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A Responsible Approach to Age, Aging, and Digital Technology

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Michela Cozza, Giuseppina Cersosimo

A responsible approach beyond the biomedicalization of age and aging

Back in 2020, the *Italian Journal of Sociology of Education* published a special issue on health promotion through the life course. The guest editors (Cersosimo & Merico, 2020) opened their editorial by pointing out that health promotion cannot be limited to individual lifestyles but rather entails a variety of practices that aim to address health inequalities and medicalization. Cersosimo and Merico's remarks are also relevant to this special issue on age, aging, and digital technology, especially when it comes to proposing a responsible approach to these issues.

Among other processes (commodification, privatization, and rationalization) (Estes, 2001), old age, aging, and the (Western) solutions designed for old adults are profoundly shaped by a medical model (Gobbens et al., 2010; Kunkel & Morgan, 1999) that has increasingly undergone a process of biomedicalization, partly through the integration of technoscientific innovations (Clarke et al., 2003). Estes and Binney (1989, p. 587) note that the biomedicalization of aging relies on two closely related aspects: "(1) the social construction of aging as a medical problem (thinking of aging in terms of a medical problem) and (2) the praxis (or practice) of aging as a medical problem (behaviors and policies growing out of thinking of aging as a medical problem)." Biomedicalization is thus problematic, as it lends itself to a form of social thinking that views old age as a pathological, abnormal, and undesirable state, to the point of promoting a medical engineering model (Renaud, 1975) that rationalizes health and illness into a system of causes that only an expert (i.e., a physician) can *fix* (Marshall & Katz, 2012). Such an approach to aging, that is, as a problem that needs to be solved, is one of the

factors behind society's growing investment in medical care and technology, which are seen as the primary determinants of good health. At its most extreme, the biomedicalization of aging manifests in the billionaire biohacking market, which attempts to use technoscience to control old age and, at best, to stop or reverse aging decline by using the technologies of molecularization, functional age, optimization, and quantification (Cozza et al., 2022).

The biomedicalization of aging is associated on the one hand with the creation of what Ehrenreich & Ehrenreich (1971) called the "medical-industrial complex"¹ where the primary function of the health care system is not the delivery of services but the pursuit of profits. Estes (1979) identified what she called an "aging enterprise" within the medical-industrial complex. The aging enterprise is created by public policies that ensure that the needs of the aging population will be processed and treated as a commodity. Treating health care as a commodity delegates the responsibility for making decisions and rational choices in a market of products to atomized individuals. Such a market includes all sorts of technologies targeted to old people as users and consumers (Cozza et al., 2017). On the other hand, the biomedicalization of aging – along with its interventionist logic and technosolutionism (Peine et al., 2021) – is associated with the productive aging framework (Estes, 2001) which, in turn, relates to ideas of *successful aging*, *active aging*, *positive aging*, *optimal aging*, *independent aging*, and *healthy aging*. In this framework, the *problem of old age* is defined at an individual rather than social level. The responsibility for *aging well* (the meaning of which is often more implied than delineated in literature) is placed on the individual. Such a delegation is consistent with the processes of modernization and individualization in the societies of late modernity (Malchiese & Hortulanus, 2013). While on the surface, the productive aging framework seems to promote the eradication of ageist stereotypes of the old adult as *frail* and *dependent* (Gilleard & Higgs, 2015; Grenier & Phillipson, 2013; Gullette, 1997) and create opportunities for individual empowerment and quality (later) life, in practice, the concept of productive aging relies on the underlying value of individual responsibility, where the individual must *educate* himself/herself and make appropriate lifestyle choices. In the worst case, this leads to *blaming the victim* by conceiving of chronic health problems or major disabilities as the result of an individual's failure to *productively age*, meaning, for example, engaging in healthy nutrition, controlling stress, abstaining from alcohol and drugs, or

¹ This construct is reminiscent of Haraway's (1985) "informatics of domination" that is a term that she coined to refer to emerging techno-social networks and new systems of domination in relation to communication technologies and biotechnologies as crucial tools for recrafting bodies. According to Haraway "the informatics of domination is as a massive intensification of insecurity and cultural impoverishment, with common failure of subsistence networks for the most vulnerable" (1985, pp. 49-50).

quitting smoking, regardless of the structural arrangements that may influence such behaviors. Katz and Calasanti (2015, p. 28) remind us that:

the problems of individual choice go back to the lifestyle ideas of sociologists Georg Simmel and Marx Weber (...) For both Simmel and Weber, lifestyle choices and individual volition are always constrained by the material conditions that accumulate lifelong advantages and disadvantages. In this vein, Pierre Bourdieu modernized the critique of lifestyle practices to include cultural capital, whereby individual choices are disclosed as the products of privilege (...) Like Bourdieu, Anthony Giddens forefronts lifestyle in his theories of reflexive and posttraditional individualism, arguing that the structuring of life chances limit individual lifestyle options.

Building on these premises, Katz and Calasanti invite researchers “to theorize lifestyle, choice, health, and successful aging beyond personal choice because lifestyles are configured by differential opportunities and relations of social inequality” (pp. 28-29). Similarly, Estes (2001, p. 68) asserts that aging and old age “cannot be considered and analyzed in isolation from other social forces and phenomena.” Joyce and Loe (2010) place technologies among these agents and reaffirm Cersosimo and Merico’s (2020) argument about health promotion as (also) a matter of contrasting inequalities. Joyce and Loe emphasize that “[b]oth university and private industry responses to ageing raise issues of race, class, sexuality, and gender inequalities and access. Unequal economic, social, and political relations will have an impact on how individuals use or do not use biomedical and environmental applications.”

Material semiotics, that is, material and discursive practices that affect an aging body (Higgs & Gilleard, 2013), is central to the material turn in critical gerontology (also called material gerontology) and is widely influenced by posthumanism and feminist new materialism (Cozza, 2021; Höppner, 2017; Höppner & Urban, 2018; Urban, 2021; Wanka & Gallistl, 2018). Scholars in material gerontology look at mundane materialities both in terms of physical things and networks of intra-acting (Barad, 2007) people, objects, and technologies (Cozza et al., 2021). For example, there are studies dealing with the meaning of objects for old adults and old adults’ construction of identity, as in the case of tech clothing and wearable technologies (Long, 2012). Some authors explore the agency of objects in the context of care, including homecare (Loe, 2010; Mort et al., 2013). Other scholars have been influenced by Science and Technology Studies and have explored the social and societal implications of technologies, with special attention to remote monitoring technologies and how both the implementation and use of such devices raise issues of power and control over old adults (Éssen, 2008), which is ultimately linked to the datafication of aging (Ellison et al., 2022). The focus on the

interplay of aging and technology is the foundation of the *doing age* concept (Laz, 1998). Framing age as something that we do (*aging*) – discursively and materially – rather than something that we are or have (chronological age), opens the door to an interpretation of aging as a product of performative interactions with others (humans and nonhumans). In this view, responsibility for aging cannot be delegated to the individual nor limited to a behavioral matter. Rather, acting responsibly in relation to aging calls for an appreciation of aging as a relational process to which different actors (including technologies) contribute, generating effects that are not necessarily benevolent. Here, we mobilize a concept of responsibility in line with Haraway’s (2016, p. 34) concept of “response-ability”², that is, a “collective knowing and doing, an ecology of practices.”

Thus, a responsible approach means proposing a non-stereotypical view of age and aging by assuming that “the material and human reproduction of society involves relations and processes of interdependence” (Twine, 1994, p. 29, cit. in Estes, 2001, p. 34) along with intergenerational and distributed solidarities. From this perspective, getting older is framed as something that falls outside of an individualistic approach, beyond success-based models for later life, and away from binary interpretations of agency as either present or absent and exclusively dependent on an individual’s laudable or unworthy choices and lifestyles. Interdependence, solidarity, and responsibility are interrelated and are key aspects to appreciating the purpose of this special issue on age, aging, and digital technology, where *aging* is interpreted as an embodied process, rather than being reduced to chronological *age*, and *digital technology*³ refers to materialsemiotic assemblages of humans and nonhumans (old people, organizations, heterogeneous artifacts, other nonhumans beings). With this introduction, we aim to set the stage for a scholarly conversation about age, aging, and digital technology that challenges ageist perspectives and introduces our own contribution on the topic. We do not grant the primacy of intervening in others’ lives (namely, the lives of old adults) to any specific “expert” or group of experts (as in the biomedical approach) entitled to *fix* specific “problems” (i.e., aging as a problem), but rather, we aim to reframe aging in its entanglement with the ongoing process of digitalization and societal change. In the next section, we provide a more detailed description of our approach.

² We acknowledge that the concepts of responsibility and response-ability do not have the same meaning although they do share a feminist relational ontology. As explained by Bozalek (2020), responsibility is related to accountability while response-ability refers to responsiveness or the capacity to respond to others.

³ By *digital technology*, we refer to Information and Communication Technology (ICT) including a variety of services and devices, spanning from health care to the leisure and entertainment sectors.

Age, aging, and digital technology

Digital technology is now ubiquitous and has become integrated into the lives of old people in a variety of ways. Using smartphones, computers, laptops, tablets, and robotics, old adults now access public and private online services in order to purchase goods, communicate with their general practitioner, pay taxes, complete financial transactions from home, or learn new skills via e-learning platforms. In this regard, the Covid-19 pandemic significantly accelerated the use and uptake of technology for day-to-day needs and social communication. Digital health services and assistive technologies are the most developed resources for old people, while other areas, such as leisure and entertainment, remain underdeveloped. As Chu et al. (2022, p. 950; emphasis added) point out:

[t]he underlying assumption of this phenomenon is that older adults are unhealthy and that they may seek to use and benefit from technology. This assumption could consequently create a feedback loop that reinforces negative stereotypes. Specifically, if most technologies marketed toward older adults are designed to *resolve or manage* health problems, then this could easily reinforce the impression that older adults are mainly *unhealthy, in need of support, and/or in decline*.

This “compassionate ageism” (Chu et al., 2022) is embodied by public institutions (Binstock, 1983) and organizations (Vickerstaff & van der Horst, 2022), is internalized by old people (Köttl et al., 2021) and designers (Neven, 2010), and legitimizes what Peine and Neven (2019, p. 15) call an “interventionist logic” on which most of the policy agenda and business targeted to old citizens and consumers is grounded. On the one hand, such a logic serves private interests because the production and use of technologies are seen as necessary to compensate for age-related bodily changes; on the other hand, the interventionist logic makes sense of and is legitimized by public discourses about the “ageing population” and the “care crisis.” The demographic concept of population ageing is usually confined to debates concerning challenges and burdens (Victor, 2010), and at a time of rampant digitalization, the care crisis narrative performatively produces both the *problem* at issue (aging) and its *solution* (technological innovation), but also causes side effects. We do not intend to deny or downplay the significance of the demographic trends and financial issues faced by national health systems around the world, but rather question the largely unproblematized use of concepts and the celebration of technoscience and innovation. In other words, we aim at caring about care (Puig de la Bellacasa, 2011; 2017). As Dahl (2022, p. 22) writes “[b]y naming something, we create its existence” and bringing the care crisis into existence is usually coupled with large investments in care technology (e.g., in the Nordic countries). However, these investments “have

replaced ‘the investments in the care workers’, and this has [among others] several gendered repercussions” (Kovalainen 2022, p. 72) if we consider that caring has been historically delegated to women (Lynch, 2022).

In this scenario, old people are positioned as passive receivers while policymakers, designers, engineers, and health and social workers (as in the case of health and welfare digital technologies) are the givers. This dyadic view – which reduces the situated complexity of the mutual relationships between the actors at stake – becomes more problematic when we note that engagement with digital technologies later in life “is often accompanied by a wide range of age stereotypes, portraying older people as incapable, technophobic, stubborn, or not willing to keep up with changes. While younger adults are commonly represented as ‘tech-savvy’ or ‘digital natives’, older individuals are often labelled as ‘digital immigrants’ or ‘non-users” (Köttl et al., 2021, p. 2). As Gallistl et al. (2021, p. 2) observe:

[i]n a digitized world, there is arguably no such thing as complete non-use of digital technologies, meaning the boundaries between use and non-use are processual and fluid and encompass usage practices (e.g., using the internet for the first time), non-usage practices (e.g., stopping using the internet after failing to use it as desired), and hybrid practices (e.g., letting others use the internet for them). Hence, using and non-using digital technology is a multifaced phenomenon.

Similarly, Kania-Lundholm and Torres (2015) find that the analysis of old people’s use of digital technology has been reduced to a matter of *access*, and the entire debate on the *digital divide* has taken for granted that age (i.e., chronological age) is one of the critical factors that determine the ICTs usage, without capturing the complexities of the digitalized world.

An alternative approach to the interdependencies that emerge when studying age, aging, and digital technology is offered by Joyce and Loe (2010), who challenge ageism while proposing that we consider old women and men to be *cyborgs* “blending machine and biology in both their personal identities and their relations to the external world” (p. 171) and *technogenarians*, that is, people who use “technological artifacts to make them more suitable for their needs even in face of technological design and availability constraints” (p. 172). In proposing this sociological approach, Joyce and Low call for “graying the cyborg” to reclaim old people as “knowledgeable technoscientific users, rather than victims of technology and design” (p. 172). Weaver, Zon and Richardson (2010) question two “master narratives.” According to the first dominant narrative, “*computers benefit older people (...)* It is a narrative in which learning to use computers in later life may be seen as an adaptive response not just to technology change, but also to ageing itself because those elders who remain socially and mentally active by keeping-up with societal changes are seen as ‘ageing successfully.’” The second

emerging narrative “*don’t want computers, don’t need computers* – presents a contrary point of view, suggesting that the technology is neither relevant to nor necessary for all older people” (p. 698). By empirically analyzing these two narratives in relation to non-users, Weaver, Zon and Richardson found that old people are not passive receivers but rather active and conscious sense-makers of their own individual rejection of digital technology.

A responsible approach to age, aging, and digital technology requires us to acknowledge that getting older is a relational materialsemiotic process: “one is not ‘old’ as such, but rather becomes ‘old’ (or ‘not old’, for that matter) when talking about it with others” (Kania-Lundholm & Torres, 2015); and, “age and aging are co-produced in and through materialities” (Wanka & Gallantly, 2018). In the next section, we continue to examine ageism by focusing on digital engagement.

Digital engagement in later life

Before Covid-19, some old adults may have experienced more severe exclusion compared to the younger population due to a lack of digital literacy needed to enable social interaction. But when the pandemic became a reality, nearly all aspects of life needed to be moved to an online setting, magnifying the need for an increased digital presence to stay in contact with others (Vargo et al., 2020). The pandemic created new challenges, particularly for the old adult population, as the virus was deemed to be more harmful to old individuals (Mueller et al., 2020). In such a situation, where respecting social distance was the minimum requirement if no obligations were imposed by lockdowns, using online tools and digital resources became crucial to maintain contact with friends, family, and other people.

The consequence of such a reconfiguration of social relationships and interactions was that old adults who did not use digital technology were cut out. However, for many old people, the pandemic was a catalyst for the adoption and use of digital tools to connect with loved ones at a time when in-person interactions were very limited (Chen et al., 2021). Overall, it has been noted that during the pandemic, old adults showed an increasing willingness to engage with digital technology for social purposes, leisure, and educational activities (Elimelech et al., 2021). Smartphones and tablets, for example, helped old people counter feelings of exclusion and loneliness, and to acquire the technological knowledge needed to perform cognitive and physical activities using digital applications (Forte & Monteiro, 2022).

Although the proportion of old people who use the Internet has increased steadily in many Western countries (Eurostat, 2020) since the start of the Covid-19 pandemic, digital inequalities still largely affect this segment of the population (Hunsaker & Hargittai, 2018). This is not exclusively due to

a techno-phobic attitude or digital illiteracy; there is a high degree of variability in technology adoption rates and digital skills among old users (Kania-Lundholm & Torres, 2015; Niehaves, et al., 2014). However, it is worth noting that a deficit in digital literacy can negatively influence how old people feel about adopting digital technology and, accordingly, to use the technology. In particular, it appears that old people are much more likely to consider adopting digital technology if they perceive it to be of value, that is, to help them improve their quality of life, especially when there are individual mobility impairments (Berkowsky et al., 2018).

A responsible approach to age, aging, and technology requires a focus on digital inclusion in later life (Seifert et al., 2021) by also engaging family members. This kind of support is essential for old adults, as it creates motivational and emotional attachment to the technology itself. Such an embodied approach can replace the more cognitivist and detached approach that usually characterizes formal ICT training (Gallistl et al., 2021).

In this special issue, we discuss digital education targeted at old people by questioning ageism and by highlighting social changes that affect old people's lives and the experience of aging as an embodied process that takes place in constant interaction with other humans, objects, and devices.

Digital education

Ageism manifests in many forms, and addressing this issue requires an exploration of how people are *educated* to age, the technology they use over their life course, and how digital literacy is promoted differently to different groups. Despite good intentions, educational processes can accidentally reproduce ageism, for example, in relation to how old people are actively or passively positioned in educational initiatives. Ageism in relation to digital technology can be defined as *digital ageism*, which is “the implicit or explicit discrimination of older adults based on how age is represented and experienced in relation to digital technologies” (Rosales et al., 2023, p. 5). The development of digital competencies can be a bigger challenge for older people than for young people. Nevertheless, most of the resources allocated to support learning and personal development in countries across the world primarily target the latter group (United Nations, 2015).

The implicit and explicit societal demand to stay youthful and perform optimally can be countered by considering the increasingly accepted alternative – aging well and healthy (Caselli et al., 2011). Better conditions for aging well offer greater opportunities to live independently, thanks in part to technology. Many old people have used various types of digital devices in their working life or in leisure, and once they retire, technology can continue to be a useful tool in their lives. During the Covid-19 pandemic, a significant

portion of the older population demonstrated their resilience in the face of challenges, and many showed an interest in using or intensifying their use of ICT (Cersosimo, 2022). This contrasts with an ageist view that prevents the acknowledgement that many old people consider their health and wellbeing rather good and their ability to cope with adversity sufficient despite individual physical limits and chronicity. In other words, it seems that most of the time, it is ageism rather than age or aging that actually limits the active participation of the older population in tech scenarios. Sidell (1995) found that old people diagnosed with an illness or frailty can cope well with their personal situation by accepting the discomfort that might be associated with these circumstances. This attitude is an essential aspect of managing daily living (Ågren, 1998; Richardson et al., 2015; Torres & Hammarström, 2006), as well as dealing with impactful events.

Circumstances that generally require a prompt response and adaptation or reconfiguration of life routines (biographical turning points, work-related stress, disease, social or ecological crises) call on the capacity of the person to reinvent themselves in order to maintain balance, self-care, and care for other humans and nonhumans (e.g., pets). Covid-19 is an example of a disruptive event that demanded new sense-making processes and classification of contexts and relationships. For many old people, the use of digital technology was a totally new experience and, for some, a practice that called for the profound redefinition of self (Cersosimo et al., 2022). The external push towards social readjustment at a time of social distance encouraged many to cast technology in a new light, and many old people came to appreciate technology (and continue to appreciate) for the social opportunities it offers.

Social and emotional incentives are crucial in digital literacy (Schreurs et al., 2017), even more so when learning how to use digital tools helps (old) people find a way out of loneliness (emotional state) or aloneness (physical state) and helps improve cognitive issues. However, a responsible approach to age, aging, and technology calls for framing digital education not only as an individual mechanical activity, but as a process that enables us to embrace the contemporary sociotechnical complexity instead of being acted upon by it (Friemel, 2016; van Deursen et al., 2016; Wildemeersch & Jütte, 2017).

In such a landscape, digital education is not only a matter of inclusion, but also an occasion of self-experience where the individual experiments with his/her own capacities and competencies (Fuchs, 2013). Independence is a fundamental ingredient of individual and psychological wellbeing in many cultures (Deci & Ryan, 2008). Mastering one's own life (Chaffin & Harlow, 2005) strengthens self-confidence and self-image, also defined as "identity capital" (Bynner et al., 2003). Overcoming ageism through the promotion of digital literacy requires us to challenge the representation of old people as inept and unable to develop such knowledge. It also means creating the

conditions for old people to engage with tech devices, if this is deemed to be personally meaningful.

The desire to become an active citizen in old age can be a strong motivator to engage with technology (Costa et al., 2019), and most of the time, old people seek competence development through informal learning. This happens, for example, at universities of the third age or in senior centers or senior courses, which once again shows that gaining adequate knowledge and technological skills is not exclusive to the younger generations (Wolfson et al., 2014). We can find examples of informal tech education in intergenerational relationships between grandparents and grandchildren, for example, through a discussion of the use of specific devices or applications, as well as in other familial exchanges (Gatti et al., 2017; Tsai et al., 2017). These are the most immediate and informal channels (Betts et al., 2017; Smith, 2014) used to learn technological skills. Support from family members, friends, children, and educators (Tambaum & Normak, 2018) is invaluable for old people in their learning of ICT, also because affective relationships (i.e., relationships that affect and are affected) can help learners overcome anxiety when learning to use new tools.

A responsible approach invites us to think differently about age, aging, and technology and overcome fixed categories that limit the appreciation of capacities available at any age and stage of life, including the terminal phase. Our conception of digital education itself should be expanded outside of traditional patterns, as it can take many shapes. A grandparent can learn by observing and listening to her own grandchild, who can explain what she is doing while using a device. Intergenerational relationships are also occasions for the younger generation to open the door to reciprocity and mutuality while developing skills, values, and knowledge. By broadening our argument, we believe that it is important to educate through intergenerational relationships over the entire life course, as well as to see aging as a process where a person can flourish at any stage. Experiences gained over many years generally make old people better equipped to cope with stressful situations (Boerner et. al, 2005; Bonanno et. al, 2004; Bonanno et. al 2002), challenges, and emergencies (Huerta e Horton, 1978; Knight et. al, 2000), and such knowledge is not less important than the more formalized and structured knowledge, especially when technological change is involved.

In order to promote a new way of thinking about age, aging, and technology, in the following section, we briefly introduce the contributions to this special issue by highlighting their connection with the general theme.

Contributions

In the previous sections, we have proposed a definition of a responsible approach to age, aging, and digital technology as a non-stereotypical and individualistic way of thinking about aging in a digitized world. Responsibility is enacted by moving away from binary interpretations of agency as either present or absent and exclusively dependent on an individual's laudable or unworthy choices and lifestyles. Accordingly, in this introduction, we invite the reader to conceive of *aging* as an embodied process not reduced to chronological *age*, and *digital technology* as material-semiotic assemblages of humans and nonhumans. Such a relational epistemology is deeply grounded in an anti-ageist approach shared by the contributors to this special issue.

In their article, Inmaculada Zambrano, María Pía Venturiello, and Jesús Muyor Rodríguez present the results of a study conducted in Spain which aimed to develop public techno-care services that improved the autonomy and self-determination of old people. By focusing on care work while reminding us that it is highly gendered and socially overlooked, the authors invite us to develop (posthumanist) care models in which *responsibility* is relationally shared between different actors (family, professional caregivers, the community at large, and technologies) instead of being delegated to only specific human beings. In this scenario, possibilities and constraints related to care technology are not hidden but rather acknowledged to promote a more inclusive digital education, for example, through collaboration with old people in co-design initiatives.

The co-design of technology (i.e., care robots) is the focus of the second contribution by Stefano Poli who similarly emphasizes the importance of adopting a holistic approach where social and material aspects are inter-related. Building on the results of qualitative research conducted in Genoa (Italy) in a study of the attitudes of old adults towards domestic robots, the author tackles the common ageist homogenization of the old population by highlighting intergenerational differences between old users. Hence, in this article, a *responsible* approach is deemed to entail close attention to the multidimensionality of the acceptance and use of robotic technologies in later life. Poli's contribution emphasizes the need for care to avoid the reproduction of stereotypes (i.e., gender stereotypes), as well as the (affective) capacity to embrace and address users' fears (i.e., losing independence).

Claudio Melchior, the author of the third contribution, also emphasizes the importance of relationality. By drawing from the results of two research studies on digital literacy, the author discusses the links between old people's motivation, use, and comfort in using digital devices. In this framework, *responsibility* for designing effective educational activities is a matter of acknowledging the influence of offline contexts on old users. Designing

such activities cannot be limited to meeting the requirement of technical functionality but asks for the capability of responding to actual *desiderata* while paying attention to who is able, or who is unable, to express them.

The fourth article, by Mariangela D'Ambrosio and Danilo Boriati, further broadens the responsible approach to age, aging, and digital technology to include welfare policies. In this reflexive essay, the authors align with this introduction to the special issue by pointing out that an ageing population does not necessarily equate to a global crisis. However, avoiding such a demographic change does present a “problem”; it is crucial to engage and actively involve old people in initiatives aimed at promoting their digital education. *Responsibility* is then associated with bottom-up actions centered on lifelong learning in an increasingly digitized and interconnected world.

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