Technological Perception and Emotional Experiences of Older Adults in the Use of Digital Resources

Percepción tecnológica y experiencias emocionales de los adultos mayores en el uso de recursos digitales

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ABSTRACT

This study is framed within the educational interest in strengthening digital competencies among older adults so they can benefit from the opportunities offered by technological resources. This requires understanding their beliefs and patterns of use regarding digital technology, as well as identifying the factors that facilitate or hinder its acceptance and adoption. To this end, a qualitative design was implemented through 51 semi-structured interviews with adults over the age of 60, exploring three dimensions related to their digital profile, emotional experiences when using technology, and critical assessment of it. The analysis of participants' accounts reveals that self-perceived risks and the emotions associated with technology use play a significant role in technological acceptance processes. Among perceived risks, participants most frequently highlighted the inadequacy of technological device design and the lack of training in digital skills. Regarding emotions, fear, frustration, and anxiety—as well as pride and enjoyment when they are able to take advantage of the opportunities offered by certain devices or applications—were the most commonly experienced. These findings suggest that technological acceptance among older adults cannot be fully understood without considering the emotional and experiential dimensions that shape their engagement with digital environments. Consequently, the results highlight the need for age-inclusive design and sustained digital literacy initiatives that reduce emotional barriers and promote more confident and meaningful use of technology.

RESUMEN

Este trabajo se enmarca en el interés educativo por favorecer competencias digitales en adultos mayores, para que puedan beneficiarse de las oportunidades que brindan los recursos tecnológicos. Ello supone conocer las creencias y comportamientos de uso de la tecnología digital e identificar aquellos elementos que facilitan o dificultan su aceptación y adopción. Para ello, se realizó un diseño cualitativo mediante el desarrollo de 51 entrevistas semiestructuradas con personas mayores de 60 años en torno a tres dimensiones que permiten conocer el perfil digital, la emocionalidad hacia el uso de la tecnología y la valoración crítica hacia la misma. Los resultados del análisis de los testimonios recogidos evidencian que los riesgos autopercibidos y las emociones que identifican los participantes con respecto a su uso son aspectos que influyen en los procesos de aceptación tecnológica. Entre los primeros destacan principalmente la percepción de inadecuación de los diseños de los dispositivos tecnológicos y la ausencia de formación en competencias digitales. Cuando aprovechan las oportunidades que ofrecen determinados dispositivos o aplicaciones, las emociones más experimentas son el miedo, la frustración y la ansiedad, así como el orgullo o disfrute. Estos hallazgos sugieren que la aceptación tecnológica en la adultez mayor no puede comprenderse plenamente sin considerar las dimensiones emocionales y experienciales que median su relación con los entornos digitales. En consecuencia, los resultados subrayan la necesidad de promover diseños tecnológicos inclusivos con la edad y programas sostenidos de alfabetización digital que reduzcan las barreras emocionales y favorezcan un uso más seguro, confiado y significativo de la tecnología.

KEYWORDS · PALABRAS CLAVES

Technology; older adults; perception; technology utilization; emotion
Tecnología; adultos mayores; percepción; aceptación tecnología; emociones

1. Introduction

Over the years, interest in understanding the processes of technological adoption among older adults has steadily increased, due to its relevance for examining how digital technologies are being integrated into their everyday lives (Chen & Chan, 2014; Ma et al., 2021; Pinazo-Hernandis et al., 2024). From the fields of adult education and educational gerontology, the primary concern lies in ensuring that older adults acquire the digital competencies necessary to benefit from the opportunities offered by technological resources. In this regard, identifying patterns of technology use among this age group, as well as the factors that facilitate adoption or, conversely, act as barriers to use, emerges as a key objective and strategic priority for the design and implementation of educational interventions. Understanding how older adults perceive technologies and how they relate to them is therefore of particular importance for the updating and adaptation of training plans and programmes that respond to their needs and specific characteristics. Consequently, profiling the "technological senior" by identifying the elements that may either facilitate or hinder the adoption of digital technologies becomes a fundamental task.

Despite the relevance of this field of study, research focusing specifically on older adults remains limited when compared to studies addressing other age groups. Nevertheless, the specialised literature highlights the need to further explore these factors, with a broad consensus among researchers regarding the usefulness of Technology Acceptance Models (TAM) for analysing technology acceptance among older adults as well (Murciano-Hueso et al., 2022a). Findings from various technology acceptance models adapted to this population (Ahmad et al., 2020; Guner & Acarturk, 2020; Heerink et al., 2020; Van Biljon & Renaud, 2018) identify a range of elements that extend beyond perceived ease of use and usefulness. These studies place particular emphasis on individual characteristics such as users' age, health-related conditions, and prior experience with digital technologies (Murciano-Hueso et al., 2022c; Martín-García et al., 2022). Accordingly, the evidence suggests that technological adoption in later life is a multidimensional phenomenon in which personal, contextual, and experiential factors interact in complex ways. In other words, it is not sufficient for technology to be perceived as useful or easy to use; attitudes, values, and expectations play a decisive role in shaping individuals' willingness to accept it.

These findings further indicate that when older adults express distrust towards digital technologies, their concerns often extend beyond issues related to interaction and use, focusing instead on broader value-related considerations. The way digital technologies are conceptualised, together with the emotional dimension involved in their use, thus emerges as a determining factor for understanding both the adoption process and older adults' relationship with technology. Emotionality cannot be dissociated from cognition and behaviour; feelings, moods, and thought processes strongly influence decision-making, goal attainment, and adaptive responses to the environment (Márquez-González, 2008). This underscores the need to further examine the role of emotions in judgments and attributions towards digital technologies, as well as in decision-making processes that determine whether an individual chooses to use and accept a digital technology, particularly among older adults (Coudin & Lima, 2011; Demiray & Bluck, 2014; Lang & Carstensen, 2002). Taken together, this evidence suggests that technological adoption in later life cannot be explained solely through technical or instrumental variables. Emotional experience, beliefs

about ageing, perceptions of the future, and the value attributed to autonomy and security emerge as central elements shaping older adults' relationship with technology.

In this regard, research indicates that older adults tend to hold a more limited perception of future time, which leads them to prioritise emotional goals and to orient themselves towards objectives that promote emotional well-being (Carstensen et al., 2021). Emotionality thus becomes a key factor in the adoption of any type of goal, gaining particular relevance in later life (Murciano-Hueso et al., 2024). Moreover, despite ongoing debate regarding a potential decline in the ability to integrate cognition and emotion in older age, recent studies (Carstensen, 2021; Jain & Labouvie-Vief, 2010; Márquez-González et al., 2008) provide evidence that emotional functioning may actually become more efficient as individuals age. In other words, throughout the ageing process, individuals tend to become more emotionally competent, favouring the use of more effective emotion regulation strategies that support better adaptation to life changes and events. This helps to explain why emotional responses to technology—whether fear, frustration, or satisfaction—are so decisive among older adults. These responses are not merely situational reactions, but rather expressions of a life trajectory and of a particular way of positioning oneself in relation to the challenges and opportunities of the present.9

Within this context, the aim of the present study is to examine and categorise the "technological senior" in order to gain an in-depth understanding of their usage habits, motivations, and barriers to technological adoption, as well as to analyse perceptions and representations of technology, with particular emphasis on emotions, beliefs, and critical attitudes.

2. Dsign and Method

The aim of the present study is to deepen understanding of the role of emotionality in processes of technological adoption. Accordingly, in the attempt to identify and characterise the profile of the "technological senior," the study discusses and reflects on the emotions most frequently involved in older adults' behaviour, use of, and relationship with digital technology. To this end, the following research questions are posed, from which the specific objectives of the study are derived:

R.Q.1. What is the digital profile of adults aged 60 and over in the region of Castilla y León?

- S.O.1. To identify and understand the digital profile of adults aged 60 and over in Castilla y León, including the technologies they use, the reasons motivating their use, as well as the reasons for non-use.

R.Q.2. How are digital technologies perceived and mentally represented by adults aged 60 and over in Castilla y León, with particular attention to emotions and critical perceptions?

- S.O.2. To analyse the perception and mental representation of digital technologies among adults aged 60 and over in Castilla y León, with particular emphasis on beliefs, critical perceptions of digital technologies, emotions and feelings associated with their use, and attitudes towards the use of digital technologies.

To address these objectives, the study adopts a qualitative research design framed within a participatory research approach. Specifically, an exploratory, descriptive, and contextual design was employed, using semi-structured interviews as the primary data collection technique.

The research was conducted between June 2021 and November 2021 and was organised into three phases: 1) Planning and initial contact phase, which involved the development of the interview guide, including questions related to perceptions of and engagement with technological devices; 2) Encounter phase, during which 51 individual semi-structured interviews were conducted, each with an average duration of approximately 30 minutes. All interviews were carried out face-to-face and audio-recorded to facilitate subsequent transcription and analysis. The data collection process adhered to ethical standards, with informed consent obtained at the beginning of each interview, ensuring participants' voluntary participation; 3) Discourse content analysis phase, in which an inductive category system was developed. The category extraction process was agreed upon by three members of the research group (GIPEP), all specialists in qualitative research, social pedagogy, and digital gerontechnology. This process was supported by the specialised literature, thereby enhancing the validity and quality of the findings (Denzin & Lincoln, 2011).

2.1. Participants

Participant recruitment and sample selection followed a non-probabilistic purposive and convenience sampling strategy, drawing on the contact networks of the Research Group on Educational Processes, Spaces and Practices (GIPEP). Priority was given to the inclusion of participants with diversity in age and educational level in order to ensure sufficient discursive variability. The final sample size (n = 51) was determined based on two criteria: (a) accessibility and feasibility, which are characteristic of qualitative studies conducted in real-life contexts and supported by institutional contact networks; and (b) theoretical saturation, as during the analysis process it was observed that, from approximately the 40th interview onwards, the inclusion of additional participants did not yield new emergent categories or substantively novel information. The eleven additional interviews served to confirm saturation, in accordance with the logic proposed by Strauss and Corbin (1998). Thus, a total of 51 interviews ensured discursive depth, variability, and conceptual saturation.

The participant sample consisted of 51 individuals from Spain, aged between 60 and 91 years (Md = 75.3; SD = 9.19). According to participants' profiles (Table 1), the majority were women (67%), aged over 80 years (39.2%), had completed primary education (49%), and reported either low or moderate levels of prior experience with digital technologies (35.3% and 41.2%, respectively). Although the sample is not statistically representative of the broader population, its composition is appropriate for a qualitative study oriented towards theoretical saturation and the exploration of diverse experiences.

Table 1

Profile of the Study Participants (n=51)

Classification Variables of the Participant Sample										
Sex				**Age range**						
Sex				**Age**						
Man		**Woman**				**60-70 years**		**71-80 years**		**>80 years**
%	f	%	f			%	f	%	f	%	f
33.3	17	66.7	34			35.3	18	25.5	13	39.2	20

Level of Studies						**Technological Experience Level**							
No studies		**Primary studies**		**Higher studies**		**None**		**Little**		**Quite a lot**		**A lot**	
%	f	%	f	%	f	%	f	%	f	%	f	%	f
19.6	10	49	25	19.6	10	11.8	6	11.8	6	41.2	21	35.3	18

3. Fieldwork and Data Analysis

The content analysis of the discourse collected through the interviews was supported by the NVivo v.12 software, which facilitates the coding process through the use of nodes. Based on the established interview guide, a category map was developed, from which categories and the relationships among them were identified and extracted. Extended Technology Acceptance Models (TAM) indicate that technological adoption depends not only on perceived usefulness and ease of use, but also on affective factors, self-efficacy, and risk perception. In the present study, these variables were operationalised into three analytical dimensions: usage behaviour, emotionality, and critical perception.

The first dimension captures the devices and applications used by older adults, as well as the reasons for use and non-use, aligning with the perceived usefulness and ease of use constructs of TAM. The second dimension incorporates both pleasant and unpleasant emotions—such as enjoyment, pride, fear, and frustration—which have been identified as key determinants of technology adoption in extended TAM frameworks. The third dimension includes perceptions related to risk, security, privacy, and values, elements that are also consistently addressed in TAM extensions.

Socioemotional Selectivity Theory (Carstensen, 2021) provides the explanatory framework that justifies the relevance of these three dimensions, as ageing is associated with a greater orientation of decision-making towards emotional well-being, affective regulation, and risk minimisation. Accordingly, technological adoption in later life is better understood when cognitive, affective, and value-based factors are jointly considered. These dimensions therefore enable a concise articulation of the contributions of extended TAM models and Socioemotional Selectivity Theory, offering a holistic understanding of usage patterns, emotional experiences, and critical perceptions that shape older adults' relationship with digital technologies. For this reason, the data were coded according to a pre-established category system organised

around the three dimensions present in the discourse: Usage Behaviour, Emotionality, and Critical Perception (Figure 1).

Figure 1

Hierarchical Map of the Discourse Based on the Number of Coding References

Source: own elaboration.

According to the categorical system, a total of 1,048 references were recorded across the 51 sessions, with a coded information weight of 47.1% in the Usage Behavior dimension, 15.2% in the Emotionality dimension, and the remaining 37.7% in the Critical Perception dimension.

As can be observed, the discourse primarily focuses on the technological Usage Behavior of users. Given the importance of understanding the current reality of individuals over 60 years of age, this dimension addresses, on the one hand, the digital devices and applications most frequently used in their daily lives, and, on the other hand, the reasons that lead older adults to use or refrain from using these digital technologies.

The second dimension is Emotionality. The intention of exploring the feelings experienced by older adults when using digital technologies allows for a deeper understanding of the reality they face in their daily lives and their relationship with these technologies. Specifically, attention is given to positive emotions such as enjoyment and pride, as well as to negative emotions such as frustration, disappointment, fear, and shame (Beaudry & Pinsonneault, 2010).

The third dimension is Critical Perception. Information gathered within this dimension is used to analyze a series of opportunities and demands, as well as the self-perceived risks encountered by older adults when using digital technologies. In addition, this dimension captures information regarding specific values present in the relationship between older adults and digital technologies.

Table 2 presents the proposed dimensions and categories of analysis, including examples of coding extracted from the analyzed texts, which help clarify the criteria used to assign information to the established nodes.

Table 2

Dimensions and Categories of the Discourse Content Analysis

Dimension	Category	Examples Extracted from the Texts
Usage Behavior	Most Frequent Devices	"*What I use the most, by far, is the mobile phone, every day*" (Participant 8_Male_60 years)
	Most Frequent Applications	"*I mainly search on Google and from there access YouTube, mostly to watch series episodes or find knitting patterns to use later […] I use Facebook because I am in several reading groups and share opinions on books I am reading, and I do the same with sewing groups*" (Participant 5_Female_73 years)
	Functionality	"*I use it to communicate with friends and family and keep constantly updated; it is also a source of entertainment and information*" (Participant 31_Female_60 years)
Emotionality	Pleasant Emotions	"*On days I manage it well without anyone's help, I feel proud of myself, truly*" (Participant 22_Female_69 years)
	Unpleasant Emotions	"*It frustrates me a lot to learn to use new digital devices because when I am taught, I can do it, but when I have to do it alone without help, I can't remember which button to press to make any change*" (Participant 42_Female_62 years)
Critical Perception	Opportunities	"*Of course, they are necessary and help us a lot because older adults are increasingly alone, and the only way to connect with the outside world is through the computer, the phone… so knowing how to use them gives an older person much more freedom and entertainment*" (Participant 17_Male_65 years)
	Self-Perceived Risks	"*What worries me most about mobile phones, computers, etc., is the fear that someone might steal or access my photos in any of my applications*" (Participant 4_Female_77 years)
	Demands	"*It is necessary to enhance teaching of new digital technologies to older adults, as they have not had the opportunity to learn them from a young age, making it more difficult*" (Participant 27_Male_64 years)
	Values	"*Young people are glued to it all day and know everything about everything […] I think it would be better if young people didn't overuse it because you are very skilled in every sense, but sometimes I am amazed at how you use digital technology for bad things. Or, for example, you use digital technologies too early…*

| Dimension	Category	Examples Extracted from the Texts
		when you should be playing, you are already on it and growing up too soon" (Participant 10_Female_91 years)

4. Results

4.1. Digital Technology Usage Behavior

Regarding the Usage Behavior dimension, the results reveal the most frequently used devices and applications (see Figure 2).

Figure 2

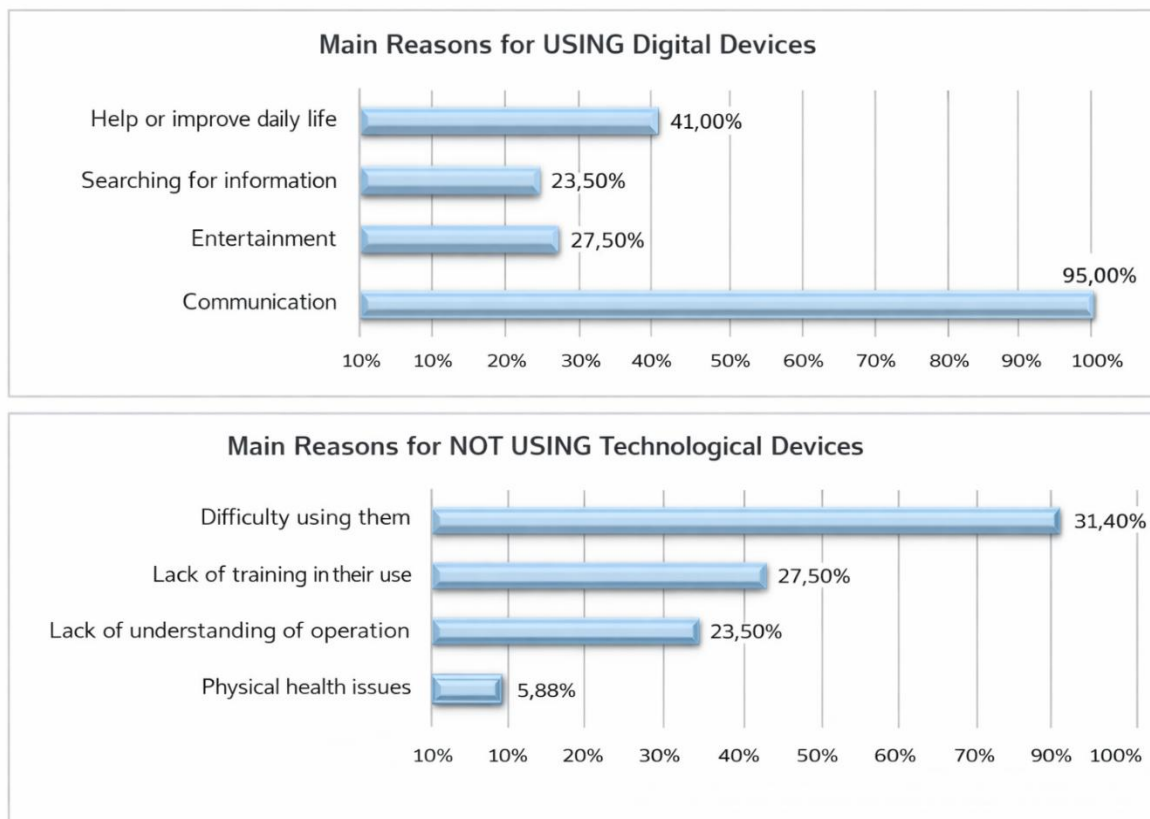*Results on Digital Technology Use*
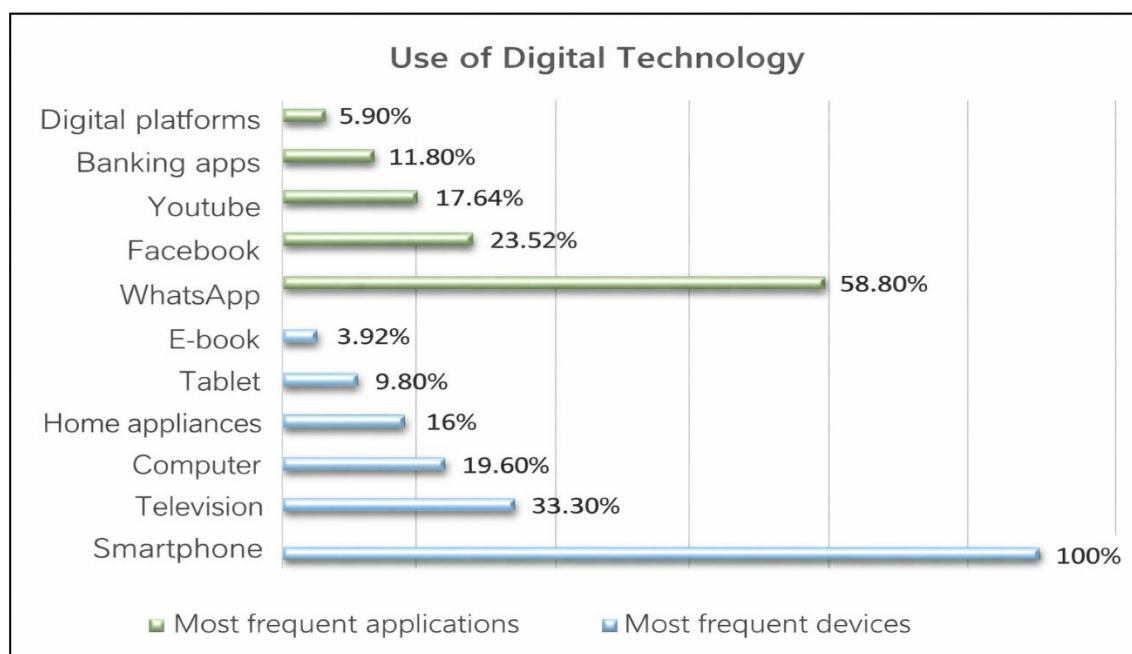
Source: own elaboration.

The results indicate that 100% of the respondents report using the mobile phone or smartphone as their primary technological device, followed by television (33.3%) and computers (19.6%). Regarding the most frequently used applications, respondents particularly highlight WhatsApp (58.8%), Facebook (23.52%), and YouTube (17.64%). Additionally, 11.8% acknowledge frequently using banking applications, and 5.9% use streaming platforms such as Netflix.

Secondly, it can be observed that these results are related to participants' information regarding the reasons for using or not using digital technologies (see Figure 3).

Figure 3

Reasons for Using a Digital Technology

Main Reasons for USING Digital Devices

Reason	Percentage
Help or improve daily life	41,00%
Searching for information	23,50%
Entertainment	27,50%
Communication	95,00%

Main Reasons for NOT USING Technological Devices

Reason	Percentage
Difficulty using them	31,40%
Lack of training in their use	27,50%
Lack of understanding of operation	23,50%
Physical health issues	5,88%

Source: own elaboration.

The study reveals, on the one hand, that the participants use digital technologies primarily for communication (95%), entertainment (60.78%), and information seeking (60.78%). Most participants consider them useful (61%) and even necessary in the current context (31%), as many highlight that these technologies help or improve their daily lives (41%) and provide a sense of security by allowing them to stay connected in case of emergencies (18%).

On the other hand, regarding the reasons for deciding not to use digital technology, 31.4% stated that they found it too difficult to use, 27.5% considered themselves insufficiently trained to use it, and 23.5% reported not using it because they did not understand it. Additionally, 5.33% mentioned experiencing physical difficulties that prevented them from using it.

Beyond describing usage frequencies, these results allow the identification of a pattern directly connected to technology acceptance models. The predominance of smartphone use and instant messaging applications suggests that older adults prioritize technologies that meet immediate social needs, which aligns with socioemotional theories of aging, where goals related to maintaining affective bonds become more relevant in later life.

Furthermore, the relationship between reasons for use (communication, entertainment, and security) and reasons for non-use (difficulty, lack of training, and lack of understanding)

reveals a structural tension between perceived usefulness and self-efficacy, which has been widely documented in the digital divide literature. This relationship indicates that usage behavior depends not only on access or availability but also on the interaction between expected utility, confidence in one's abilities, and perceived risk.revela, por un lado, que los entrevistados utilizan las tecnologías digitales especialmente para la comunicación (95%), el entretenimiento (60,78%) y la búsqueda de información (60,78%).

4.2. Emotional Responses to the Use of Digital Technology

Regarding the Emotionality dimension, the results presented in Figure 4 suggest that a large proportion of the coded information focuses on unpleasant feelings (69%), with participants specifically reporting experiences of fear, anxiety, and frustration when using digital technologies. As will be detailed in the content analysis of the Critical Perception dimension, this appears to be primarily due to fear of making errors that could damage the devices, concern about overexposing personal information, or even becoming victims of online scams or theft. Most participants attribute these unpleasant feelings to situations in which they feel they lack sufficient control over the technology, either due to insufficient training or because they do not fully understand how to use it properly.

Figure 4

Most Prevalent Emotions among the Participants
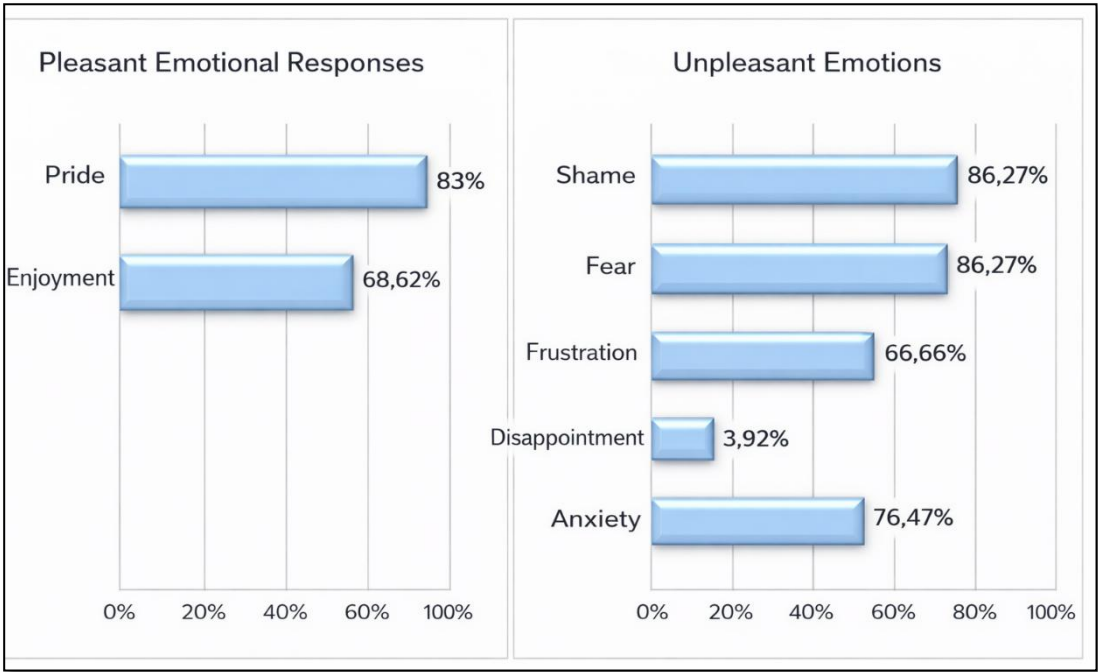
Source: own elaboration.

In line with the above, the content analysis of discourse regarding emotions such as fear or anxiety in technology use reflects concerns about making errors that could lead to being scammed in some way, indicating a perceived lack of control and distrust. Examples of coded literal statements include:

"I am afraid, for example, of having my bank passwords on my phone in case someone can access them without my permission; I don't like buying things online in case I get scammed, I prefer to go to the store" (Participant_21_Male_75 years).

"When ads pop up or I browse the internet and have to accept cookies, I feel a bit of fear that I might click something that could cause me to be scammed or get a virus on my phone" (Participant_27_Male_64 years).

"I always have fear and worry that I might click something or go to a page I shouldn't, and a virus could get on my phone, or my data could be taken, or things posted on my accounts" (Participant_42_Female_62 years).

In contrast, regarding positive feelings expressed by participants when using digital technologies, enjoyment and a sense of pride are most evident. According to the interviewees, when they are able to use the devices successfully, they experience considerable enjoyment and feel proud of their abilities, particularly given the difficulty involved. These positive emotions, as will also be discussed in the Critical Perception dimension, contribute to feelings of self-realization and enhance their motivation to learn.

"I really enjoy using them […] I find it very fun to share recipes with my family […] I take photos of the meals I cook and send them" (Participant_30_Female_81 years).

"I also really like being able to ask anything on Google and get an answer. I use it a lot to look up plant treatments that I then use in the field. I really enjoy using it" (Participant_41_Male_67 years).

"I feel happy and proud to be able to do it […] I am excited to use them and learn more about them […] When there is an update, or when I have to perform an operation different from what I'm used to, I take it as a challenge and feel proud" (Participant_51_Female_78 years).

"I feel proud to know how to use it, having learned at a fairly advanced age, rather than acquiring it as a child like kids today" (Participant_19_Male_70 years).

These results allow us to deepen our understanding of older adults' perceptions and representations of digital technologies, especially considering certain beliefs, emotions, and attitudes toward technology use, as well as the barriers that affect their engagement. The predominance of negative emotions reflects an affective component that acts as a key mediator in the relationship between older adults and digital technologies. As suggested by technology acceptance models and more recent approaches focusing on users' emotional experiences, negative emotions reduce perceived control and influence the willingness to learn.

However, the simultaneous emergence of positive emotions such as enjoyment and pride indicates that the experience is not homogeneous but ambivalent. This coexistence

suggests that emotional perception is closely linked to the possibility of experiencing success or failure in everyday device use. When participants achieve small goals—such as sending photos, searching for information, or completing daily tasks—positive emotions emerge, reinforcing motivation and promoting self-realization processes. Thus, emotionality constitutes a transversal axis influencing usage behavior and critical perception, acting as a key psychological component in technology acceptance.

To further explore these beliefs, attitudes toward use, barriers, and needs within this age group, we now present and discuss the results obtained in the Critical Perception dimension.

3.3. Critical Awareness Regarding the Use of Digital Technology

With regard to the interpretation of the content in the dimension referring to Critical Perception, most of the text coverage falls under the category of self-perceived risks (Figure 5),

Figure 5

Self-Perceived Risks in Technology Use
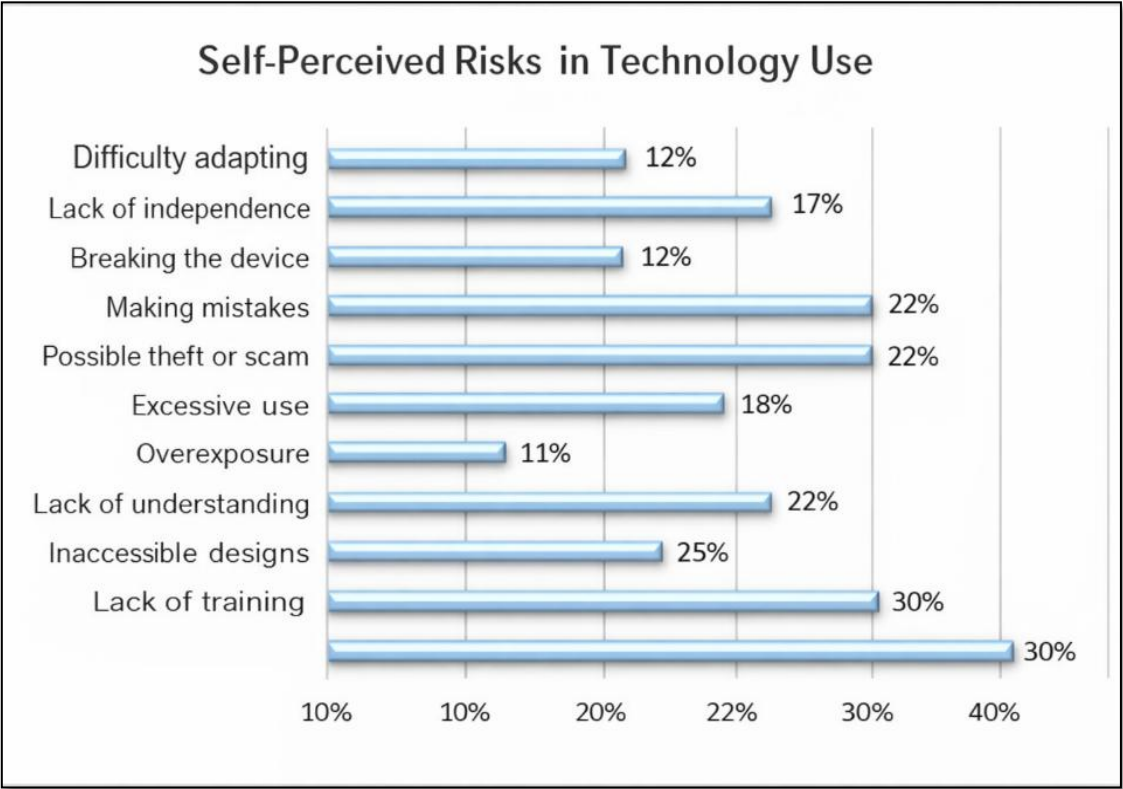
Source: own elaboration.

According to the number of coded references, the participants over 60 years of age report a significant lack of training, which, combined with the assertion that many devices are not designed or adapted for them, prevents them from effectively adapting to their use and generates a greater sense of incomprehension. Furthermore, the interviewees also perceive that using these devices involves facing dangers such as revealing too much personal information or becoming victims of potential theft or fraud. In addition, the risk of making errors while using the devices, or even breaking them, constitutes the main self-perceived risks older adults identify when using digital technologies.

Moreover, participants highlight the lack of independence they experience when they cannot use digital technologies autonomously, stating that they rely on help from family members or friends. The interviewees report that, in most cases, others help them solve problems but do not teach them how to resolve issues on their own, usually due to lack of time, resources, or patience. Finally, they note the risk of excessive use, indicating that it could lead to dependence, as they observe occurs among younger individuals.

The centrality of self-perceived risks underscores that older adults' relationship with technology is mediated by a constant evaluation of vulnerability. The perception of threats—toward privacy, fraud, or device integrity—strongly influences technology acceptance in later life. Likewise, the repeated references to design issues and lack of training indicate that these risks are not purely subjective but also structural, emerging from an unequal interaction between users' capabilities and the technical demands of digital systems.

Secondly, it is noteworthy that the opportunities mentioned by the participants account for 25% of the text coverage. This indicator, calculated using NVivo, refers to the percentage of the total coded content corresponding to this category—that is, the proportion of textual fragments associated with "opportunities" relative to the entire dataset. These results can be visually observed in Figure 6.

Figure 6

*Perception of Opportunities in Digital Technologies*
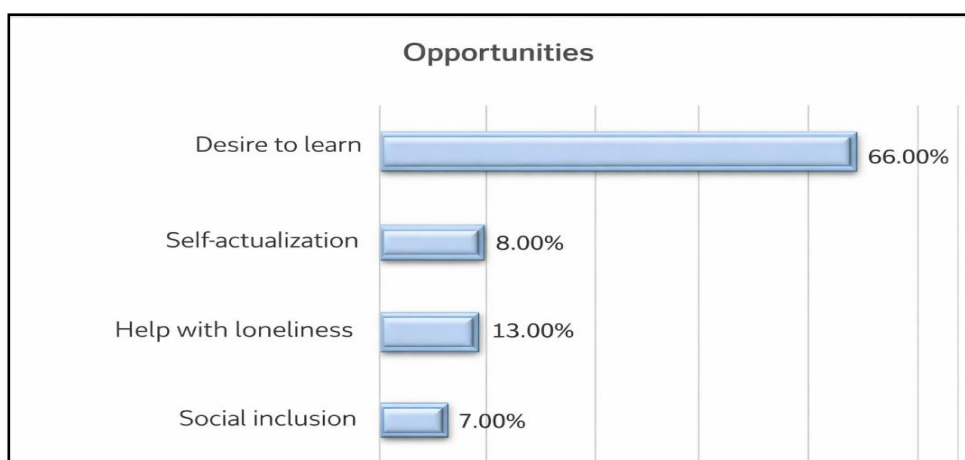
Source: own elaboration.

Figure 7 highlights the participants' desire to learn how to use digital technologies. They consider that these technologies offer numerous possibilities across all areas of society, particularly in light of the situation caused by COVID-19. The interviewees report that, thanks to digital technologies, they have been able to combat loneliness and feel more socially included. The identification of opportunities shows that, despite perceived risks, older adults recognize concrete benefits associated with connectivity. This perception opens an important interpretative line: older adults do not reject technology per se, but rather articulate a critical evaluation based on the balance between risks and benefits. In this sense, opportunities could serve as a motivational driver for learning, especially when devices allow them to strengthen social bonds or compensate for physical or mobility limitations.

Thus, through the 59 references related to demands (Figure 7), it is evident that participants request designs better adapted to their age group, taking into account their preferences and needs, and, above all, training tailored to their capacities and requirements. They also express particular interest in any digital technology that can assist them in their daily lives.

Figure 7

Key Demands for Digital Technologies among Participants
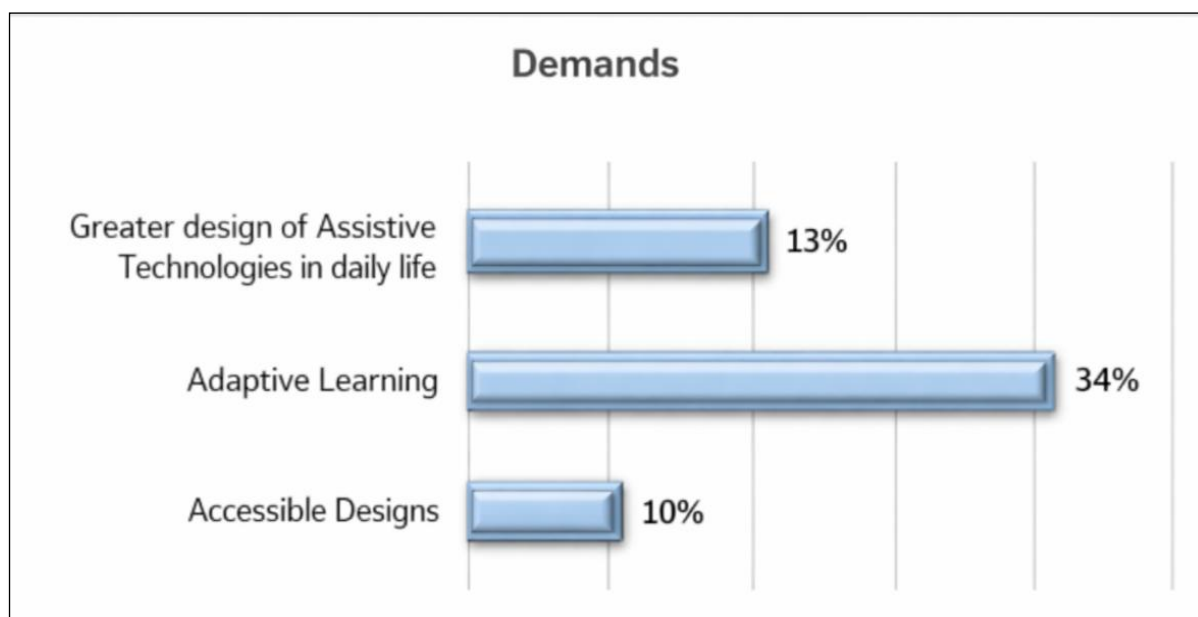
Source: own elaboration.

Below, we present some verbatim examples that help to further understand the demands mentioned:

"Regarding other devices such as tablets or computers, the functions they have are already more complex to understand at our age; new things come out every day […] technologies keep advancing, and the younger generations already know how to use

them, so they are less adapted to us, who don't know" (Participant_31_Female_60 years).

"I consider it important that the device itself and the applications explain, step by step, the correct and responsible use, so that it reaches more older adults and motivates us to learn to use electronic devices, rather than seeing them as an obstacle" (Participant_17_Male_65 years).

"A device that could be useful to me would be a robot that could cook for me by itself and another that could do the shopping. I know there are similar ones, but one that did it instantly would be the best" (Participant_45_Male_79 years).

The demands for tailored training and more suitable devices not only express deficiencies but also reflect a proactive orientation toward meaningful technology use, which aligns with digital literacy models focused on autonomy, empowerment, and active participation.

Finally, the text coverage of 16% indicates certain elements to consider regarding the values present in their discourse (Figure 8).

Figure 8

Key Values Expressed in the Discourse on Digital Technologies
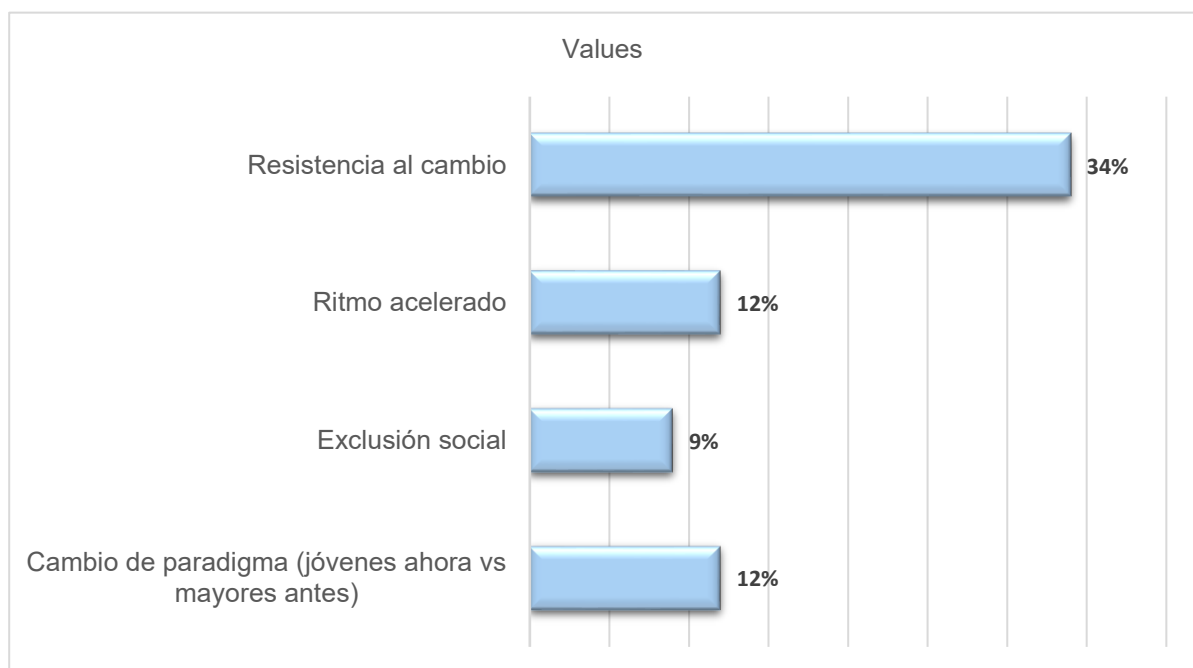
Source: own elaboration.

The results reveal that more than 30% of the participants consciously resist change, citing reasons such as age (stating that they are too old to learn), perceived complexity of use, or lack of interest due to not perceiving the usefulness and functionality of technology in their daily lives:

"I think that at this point, with what I know about these technologies and what I use them for, I don't need more" (Participant_32_Male_74 years).

"I don't need to have these kinds of devices at this stage in life. Being so old, why would I want them?" (Participant_9_Female_88 years).

"I feel that I lack certain knowledge, and the fact that devices are not adapted to my limited capabilities due to age causes me frustration and nervousness… I wish these devices were better adapted to the needs of people my age, because now they are very complex, and at my age, what am I going to learn..." (Participant_50_Female_89 years).

On the other hand, 12% of the participants consider that technological advancement is too fast, perceiving an accelerated pace of society that prevents them from adapting.

"None of the new technologies are adapted for older adults… moreover, they advance very quickly, and it is increasingly difficult to adapt to them" (Participant_47_Male_62 years).

Additionally, 9% of the participants report feeling socially excluded for being too old and not as adapted to digital technologies as younger generations, worrying about being left behind.

"It is true that society is very technological, and we encounter it everywhere… I get a little nervous when I have to make a payment or carry out a task using a machine; I always need a child or grandchild to help me because I'm afraid of making a mistake… but if I don't learn, I fall behind, and I feel that I have to adapt to technology for everything, not the other way around" (Participant_4_Female_77 years).

"Young people have it much easier… we weren't born with it and had to learn from scratch… Now you need it for everything, and if not, what? There are fewer people working and more machines, and many of us don't know how to use them because nobody taught us" (Participant_14_Female_88 years).

Finally, 12% of participants over 60 emphasize that they consider the situation young people experience today very different from the one they faced at the same age. They note that the use of digital technologies has caused a generational paradigm shift that clashes with their ways of thinking and acting, distancing them from what they consider most important.

"Sometimes I feel a bit 'disconnected' when I am with younger people who are often on their phones; I don't understand why they have to be on it all day instead of meeting face-to-face" (Participant_44_Male_72 years).

"We shouldn't give these devices to children at such a young age because they are born with it all, and there are things they should enjoy without phones and computers" (Participant_34_Female_69 years).

"I wish young people didn't overuse it so much because you are very skilled in every sense, but sometimes I am amazed at how you use technology for bad things. Or, for example, you start using technology too early… when you should be playing, you are already on it and growing up too soon" (Participant_10_Female_91 years*).*

Overall, these results show that the values guiding older adults' relationship with technology are closely linked to their perception of usefulness, sense of self-efficacy, and position within generational change. Conscious resistance to learning, the perception of a fast technological pace, and the feeling of social exclusion reveal that technology adoption depends not only on instrumental factors but also on ethical and affective judgments that guide their decisions. Thus, the values expressed by the participants serve as an interpretive framework that allows them to evaluate whether technologies provide well-being, autonomy, and continuity with their own ways of life, or whether, on the contrary, they generate distance, insecurity, and loss of shared references. In this sense, understanding these values is crucial for promoting digital literacy processes that are more sensitive to the needs, expectations, and learning rhythms characteristic of older age.

5. Discussion and Conclusion

The present study was designed to deepen understanding of the digital profile of older adults and to analyze how digital technologies are perceived and represented, considering usage behavior, emotional responses, and critical perception. This approach allows for a comprehensive "digital portrait" of the senior technology user and the identification of specific needs, particularly related to lack of training and the need to feel secure when using digital technology.

As has been highlighted throughout the research, digital inclusion for older adults is an essential challenge, given that this age group is considered technologically vulnerable. This issue is particularly relevant in socio-educational terms, as the population is highly diverse regarding digital competencies, usage motivations, and expectations of continuing to learn through digital resources or virtual environments (Busch et al., 2021; Hargittai & Hinnant, 2008; Kuong & Chaparro, 2025; Pick & Sarkar, 2015; Van Dijk, 2008).

However, despite this recognized need (Martín-García et al., 2022; Martínez-Alcalá et al., 2021), research in this field remains limited, as most studies focus on younger age groups. Although digital technologies provide significant benefits for older adults in terms of quality of life (Kasar & Karamn, 2021; Murciano-Hueso et al., 2022b), adoption rates—understood as the decision to regularly accept and use a technology—are much lower in this group compared to younger populations (Castro-Rojas & Coto-Chotto, 2025; Vaportzis et al., 2017).

This study has contributed to expanding knowledge about this age group, demonstrating that, although technology can play a positive role in psychological well-being (Pinazo-

Hernandis et al., 2024) and in aspects related to dependency (Marqués et al., 2020) and social isolation (Banskota et al., 2020), its adoption is conditioned by ambivalent emotions and the self-perceived risks identified in participants' testimonies. These results suggest that the potential benefits of technology are only realized when accompanied by adequate accessibility, support, and training. At the same time, the findings align with studies indicating that, despite the growing integration of digital technologies into daily life, clear age-related differences persist in usage, particularly due to low digital competence (Agudo-Prado et al., 2012; Blažič & Blažič, 2020).

The results presented highlight the relationship between lack of training and incomprehension of digital resources and show how this, together with non-adapted designs, prevents older adults from integrating these technologies into their daily lives. Participants especially report feelings of fear, anxiety, and frustration when using digital technologies, primarily in situations where they perceive a lack of control due to insufficient training or understanding. Additionally, the perception of inadequate training generates unpleasant emotions related to making mistakes that could damage devices, overexpose personal information, or even result in theft or fraud.

In summary, the evidence collected further demonstrates the need to continue understanding older adults' perceptions of digital technologies and how these perceptions influence technology adoption processes. While key facilitating factors, such as perceived usefulness and ease of use, can promote acceptance, attention must also be given to barriers that hinder digital inclusion, such as lack of training and negative emotions like fear or anxiety (Alsswey, 2020; Grandi et al., 2019; Shah et al., 2021). These factors are crucial when designing training programs that consider older adults' usage profiles and promote the acquisition of digital competencies to access services and take advantage of technological opportunities.

The study allows an integrated response to the two research questions posed. Regarding the digital profile of participating older adults, findings indicate a primarily functional and practical use of technology, oriented toward meeting daily needs such as communication, administrative tasks, and information access. Digital competence levels are heterogeneous, but tend to focus on basic mobile device use, with less proficiency in more complex tasks. This profile is also associated with a moderate perception of usefulness, persistent technical insecurities, and reliance on family or institutional support to resolve difficulties.

Concerning perceptions of technology use, the emotional dimension, and critical attitudes toward digitalization, the study evidences a combination of interest, curiosity, and feelings of achievement, especially when technology is understood and applied to real-life situations. However, unpleasant emotions, such as fear of "breaking something," frustration with constant changes, and feelings of disorientation, also emerge. This emotional ambivalence directly influences the continuation or abandonment of technological use. Simultaneously, older adults express a solid critical perception, focusing on risks such as service dehumanization, device dependency, loss of privacy, and difficulty adapting to digital environments not designed for them.

Finally, the results indicate that technology adoption in later life depends not only on access or training but on a complex interplay of prior experiences, emotions, social support, and perceived usefulness. Understanding this process from a socio-educational perspective is key to designing relevant training strategies and recognizing that technology use in later life is a situated practice influenced by biographical trajectories, personal perceptions, and structural barriers. The study shows that a generally positive perception of everyday digital technology among older adults contributes to greater intention to use technology. However, it is also essential to promote digital competencies and consider emotional perception in adoption processes, addressing fears associated with self-perceived risks while leveraging positive emotions when participants experience feelings of enjoyment

The study emphasizes the need for continuous, tailored training environments that enable older adults to maintain ongoing engagement with the society in which they live. Strengthening training programs designed to create support networks that foster self-sufficiency in using and benefiting from digital technologies is essential. Training processes for developing digital competence must consider the value of emotional awareness and regulation strategies to facilitate effective technology use. It is necessary to design and implement products and services tailored to this age group to maximize quality of life and train them in their use, ensuring technological accessibility and preventing older adults from being left behind as digital technology increasingly integrates into daily life.

Nonetheless, for generalization of results, it is important to consider that the main study limitation lies not only in the participant sample but also in potential social desirability biases and the interpretation of results. These limitations suggest future work should incorporate additional data sources and standardized instruments to further investigate the relationship between the studied dimensions and to explore how educators and trainers perceive and manage the emotional load present in teaching and learning situations.

Conflict of interest

The authors declare no conflict of interest.

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