forms of ageing – for example, healthy, active, or productive ageing, and the practices connected to them – are more valued than others by a society (Katz 2000). Through imperatives of active and productive ageing, a valuable later life is framed as "busy, creative, healthy, and mobile" (Katz 2000: 138) and governed by respective *activation policies,* ranging from increasing retirement ages to the marketing of anti-aging products (Van Dyk et al. 2013). In such accounts, value as a gerontological concept is understood as a *collective* good, as societies negotiate the values through which certain forms of life are worth more than others. In both of the accounts mentioned above, gerontological research on value and worth moves away from economic understandings of value, and rather focusses on the negotiation of the different values that are relevant for older individuals and for aging societies.

In moving away from an economic understanding of value, gerontology's approaches to value show certain similarities with understandings within the sociology of valuation (Doganova et al. 2014; Helgesson & Muniesa 2013), which claims that value is not a stable entity that can be measured in economic worth, but is rather something that is constantly collectively (re)negotiated, evaluated, stabilized, and enacted in everyday life practices. Value is thus a situated and enacted practice, instead of an economically measurable constant. Valuation studies, therefore, do not look at values but rather at the processes through which manifold forms of value are "produced, diffused, assessed, and institutionalized across a range of settings" (Lamont 2012: 201). Looking at valuations means looking at "everyday inquiries about what is desired, cared about or held precious" (Vatin 2013: 32) and shifting "from coping with the value of things to describing valuation as an activity" (Hennion 2017: 70). Applying this

approach to Internet practices means looking for the diverse and ambivalent ways through which the diverse "goods" and "bads"[1] of Internet practices are evaluated, as well as questions on how it comes to be that some forms of Internet practices in later life are valued more than others.

To explore these diverse valuations of Internet practices in later life, we need to start by viewing the *not* Internet as something that can (or cannot) be used, but as an omnipresent part of social practices. Such practices can be described as "temporally and spatially dispersed nexus[es] of doings and sayings" (Schatzki 1996: 89), "which consist of several elements interconnected to one other" (Reckwitz 2002: 249), including bodily and mental activities, artefacts and things, knowledge, attitudes, and affects (Shove et al. 2012). Approaching the Internet from this perspective implies understanding it as a constellation of practices, consisting of "doings" like opening a web browser, or issuing a transfer of money via online banking, but also looking up a number in a phone book to avoid Google, as well as "sayings," like talking about what you have seen on the Internet and talking about why you do not want to use the Internet or writing a post on social media. These doings and sayings, again, comprise a variety of interconnected elements, comprising materialities that include technological devices (e.g. a computer, tablet, or smartphone), competencies, skills, and knowledge about the Internet, or meanings, including valuations of Internet uses (e.g. as a waste of time or an absolute necessity) (cf. Shove et al. 2012). It is the latter that is the focus of this study.

This then allows us to comprehensively view and describe the wide range and pluralism of Internet practices without a priori selecting or hierarchizing them based on their function, assigned benefit, or the conceptualization of use and non-use. Internet use, from this perspective, contains everything that happens in, about, and with the Internet – from closing a browser window to maintaining a YouTube channel to watching porn, to reflecting upon reasons as to why not using the Internet is a good choice. The question "what is Internet use?," from such a

[1] In using these terms, we want to highlight that we understand valuations as ordering practices that locate phenomena along different axes of normative judgements. We therefore use "goods" and "bads" as plural terms to highlight this diversity of normative orientations of valuations practices.

praxeological perspective (Wanka & Gallistl 2018) then turns into "how is Internet use?"

Such a perspective, hence, is built on the premise that there is a plurality of engagements with the Internet in later life that go beyond practices of using or not using the Internet. Nevertheless, how can it be that we have learned to make sense of the Internet through the binary of using or not using it? It is exactly at this point when *valuations* come to matter in Internet practices in later life. While Internet practices might hence be diverse, multifaceted, and encompass almost everything a person can do in a digitized world, valuation practice provides a hierarchical order to these omnipresent Internet practices, as they map and organize different Internet practices through the different axes of goods and bads, real or not real, and actual and not actual. Acknowledging the multiplicities of values (Dussauge et al. 2015) behind such hierarchical orders, this study aims to reconstruct the different *registers of value* through which the value of internet use is mapped.

These registers of valuing, as Heuts and Mol (2002) find, "indicate a shared relevance, while what is or isn't good in relation to this relevance may differ from one situation to another" (p. 129). For exploring the valuation of Internet practices in later life, this implies that even though Internet practices might be mapped towards an economic value (e.g. when choosing the right device according to price), there are many other "goods" and "bads" at play that direct and order Internet practices in a hierarchical manner. For example, it might be "good" to use the Internet to stay in touch with your children and family, just as it might be "good" to use the Internet for memory training in later life, while it is considered "bad" or problematic to not use the Internet at all or to use it too much (as suggested by Gallistl & Nimrod 2020). Based on such a perspective, we therefore ask the question, which forms of Internet practices are valued in later life, which ones are de-valued, and what are the registers according to which they are (de-) valued, normatively mapped, and categorized?

When we have come to see the diversity and multifacetedness of Internet practices, we may then, second, ask why so few of them are represented in the public discourse, for example, in the media, policy debates, or research. How come certain Internet practices are more visible and valued than others? How come some Internet practices seem to be more

"precious and cared about" (Vatin 2013: 32) not only by older people but also by gerontological research or policy-making than others? A reflexive perspective, as has long been proposed in science and technology studies (cf. Knorr-Cetina 1981), sensitizes us to the fact that research itself is embedded in, and thus biased by, societal structures and discourses. The way we define, operationalize, measure, and depict Internet use when researching and writing about it is a powerful practice itself that significantly contributes to the discursive representation, the meanings, and the valuations attached to it (Moreira 2016). Therefore, there might be many different experts who decide on which forms of practice are valuable and which are not, and who establish and diffuse the registers of valuing that are relevant for the valuation of particular practices. Some of them might be individuals (e.g. older adults), some of them might be collectives (e.g. research groups and projects) or institutions (e.g. the European Commission), and some of them might even be harder to grasp (e.g. innovation discourses surrounding the aging and technology nexus). In the following valuography, we aim to take the perspectives of these different experts on Internet practice in later life into account and ask the question, what is *valued* Internet practice in later life?

Methods

This article situates its empirical exploration as a valuography that includes empirical reflections that are oriented toward "an empirically oriented and analytically sceptical research programme of values as enacted" (Dussauge et al. 2015: 268). In the following, we therefore list two registers of value that, drawing on empirical data, demonstrate how configurations of Internet practices shape the values that are at play in a particular situation.

However first, who is an expert on valued Internet practice in later life? What are the sites at which valuations of Internet practices in later life can be evaluated? To enable a multi-perspective view on the multiplicity of values (Dussauge et al. 2015), we decided to draw upon different data sources to gain expertise knowledge on valued Internet practices in later life. These data sources stem from two different research projects that were conducted at the University of Vienna between 2016 and 2021. Within these two projects, we focused on three perspectives on values in

our analysis: funding bodies and their mission statements, project proposals, and qualitative data that were gathered within the projects. The latter served the purpose of integrating older adults' perspectives into our valuography.

The EnterTrain project (2016–2019) was funded by the European program Ambient Assisted Living and aimed to develop a personalized gaming platform that could be used by older adults in the comfort of their private homes. The aims (and values) of this project were threefold: first, it aimed at achieving technological interoperability by integrating and connecting different Ambient/Active and Assisted Living (AAL) systems and services to the gaming platform, which was developed for older users. Second, it aimed at developing a personalized technological solution that was tested to be able to adapt to its users' mobility status and behavior. Third, and most importantly, the project aimed to increase the quality of life of its older users by supporting the development and maintenance of self-esteem, motivation, and physical activity (https://cvl.tuwien.ac.at/project/entertrain/).

The ACCESS project (2018–2021) was funded in the third call for funding "Ageing and place in a digitizing world" of the European More Years Better Lives Joint Programming Initiative (https://jp-demographic.eu). Taking older adults' obstacles and barriers toward digital technologies as its point of departure, the project aims at developing new, socially embedded learning opportunities for older adults, especially for those with low digital competencies. Within the project, enabling older adults to use digital technologies autonomously is, therefore, a central value, which will be tested through informal, non-formal and formal learning, as well as in practice labs and using demo kits.

Within the ACCESS project, we draw upon project descriptions and the call for proposals under which this project was funded. In addition, we include data that were collected and analyzed within the project from 15 semi-structured interviews with older adults (65+) in Austria who self-identify as "non-users" of digital technologies. Data were analyzed using thematic coding (Flick 2016). For sampling, an open call was made and addressed older adults (65+) who self-identify as "non-users of the Internet." We distributed this call through municipalities, neighborhood centers, pensioner clubs, local associations for older adults, and nursing homes. The final sample consists of people between the ages of 69 and

88 years, with a mean age of 79 years. Interviews lasted for 65–126 minutes and were audio recorded, transcribed verbatim (in German), and analyzed with the data analysis software MAXQDA 2018. Interview quotes were translated from German into English by the authors.

Registers of Valuing in Internet Practices in Later Life

In line with Heuts and Mol (2013), we identified two registers of value from both the review of current research on aging and the Internet and data derived from the projects EnterTrain and ACCESS (see above).[2] Such registers, the authors outline, "indicate a shared relevance, while what is or isn't good in relation to this relevance may differ from one situation to another" (p. 129). These partly overlapping, partly ambivalent registers circle around notions of autonomy (register 1) and notions of innovation (register 2), and will be explored in more depth in the following.

Register 1: Autonomy

A first register relevant to valuing Internet practices in later life that we found in our data has to do with autonomy. In the data and examples of projects that are used for this study, we see this play out in two dimensions: first, as valuing practices that enable autonomous interaction with the Internet over those practices in which a variety of actors are involved (e.g. in shared or proxy Internet use), and second, as valuing Internet practices that are functional for maintaining a generally autonomous lifestyle over those practices where the Internet is used for purposes aimed at fun or entertainment. Valuable Internet practices in later life are, hence, those that are carried out by an autonomous, older person, or with autonomy in later life as a goal.

In the study on self-proclaimed older non-users of the Internet, which was conducted in the ACCESS project (see above), this valuation of valuable Internet use became visible in how older non-users of the Internet negotiated and valued their engagements with the Internet during the interviews. Far from total non-users who had never engaged with the

[2] The identification of two registers can be criticized as reproducing binary thinking, and we are well aware of the fact that a wide variety of registers can be found in other data.

Internet in one way or another, most of these self-proclaimed non-users describe regular engagement in Internet practices, despite also stating that they mostly did not wish to engage with digital technologies at all in the beginning of the interview (Gallistl et al. 2021). Most interview partners, therefore, regularly engaged with the Internet, however, in a way that they did not assess as the "real" or "right" way of using the Internet. Interview partners often highlight that they did not "really" (IP4 [79, f]) use the Internet, or were using it "just for the basic stuff" (IP8 [85, f]), which often included communication apps, social media, or platforms for streaming videos and other kinds of media.

In the interviews, "really" (IP4 [79, f]) using the Internet, or using the Internet in the right way, connected to experiencing yourself as an independent user of this technology who is in control of what is happening online at all times. One of the interview partners, who had just described how she regularly used her smartphone to stay in touch and share photos with friends and family, explained, "but I'm far from being able to use everything, so I am not in control of it yet." (IP4 [79, f]). Being able to use the Internet in the "real" or "right" way was therefore connected to feeling autonomous and in control while doing so; in her mind, it was therefore related to using the Internet autonomously and independently.

One consequence of this register of valuing was that shared Internet practices – using the Internet with or through your friends and family – were consequently devalued as "not really" using the Internet. One of the interview partners, for example, explained that when she needs "something, I have someone who helps me anyway, who, let's say, writes something [via e-mail] or looks something up. (…) Something about a treatment for dogs and cats, [my friend] printed that for me." (IP15). Another interview partner describes how she regularly asks her daughter to look up relevant information on the Internet: "I often ask my daughter something like 'We are going on vacation; how is the weather there?' And she takes out her phone, pushes some buttons 'It's 20 degrees there'. And this is just one example." (IP13)

However, even though these engagements in Internet practices were at times strikingly successful in that they produced the desired results for interview non-users, they were not perceived as "really" using the Internet. At times, interview partners even described how they were "using" other persons for their purposes and even felt bad about it: "Internet

stuff… – [my son] looks stuff up for me. I mean, I do *participate* in the Internet. I say something like 'Look up this hotel' or something. But, yes, I do use and take advantage of him. I have to admit that" (IP14).

This register of valuing, therefore, narrows down Internet practices to individual Internet usage, which is deemed to be "better" when performed autonomously – hence, without help. On the one hand, such an understanding makes other Internet practices that are not strictly "usage" invisible; for example, practices that involve talking, thinking or knowing about the Internet, or even refusing to use it. On the other hand, the register of autonomy devalues practices of Internet use that require the help or assistance of another person; for example, being shown how to use a search engine by a grandchild or caregiver or having other people research on the Internet for you.

Beyond these engagements with the value of autonomy of older non-users, the value of autonomy – of using the Internet as one, independent user – is also visible in current research on this topic. We find this resembled in, inter alia, hegemonic operationalisations in standardized, quantitative surveys. Even though reviews on the topic claim to take different kinds and aspects of Internet practices, for example, measuring different kinds of proxy Internet use, more seriously into account for a long time (Hunsaker & Hargittai 2018), most large-scale studies on Internet use in later life usually apply rather simple yes/no binaries on Internet use and usually focus on access and use of the Internet, with only few or no follow-up questions on years of use, frequency of use, context or types of use or involved actors. Often, a single, dichotomous question is the only variable that describes Internet access, which not only conflates different types of motivations for and challenges in usage but also makes practices of shared or proxy usage invisible. The largest survey on age and aging in Europe, the Survey of Health, Age and Retirement in Europe (SHARE), for example, contained one single question on Internet practices in its last wave (Wave 7): "During the past 7 days, have you used the Internet, for e-mailing, searching for information, making purchases, or for any other purpose at least once?" which could be answered with either "yes" or "no" (SHARE 2021).

The second dimension in which the register of autonomy in valuing Internet practices manifests shifts the focus from the interaction between an individual person and the Internet – as implied above – to the wider

life world of older adults, in which Internet practices are embedded. This register of valuing becomes visible through the funding bodies that address technological development for the older population. The European AAL Joint Programme, through which one of the projects under scrutiny here was funded, lists as the first goal of its funding strategy to "foster the emergence of innovative ICT-based products, services and systems for ageing well at home, in the community, and at work, thus increasing the quality of life, autonomy, participation in social life, skills and employability of elderly people" (AAL Joint Programme 2021). Innovative technologies, in that sense, are mainly used to enable aging well "in place," which includes ideas around autonomy, independence, and not being in need of (institutional) care (Wiles et al. 2011). Technology use in later life, hence, is mainly directed toward autonomy in later life, and technologies are used as instruments to enable and support this autonomy.

Using digital technologies and appropriating new Internet practices in later life, hence, are expected to contribute to or be oriented toward maintaining autonomy and independence. This register of value, therefore, narrows down what the Internet in later life should be mainly used for the purposes of staying and maintaining autonomy in later life. Furthermore, this first dimension (implicitly) narrows down by whom the Internet should be used in later life – namely, a mostly independent, single-older user, who is independently in control of the activities he or she is doing online.

Register 2: Innovation

A second register relevant to valuing Internet practices in later life that we identified in the data has to do with innovation. It has been established that innovation discourses that position innovative technologies as a normalized, legitimate and acceptable solution to the alleged problems connected to demographic change shape technological developments for an aging population (Neven & Peine 2017). With regards to the different registers of valuing that are relevant in Internet practices, we see this play out across two dimensions in the data: first, as valuing Internet practices that involve innovative technologies over those which involve older technologies and, second, valuing Internet practices of early adopters over those of other user groups.

The first dimension targets the innovation of technological artefacts that are involved in Internet practices. Campbell (1992) has described this as a general societal "desire for the new" (p. 48), for which innovation research has found various explanations – ranging from economic growth to social comparison, creation of self-identity, mental stimulation, or the "Diderot Effect," that is, the belief that people only replace technologies rationally once they no longer work or can be replaced by better ones (Ingram et al. 2007). The value of innovation, or the desire for the new, that is both manifested in and satisfied through new and innovative technologies, was also visible in the analyzed interviews with older non-users of digital technologies. Throughout their life, they had engaged with – at the time – innovative, new, and therefore desired technologies on numerous occasions, and in the interviews, these instances were often described as affective moments, which were highly appreciated by the interviewed older adults. One of the interview partners highlights how, during his youth and childhood, saving money and buying the latest technologies were something that would ensure respect and admiration from other children in the neighborhood: "There was a microphone that you could use to sing, talk and record yourself. Yes, I was the boss there, in my neighborhood, where I lived. When I went over to my neighbors, they would say something like: 'Here, sing something!' and then I would record it and they would say 'Wow! That is amazing!'" (IP9).

For most interview partners, however, this had significantly changed in later life, as most of the interview partners did not wish to engage with digital technologies, and the digital technologies they had at home were often "old" technologies instead of new ones. One of the interview partners, for example, describes how she has digital technologies at home; however, she does not use these technologies because they are hand-me-downs from her granddaughters: "Well, she brought me this [tablet], because she bought a new one. I guess it is an old version or something. It's lying around in the back somewhere" (IP11). Internet practices that involved older technologies – a hand-me-down from her granddaughter – was not highly valued by the interviewed older woman.

The register of innovation has also been a longstanding topic in research about technologies, in general, and was often connected to the question regarding who picks up which practices and devices at what point in time. In her influential theory on diffusion of innovations,

Everett Rogers (originally 1962; 1995) argues that innovation must be widely adopted to self-sustain. She, therefore, differentiates between four groups of people: early adopters as the first to deploy innovative technological practices, followed by the early and late majority and, finally, the laggards as the last group to adopt a new practice. Whereas early adopters are usually framed as young and well educated, laggards are perceived to be older, less educated persons – a labelling that is both agist and classist, and empirically inaccurate (Essen & Östlund 2011; Peine et al. 2014).

The first dimension of the register of innovation is thereby closely entangled with its second dimension, which can be pointedly summarized as follows: Internet practices that involve early adopters – in the interview often portrayed as younger people – are hierarchized over those involving laggards – in the interviews often portrayed as older people. Abridged, this implies whatever the Internet practices of younger people are, they will be valued higher than the Internet practices of older people – even if both resemble each other at some point in time. For example, when younger people refrain from using certain messenger services or do not use the Internet at all, they care about their data privacy or go on a digital detox, while older people doing the same are framed as overcautious and technology averse (cf. Grenz & Pfadenhauer 2017)

This is in line with what gender studies describe as devaluation theory, claiming that disadvantaged groups are culturally devalued in a society, in general, and, as a result, the occupations and tasks of these disadvantaged groups are not only less culturally but also economically valued. Studies (e.g. Mandel 2018) suggest that as soon as the proportion of disadvantaged groups in an occupation increases, wages tend to decrease. As outlined above, similar processes can be found when older adults take up technological practices, in general, and Internet practices, in particular – they become devalued. However, this is not always or necessarily the case. As shown by Peine and colleagues (2017) in the case of e-bike use, older adults can, in fact, be the first to engage in innovative technology practices that only later diffuse to younger age groups. Retro culture points to another such example, in which marginalized and often forgotten practices are rediscovered (cf. Hogarty 2019) – a phenomenon Stuiver (2006) describes as "the retro side of innovation" (p. 147). Even if similar

developments have not yet so much affected Internet practices, they can very well do in the future (cf. trends like digital detox).

In the study on older Internet non-users, which was conducted within the ACCESS project (see above), this register of value was most visible when interview partners evaluated their own competencies in engaging with new, digital technologies – and often found that they were insignificant compared with the younger generation. One of the interview partners explains how she does regularly interact with her phone to use the Internet, "but when I look at my grandson typing away on it, all the things he gets out of it – I am a zero" (IP8). This register of value therefore meant to devalue one's own competences and engagements with the Internet; however, it also meant to construct the Internet practices in which younger adults were involved as valuable, while Internet practices in which older adults were involved were devalued. One of the interview partners further explain how she is successful in finding how to get to certain points in the city where she lives with Google. However, as soon as her grandson displays how he interacts with Google, she feels less competent: "I know how that [Google Maps] works, alright? And my grandson tells me, 'Grandma, you just have to put it into the search bar!', Yes, but I don't know where I have to click to get to the search bar. I mean, if push comes to shove, I know how to handle myself. Yes. But compared to how in control he is with these things…" (IP8).

Discussion

This article developed against the backdrop of a digitized society, in which engagements with digital technologies and the Internet in later life have become omnipresent. These engagements of older adults with digital technologies, we argued, are diverse and multifaceted, and far exceed the scientific discourse in aging research that tends to reduce them to binary questions regarding the use or non-use of the Internet. However, as we have argued using a practice-theoretical perspective of valuation studies, it is not really so much the difference between using and not using the Internet that is an important topic of research for gerontology, but rather interacting with it in a way that is generally valued versus using it in a way that is not valued.

We asked the questions, which forms of Internet use are valued in later life and which ones are de-valued? What are the different axes of diverse "goods" and "bads" through which Internet practices in later life are hierarchized and mapped? We were therefore far from defining and measuring the value of Internet practices in later life, but rather explored how it is that some forms of engagement with the Internet become more valued than others. We also abstained from defining our crucial terms – what is value and where can it be found – and instead looked at processes of valuing Internet practices in later life, meaning that we explored what valued Internet use looks like in later life, which (older) users should be involved with it, and for which reasons the Internet should be used.

To approach the question regarding which Internet practices are valued and which are not, we included three perspectives: funding bodies and their mission statements, project proposals, and qualitative data that were gathered within these projects. The latter served the purpose of integrating older adults' perspectives into our valuography (Dussauge et al. 2015). While these diverse experts on Internet use in later life undoubtedly have diverse, and at times contradictory, perspectives on what constitutes valued Internet practices in later life, we were still able to retrieve two different registers of values that these three groups of experts seemed to agree on: the autonomy and innovation of Internet practices in later life. Valued Internet practices in later life were, therefore, Internet practices that were done by an autonomous, older individual and were innovative in the sense that they included new, innovative technologies.

Both of these registers of value are, however, two dimensional in themselves: Autonomy plays out, first, as valuing autonomous interaction with the Internet and, second, as valuing Internet practices that are functional for maintaining an autonomous lifestyle, in general. Valued Internet practices in later life are, hence, those that are done by an autonomous, older person, or are done with autonomy in later life as a goal in mind. The register of innovation plays out, first, as valuing newer Internet practices over old ones and, second, as valuing Internet practices involving younger people over those involving older people. As Heuts and Mol (2013) have pointed out, however, such registers are often in tension with one another, leading to clashes and compromises. If you are expected to interact with the Internet autonomously, hence without any help, but you are also expected to engage in the most recent practices and deploy the

latest devices for it, this requires – especially with the fast, technological developments we are facing – an enormous amount of work and, accordingly, time to be put into, staying up-to-date and learning new Internet practices basically every day. Here, another register of value that we did not discuss in detail in this article, as it does not specifically target Internet practices as such but later life more, in general, becomes relevant: scarcity of time. Being confronted with the amount of time required to become a "valued" Internet user, older adults might react by claiming that they would not waste the time they have left on this endeavor (for a more in-depth discussion on "wasting time" in later life, see Wanka 2019). Hence, it becomes clear that there are a variety of registers of value, either targeting Internet practices, later life in general, health, or other realms, that come into play here, overlap, and potentially contradict one another. Mapping these registers more carefully, for example, by drawing on situational analysis (Clarke 2007), and using more data to do so would be an endeavor worthwhile.

Focusing on the two registers we used as examples on in this article, we can, however, already draw a central conclusion of particular value for valuation studies in aging research. Taking a reflexive stance on research practices in the field of aging and technology reveals how limited the understandings of Internet practices as (autonomous, innovative) Internet use resembled in research often is. And even if such understandings, and their respective operationalizations, can provide significant insights, they also limit and reduce what we can find out about the manifold diversity of Internet practices and technology practices, in general. Asking not only whether older adults use the Internet (and if so, how long, on what device, etc.), but how they think, talk and feel about the Internet, where, when, and how they encounter it in their everyday lives, which skills they develop and practices they engage in in place of using the Internet autonomously themselves (e.g. engaging in neighborhood networks instead of social networks, reading real maps to get around), etc. With a broader understanding of Internet practices, the research could extrapolate new fields and topics apart from functional use to maintain autonomy, like the Internet humor of older adults, the porn they consume, or the forms of cyber mobbing they experience. Such findings could help shed light on what could essentially be described as the "Internet Multiple" (cf. Mol 2002), or the many different forms and shapes the Internet as a seemingly stable

entity can take in threading through different lives, life stages, unequal living conditions, and experiences and contexts. Understanding this multiplicity of Internet use in later life might then also enable a deeper understanding of the digital inequalities that shape later life: How, when, and for what purposes the Internet is used in later life differs significantly by sex, education and income and studies have, for example, highlighted that older adults with lower socio-economic status tend to use the Internet more extensively for entertainment purposes than others (Gallistl & Nimrod 2019). A valuation approach towards Internet use might also question how the socio-economic difference shapes the subtle differentiations between "valued" and "devalued" forms of Internet use.

The field of Socio-Gerontechnology (Peine et al. 2021), emerging at the intersections between age studies and science and technology studies, has started addressing some of these questions. Based on a notion of "co-constitution" of aging and technologies, socio-gerontechnological research departs from the assumption that technology is influenced by processes, practices, and discourses of aging, and can, in turn, shape images of aging and aging identities (Peine & Neven 2021). This implies that the devaluation and invisibilization of older adults' Internet practices might lead to harm, scarring, or even stigmatization of older adults' identities. Intensifying these discussions in age studies and Science-and-Technology-Studies (STS) seems promising in finding more nuanced and complex approaches towards Internet practice in later life that go beyond framing older adults as laggards or non-users. Another aspect that our reflections on the different registers of valuing Internet practices in later life highlight is the concept of performativity of valuing practices. Valuing Internet practices was not done by an external expert, who distantly reviewed how older adults engage with digital technologies and who organized their engagement in valued and devalued practices. Rather, the case we have presented here shows how valuing is not a judgmental or reflexive activity, oriented toward transparent normative judgments, but actively mixes with carrying out research on the topic, receiving the funding to do so and – finally – deciding on which forms of Internet practices to engage in and which ones to refrain from in later life (on the performativity of valuation, see Heuts & Mol 2013). The valuation of Internet practices in later life was therefore connected with practices of the diverse

"experts" we analyzed here, and the two registers of value we identified were not abstract normative expectations toward digital engagement in later life but were rather formed through and, in turn, formed practices – of funding bodies, project teams, and older adults. For research on aging and technologies, this highlights that engaging with the Internet in later life is not an instrumental but rather a normative activity, as it actively connects and relates to different, normative ideas of why the Internet should be used, for which reasons the Internet should be used, and in which way the Internet should be used. Taking these normative dimensions of Internet practices in later life more closely into account enables gerontology to draw a more comprehensive picture of the diversity of Internet practices in later life. In addition, it might enable a deeper understanding of digital inequalities in later life and how they are reproduced through normative judgments of digital "goods" and "bads," of a certain digital lifestyle, or of a certain digital habitus (Ignatow & Robinson 2017).

A question that we could not address in this article, but that is of central relevance to this argument, is where registers of value come from – how they emerge and who is involved in making and shaping them – and this question basically targets the issue of power. As we have outlined, many actors are involved in registers of value, including policymakers, funding bodies, technology developers, researchers, and older adults themselves. By discussing the registers of autonomy and innovation in more detail, we have ourselves taken a rather top-down approach to the issue, reconstructing registers, which we have found cutting through different societal layers, from the policy level to the level of everyday lives. However, if we looked more closely, and separately, at one of them, we may likely find a range of other registers that overlap with, and contradict, the register of autonomy and innovation.

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