



Technological grandparents: how communication technologies can improve the well-being of the elderly?

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Received: 24 November 2022 / Accepted: 20 February 2023
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Abstract

The ageing of the population is one of the most significant social transformations that the twenty first century is showcasing and a challenge that impacts society at large. The elderly, inasmuch as everybody else, are confronted with continuous transformations that are induced by technology, although they seldom benefit from the opportunities that technology entails. The digital divide amongst various segments of the population is often age-related and due to different reasons, including biological, psychological, social and financial ones. There is an ongoing reflection pertaining to the factors that hinders the full adoption of ICTs by the elderly and a question regarding what can be done to overcome their poor involvement in technology. This article, based on the results of a recent research, which has been conducted in Italy, aims at highlighting the importance of engaging the elderly in the use of technology as a key to building bridges between generations.

Keywords Elderly · ICT · Care · Technological mediation

1 Introduction

ICTs has been transforming our every-day life and significantly affecting the way we do communicate and relate to each other. In our daily lives, we are experiencing a growing use of digital devices, such as computers, mobile phones or internet connections. If we pay attention to our daily routine, we realize a pervasive use of digital devices. For example, the cell phone is the most widely used device in the world. As the Digital report 2021 claims, 66.6 % of the world's population has a smartphone (Starri 2021). In the above-mentioned Digital report, another relevant figure is the one regarding the amount of internet users (aged between 16 and 64 years old): the report claims that internet users are 4.66 trillion out of 5.22 trillion cell phone users. Thus, we are witnessing a pervasiveness of the digital medium in all areas of life, as it is not only a tool for work or information, but also a means of communication (Turkle 2016).

Therefore, it is possible to conclude that digital technology is emerging as a primary dimension, both in terms of time and importance, of our existence. Nevertheless, the use of digital technologies and web drastically changes in the more older people (Mostaghel 2016; Roupa et al. 2010; Van De Watering 2005; Renaud and Van Biljon 2008). Specifically, as testified by ISTAT (Italian National service of statistics)¹ in 2019, only 11.9% of elderly (over 75 years old) serfs on web. This data is related to the fact that older people do not have an internet access. As we are going to argue, this fact partially changes during Covid when the digital mediation was imposed as the best way to relate people and the technological rush involves also elderly. The pervasive use of cell phones and smartphones in the society leads researchers to consider the digital communication as a “structural element in society” (Ling 2014). Only to mention the impact of such a device on our world, as early as 15 years ago, Gerard Goggin had spoken about the “cell phone culture” (Goggin 2006).

Paraphrasing what in 1968 Licklider and Taylor stated about computer, it is possible to say that ICTs will “change the nature and value of communication even more profoundly than did the printing press and the picture tube” (Licklider and Taylor 1968). In the early days of digital technology, then, there was already a glimpse of the potentially

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¹ <https://www.istat.it/it/files/2019/12/Cittadini-e-ICT-2019.pdf>.

effective but also disruptive role it could represent. As we mentioned earlier, the modification of the nature and value of communication through digital technology takes on a two-faced character insofar as ICTs is potentially responsible for the breakdown of social relations and a re-construction of social dynamics in different ways. In particular, this essay wants to take into account the role of ICTs in the inter-generational relationship showing that, during Covid, ICTs technologies represented either the potentiality to keep in contact with elderly but also a problem for the social bond. Thus, in line with the emphasis of generational group made in the perception of smartphones, for example in the study of Kalmus et al. (2018), the principal assumption that we made in this paper is that the cultural dimension of the smartphone has to be considered in terms of age as a very relevant variable. Starting from a case study, which describes the use of ICTs in the inter-generational relationship in Italy during the first phase of Covid, we will analyze the ethical challenges provided by ICTs and elderly avoiding the doom scenarios, offered by literature and films.

2 ICTs: the challenging innovation

Underlying these open research challenges is a common feeling that we perceive a slow but inexorable technological transformation. Specifically, this section seeks to affirm that ICTs represent a gap in technological transformation for which it makes sense to talk about a difference between before and after ICTs. Thus, the point is that all digital transformations, prior to ICTs, can be described in accordance with the device paradigm, theorized by Borgmann (1987), while ICTs represent a turning point.

Borgmann identifies the device paradigm in which “the machinery makes no demands on our skills, strength, or attention, and it is less demanding the less it makes its presence felt” (Borgmann 1987). In this approach, we do not have a direct collaborative interaction with technology, that works in the background. For example, this paradigm describes perfectly all the technological devices we commonly use in our house, as fridge, television and dishwasher. This type of relationship is functional and directed to a well identified goal. On the other hand, ICTs represent a diverse paradigm in which the technology is a mean of.² In the light of this consideration, the following question surfaces: how is it possible to describe the mediating power of ICT? We

aim at highlighting a new theoretical category, which fully addresses and describes the mediation role of communication technologies. Therefore, starting from the results gathered by the questionnaire, this new theoretical understanding has a positive feedback in highlighting several considerations on intergenerational relations.

Thus, the question arises as to whether the different modes of relationship proposed by Don Ihde adequately describe technological mediation in the field of Information and Communication Technologies (ICT). In the book *Technology and lifeworld* (Ihde 1990), Don Ihde proposes four modes of technological mediation in the human–world relationship:

1. Embodiment, that is to say technology mediating, from a proximal point of view, the bodily experience in the world. This category includes, for example, a pair of glasses, a cane in the case of a blind person, or a hearing aid.
2. Hermeneutics, for which technology is a useful tool in order to understand the world. The object of perception is no longer the world itself but the reading that the technological device provides of the world itself.
3. The alterity relation in which technology assumes the role of interlocutor. “Technological otherness is a quasi-otherness, stronger than mere objectness but weaker than the otherness found within the animal kingdom or the human one” (Ihde 1990).
4. The background relation, in which technology works continuously in the background of human existence and can be recalled to the direct perception. Such forms of technology are analyzed according to the oxymoron “absent presence” (Ihde 1990).

Ihde recognizes the limitation of this articulation in the case of communication technologies when, for example, he argues that “contemporary communications technologies are as powerful as they are because of the multiple set of dimensions they embody” (Ihde 1990). Despite the recognition of complexity inherent in communication technologies, the analytical framework set up by Ihde, in our opinion, offers an overall stratification of technological mediation, which takes place on the basis of an ecological assumption that neglects the main relational dimension of the human being and the communication issue. Phenomenologically speaking, according to Heidegger, humans are characterized by the relational dimension both with the world and also with others (Heidegger 1962). If we accept this last dimension of the human being (human–human relation) as a founding ontological fact, we realize that the analysis proposed by Don Ihde does not comprehend this articulation and, therefore, ignores the power of technological mediation, as

² This assumption is shared by several researchers, as Floridi (2014), Ihde (1990), Malafouris (2013). In particular, we are going to adopt the lens of the mediation theory, proposed by Don Ihde, which identifies technology as a medium in the relation between the subject (I as a Body) and the world.

represented in the human–human interaction.³ Therefore, the lack of a detailed analysis of the mediating power in the case of relations between humans appears evident. This is why we propose to identify a fifth category, which we could call human relation, in addition to the dimensions identified by Don Ihde. The said fifth category can be described as follows⁴:

I – Technologies – Human

In this Human Relation, technologies, and specifically ICTs, mediate the relationship between human beings according to the character of voice, text and video transmission. The novelty of this category is based on two essential aspects: 1. the emphasis on the human being as the third element of relationship 2. the presence of at least two technological devices and two relationship, mediated by technology, which takes us from the technology-world relation to a threefold relation: technology-world-human This double technological-mediated relationship can be described according to all the possibilities expressed by Don Ihde, e.i. embodiment, hermeneutic, alterity and background. In particular, the ICTs technologies account for all these relations at the same time. In fact, in the Human Relation, technology plays the role of a partial interlocutor, able to mediate the relationship between distant people because it is a transparent vehicle which makes it possible to communicate. ICTs are also describable as hermeneutical technologies because the technological devices mediate the meaning and produce an interpretation; therefore, these technologies help to transmit the message back and forth. The human–human relation is also represented from the embodiment relation because these technologies could be characterized primarily as devices that modify the subjective experience from the proximal point of view, amplifying the perception. ICTs Technologies represent also the background relation because these devices work constantly in the background. Therefore, ICTs represents transparent or semi-transparent vehicle of content’s transmission, able to relate physically distant people amplifying perception, trying to vehicle the meaning and perceiving it as a partial interlocutor. However, if the focus is on the general relation *I– Technologies – human*, the necessity to introduce a new category of mediation is related to the fact that Ihde’s categorization is not completely adequate to describe the human–human relation as it lacks the peculiarities of the Human Relation. In particular, our thesis is that, instead of the “ecological” forms of mediation, this fifth category highlights an essential feature, the reciprocity. It

explains the possibility to have, at the same time, two human subjects in the relation, although characterized by a peculiar form of asymmetry that relates to the generational and skills differences between the two users and that allows for the caring dimension in the human relationship.⁵

Based on the idea that ICTs represent a breach in technology and a relational approach is mandatory, the next session wants to argue against the view that there is no relationship between elderly and technology deepening the perspective in which this relationship takes place.

3 Technology and elderly: possible relationships

Based on the works of Borgmann (1987), Dreyfus (2013) and Coeckelbergh (2016), our goal is twofold; on the one hand, we want to debunk the myth that the elderly are out of touch with technology, and, on the other hand, it is mandatory to define in which way it is possible. Specifically, according to the paradigm exemplified in the Sect. 2, we argue that the most common relationship that relates elderly and technology is the first one, exemplified by television and electrical appliance, in which the technological devices assume a functional role. Nevertheless, we do not want to deny that the use of digital technologies by the elderly is important, albeit their engagement in technology is often quite poor. In an ageing society such as the one we are currently living in, where the number of people older than 70 is definitely on the rise, a reflection pertaining to the way the elderly communicate and a question regarding the opportunities that ICTs entails for the elderly inevitably come into focus. The generation a person belongs to may prove critical, as older people had no chance to come into contact with ICTs at earlier stages in their lives. The current elderly grew up at a time when access to information relied on paper and broadcasts media, while communication from remotely happened by means of a land-line telephone or did not happen at all. Therefore, it is no surprise that they often lack both the knowledge and the abilities which are necessary to make good use and fully benefit from new ICTs, even if a wide research has already highlighted the importance of the use of these new technologies in the creation of an information society (Selwyn et al. 2003). Obviously, there is more to that. A number of aspects, including biological, psychological, social and financial ones may further impact the spread of new technologies amongst the elderly. All of these factors

³ In this sense, we assume the non-identity of the world and the human being.

⁴ It has to be noticed the plural form of technology, which expresses the necessity to have a double technological mediation.

⁵ Such asymmetry does not exclude instead the double intentionality that always inform relevant human interactions and relations. In this sense, Marta Bertolaso talked about reciprocity with asymmetry (Bertolaso and Rocchi 2020).

can be age-related, albeit they do not only imply inter-generational variations, but also intra-generational differences. By and large, it is however realistic to infer that the digital divide amongst various segments of society is largely age-related. Specifically, the digital dynamics of reconfiguration of the relationship in the first instance emphasises the first dynamic, that is, the loss of contact and the exacerbation of a digital divide with regard to the elderly who often do not understand the potential and use of new technologies. The exponential increase in technological mediation in communications has become increasingly rapid, making the generational gap even more noticeable. This has a significant impact on the elderly, who, in themselves, are already affected by a tendency towards isolation. Indeed, old age is a time in life when people suffer from loss of relatives, friends and neighbors, thus experiencing bereavement and sense of abandonment, while the opportunities for socialization drastically diminish (Victor et al. 2000). It is common for the elderly to feel isolated, estranged and left behind (Cattan et al. 2005).

In this sense, we argue that it is necessary to counteract this isolation with an act of care, which aims to restore identity through the fortification of intergenerational relations. Everyone has a vital need to receive care and to take care, because existence in its essence is care to exist. We speak of the ontological primacy of care because care is a necessity for all living beings, particularly for the human being. Human being is fragile, vulnerable, and dependent on someone else, a caregiver. This ontological trait, dependence, is in close connection with the relational essence of existence. Taking care of another person, in the most significant sense, is helping them to grow and actualize; without caring relationships, human life would not flourish. This is a process, a way of relating to someone that involves development throughout the course of life, even in old age. To take care of another person, the caregiver must be able to understand him and her world as if it were within him. He must be able to see with her eyes, so to speak, what her world is like for him and how he sees it. Thus, caring for the needs of the elderly also implies facilitating their interaction with other people (Chen and Schulz 2016), including their children and grandchildren, that is to say those people that belong to different age groups, who usually and easily incorporate new technologies in many aspects of their daily life.

Albeit we are convinced that no experience of communication and interaction from remotely can replace face-to-face interaction, which is so much more than words and images on a screen, we believe that helping the elderly familiarize with new technologies would enormously contribute to limiting the experience of loneliness and social isolation that old age often entails. However, this does not necessarily imply embracing a pure technological paradigm. Rather,

it implies proposing a scenario, as I-Technologies-Humans, where new technologies facilitate human relationships.

4 Best practices of technological mediation during COVID

The research question we want to answer is: Is ICTs good for elderly people to continue the intergenerational relationship?

To answer this question, we focused on COVID pandemic which re-shaped the usual ways in which we interact. As we know, due to the pandemic, the isolation of the elderly became even more problematic and outright evident (Armitage and Nellums 2020). In fact, it hit even harder than before, due to the restrictions that all sort of social contacts mandatorily underwent. To highlight the best practices during the first phase of COVID,⁶ we investigated the interaction between people less than 70 with more senior people (plus 70) in Italy. According to the necessity imposed by the Covid-19 pandemic, we focused our exploration on the opportunities that the new communication technologies entail and how they affected that interaction. In particular, we would like to verify the changes, imposed by Covid-19, in the inter-generational relation since the pandemic has imposed the need to reshape the relation with elderly through digital technologies. Specifically, we want to test the hypothesis that technology has played an essential role in the relationship with the elderly during the pandemic scenario, often disrupting the face-to-face interaction that mainly happened before and embodied the main mode of interaction with the elderly.

We want to sketch how the Italian society faced the necessity to reconfigure the inter-generational encounter, specifically focusing on the family (children-to-parents) relationship. Matter-of-factly, the Covid-19 pandemic has resulted in a substantial change of many an attitude, as, for example, the personal encounter which before Covid was at least once a week for a large part of families. The elderly are particularly a vulnerable segment of the society and protecting them from the Covid-19 virus has been a priority. This inevitably bore an impact on the relationship with the elderly that no longer may imply the usual, care-free and spontaneous face-to face interaction. Physical distancing has become the key-measure to protect everybody's health, especially the health of the elderly. For this reason, most of the people changes the main way of interacting with the elderly, during the Covid-19 pandemic, adopting phone calls and secondarily

⁶ We focused on the phase prior to vaccine development as it showed the greatest need for social distancing.

web services as Whatsapp more frequently or Skype⁷ This brief image of a transformation society imposes a reflection regarding the opportunity induced by ICTs during confinement at home and investigates whether the availability of technological solutions has augmented or replaced the usual interaction with the elderly, unless it had no influence whatsoever. Based on the interview we made, it is possible to conclude that, from one side, ICTs augmented the opportunities of interaction; nevertheless, in some cases, there is the possibility that technological solutions have replaced face-to-face interactions with the elderly. Starting from this sketch, it is clear the importance to engaging elderly in the ICTs because, as Mark Coeckelbergh affirms, “new technologies could also open up new worlds and new ways of engagement with one another (...) (they) could render and are rendering our lives meaningful and engaging in different ways” (Coeckelbergh 2016). In conclusion, we can affirm a positive answer to the question posed before; nevertheless, some ethical issues remain open, as we are going to argue in the next session.

5 Open challenges in ICTs for elderly

The research results demonstrated the potential of using ICTs to fortify intergenerational connection during the first phase of Covid-19. The analysis shows that the use of technology fostered intergenerational connections, highlighting the positive impact of technology in re-building the social dynamic that characterized life before the pandemic. In this section, we want to analyze the ethical consequences highlighting two fundamental aspects:

1. The potential of technology towards vulnerability in the care relationship with the older adult.
2. The need to develop a relational approach, based on ethics of care (Corti et al. 2022).

5.1 Vulnerability, care and ICTs

Within a paradigm compatible with the ethics of care, which recognizes in the human–human relation the primary dimension of existence and in care an ethical dimension (Held et al. 2006), the question of vulnerability emerges. The increase in both the number of elderly people and the lengthening of the average life span of the population is causing an increase in their vulnerabilities and the loss of levels of autonomy in

the elderly. Faced with all this, the family is more and more directly involved in the care for their elderly family members and, therefore, is revealing difficulties that make one vulnerable. The ethical dimension of care lies both in the recognition of all these vulnerabilities and in the responsibility of each person together with his family to take charge of his own life. This implies the need to enhancement the use of all technologies that facilitate home care and, therefore, aging in place. Vulnerability is an inevitable trait that all human beings have in common. Nonetheless, the elderly often feels more vulnerable than others, as the process of ageing inevitably entails some kind of impairment. Therefore, they feel increasingly fragile and more dependent on other people, thus no longer autonomous. Being capable of reaching out to others, including distant family and remote friends, becomes an issue of vital importance. Ageing is not all about loss and decay though. It might be a time of opportunities as well. And a good time to create meaning. Freed from the constraints of work and the demands of dependent children and ageing parents, the elderly has one precious resource in a quantity that the younger generations might probably long for, that is to say spare time (Brizi et al. 2019). This is a resource that can be invested in many a way, including nurturing the interaction with family and friends or enlarging one’s social circle, not only out of necessity of gaining support, but also for the sheer pleasure and valuable enrichment that interconnectedness entails. Any social interaction is undoubtedly beneficial for the elderly, as it can enhance the sense of self-identity, as well as the perception of one’s social value. Cross-generational interaction may also prove beneficial for the younger generations, as it can help gaining perspective on life expectations. It actually reveals how the process of ageing is only natural and, while inevitably entailing feelings of increasing vulnerability, it does not necessarily imply hopelessness. Social isolation in particular is not necessarily an inescapable destiny. Matter-of-factly, technology can tackle the social isolation of the elderly by easily connecting them to the outside world, thus enhancing the positive perception of belonging. It also facilitates gaining social support or engaging in activities that allow for more social interactions with other people. This inevitably boosts the positive feeling of being in control of one’s own life, no matter the impairment that the very process of ageing generally entails. Therefore, social interaction is a desirable component of healthy aging that can contribute to a resilient response to one’s vulnerability in the old age, as it helps the elderly focus on an idea of possibility and gain more than a perspective of incapability and fragility.

⁷ Nevertheless, it is also important to notice that some conditions, which are particularly widespread amongst those who are older than 70, such as the Alzheimer or dementia, require a face-to-face interaction as the only way of performing caregiving tasks.

5.2 Reskilling as a key factor in the introduction of ICTs for elderly

In light of the description of Italian intergenerational relationship during Covid, it is necessary to note the variance between analogic and digital ICTs technologies⁸ because the elderly give a different meaning to these modalities of technologies. Therefore, the technology-human relation is better specified in two different mediations: Analogic Technologies such as voice calls, and Digital Technologies such as video calls. As much as digital technologies have been a helpful resource in technology mediation during Covid-19, it is not the primary vehicle of ICTs mediation, as most survey participants emphasized the use of analogic communications (voice calls). Our thesis is that the preference of analogic mediation is based on the fact that the analogue can be considered an immediate, instantaneous and straightforward form of offline (Floridi 2014) communication; in contrast, the digital represents a structured, complex and mediated form of online (Floridi 2014) communication. We strongly affirm that this fine-grained interpretation of a technological mediation, based on a Human Relation, and the empirical-based specification on the difference between analogic and digital systems is a useful methodology in order to investigate the possibility to a technological empowerment for elderly and understand how we can foster the relationship through ICTs.

The desire to maintain contacts is probably the key-drive for the elderly to be willing to use the ICTs. Obviously, the digital technologies have to meet the needs of the elderly. We cannot think that the technological rush during Covid can be an isolate emergency experience and the possess of a technological devices is enough for elderly to consider them as skilled. Matter of fact, even if we have an increasing number of elderly connected, it is not possible to say that they are able to digitally interact. For this reason, we think it is mandatory to draw a public policy for the right to digital life to organize local strategy to teach elderly how to stay online. Tailor-made training on how to use the various, available devices might be necessary. On the other hand, Software and hardware ought to be optimized in terms of usability by different segments of the society. Only by becoming user-friendly for all, ICTs can effectively promote cross-generational communication and tackle social isolation, thus counteracting social isolation of the elderly. On the contrary, if is not easily affordable, accessible and manageable, ICTs adds yet another layer to the self-perception of vulnerability: the

elderly end up feeling more marginalized than ever and no longer capable of living in the present, thus, hopeless. The “extra time” that the longevity of many societies endow the elderly with risks turning out to be just days on end, while no extra meaning is created as time goes by.

6 Conclusion

In the case study, we have investigated the power of technology as a key to continuing intergenerational relationships during the Covid-19 pandemic. In particular, we have investigated three main aspects:

1. the dimension regarding the type of relationship that people do have with people over 70, to have a cross-section of the Italian society and the inherent intergenerational connections;
2. the dimension regarding the changes in the relationship with older people as they unfolded during the pandemic;
3. the dimension pertaining to the types of technologies used in intergenerational relationships.

The perspective emphasized in the article has led to the recognition of the ethics of care as a conceptual framework to explore the relational structure of the elderly and conceptualize an analysis of technological mediation. Concerning the first item, the main characteristic of the elderly is traceable in vulnerability, which represents, at the same time, both a limitation and a potential resource for a new way of life. In line with the relational dimension emphasized by the ethics of care, it emerges a new conception of technology, which is seen as a means of relationship. This emphasis on relationships as mediated by technology leads us to a reflection on the post-phenomenological approach, which stresses the mediating role of technology between the bodily subject and the world. We have identified a potential weakness of this approach in the lack of a I-human relationship. Starting from this re-evaluation, we proposed a fifth category, called Human relation, in which technology, understood as ICTs, is a transparent vehicle of contents' transmission, that enables to keep in touch with distant people. Ascertained to the analysis of the questionnaires, it is possible to conclude that, to date, the elderly are increasingly excluded from a new way of communicating, and a new reality dominated pervasively by ICTs (Gamberini et al. 2006; Miskelly 2001). In this perspective, it is clear that there is currently a generational gap in the use of technology. On the other hand, it is possible to conceive also the potential of technology as an enabling factor in the relationship with older people. In particular, in line with an empirically based approach, we affirm the possibility to re-consider the issue of technological empowerment of the elderly (Abdi et al. 2018;

⁸ We consider two modalities of communication: analogic systems include phone-mediated, verbal communication, describable according to the device paradigm, whereas digital communication describes all the communication mediated through internet and ICTs.

Grossi et al. 2020; Neves and Amaro 2012). This is particularly urgent a matter that the Covid-pandemic, by imposing social distancing, has brought into focus. There is a need to promote the empowerment of the elderly by developing user-friendly communication and information technological devices and by spreading a culture of digitalization. The elderly must come to terms with the reality of the world they live in, which can happen only by supporting them in learning how to use the technological devices specially tailored for their needs. Only by overcoming the current mistrust of the elderly for digital technologies, as well as their sense of hopelessness, can we encourage them to benefit from the ongoing technological advances and make technology the key-solution to bridge intergenerational gaps and intragenerational distance. This means primarily turning around the thorny question of whether the digital divide will shrink or grow exponentially in the coming years by showing how, despite the fact that this divide exists in practice, a relational approach, both from a theoretical and practical perspective, can help bridge the gap through empowerment in the use of technology.

Author contributions LC, MRB, MP and MB conceived the idea of the paper. LC wrote the section 2, 3, 4, 5 and 6 with contributions from all authors; LC and MP analyzed the questionnaire. MRB and MB wrote sections 1 and 6, and revised the entire paper providing critical suggestions.

Funding This work is supported by the FAS (Fondazione Alberto Sordi), project “Costruire I ponti”. The authors would like to thank Prof. Alessandro Giuliani (ISS- Istituto Superiore di Sanità) for the support in the analysis of data, Dott. Andrea Pensotti for the help in the elaboration of the questionnaire and the webpage, and to Dott. Bianca Di Francesco for the understanding during the project.

Data availability The data that support this study are available from the corresponding author, Laura Corti (l.corti@unicampus.it), upon reasonable request.

Declarations

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflicts of interest.

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