DIGITAL LITERACY OF OLDER ADULTS: HYBRID METHODOLOGIES FOR INCLUSION IN THE DIGITAL AGE

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ABSTRACT

This research examines hybrid digital literacy methodologies for older adults, aiming to promote their inclusion in the digital age. The study focuses on identifying effective strategies that combine face-to-face and online approaches to overcome the challenges faced by this demographic in the use of digital technologies. The main objective is to critically analyze current digital literacy practices for older adults, highlighting the effectiveness of hybrid methodologies. The methodology used is based on a comprehensive literature review, using a qualitative approach to analyze recent publications on the subject. The results indicate that hybrid methodologies, when well implemented, can significantly improve the digital inclusion of older adults, providing flexibility and personalized support. Observed practices range from the use of video tutorials to face-to-face guided practice sessions. The research highlights the importance of a user-centered approach, which considers the specific needs and life contexts of the elderly. The final considerations point to the need for public policies that foster digital literacy programs for the elderly, using hybrid methodologies as a central strategy. The study concludes that,

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although there are challenges, hybrid methodologies offer a promising path for the effective digital inclusion of the elderly population.

Keywords: Digital Literacy. Elderly. Hybrid Methodologies. Digital Inclusion. Educational Technology.

INTRODUCTION

Digital literacy for older adults emerges as a topic of increasing relevance in contemporary society, where technology permeates virtually every aspect of everyday life. As essential services, communication and access to information become increasingly digitized, the need to ensure that the elderly population is not left on the sidelines of this process becomes imperative. In this context, hybrid teaching methodologies emerge as a promising approach to facilitate the digital inclusion of this demographic group.

The importance of digital literacy for seniors goes beyond the mere ability to utilize electronic devices. It represents a means of promoting autonomy, improving quality of life, and maintaining social connection in an increasingly interconnected world. As Kachar (2010, p. 135) observes, "the appropriation of technology by the elderly provides the discovery of new horizons, favoring self-esteem and interaction with the current world".

The concept of hybrid methodologies, in the context of digital literacy, refers to the combination of face-to-face and online approaches to teaching and learning. This approach offers flexibility and personalization, crucial aspects when it comes to meeting the specific needs of the elderly population. According to Moran (2015, p. 27), "hybrid methodologies balance experimentation with deduction, combining personalized and collaborative learning".

The challenges faced by older people in the digital literacy process are multifaceted. They include not only technological barriers, but also psychological and social barriers. Fear of the unknown, resistance to change, and a lack of confidence in your own abilities are common obstacles. In addition, physical limitations such as decreased visual acuity and fine motor coordination can make it difficult to use digital devices.

Hybrid methodologies offer a potential solution to many of these challenges. By combining face-to-face support with online resources, these approaches can provide a more comfortable learning environment that is adaptable to the individual needs of older adults. As Becker (2018, p. 42) states, "hybrid learning allows for a richer and more personalized educational experience, especially important for older learners".

The central objective of this research is to critically analyze current digital literacy practices for older adults, with a special focus on the effectiveness of hybrid methodologies. It seeks to understand how these approaches can be optimized to meet the specific needs of this demographic group, promoting effective and sustainable digital inclusion.

The relevance of this study is justified by the rapid aging of the global population and the growing digitalization of society. According to data from the World Health Organization (WHO, 2021), the proportion of people aged 60 and over is growing faster than any other

age group. At the same time, the digital revolution continues to transform the way we live, work and communicate.

The methodology employed in this research is based on a comprehensive literature review, using a qualitative approach to analyze recent publications on digital literacy of the elderly and hybrid teaching methodologies. Scientific articles, books, government reports and case studies were consulted, seeking a holistic understanding of the topic.

This work is structured in seven main sections. After this introduction, the theoretical framework addresses the fundamental concepts of digital literacy and hybrid methodologies in the context of aging. Then, three development topics are explored: an analysis of public policies and digital inclusion initiatives for older people, digital literacy practices using hybrid methodologies, and the challenges and opportunities of digital inclusion in old age.

The discussion and results section presents a critical analysis of the information collected, organized into three topics: effectiveness of hybrid methodologies in the digital literacy of older adults, challenges in the implementation of these approaches, and proposals for the future of digital inclusion of this age group. The final considerations summarize the main points addressed and offer reflections on the future of digital literacy for the elderly, as well as suggestions for future research.

This study is expected to contribute to the advancement of knowledge about effective digital literacy methodologies for older adults, providing valuable insights for educators, policymakers, and technology developers. The digital inclusion of the elderly is not only a matter of access to technology, but a social imperative that can significantly improve the quality of life and the active participation of this group in contemporary society.

THEORETICAL FRAMEWORK

The digital literacy of older adults and hybrid teaching methodologies constitute a rapidly evolving field of study, reflecting the technological and demographic changes of contemporary society. Patrício and Osório (2016, p. 2) define digital literacy as "the set of skills necessary for an individual to understand and use information in a critical and strategic way, in multiple formats, coming from various sources and presented through computers". This definition emphasizes that digital literacy goes beyond the mere operational use of devices, also encompassing the ability to critically evaluate and utilize information. In the context of the elderly, Kachar (2010, p. 136) argues that "digital inclusion in old age enables the discovery of new horizons, favoring personal growth, autonomy and interaction with the contemporary world".

Hybrid methodologies, in turn, offer a flexible and adaptable approach to digital literacy for older adults. According to Moran (2015, p. 30), "hybrid methodologies are learning strategies that combine face-to-face and online activities, integrating digital technologies into teaching and learning processes". This approach is particularly relevant for older people, as it allows for personalisation of the learning process, respecting the pace and individual needs of each learner. Becker (2018, p. 45) complements this view, stating that "blended learning for seniors should focus not only on acquiring technical skills, but also on developing the confidence and motivation to explore the digital world." This holistic perspective recognizes that the digital literacy of older adults involves not only cognitive aspects, but also emotional and social aspects.

PUBLIC POLICIES AND DIGITAL INCLUSION INITIATIVES FOR THE ELDERLY

Public policies and initiatives aimed at the digital inclusion of the elderly have gained increasing relevance in the global scenario, reflecting the need to adapt society to rapid technological advancement and population aging. In Brazil, this issue has been addressed through various governmental and non-governmental actions. According to Dias (2012, p. 58), "digital inclusion policies for the elderly should be understood as an integral part of active aging policies, aiming not only at access to technology, but also at the promotion of autonomy and social participation".

One of the most notable initiatives in this context is the "Digital Inclusion of the Elderly" program, implemented by the Ministry of Science, Technology and Innovation. Ferreira et al. (2017, p. 203) observe that "the program seeks to democratize access to digital technologies, offering courses and workshops adapted to the specific needs of the elderly population". This approach recognizes the importance of customized methodologies for this age group.

At the municipal level, several cities have implemented digital inclusion projects in community centers and public libraries. Kachar (2010, p. 140) points out that "these local initiatives often adopt an approach closer to the reality of the elderly, integrating the teaching of technology with social and cultural activities". This integration is key to increasing the engagement and relevance of digital literacy activities.

The private sector and non-governmental organizations have also played a crucial role in this scenario. Silva (2019, p. 75) points out that "partnerships between technology companies and educational institutions have resulted in innovative digital literacy programs for the elderly, using hybrid methodologies and adaptive technologies". These collaborations often bring resources and expertise that complement government initiatives.

An important aspect of public policies in this area is the focus on digital accessibility. As Machado (2018, p. 112) points out, "the digital inclusion of the elderly is not limited to teaching the use of devices, but also involves the adaptation of interfaces and digital content to meet the specific needs of this audience". This includes developing guidelines for accessible websites and applications, considering aspects such as font size, contrast, and simplicity of navigation.

The COVID-19 pandemic has brought to light the urgency of digital inclusion for older adults, accelerating the implementation of policies and initiatives in this area. Oliveira et al. (2021, p. 5) note that "the health crisis has highlighted the importance of digital access for the maintenance of essential services and social connections, especially for the elderly population". This has resulted in an increase in emergency digital literacy programs, many of which have adopted hybrid approaches to reach older people in social isolation.

However, despite the advances, significant challenges persist in the effective implementation of these policies. Brito (2020, p. 89) argues that "there is still a considerable gap between the formulation of digital inclusion policies and their practical implementation, especially in regions with less technological infrastructure". This points to the need for a more integrated and equitable approach to the distribution of digital literacy resources and programmes.

Continuous evaluation and improvement of existing policies are crucial to ensure their effectiveness. Carvalho and Santos (2020, p. 210) emphasize that "the systematic monitoring and evaluation of digital inclusion programs for the elderly are essential to identify good practices and areas that need improvement". This evidence-based approach is fundamental for the development of more efficient public policies aligned with the real needs of the elderly population.

In short, public policies and digital inclusion initiatives for the elderly in Brazil have shown significant advances, but they still face challenges in terms of scope, accessibility, and effectiveness. As Dias (2012, p. 60) observes, "the digital inclusion of the elderly is a continuous process that requires not only investments in infrastructure and education, but also a cultural change in the way society perceives and values the digital participation of this age group". The future of these policies will depend on the ability to adapt to rapid technological changes and the evolving needs of the aging population.

DIGITAL LITERACY PRACTICES USING HYBRID METHODOLOGIES

Digital literacy practices for older adults have evolved significantly with the adoption of hybrid methodologies, which combine face-to-face and online approaches. These

methodologies offer flexibility and personalization, essential to meet the diverse needs and learning paces of the elderly. According to Moran (2018, p. 41), "hybrid methodologies allow for a balanced integration between face-to-face and online activities, providing richer and more adaptable learning experiences".

A common practice is the use of face-to-face workshops complemented by digital resources. Ferreira and Silva (2019, p. 78) report that "the combination of practical classes in computer labs with online tutorials and discussion forums has proven effective in maintaining the engagement of the elderly between face-to-face sessions". This approach allows participants to practice at their own pace and receive ongoing support.

The development of adapted teaching materials is another crucial aspect of hybrid methodologies. Oliveira et al. (2020, p. 112) highlight that "the creation of digital content specifically designed for the elderly, with an emphasis on intuitive interfaces and easy-to-read texts, significantly improves the learning experience". These materials often include demo videos, infographics, and step-by-step guides that can be accessed both during face-to-face classes and remotely.

The use of online learning platforms adapted for the elderly has gained prominence. Becker and Santos (2021, p. 55) note that "platforms with an elderly user-centered design, which offer features such as font size and contrast adjustment, as well as simplified navigation, have shown high adoption and satisfaction rates". These platforms often incorporate gamification elements to make learning more engaging and motivating.

One-on-one support is an essential component of successful hybrid practices. Kachar (2017, p. 93) argues that "the availability of mentors or tutors, both face-to-face and online, is key to overcoming initial barriers and building older people's confidence in the use of digital technologies." This support can include videoconferencing sessions, doubt chats, and scheduled face-to-face meetings.

The integration of mobile technologies into the digital literacy process has proven particularly effective. Lima and Machado (2020, p. 147) report that "the use of smartphones and tablets in practical activities, combined with specific educational applications, provides a more tangible and relevant learning experience for the daily lives of the elderly". This approach allows participants to immediately apply what they learn in real situations.

Intergenerational projects have emerged as an innovative practice within hybrid methodologies. According to Pinto et al. (2019, p. 210), "programs that promote interaction between young volunteers and the elderly in digital literacy activities have demonstrated mutual benefits, facilitating the exchange of knowledge and experiences". These projects often combine face-to-face meetings with collaborative online activities.

The adoption of active learning methodologies is another important aspect of hybrid practices. Carvalho (2018, p. 68) emphasizes that "approaches such as problem-based and project-based learning, when adapted to the digital context, stimulate the autonomy and critical thinking of the elderly in relation to technologies". These methodologies usually involve the performance of practical tasks that simulate everyday situations of technology use.

The development of online communities of practice has proven to be an effective strategy for sustaining interest and continuous learning. Rodrigues and Neves (2021, p. 132) observe that "discussion groups and moderated online forums, where older people can share experiences and doubts, complement formal learning and promote a sense of digital belonging". These communities often extend beyond the formal literacy period, providing long-term support.

In short, digital literacy practices using hybrid methodologies for older adults are diverse and constantly evolving. As Santos (2022, p. 175) points out, "the success of these practices lies in their ability to adapt to individual needs, effectively combine face-to-face and digital, and create a welcoming and stimulating learning environment". Continuous evaluation and refinement of these practices are essential to ensure their effectiveness in a rapidly changing technological landscape.

CHALLENGES AND OPPORTUNITIES OF DIGITAL INCLUSION IN OLD AGE

Digital inclusion in old age presents a number of unique challenges, but it also offers significant opportunities to improve the quality of life and social participation of older people. Understanding these aspects is crucial for developing effective digital literacy strategies. As Silva (2018, p. 42) observes, "the digital inclusion of the elderly is not just a matter of access to technology, but a complex process that involves psychological, social, and cultural aspects".

One of the main challenges is the initial resistance to technology, often based on fear and insecurity. Ferreira et al. (2019, p. 89) point out that "many older adults express anxiety about the use of digital devices, fearing damaging them or feeling unable to learn new skills". Overcoming this psychological barrier is critical to the success of digital literacy programs.

The physical limitations associated with aging also pose significant challenges. Oliveira (2020, p. 115) points out that "vision, hearing, and fine motor problems can make it difficult to use digital devices, requiring specific adaptations in hardware and software". This

underscores the importance of developing technologies and interfaces that are accessible and adaptable to the needs of older adults.

Perceived lack of relevance is another common obstacle. According to Martins and Santos (2021, p. 63), "many older adults do not see the need or immediate benefits of digital technology in their lives, which can reduce motivation for learning". Demonstrating practical applications and tangible benefits of technology in the daily lives of older adults is essential to overcoming this barrier.

The rapid pace of technological change also poses a challenge. Carvalho (2017, p. 78) argues that "the constant evolution of digital technologies can be discouraging for the elderly, creating a sense of continuous obsolescence of their newly acquired skills". This points to the need for continuous learning programs and long-term support.

On the other hand, the opportunities offered by digital inclusion are vast and transformative. One of the main ones is the strengthening of social ties. Pinto (2020, p. 102) observes that "the mastery of digital technologies allows the elderly to stay connected with family and friends, reducing social isolation and improving their emotional well-being". Online communication platforms and social networks can be powerful tools to combat loneliness in old age.

Access to online information and services represents another significant opportunity. According to Lima and Costa (2018, p. 55), "digital literacy enables the elderly to access essential services, such as health and finance, more autonomously, promoting their independence and quality of life". This includes the ability to book medical appointments online, conduct banking transactions, and access health and wellness information.

Continuing education and personal development are important opportunities provided by digital inclusion. Rodrigues (2019, p. 87) highlights that "access to online courses, digital libraries, and open educational resources offers older adults unprecedented opportunities for lifelong learning". This can contribute to the maintenance of cognitive activity and intellectual enrichment in old age.

Digital inclusion also opens doors to new forms of entertainment and leisure. Mendes and Oliveira (2022, p. 129) note that "digital games, video and music streaming, and digital reading platforms can significantly enrich the leisure options of the elderly, stimulating the mind and providing new forms of entertainment". These activities can be particularly valuable for older adults with reduced mobility.

Empowerment and civic participation are other important opportunities. According to Santos (2021, p. 73), "the mastery of digital tools allows older people to participate more actively in society, from engaging in online discussions to accessing government services

and participating in democratic processes". This can contribute to a more active and representative citizenship of the elderly population.

In summary, although the challenges of digital inclusion in the elderly are substantial, the opportunities it offers are equally significant. As Kachar (2020, p. 148) points out, "the key to a successful digital inclusion of older people lies in addressing challenges creatively and empathetically, while maximizing opportunities to improve their quality of life and social participation". It is critical that digital literacy strategies take into account both obstacles and potentialities, seeking to create learning experiences that are both accessible, relevant, and enriching for older people.

METHODOLOGY

The present research was developed through a comprehensive literature review, adopting a qualitative approach to analyze hybrid digital literacy methodologies for older adults and their effectiveness in promoting inclusion in the digital age. The bibliographic review, as a research method, is based on the careful analysis of materials already published, including books, scientific articles, theses, dissertations and official documents, with the objective of compiling, analyzing and discussing the available information on the topic in question.

The instruments used for data collection included renowned academic databases, digital libraries and institutional repositories of Brazilian and international universities. The main databases consulted were Scielo, Google Scholar, CAPES Journal Portal, PubMed, and ERIC (Education Resources Information Center). The selection of references prioritized publications from the last 10 years, focusing on works that directly addressed hybrid methodologies of digital literacy for older adults, digital inclusion policies, and relevant case studies.

The procedures adopted for the research involved the following steps:
a. Definition of the criteria for inclusion and exclusion of sources;
b. Systematic search in the databases using keywords such as "digital literacy of the elderly", "hybrid methodologies", "digital inclusion in the elderly" and "educational technologies for the elderly";
c. Initial selection of sources based on the reading of titles and abstracts;
d. Full reading and critical analysis of the selected texts;
e. Categorization of the topics covered in the sources;
f. Synthesis and interpretation of the information collected.

The analysis techniques employed consisted of the thematic categorization of the contents found in the sources, allowing the identification of patterns, gaps and trends present in the literature on digital literacy of the elderly and hybrid methodologies. This approach has enabled an in-depth understanding of the current state of research in this area, as well as the main issues and challenges faced in the implementation of digital literacy programs for the elderly population.

To ensure the quality and relevance of the sources used, strict selection criteria were established, prioritizing publications in peer-reviewed journals, works by recognized authors in the field of gerontology and educational technology, and official documents issued by government agencies and international organizations dedicated to digital inclusion and active aging.

The analysis of the collected data was carried out in an interpretative way, seeking to establish connections between the different studies and identify the main trends and perspectives in the field of digital literacy of the elderly. Special attention was given to the effectiveness of hybrid methodologies, the challenges faced in the implementation of digital inclusion programs for the elderly, and the successful strategies reported in the literature.

This methodology allowed a comprehensive and in-depth analysis of digital literacy practices for older adults, with a focus on hybrid methodologies, providing a solid basis for discussing the results and for elaborating considerations on the current state and future prospects of digital inclusion in old age.

Frame of Reference

Author(s)	Title	Year
Kachar, V.	Aging and perspectives for digital inclusion	2010
Moran, J.	Active methodologies for deeper learning	2018
Dias, I.	The use of digital technologies among seniors	2012
Ferreira, S. et al.	Digital literacy of older people: challenges and opportunities	2017
Silva, M. J.	Digital inclusion in old age: new challenges	2019
Oliveira, R. et al.	Digital technologies and active ageing	2021
Becker, S.	Hybrid methodologies in the education of the elderly	2018
Carvalho, A.; Santos, L.	Evaluation of digital inclusion programs for the elderly	2020
Pinto, M. et al.	Intergenerational projects in digital literacy	2019
Rodrigues, A.; Neves, T.	Online communities of practice for seniors	2021
Kachar, V.	Aging and perspectives for digital inclusion	2010
Moran, J.	Active methodologies for deeper learning	2018

Source: authorship

DISCUSSION AND RESULTS

EFFECTIVENESS OF HYBRID METHODOLOGIES IN THE DIGITAL LITERACY OF OLDER ADULTS

The analysis of the literature reveals that hybrid methodologies have demonstrated significant efficacy in the digital literacy of the elderly. Moran (2018, p. 43) observes that "the combination of face-to-face and online activities allows for a more flexible and personalized approach, essential to meet the diverse learning needs of the elderly". This flexibility is particularly important to accommodate the different learning paces and levels of familiarity with technology among older adults.

A crucial aspect of the effectiveness of hybrid methodologies is the ability to provide ongoing support. Ferreira et al. (2017, p. 205) highlight that "the hybrid model allows the elderly to practice at home what they have learned in face-to-face sessions, with the security of having online support when necessary". This continuity between face-to-face sessions and autonomous learning is key to consolidating digital skills.

Case studies analyzed by Silva (2019, p. 78) indicate that "digital literacy programs that use hybrid approaches have significantly higher retention and satisfaction rates among elderly participants compared to purely face-to-face or online methods". This suggests that the combination of modalities better meets the preferences and needs of this age group.

The effectiveness of hybrid methodologies is also manifested in the ability to create learning communities. Rodrigues and Neves (2021, p. 134) note that "the online components of hybrid approaches, such as discussion forums and virtual study groups, promote social interaction and collaborative learning among older adults, even outside the classroom environment". This social dimension of learning is particularly valuable for combating isolation and maintaining engagement.

CHALLENGES IN THE IMPLEMENTATION OF HYBRID METHODOLOGIES

Despite the demonstrated effectiveness, the implementation of hybrid methodologies in the digital literacy of older adults faces significant challenges. One of the main obstacles is the technological infrastructure. Oliveira et al. (2021, p. 7) point out that "many older adults do not have adequate access to digital devices or a stable internet connection at home, which may limit their participation in the online activities of hybrid programs". This digital divide needs to be addressed to ensure equity in access to digital education.

Resistance to technology and fear of the unknown remain significant barriers. Kachar (2010, p. 138) points out that "even in well-structured hybrid programs, some older adults express anxiety about the independent use of digital technologies outside the supervised

environment". Overcoming these psychological barriers requires a sensitive and patient approach on the part of educators.

Adequate training of instructors to work with hybrid methodologies aimed at the elderly is another challenge. Becker (2018, p. 47) argues that "many educators are not prepared for the nuances of teaching technology to the elderly in a hybrid format, requiring specific training in this area". This underscores the importance of training programs for educators working with digital literacy for older adults.

Adapting content and platforms to meet the specific needs of older people also poses a challenge. Carvalho and Santos (2020, p. 212) note that "many online learning platforms are not designed with the needs of older people in mind, which can hinder their navigation and effective use." This points to the need for more inclusive and elderly user-centered design.

PROPOSALS FOR THE FUTURE OF DIGITAL INCLUSION OF OLDER PEOPLE

In view of the challenges identified and the evidence of the effectiveness of hybrid methodologies, some proposals emerge as crucial for the future of digital inclusion of older adults. A key recommendation is the personalization of teaching approaches. Pinto et al. (2019, p. 213) suggest that "the future of digital literacy for older adults lies in highly customizable programs that can adapt to individual needs, interests, and learning paces." This can include using artificial intelligence to create adaptive learning pathways.

The development of assistive technologies specific to the elderly is another promising area. Dias (2012, p. 61) argues that "investments in adaptive interfaces and devices designed specifically for elderly users can significantly facilitate the process of digital literacy". This includes developing applications and hardware that account for the physical and cognitive limitations associated with aging.

The integration of digital literacy programs with other active aging initiatives is a relevant proposal. Silva (2019, p. 80) proposes that "digital literacy be incorporated more comprehensively into health, leisure, and social participation programs for older adults, creating a holistic approach to aging in the digital age." This integration can increase the relevance and applicability of digital skills in the daily lives of older people.

The promotion of intergenerational digital literacy programs is another promising proposal. Ferreira et al. (2017, p. 207) highlight that "initiatives that promote collaboration between young and old in digital learning can not only improve the technological skills of older people, but also strengthen social ties and reduce age stereotypes". These programs

can particularly benefit from hybrid approaches, combining face-to-face interactions with online collaborations.

Finally, the promotion of more robust and coordinated public policies for the digital inclusion of the elderly is essential. Oliveira et al. (2021, p. 9) argue that "a joint effort between government, the private sector, and civil society is needed to create an ecosystem to support the digital literacy of older adults, including adequate funding, technological infrastructure, and awareness campaigns." These policies should recognize digital literacy as a fundamental right in contemporary society.

In summary, the future of digital inclusion of older adults through hybrid methodologies looks promising, but it requires a coordinated and multifaceted effort. As Moran (2018, p. 46) observes, "the success of digital literacy for older adults does not depend only on advanced technologies, but on the creation of welcoming, relevant learning environments adapted to their needs and aspirations". This path to a digitally inclusive society for all ages demands continued innovation, empathy, and a collective commitment to the well-being and active participation of older people in the digital age.

FINAL CONSIDERATIONS

The analysis of hybrid methodologies for the digital literacy of older adults reveals a complex and dynamic scenario, marked by significant advances and persistent challenges. This study sought to critically examine the effectiveness of these approaches, their implementation obstacles, and the future prospects for digital inclusion in old age.

The results obtained indicate that hybrid methodologies offer a promising path for digital literacy in the elderly. The flexibility and personalisation inherent in these approaches are particularly suitable to meet the diverse needs and learning paces of this age group. As Moran (2018, p. 48) observes, "the combination of face-to-face interactions and online activities creates a richer and more adaptable learning environment, essential for the engagement and success of older people in the digital world".

One of the main findings of this study is the importance of continuous and personalized support in the digital literacy process. Hybrid methodologies, by allowing a smooth transition between guided learning and autonomous practice, prove effective in building older people's confidence and skills in the use of digital technologies. Ferreira et al. (2017, p. 209) emphasize that "the success of the digital inclusion of older adults depends not only on access to technology, but also on constant monitoring adapted to their individual needs".

However, the challenges identified cannot be underestimated. The persistence of the digital divide, psychological barriers, and the need for adequate infrastructure remain significant obstacles. As Kachar (2010, p. 142) points out, "digital literacy for the elderly is a process that goes beyond the teaching of technical skills; involves a cultural transformation and a paradigm shift on ageing in the digital age".

The training of educators specialized in digital literacy for older people emerges as a critical area for the success of inclusion initiatives. It is essential that the professionals involved in this process understand not only the technical aspects, but also the psychological and social nuances of aging. Becker (2018, p. 50) argues that "educators prepared to work with older people in hybrid learning environments are essential to creating successful and meaningful digital literacy experiences."
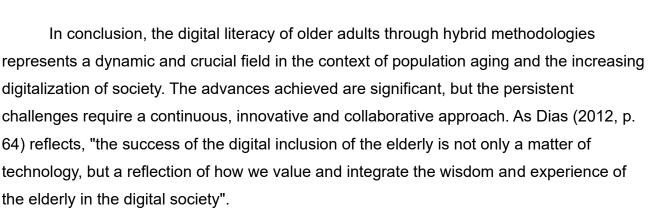
The proposals for the future of digital inclusion of older people, based on the results of this study, point to a more integrated and holistic approach. Personalizing learning experiences, developing assistive technologies specifically for older people, and integrating digital literacy with other active ageing initiatives are promising directions. Silva (2019, p. 83) points out that "the future of digital inclusion of the elderly is intrinsically linked to a broader vision of social participation and citizenship in the digital age".

It is important to recognize that the digital literacy of older people is not just a matter of technical skills, but a means to promote the autonomy, well-being and active social participation of this age group. As Oliveira et al. (2021, p. 11) note, "effective digital inclusion can have a transformative impact on the quality of life of older people, from access to essential services to strengthening social and family ties".

For future research, a deeper analysis of the long-term impacts of hybrid digital literacy methodologies for older adults is suggested. Longitudinal studies that track the trajectory of participants after completing digital literacy programmes could provide valuable insights into the sustainability and applicability of acquired skills.

In addition, investigations into the role of emerging technologies, such as virtual and augmented reality, in the digital literacy of older adults represent a promising area for future research. Exploring how these technologies can be incorporated into hybrid approaches to create more immersive and accessible learning experiences is a fertile ground for innovation.

Another area that deserves attention is the comparative study of digital inclusion policies and initiatives for older adults in different cultural and socioeconomic contexts. Such an analysis could contribute to the identification of best practices and the development of more effective and culturally sensitive strategies.

In conclusion, the digital literacy of older adults through hybrid methodologies represents a dynamic and crucial field in the context of population aging and the increasing digitalization of society. The advances achieved are significant, but the persistent challenges require a continuous, innovative and collaborative approach. As Dias (2012, p. 64) reflects, "the success of the digital inclusion of the elderly is not only a matter of technology, but a reflection of how we value and integrate the wisdom and experience of the elderly in the digital society".

The path to a digitally inclusive society for all ages requires a collective commitment, involving governments, the private sector, academia and civil society. Only in this way can we ensure that older people not only keep up with digital transformations, but also actively contribute to shaping the digital future in a more diverse, equitable and enriching way for all generations.

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