Elderly People and the Barriers to Digital Education

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Abstract: The digitalisation process and an ageing population are two phenomena that characterise the dynamics of contemporary societies. The literature on the digital grey divide highlights how the elderly population often has low digital literacy and poor use of technology, which exposes them to the risk of exclusion. Hence, the importance of intervention, with educational projects able to improve the digital skills of the elderly population and foster active ageing processes. This research compares data from 1,381 questionnaires collected in 2019 and 2022 (before and after the health emergency) in order to investigate the frequency of use of digital devices, comfort in using them (and the resulting estimated digital literacy), and opinions and motivations related to technology and digital training and educational initiatives. The main barriers to educational projects and difficulties concern the disconnection of the majority of the over-sixties, their lack of use and comfort in using digital devices, and above all the extremely low level of motivation to improve in this respect. All this is in the context of an opinion of the digital world that has worsened rather than improved between 2019 and 2022.

Keywords: Elderly, Digitalisation, Motivation, Educational projects

Introduction

The relationship between the elderly population and the use of digital technologies is a much-debated topic in societies that are both characterised by an average ageing population (Binstock et al., 2011; UNDESA, 2019) and affected by an increasingly driven digitalisation process (Lupton, 2014). This issue appears particularly relevant in a nation like Italy, characterised by one of the world's oldest average populations (ISTAT, 2020).

The so-called grey digital divide — i.e. the digital skills gap between generations (Alù & Longo, 2020; ISTAT, 2021; Sala, Gaia & Cerati, 2020) — analyses the condition whereby older people would be somehow excluded from the technological revolution underway (to express it through the terminology typical of the Industry 4.0 perspective; see Schwab, 2015).

This leads to exclusion phenomena that need to be tackled through active policies capable of mitigating their effects. In fact, even if this exclusion of the elderly from the digital society seems to be mitigated in absolute figures over the years (see in this respect the differences highlighted by Eurostat surveys between 2004 and 2014: Eurostat, 2015), in general the literature considers the generational aspect important in determining the relationship with digital technology. Older population groups are referred to as being on the margins of the network society (Castells, 1996; van Dijk, 2006) and the connective society (Rainie & Wellman, 2012), or even digital immigrants (Prensky, 2001). Older people are not "networked publics" (boyd, 2010; 2014); they appear alien to "participatory cultures" (Jenkins et al., 2006) and they do not seem to be able to fully "make themselves media" (Boccia Artieri, 2012) and thus actively participate in "mass self-communication" processes (Castells, 2007). Their mode of connection and participation in the digital society is thus indicated as being predominantly passive, when it even exists.

In the description of this situation of exclusion (or self-exclusion), however, it is important not to fall into age-based stereotypes (Comunello et al., 2017; Fernández-Ardèvol & Grenier, 2022; Rosales & Fernàndez-Ardévol, 2020) and to remember the specific differences in the use of digital technology by older people (Hunsaker & Hargittai, 2018; Lane, Follett & Lindsay, 2018; McCosker et al., 2021) This differential use of technology can be traced back to the traditional axes of inequality and sociodemographic factors, but also to national policies and culture (Beneito-Montagut, Rosales & Fernández-Ardèvol, 2022) as well as life course (Givskov & Deuze, 2018). It is also important to emphasise how digital technologies can be designed in specific ways aimed at older people (Gonçalves et al., 2017; Sin et al., 2021) and also, with results that seem promising, with forms of co-design and co-development (Fischer et al., 2021; Frohlich, Lim & Ahmed, 2016).

The importance of acknowledging and intervening in this situation with ad hoc educational projects also emerges in the context of studies linking the concept of active ageing to the elderly population's access to the opportunities offered by the digital world. Information and communication technologies (ICT) are often considered as factors that can promote active ageing due to their potential for inclusion (Carlo & Sourbati, 2020; Heo et al., 2015; Olsson & Viscovi, 2020; Sen, Prybutok & Prybutok, 2022) and they also seem to have a positive effect on the "psychological well-being" of older adults (Fang et al., 2018); however, they are also presented as a source of risk for the elderly population in terms of social exclusion (Carlo, 2017; Carlo & Buscicchio, 2022; Carlo & Vergani, 2016;) when they are not grasped through formal (e.g. with ad hoc training initiatives) or informal (e.g. social and family) learning processes (Hänninen, Taipale & Luostari, 2021).

Designing training and educational processes capable of decreasing the generation gap in the use and understanding of the opportunities of the digital world, however, is not easy as there are barriers and specific difficulties of a practical, relational, communicative and motivational nature (Rasi, Vuojärvi & Rivinen, 2021). Investigating these barriers and difficulties is the objective of this paper.

Objectives and method

The aim of this work is to analyse comparatively the findings of two research studies carried out four years apart on the use of digital technologies and digital literacy among the elderly. The analysis of these data will be conducted with the specific aim of highlighting the main barriers facing those who want to implement digital education projects targeting the elderly. More specifically, we focused on four main research questions:
- What is the level of digital connectedness of the elderly analysed by the research?
- What is their level of digital literacy?
- What is their level of motivation to learn?
- Have these dimensions changed over time, and in what direction, comparing data from 2019 and 2022?

The first group of survey participants was selected on the basis of relational criteria among 118 students at the University of Udine. The students were commissioned to interview between four and six persons aged 60 and over using their own family networks (primarily grandparents or other kinship and neighbourhood relations). This activity was stimulated by the possibility of substituting the study of part of the examination programme. At the end of the data collection, which took place in 2019, the interviewers' group received restitution for the collected data by explaining the analysis

phase and the results obtained. At the end of the activity, the group of interviewees consisted of 624 people, 57.4 per cent of whom were women, with an average age of 75.1 years (minimum age 60 and maximum age 98 years).

A similar research activity was repeated in the year 2022, reproducing the method and most of the questions in the questionnaire, so that the data could be compared.

This comparison appears to be useful for highlighting the evolutionary dynamics of the relationship between the elderly population and digital technologies over time and compares periods, also making it possible to estimate the impact of lockdown events (described by many as an incentive to digitisation and the use of digital technologies; see e.g. Mihailidis et al., 2022) on these phenomena. To this end, 757 questionnaires (from the reports of 104 students) were collected in 2022 using the same methods described above. The convenience sample thus obtained consisted of 58.3 per cent females with minimum age 60 and maximum age 94 years (average age 73.1).

It is important to underline that we are aware that the method of composing the group of interviewees is subject to certain biases. Firstly, this type of participant selection leads to the creation of a convenience sample only, obtained by means of a non-probabilistic sampling method. Therefore, the results of this study are to be considered preliminary, only a starting point for further research. Moreover, since the selection started from the primary relations of a group of university students, it is likely that the group of respondents belongs to a higher socio-cultural level than the population of the same age group (as evidenced by the fact that in the 2019 data, 7.2 per cent of the respondents held a university degree, a higher percentage than that recorded by the ISTAT data on the same age group of the Italian population; this figure rises to 9.6 per cent in the case of the 2022 convenience sample). Finally, the fact that the participants were recruited through a relational procedure tends to exclude from the respondents those with fewer relationships within society: in fact, to cite an example, only 28 per cent (2019 data) and 30.1 per cent (2022 data) of our respondents lived alone.

This research aims to explore the actual use of digital technologies, the degree of connectivity, digital literacy and the *desiderata* related to learning and using new technologies in the older segment of the population. Based on existing literature and data collected in 2019, we hypothesise that the group of respondents present 1) a very low or even no level of digital connection; 2) a low level of digital literacy and competence; 3) a widespread need for relational support to approach and use new technologies (which is often provided by family members and acquaintances from younger age groups); and 4) a low level of motivation with respect to the processes of educating themselves and learning digital skills. Furthermore, due to demographic dynamics and the impact of lockdowns, we expect to see an increase in usage,

comfort and motivation with respect to learning new digital technologies in 2022 compared to 2019. We hypothesise that this increase is only residual and not sufficient to change radically the picture that emerged in the first research, which portrays a generation of over-sixties that is poorly connected, with little possession of digital technologies, with even lower levels of frequency and comfort in their use, with little motivation to grow from this place, in terms of both learning and implementing new technologies) and therefore, essentially, somewhat alienated from the revolution underway and not at all interested in educational and training initiatives.

Frequency of use of digital technologies and evolution over time

The first question in our research concerned the frequency of use of certain digital technologies. If we isolate the answers of those who answered that they "often" or "always" use smartphones, computers, tablets and means of connecting to the internet, we can see that (apart from the case of the smartphone) digital technologies are scarcely used (Table 1). In 2019, the smartphone was used "always" (21.2%) or "often" (16.5%) by 37.7 per cent of the sample. This percentage drops to 10.3 per cent in the case of desktop computers, 10.3 per cent for laptops and 8.3 per cent for tablets. The figures for 2022, consistent with the assumptions, appear significantly higher, particularly for smartphones (up by 16.3 per cent compared to 2019, bringing the frequency of use to 54 per cent), laptops (up 8.2 per cent for a total of 18.5 per cent) and internet connection (up 11.8 per cent for a total of 45 per cent in 2022).

Table 1. Frequency of use (%)

	Smartphone	Internet	PC	Laptop	Tablet
2019	37.7	33.2	10.3	10.3	8.3
2022	54	45	16.8	18.5	13.8
Difference 2019–2022	+16.3	+11.8	+6.5	+8.2	+5.5

This clear increase in the frequency of use of digital technologies in the 2022 data cannot, however, conceal the fact that, with the exception of the smartphone, now used "often" or "always" by just over half of the sample,

in absolute terms the frequency of use of these technologies is significantly low, compared to the use observed in the same years in other segments of the population (see ISTAT, 2021, where, for example, Internet use by the 18-44 age group ranges between 97.3% and 91.5%).

Of the 2022 respondents, 55 per cent did not use the internet frequently and computer use was the preserve of a minority (16.8 per cent desktop computer, 18.5 per cent laptop). In other words, even after the growth in the data compared to 2019, less than one in five of the 2022 respondents frequently used digital devices such as personal computers, laptops or tablets, and one in two did not even frequently use a smartphone.

Of course, it is not possible to distinguish within this increase in frequency of use how much is due to the impact of the emergency period linked to lockdowns (which have often been cited as occasions of increased use of technologies) and how much instead is due to normal demographic dynamics, as indicated in the debate on the normalisation or stratification of technologies (Sartori, 2006), where it is pointed out that the passage of time inevitably leads to an increase in the use of digital technologies by the elderly due to the fact that the younger age groups, as they grow older year after year, bring with them their digital knowledge and habits, which are on average greater than their older colleagues. In fact, even in our 2022 sample, as in the 2019 sample, we found a very clear and significant inverse correlation between technology use and the age variable: the 'youngest' respondents still had much stronger rates of use and comfort with digital technologies than older age groups, and it is reasonable to assume that they will carry these assets with them into future years as they grow older. In the meantime, younger age groups, probably even more digital (as an effect of the correlation between digital use and age variable), will enter the older age group we are dealing with, probably bringing their previous digital assets with them (see in this regard Colombo & Carlo, 2015).

To try to probe this question, we put a direct question to the respondents in 2022, asking them whether their use of digital technologies increased, decreased or remained the same during the emergency period. The data that emerged from the answer to this question are difficult to interpret. In order to understand their meaning, one would have to decide arbitrarily whether to give more weight to the four out of ten respondents (39.4%) who declared that during the emergency their use of digital technologies actually increased (confirming the initial hypothesis) or to favour the remaining six out of ten respondents (58.4%) who declared that it remained the same (the percentage of those who declared that it decreased is so small that it does not appear significant).

We do not think it is possible to give a clear answer to this question. However, in order to deepen the interpretation, we distinguished the two

main groups, isolating those respondents who said they had increased their use of digital technologies and those who said they had maintained the same frequency of use. Comparison of the two subgroups tells us that the increase was declared mainly by the younger, more acculturated, more active respondents who were already more accustomed to the use of digital technologies. In particular, the fact of having declared an increase during the emergency correlates significantly with the index of use of technological devices.[1] In other words, it would seem that the increase in the use of digital technologies due to the emergency particularly affected those who were already the most digitalised of the group, and consequently excluded those who were already on the margins or completely excluded from the digital world.

The fact that the increase in technology use was concentrated more in male respondents also suggests that this increase in digital technology use during the emergency phase may have accentuated the gender gap in technology use rather than reduced it.

Comfort/confidence of use and relationship with digital technologies

In order to estimate the digitalisation of our respondents, we investigated not only the frequency of use, but also the level of "comfort" and confidence with which respondents use different digital technologies. We therefore asked respondents to indicate how comfortable they were using the different technologies on a five-point scale (between the two poles "none" and "very" comfortable). Although this concept is difficult to operationalize due to its obvious linguistic ambiguity, we wanted to ask this question in order to test actual digital literacy indirectly, starting from the assumption that a certain level of actual digital literacy is required to use a given technology with ease.

The level of ease and comfort appeared to have increased for all the technologies tested, but in contrast to the increase in frequency of use, here the level of increase was so low in percentages as to be scarcely significant. If, therefore, the frequency of use of digital technologies appears to have increased between 2019 and 2022 (we cannot say by how much due to the normal demographic dynamics and normalisation/stratification of technologies and how much is due to emergence), we cannot say the same about the self-reported perception of comfort of use, which remained substantially unchanged over these three years and is still very low in an absolute sense.

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[1] Increase in digital technology use during the emergency—index of digital technology use: τ_b = .228, p<.01 (N = 442). The correlation is significant at the 0.01 (2-code) level.

Table 2. Comfort of use (%)

	Smartphone	Internet	PC	Laptop	Tablet
2019	26.6	22.5	11.5	11.5	11.2
2022	26.8	24.6	13.5	15.3	12.9
Difference 2019–2022	+0.2	+2.1	+2	+3.8	+1.7

To reflect further on this point, we might add that the relationship with technology does not seem to have improved in recent years—quite the contrary. Asking respondents to indicate on a five-point scale whether their relationship with digital technology is negative or positive, the 2022 data show a significant increase in negative statements. In 2019, 7.5 per cent of respondents declared their relationship with technology to be completely positive, a figure that dropped to 6.2 per cent in 2022. Even clearer is the gap in the immediately adjacent response, quite positive, which dropped from 30.1% per cent in 2019 to 19 per cent in 2022.

These years thus seem to have led to more frequent use of digital technologies, but without this being reflected in a greater ease in their use and, on the contrary, seeming to be accompanied by a more negative feeling of detachment.

It is useful to add that our data show us that both the comfort of use and the relationship with technology are correlated with personal variables (such as gender, age, educational qualification) and that the strength of this correlation increased in the 2022 data compared to 2019. Focusing on the data provided by the respondents concerning their relationship with digitally competent technologies (i.e. considering only smartphones, computers, tablets and internet access), we constructed frequency of use and comfort of use indices that, due to their characteristic of being continuous variables, would allow us to assess the correlation between these aspects and the main structural variables of the sample using the Kendall rank correlation coefficient, commonly referred to as Kendall's τ coefficient. The values of the correlations are shown in Table 3.

Table 3. Correlation indices

Index			Relationship with tech.	Study title	Age	Help	Lives alone	Gender
Use	2022	τb =	.614	.523	-.471**	-.287**	-.176	-.173
	2019	τb =	.507*	.522*	-.467*	-.217*	-.104*	-.131*
Comfort	2022	τb =	.635	.511	-.465**	-.327**	-.163	-.197
	2019	τb =	.511*	.504*	-.461*	-.234*	-.112*	-.129*

τb = x, p<.01 (N = 757); * τb = x, p<.01 (N = 624); ** τb = x, p<.01 (N = 442).

The highest correlation we found between these indices and the other variables in the database concerns the link between the indices of use and ease and the summary assessment asked of the respondents at the beginning of the questionnaire concerning their relationship with technology. The better the relationship with digital technologies declared by the respondent, the higher the values of the indices of possession, and vice versa. This is a sign that a good motivational predisposition affects the actual possession and use of technologies or that their possession and use leads to a good evaluation of the link with them. The strength of this correlation was significantly higher in the 2022 data than in 2019. Next, it is the educational qualification variable that provides the most significant data, with a positive correlation almost as strong. In this case, the strength of the correlation remains unchanged between the 2019 and 2022 data with respect to frequency of use, while it increases with respect to ease and comfort of using technology.

Our data also showed a correlation between relationship variables and the use of digital technologies. To corroborate our observation, we assessed the correlation between the help received to use technology and the indices of use and ease. The variable help is an ordinal scale ("have you ever received help in using these technologies?" or a five-point scale from "never" to "always") and this allows us again to use Kendall's τ coefficient, which shows a negative correlation between these variables. As the frequency of help increased, the values of the frequency of use and ease index decreased, and vice versa. The correlation was fully significant in both databases and the strength of the correlation increased substantially over time.

Still trying to estimate the impact of relational variables, we assessed the relationship between these indices and whether or not our respondents lived alone. Respondents who lived together with other people had higher values of digital technology use and ease than those who lived alone, and this aspect strongly increased in the 2022 data.

Relationality, understood as living with others or as direct help that can be obtained (usually from younger people) is thus an element significantly correlated with a better relationship with digital technologies. This information, already highlighted in the literature and confirmed by our data, seems important to us in terms of designing effective educational initiatives in this field.

Returning to the evaluation of the personal variables, the correlation from which this work started is confirmed very clearly—that is, the inverse correlation between the indices of frequency of use and ease of use of digital technologies and the age variable. The strength of the correlation remains very high and substantially similar in the 2019 and 2022 data.

On the other hand, the correlation with the gender variable, while less strong, was significantly increased in the more recent data, which raises the

alarm that the increase in the use of technology in the older age group in recent years (we do not know how much is due to ordinary dynamics such as the passage of time and how much is attributable to the extraordinary events of the years 2020–2022) has increased rather than reduced the gender gap in this field.

Motivations, *desiderata* and digital literacy courses

If we now turn our attention to digital education projects and specifically to digital literacy courses, we note that only a minority of respondents claim to have attended such courses at least once. The passage of time has had an influence on this figure, which has increased significantly in 2022 (19%) compared to 2019 (11.4%). However, this is fewer than one in five respondents, and we cannot fail to note that the people who say they have attended courses are typically male, with higher educational qualifications, mostly from white-collar professions, and they are the part of the sample that already, regardless of the course, is more 'digital friendly' (the direct correlation between the fact of having attended courses or not and the index of use and the index of ease is significant).[2] In summary, fewer than one in five of the respondents have ever attended a computer literacy course and they tend to be the people who already use the internet and the digital world the most and are most comfortable doing so.

On the other hand, the desire to take such courses in the future increased very little between 2019 and 2022, much less than the actual use of technology over the same period. To the question "have you ever thought of taking a computer literacy course?", the answer "yes" was given by 22.4 per cent of respondents in 2019 and by 24.7 per cent in 2022[3]. Again, those answering "yes" belonged to the part of the sample that was already more digital.[4]

If we join these considerations with what was written earlier about the fact that the comfort of using digital technologies did not significantly increase in 2022 compared to 2019, and the fact that we even highlight a worsening in the data regarding the relationship with technology, it seems that a first clear barrier to the possibility of designing and implementing effective

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[2] Digital literacy course attendance: usage index τ_b = .298, p<.01 (N = 442); comfort index τ_b = .237, p<.01 (N = 442).

[3] Of course, these data refer to the simple desire to attend formal courses and therefore do not take into account the possible desire to learn in other ways, for e.g. through peer-to-peer or intergenerational exchange. Anyway, even the questions concerning the desire for new technologies show little interest, a low desire to "manage the complexity" and the opinion that "there are already too many digital technologies", as described in the following paragraph.

[4] A significant correlation was observed between the variables: desire to attend digital literacy courses usage index τ_b = .298, p<.01 (N = 442); comfort index: τ_b = -.262, p<.01 (N = 442).

courses and educational projects lies in a context that is little or not at all receptive to these activities.

In particular, when aiming to involve the people who most need it—that is, those who are most distant from digital technology (in terms of age, gender, educational qualifications, type of work, and lack of use and comfort in their relationship with technology)—one must take into account the fact that these people are precisely the ones who most declare a negative relationship with technology and the ones who have the least motivation to improve this.

On the other hand, when asked if they would like to use new technology as opposed to the technology they already use, more than half of the respondents in 2019 stated that they did not want more technology (60.2%), a figure that dropped in 2022 but still remained in the majority (56.1%).

The majority of people who responded that they did not want any other technology often specified in the next open question that they felt no need for it, that there were already too many technologies, that they did not want to go to the trouble of learning how to use the technology, or that they already had everything they need.

On the other hand, the minority who stated that they would like some new technology only indicated devices that we could define as low digital literacy, all related to home management (cleaning robots, video surveillance, small home automation or voice assistants). Only a very few of those who did not own them claimed to want a PC or a smartphone (decreasing in 2022 compared to 2019).

Difficulties and barriers for formative/educational activities

From the data we analysed, several specific barriers and difficulties in the design and implementation of educational and training projects aimed at increasing the digitisation of older population groups are evident. First of all, we have to consider the fact that the elderly population is much 'less digital' than the younger age groups. More than half of our respondents could be described as unfamiliar with the ongoing digital revolution. Even in the 2022 figures, which show a clear increase in this respect, half of the respondents do not use smartphones and do not have an internet connection, and only residual percentages (which do not reach 20 per cent) use other digitally intensive devices such as computers, laptops, and tablets.

This situation, which has improved compared to a few years ago, but not sharply and strongly, continues to affect a high percentage of the elderly, contrasted by a minority that is more included in the digitisation processes. This minority, however, concerns the younger elderly, those who come from professions with an intellectual content, and tend to be men (our data emphasise what has already been acquired from the literature on the gender

gap related to these issues). In other words, there is a minority group of elderly people who might be well disposed towards digital training and education initiatives but also make up the group that least needs them.

On the other hand, when we focus on the majority of our interviewees, especially the older ones, those from professions with a low intellectual content, with the lowest level of education, who tend to be women (who, due to the effects of demographic dynamics, outnumber men in this age group), we come up against a group that seems completely excluded from the digital revolution and that seems extremely unreceptive to the prospect of improving in this direction. In this regard, we would highlight that it would be desirable to also involve this user group in the design phase of digital technologies (Fischer et al., 2021; Frohlich, Lim & Ahmed, 2016) and generally improve the design of technologies to make them more friendly (Comunello et al., 2017; Goncalves et al., 2017; Petrovčič et al., 2018; Sin et al., 2021).

In fact, the main barrier that emerges from our data with respect to the prospect of digital education projects concerns the low motivation that we found within the samples. Only one in five of the respondents said they would like to undertake such studies, and those who said they would like to do so are the most digital respondents. The consideration that they might want to learn, but within processes other than formal courses, contrasts with the fact that the "less digital" respondents not only do not feel such a need but also do not wish to have other technologies than those they already have (and use infrequently). More than half of the sample stated very clearly that they do not want other technologies, do not feel the need for them, do not want the complexity of managing them, and sometimes explicitly express the opinion that there are 'already too many' digital technologies. In the case that they do say they want new technologies, their attention is almost exclusively directed towards technologies that do not require a high level of digital skills, such as home automation, house cleaning robots, security systems and so on.

The percentage of those who, without owning them, say they would like a smartphone or a computer is very low, and has decreased in the 2022 data compared to 2019.

The events related to the health emergency with the resulting lockdowns and the related push towards digitisation, described by many (see e.g. Mihailidis et al., 2022) have an impact in our data, especially in terms of increased frequency of use of digital technological devices by the elderly population. However, this increase in frequency of use is not matched by an increase in the comfort and ease with which these technologies are used, leading us to think that this dynamic has not been accompanied by either an increase in competence and literacy or an increase in the desire to learn in this direction. On the contrary, it almost seems as if the (perhaps somewhat forced)

increase in the use of digital technological devices in the emergency phase has worsened the motivational push of the elderly towards the digital and technological world. When surveyed about their relationship with digital technologies, the answers in 2022 were clearly more negative than in 2019, respondents placing themselves in clear opposition to the observed trend of an increase in use.

It seems evident that the worsening of this motivational framework has an impact on the prospect of designing digital-related educational initiatives: it is all too easy to observe that training or educational activities can only be effective to the extent that they encounter an actual desire to learn on the part of the learners. Respondents do not seem to be interested in increasing their engagement with and use of technology nor their skills in this regard, except for a minority of respondents who are already more accustomed to its use, in the youngest age groups, the most acculturated, and male. This negative attitude and rejection particularly concern those interviewees whom we can consider to be completely external to the digital technological revolution underway, those who should in theory be the main targets of educational and training activities of this kind. These subjects, excluded or self-excluded from the digital world, do not seem to regret it but rather almost make it a boast and a life choice, thus recalling the category of 'non-users by choice' described by Wyatt (2003).

To be able to create and design effective educational training activities in this direction, it would be necessary to succeed in making those concerned perceive the potential usefulness of better access to the digital world, perhaps by leveraging the opportunities for simplifying operations such as communications with the medical world, public administration, home banking, and so on. Adult learners in the field of digital technologies want to perceive a practical (possibly long-term) return on their learning in order to have more motivation to engage in these activities (Tyler, De George-Walker & Simic, 2020).

Less viable seems to be the path of leveraging the entertainment, leisure or information opportunities provided by digital technologies, since these motivations, less practical than the previous ones, do not seem strong enough (against a negative motivational framework in this sense) to be able to undermine opinions and habits of use still strongly anchored to traditional technologies (eight out of ten respondents say they often or always use the classic television medium) and rooted in an entire life path.

Another consideration that emerges from the data concerns the fact that any educational projects aimed at increasing the digital literacy of this section of the population, in order to be promoted and publicised in such a way as actually to reach potential learners, would have to use traditional and offline methods of communication, otherwise they would not reach the

very section of the elderly population that most need such interventions. The most negative with respect to digital-related desires are in fact completely or almost completely disconnected. We think that the most effective methods to reach these people could be relational and direct methods which exploit the leverage of younger relatives or acquaintances or the other social ties (direct and family contacts; attendance at offline courses of other content, such as the activities of the universities of the third age; participation in social activities such as associationism or volunteering in one's own community, etc.). Publicising the advantages of the digital and its understanding/use through these offline contexts could in some cases make it possible to overcome the barriers of self-exclusion (somewhat imposed by facts but more often, at least in words, the result of a choice) of the least interested part of the target audience of educational initiatives. However, the observation made earlier that the people most excluded from the digital world also tend to be those with the fewest social relations (and therefore probably the most difficult to reach through the relational channels we mentioned) also applies here. Moreover, it is useful to mention that group learning processes, in groups not too uneven in terms of starting digital skills, seem to be the most effective in motivating older people (Tyler, De George-Walker & Simic, 2020).

To answer in more detail the questions of 1) what the leverages might be to make the most excluded elderly perceive the advantages of the digital world; 2) how to convince them of the usefulness of participating and motivating them through initiatives to improve in this sense; and 3) through which communication and relational channels these initiatives can be effectively promoted to the most reluctant population, new studies and analyses should be carried out to establish, along with the frequency of use comfort and motivations linked to digital technology, the other interests, social ties, and offline communication habits of these elderly people, so that knowledge of these other interests and relational channels can be used as a lever to promote and communicate the opportunities.

The design and implementation of such educational projects should therefore take into account, in addition to recognition and knowledge of the digital literacy framework of the elderly, these broader contextual, relational and social variables so as to be able to use them to create, and then effectively propose, a training and educational offer capable of responding to actual *desiderata* (which must be aroused, not being natively present). The lack of reflection on these offline aspects and their scarce use as communicative and motivational levers, in our opinion, risks leading to initiatives of little effectiveness, especially with respect to the elderly who could most benefit from them—that is, those whom we can consider, in short, to be totally external and excluded (or self-excluded) from the digital revolution underway.

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