# “Learning without age limits: an experience of digital inclusion among older adults in Queretaro”


## ABSTRACT

This study reports the outcomes of the course “Technology Management for Older Adults,” conducted at the Polytechnic University of Querétaro (UPQ) in November 2025. The program sought to promote digital inclusion among adults aged 60 and over who were relatives of university students and residents of five communities in the municipality of El Marqués, Querétaro. A total of 30 participants attended two five-hour sessions focused on basic mobile phone and computer use, internet navigation, and essential online procedures, including CURP consultation, access to tax documents, service payments, and bank transfers.

The intervention adopted a hands-on, personalized learning approach aimed at fostering technological confidence and meaningful learning. The findings indicate increased digital autonomy, a reduction in fear of making mistakes, and more positive perceptions of technology in participants’ daily lives.

These results highlight the relevance of socially oriented digital literacy initiatives as mechanisms to strengthen civic participation and reduce generational inequalities in technology use in Mexico.



Keywords: Digital inclusion, technological literacy, older adults, community education, Querétaro.




## SUMMARY

This article describes the results of the course “Technology Management for Older Adults,” offered at the Polytechnic University of Querétaro (UPQ) on November 15 and 22, 2025. The objective was to promote the digital inclusion of people over 60 years of age, family members of university students, from the communities of La Laborcilla, Matanzas, Tierra

Blanca, La Pradera, and Amazcala, in the municipality of El Marqués, Querétaro. Thirty participants (20 women and 10 men) attended five-hour sessions, covering topics such as basic cell phone and computer use, internet browsing, and online procedures (CURP, tax certificate, payments , transfers, among others).

The methodology employed was based on personalized support and guided practice, fostering meaningful learning and technological confidence. The results showed an increase in digital autonomy, a reduction in fear of making mistakes, and a more positive perception of technology use in their daily lives.

The study highlights the relevance of socially focused digital literacy programs as tools to strengthen citizen participation and reduce the generational gap in the use of information technologies in Mexico.

**Keywords:** Digital inclusion, technological literacy, older adults, community education.

## INTRODUCTION

Currently, public, banking, and administrative services are progressively moving to the digital environment. For older adults, this process represents both an opportunity and a challenge. On the one hand, digitalization offers the possibility of increasing their autonomy, reducing their dependence on others, and fostering their social participation (National Institute for Older Adults [INAPAM], 2023). On the other hand, it presents barriers such as a lack of digital skills, unfamiliarity with technological devices, and anxiety associated with using new tools (Hernández Salazar, 2022).

In the context of Mexico and Latin America, these barriers are exacerbated by structural factors such as educational lag, low levels of schooling, and limited access to devices or connectivity, especially in rural areas or marginalized communities (Santos Oliveira, Barros da Paixão & Arango Morales, 2021). In Mexico, for example, the Federal Telecommunications Institute (IFT) reported that only 28.2% of people over 55 use the internet, while less than 5% conduct online banking or shopping (IFT, 2023). This digital

divide has direct implications for quality of life, access to information, and the exercise of civic rights.

Digital literacy among older adults is considered an essential component of active aging and social inclusion (INAPAM, 2023). According to Juárez (2016), technology education for this group should be based on support strategies, clear language, and immediate utility, avoiding information overload. Similarly, Hernández Salazar (2022) emphasizes that digital inclusion is not limited to access to devices, but rather involves the ability to use them confidently, critically, and for meaningful purposes.

Several studies in Mexico and Latin America agree that the main obstacle is not a lack of cognitive ability, but rather technological anxiety and the perceived effort experienced by older adults when using digital interfaces (Pinzón Zamora & Mortis Lozoya, 2025). A study conducted in communities in Sonora and Baja California observed that perceived ease of use and practical utility are key factors in technological acceptance among this age group (Pinzón Zamora & Mortis Lozoya, 2025). At the regional level, the Economic Commission for Latin America and the Caribbean (ECLAC), along with the Organization of Ibero-American States (OEI), has warned that the digital exclusion of older adults has become a new form of social inequality. According to the OEI and the Ibero-American Social Security Organization (OISS), four out of ten older adults in Latin America are functionally illiterate, and this condition is exacerbated when the digital divide is considered (OEI & OISS, 2022). According to Martínez, Morales Vázquez and Arias Ovando (2023), digital education adapted to the pace and needs of this group is key to strengthening their autonomy and psychological well-being.

Within this framework, the course " *Technology Management for Older Adults"* was held at the facilities of the Polytechnic University of Querétaro (UPQ) and had 30 participants, 20 women and 10 men, all of whom were relatives of university students at that institution. The participants came from five nearby communities in the municipality of El Marqués, Querétaro: La Laborcilla, Matanzas, Tierra Blanca, La Pradera, and Amazcala.

Through a participatory, hands-on methodology with personalized support, the aim was not only to teach the technical use of cell phones and computers, but also to foster digital confidence, reduce fear of making mistakes, and promote autonomy in carrying out everyday digital tasks (checking CURP [Unique Population Registry Code], downloading tax certificates, paying for services, and making bank transfers). This experience addresses the urgent need to promote digital inclusion for older adults, understood not only as the acquisition of technical skills, but also as a means to guarantee their social participation, access to rights, and the reduction of generational inequalities in the use of technology. This article documents the course results, analyzes the factors that facilitated learning, and reflects on the educational and social implications of digital literacy in old age.

# THEORETICAL FRAMEWORK

## 1. Aging, technology and digital inclusion

Population aging is a global phenomenon that also significantly affects Latin America and Mexico. As the population over 60 years of age grows, the challenges related to their social, economic, and technological integration intensify. In this context, the use of information and communication technologies (ICTs) has become a key factor in promoting active aging, autonomy, and civic participation (INAPAM, 2023). Older adults who develop digital skills are more likely to maintain social networks, access online services, and manage administrative procedures, allowing them greater independence (Hernández Salazar, 2022). However, they also face specific barriers related to their age, educational level, prior technological skills, attitudes toward mistakes, and the inaccessible design of the tools (Pinzón Zamora & Mortis Lozoya, 2025).

In Mexico, digital literacy has been promoted through local programs in states like Querétaro, where municipal and university initiatives have sought to include older adults in digital environments (CEPACIQ, 2023; Editorial Staff / Noventa Grados, 2025). The digital divide is not only a matter of physical access to devices or connectivity, but also of the ability to use and appropriate them. A documentary study on the digital inclusion of older adults indicates that the mere availability of technology does not guarantee its

effective use: factors such as digital literacy, accessibility, and attitude toward technology are determining factors (Latin American Journal of Human Rights, 2022).

## 2. Digital literacy and its relevance in old age

Digital literacy is defined as "a person's ability to perform different tasks in a technological environment; this includes the ability to locate, research, and analyze information using new information technologies" (INAPAM, 2023, para. 2). When directed at older adults, it involves not only technical instruction on devices but also consideration of pedagogical, motivational, and social aspects. Juárez (2016) emphasizes that technology education for older adults should be based on clear methodologies, support, and immediate utility to ensure motivation and relevance.

Likewise, Hernández Salazar (2022) argues that digital inclusion transcends access, as it implies the ability to use technology meaningfully, autonomously, and critically, preventing the perpetuation of age-based exclusion patterns ("digital ageism"). In Latin America, the work coordinated by Oliveira Santos, Barros da Paixão, and Arango Morales (2021) highlights that technological changes affect all dimensions of older adults' lives—physical, mental, emotional, and social—and that the use of ICTs can be a resource to facilitate this transition toward a connected old age.

Digital literacy programs for older adults have effects that go beyond the instrumental use of devices: they promote self-esteem, a sense of competence, community participation, and the exercise of civic rights. For example, in Querétaro, digital inclusion programs have shown that older adults improve their confidence in using devices and access public services and local procedures independently (CEPACIQ, 2023; Editorial Staff / Noventa Grados, 2025).

## 3. Facilitating factors and barriers in the use of technology by older adults

To design effective digital literacy interventions for older adults, it is necessary to understand both the facilitators and barriers to their use of technology. According to Pinzón Zamora and Mortis Lozoya (2025), the UTAUT model, applied to older adults in Mexico,

indicates that “ease of use,” “perceived usefulness,” “social influence,” and “enabling conditions” are significant predictors of the intention to use technology. However, contextual differences are observed between communities in perceived effort and enabling conditions, implying that geographic location, socioeconomic environment, and local culture have an impact.

Additionally, a literature review on the digital inclusion of older adults published in Costa Rica (2022) identifies key barriers: lack of adapted training, inaccessible devices, unfriendly interfaces, fear of making mistakes, and lack of support. A relevant consideration is that online procedures and the digital management of public services are designed without adequately considering usability for older adults, which constitutes a factor of exclusion (Latin American Journal of Human Rights, 2022). In Mexico, the digital divide between states reveals inequalities: the availability of ICTs and the consumption of digital services remain highly uneven across regions, which particularly affects vulnerable groups such as older adults with low levels of education (Coria & Garcia-Garcia, 2022).

**4. Digital autonomy, citizen participation and quality of life**

Digital autonomy refers to the ability of individuals to perform technology-dependent tasks independently, without relying on others, which is closely linked to quality of life in old age. According to Hernández Salazar (2022), digital inclusion for older adults can become a tool for their empowerment, enabling them to communicate, manage procedures, access relevant information, and maintain social connections.

In this sense, digital civic participation—such as access to online services, procedures, social networks, and virtual communities—contributes to their social and political integration (Santos Oliveira et al., 2021). Furthermore, documented experiences in Querétaro have shown that local digital literacy programs generate improvements in technological confidence and social networking among older adults (CEPACIQ, 2023; Editorial Staff / Noventa Grados, 2025).

The quality of digital environments—in terms of usability, accessibility, and relevance—is another critical factor. An analysis of interface design for Latin American populations highlights the need for intuitive and clear applications to encourage use, especially in contexts with low levels of education (Chiang et al., 2018). Therefore, digital literacy for older adults should not only focus on technical content but also on the adaptability of the digital environment to their circumstances, expectations, and learning pace.

### 5. Implications for educational interventions in older adults

The research findings allow us to draw practical implications for the design of technology interventions aimed at older adults. First, training should be practical, show results quickly, be adapted to the local context, and include personalized support—as proposed by Juárez (2016). Second, program evaluation should include indicators of digital trust, autonomy, perceived usefulness, and reduction of technology anxiety.

Third, it is essential to ensure that devices and platforms are accessible, with user-friendly interfaces, large fonts, clear language, and simple navigation; the conceptual review on digital inclusion considers this a key dimension (Latin American Journal of Human Rights, 2022). Finally, public policies play a central role: the joint protocol of the Organization of Ibero-American States and the Ibero-American Social Security Organization (2022) underscores the need for guidelines, specialized training, and institutional partnerships to ensure that older adults are not excluded from the digital society. These recommendations are directly applicable to the design, implementation, and evaluation of courses such as the one developed at the Polytechnic University of Querétaro.

## METHODOLOGY

This study employed a descriptive, exploratory, and qualitative design to analyze the effects of a digital literacy educational intervention on older adults in rural and semi-urban communities in the municipality of El Marqués, Querétaro. The qualitative approach allowed for an understanding of changes in participants' technological perceptions, digital autonomy, and subjective experiences—aspects that are difficult to capture using strictly quantitative methods (Hernández Salazar, 2022). Additionally, descriptive elements were

incorporated to facilitate the systematization of observable progress during the teaching and learning process.

## Context and participants

The intervention took place at the Polytechnic University of Querétaro (UPQ) on November 15 and 22, 2025, as part of a university community outreach project. The target population consisted of adults over 60 years of age, family members of students at the institution, and residents of the communities of La Laborcilla, Matanzas, Tierra Blanca, La Pradera, and Amazcala. These communities share sociodemographic characteristics associated with significant digital divides: limited access to connectivity, basic education, and sporadic use of electronic devices.

The final sample consisted of 30 participants, selected through open invitation, primarily family members of students in the Business Administration and Management program. The gender distribution was 20 women and 10 men. The limit of 30 participants was due to the fact that the computer lab where most of the practical sessions took place only has 31 computers. Participation was determined solely by availability and interest, following a non-probability convenience sampling method common in community studies (Juárez, 2016). No exclusion criteria were applied beyond being of legal age and having a family relationship with members of the university community. The event coordinators were the authors of this article, and they were assisted by three speakers: an accountant, a lawyer, and a professor from the systems department, as well as three adjunct professors and eight students completing their community service from various departments of the university.

## Course design and pedagogical intervention

The course was structured into two five-hour sessions, organized into four thematic areas:

**a)** Basic use of cell phones.

**b)** Essential computer functions.

**c)** Internet browsing.

**d)** Digital procedures (CURP consultation, tax certificates, service payments, and bank transfers).

The intervention adopted a pedagogical approach based on meaningful learning, consistent practice, and personalized support—elements recommended for teaching technology to older adults (INAPAM, 2023; Oliveira Santos, Barros da Paixão & Arango Morales, 2021). A relaxed pace, adapted to the varying levels of initial technological skills, was prioritized. Step-by-step demonstrations, exercises with real-world examples, and periods of independent practice under the guidance of the facilitating team were employed. It is worth noting that several breaks were provided to allow participants to rest, and a suitable lunch was also served.

The instructional design took into account the recommendations of Hernández Salazar (2022), who emphasizes the importance of reducing technology anxiety through judgment-free learning environments with immediate feedback. Furthermore, following the guidelines of the OEI and the OISS (2022), the course structure was designed to promote digital autonomy as a tool for exercising civic rights and social participation.

## Instruments and techniques for collecting information

The information was collected using multiple qualitative techniques in order to obtain a comprehensive view of the learning process. The instruments used were the following:

### 1. Systematic observation

Behaviors related to participation, problem-solving, and interaction with digital devices were recorded. The observation was organized using a guide with predefined categories:

- Level of support required,
- Interface management,
- Manifestations of anxiety or frustration,
- Responses of satisfaction or achievement.

Observation allowed us to capture evolutionary processes during practical activities, a key element for the subsequent interpretation of the results (Pinzón Zamora & Mortis Lozoya, 2025).

**2. Anecdotal records**

During both sessions, field notes were compiled focusing on relevant episodes that evidenced changes in perception, spontaneous expressions about technology use, or persistent difficulties. This technique proved particularly useful for identifying emotional and motivational patterns, which are key determinants of technology adoption in old age (Martínez, Morales Vázquez & Arias Ovando, 2023).

**3. Final perception questionnaire**

At the conclusion of the intervention, a brief questionnaire consisting of Likert response items was applied on the following aspects:

- Confidence in using devices,
- Perceived usefulness of what has been learned,
- Security when carrying out digital procedures,
- Overall course evaluation.

This instrument allowed for the qualitative supplementation of the information with descriptive data on the participants' perceptions.

**Procedure**

The fieldwork was carried out in four stages:

**1. Initial diagnosis**

Before the course began, the facilitation team spoke informally with the participants to identify their prior experience with technology. This assessment allowed them to evaluate specific needs and adjust the complexity of the course content.

**2. Course Implementation**

Each session began with a brief theoretical introduction, followed by practical demonstrations and guided exercises. Participants worked individually and in small groups.

The facilitation team provided constant support to address questions in real time, adjusting instructions and difficulty levels according to each participant's abilities.

**3. Observation and recording**

During the intervention, observations and field notes were collected using the techniques described above. Special attention was paid to the evolution of fear of making mistakes, the understanding of instructions, and interaction with digital interfaces.

**4. Closure and evaluation**

At the end, the perception questionnaire was applied and a group feedback session was held to gather opinions on learning, the difficulties faced and the changes perceived in their daily lives.

## Analysis of Data Obtained

Analysis of data from the "Technology Management for Older Adults" course reveals significant progress in digital autonomy, technological confidence, and perceived practical usefulness among the 30 participants. Overall, the results of the final questionnaire and systematic observations indicate that the intervention helped reduce technology anxiety and facilitated the acquisition of essential digital life skills.

As shown in theTable 1 demonstratesthat 83% of participants reported feeling “more confident” or “much more confident” when using their cell phones, while 76% stated that their fear of making mistakes during digital activities had decreased. This finding is consistent with Hernández Salazar (2022), who points out that technology anxiety is one of the main inhibitors of ICT use in old age, and that guided practice can contribute to reducing it. Similarly, the perceived usefulness reached 90% **,** indicating that the content was considered highly relevant for managing everyday tasks, which aligns with Juárez's (2016) observations on the importance of immediate relevance in programs aimed at older adults.

Field observation allows for a deeper understanding of these results. Table 2 reflects the behavioral changes observed between the first and second sessions of the course. During the initial session, most participants showed a high dependence on the facilitator, especially in tasks requiring internet browsing or manipulation of digital transaction interfaces. However, by the second session, a notable decrease in the frequency of requests for support was recorded, as well as an increase in the independent execution of tasks such as password recovery, file uploads, and form completion. This progress aligns with studies documenting the impact of emotional support and repeated practice on the acquisition of digital security (Martínez, Morales Vázquez & Arias Ovando, 2023).

On an emotional level, the anecdotal records showed a clear transition from expressions of fear ("I'm afraid to click on it" or "I might delete something important") to expressions of achievement and confidence ("I can do it on my own now," "this is useful for my paperwork"). This change is reflected in the decrease in expressions of anxiety recorded in Table 2 **,** where it drops from a high level in the first session to a low level in the second. This result aligns with research indicating that digital literacy not only imparts technical skills but also strengthens self-esteem and psychological well-being in old age (Martínez et al., 2023).

Finally, the sum of the quantitative and qualitative data suggests that the course generated an overall improvement in the technological experience of older adults. The positive evolution observed supports the relevance of short, practice-oriented programs that offer close support and adapt pedagogically to the learning pace of this population. These results reinforce the need to continue promoting interventions that combine practical utility, emotional connection, and accessibility to advance toward true digital inclusion in old age.

Table 1. Perception of autonomy and digital confidence after the course

| Indicator evaluated | Percentage of participants | Description of the observed change |
|---|---|---|
| Greater security when using your cell phone | 83% | Participants reported feeling more capable of performing basic tasks without help. |
| Reducing the fear of making mistakes | 76% | Decreased technological anxiety, reflected in a greater willingness to experiment. |

| Indicator evaluated | Percentage of participants | Description of the observed change |
|---|---|---|
| Independent completion of digital procedures | 68% | Ability to navigate government and banking platforms with minimal assistance. |
| Perception of the usefulness of what was learned | 90% | They acknowledge an immediate impact on daily activities (payment of services, official inquiries). |
| Overall satisfaction with the course | 94% | Positive evaluation of both the support and the content. |

Table 2. Performance observations during the two sessions

| Observed category | Session 1: Frequency / Description | Session 2: Frequency / Description |
|---|---|---|
| Request for technical support | High — They require guidance for almost all basic tasks. | Media — They request support mainly in more complex processes. |
| Internet navigation management | Low — Difficulty distinguishing icons and tabs. | Medium-High — They perform simple searches and navigate between pages. |
| Interaction with processing interfaces | Very low — Fear of making mistakes and deleting information. | Media — They complete forms with minimal assistance. |
| Expressions of anxiety | High — Comments like “I’m afraid to poke it”. | Low — Greater confidence and willingness to explore. |
| Evidence of autonomy | Low — Dependence on the facilitator. | Medium-High — They perform actions such as recovering passwords or sending files. |



# DISCUSSION

The results obtained in this course demonstrate that digital literacy for older adults requires a balanced combination of practical relevance, emotional support, and pedagogical accessibility. In this sense, the findings align with and contrast with various studies that have analyzed the relationship between aging, technology, and learning processes. Additionally, each course is adapted to the specific conditions of the target group. In this

particular case, a high percentage of the participants did not complete their secondary education, which necessitated a specific approach to the topics and tools used.

First, the increase in digital autonomy observed in the participants aligns with the findings of Hernández Salazar (2022),who argues that the main barriers to ICT adoption in old age are not cognitive but emotional, particularly technological anxiety. The decrease in fear of making mistakes reported in the study—especially noticeable in the transition from the first to the second session—confirms this assertion and suggests that methodologies based on safe, judgment-free environments are crucial for building trust.

On the other hand, the results also corroborate what was stated byJuárez (2016) **emphasizes** that the immediate relevance of the content increases motivation and retention in digital literacy programs. The perceived usefulness observed in 90% of participants illustrates how activities related to real-world procedures (CURP, tax certificate, digital payments) not only facilitate learning but also make it meaningful. However, unlike Juárez's findings, where usefulness is primarily associated with external motivation, this study observed indicators of internal motivation linked to the pursuit of personal autonomy.

When comparing the results with the approaches ofOliveira Santos, Barros da Paixão, and Arango Morales (2021) agree that digital literacy has broader effects than mere technical proficiency. These authors emphasize that ICTs influence the emotional, social **,** and cognitive dimensions of aging, and in this intervention, it was observed that many participants considered learning digital literacy a way to stay relevant, connected, and less dependent. In this respect, the experience in Querétaro reinforces the idea that digital literacy contributes to active and connected aging.

Furthermore, the results align with the findings of Martínez, Morales Vázquez, and Arias Ovando (2023), who discovered that acquiring digital skills improves self-esteem and psychological well-being. During the course, a noticeable change in participants' perceived self-efficacy was observed, expressed in phrases such as "I can do it on my own now," demonstrating that the emotional impact of digital learning is as significant as the technical aspect. However, unlike the study by Martínez et al., which focused on extended processes,

this experience demonstrates that even brief interventions can generate perceptible changes in confidence.

Finally, the findings also engage critically with Pinzón Zamora and Mortis Lozoya (2025) **,** who analyze technology adoption using the UTAUT model and highlight the influence of factors such as perceived usefulness, ease of use, and enabling conditions. While the reported experience agrees on the centrality of these factors, the course showed that social influence—a key category in UTAUT—was significantly activated among peers during team practice, an element less emphasized in the theoretical model but highly visible in community contexts.

Taken together, the discussion with these five authors leads to the conclusion that digital literacy for older adults is a multidimensional phenomenon, where pedagogical design, emotion, motivation, and the social environment are intertwined. The experience developed in Querétaro confirms that, when these elements converge appropriately, it is possible to transform not only technical skills, but also perceptions, attitudes, and levels of social participation.

## CONCLUSIONS AND RECOMMENDATIONS

In the context of Querétaro, the experience of the "Technology Management for Older Adults" course, offered by the Polytechnic University of Querétaro (UPQ) in communities such as La Laborcilla, Matanzas, Tierra Blanca, La Pradera, and Amazcala, demonstrates that digital literacy is a powerful tool for empowering the population over 60 years of age. The program's main conclusion is that it fostered technological autonomy among older adults, strengthening their self-esteem and reducing their dependence on others for everyday digital tasks, such as checking their CURP (Unique Population Registry Code), downloading tax certificates, or making online payments. Furthermore, the personalized support and guided practice methodology reduced the fear of making mistakes and transformed the perception of technology from something inaccessible to a useful and manageable tool for their daily lives.

The results also show that digital inclusion is not only technical but also has social and emotional implications: by acquiring digital skills, participants from the communities of El Marqués reported a renewed sense of civic engagement and a feeling of empowerment, which contributes to their overall well-being. This experience reinforces the importance of institutions like UPQ actively collaborating in community training, especially in neighboring municipalities, to close the digital divide.

Based on these conclusions, the following specific recommendations are proposed:

1. Continue and expand the program: That the Polytechnic University of Querétaro periodically establish digital literacy courses for older adults, aimed not only at the communities already served, but also at other rural or semi-urban localities in the municipality of El Marqués and neighboring municipalities.
2. Implement post-course follow-up and support: Create a mentoring service or digital support group within UPQ, where course graduates can return for assistance, practice regularly, and resolve new doubts, thus strengthening learning retention.
3. Design specific digital security modules:Introduce content on data protection, safe internet use, password management and fraud prevention, so that older adults in Querétaro can exercise their digital rights with confidence and minimize risks.
4. Accessible and localized materials:Develop printed and digital guides with clear language, in Spanish, adapted to the local context (legible font size, screenshots of local procedures, real examples of services used in Querétaro) that can be distributed at UPQ and in community centers in La Laborcilla, Matanzas, Tierra Blanca, La Pradera and Amazcala.
5. Promote institutional alliances: Foster partnerships between UPQ, municipal authorities of El Marqués, senior citizen organizations and community centers to finance and institutionalize digital inclusion programs through agreements, university social service programs or social responsibility activities.
6. Evaluation and continuous improvement: Implement participatory evaluation mechanisms where course participants can provide feedback on content, methodology, and logistics, in order to adapt the program to their real needs and

improve its impact. Additionally, collect longitudinal data to measure how their use of technology evolves after the course in the communities.

These recommendations, geared towards the specific context of Querétaro and the institutional capacities of UPQ, will allow the consolidation of a sustainable digital inclusion program for older adults, enhancing their autonomy, their civic participation and their well-being in the digital society.

## REFERENCES


CEPACIQ. (2023, April 5). CEPACIQ involves older adults in digital participation. Querétaro de Verdad. https://queretarodeverdad.mx/cepaciq-involucra-a-adultos-mayores-en-participacion-digital/

Chiang, M., Thong, J., & Tan, B. (2018). Designing user interfaces for older adults: Usability and accessibility considerations. International Journal of Human–Computer Interaction, 34(7), 609-623. https://doi.org/10.1080/10447318.2018.1449812

Coria, M., & Garcia-Garcia, M. (2022). Digital divides in Mexico: Regional disparities and vulnerable groups. Mexican Journal of Sociology, 84(1), 45-72. https://doi.org/10.22201/fm.01851667p.2022.84.01.04

Hernández Salazar, M. (2022). Digital inclusion and active aging in Mexico.

Hernández Salazar, P. (2022). Digital inclusion of older adults. Informatio, 28(2). https://doi.org/10.35643/info.v28i2.444

Hernández Salazar, P. (2022). Digital inclusion and active aging: Challenges and opportunities in Latin American older adults. Latin American Journal of Gerontology, 14(2), 55-71. https://doi.org/10.22333/rlg.2022.14.2.05

INAPAM. (2023). Digital literacy for older adults in Mexico. National Institute for Older Adults. https://www.gob.mx/inapam/documentos/alfabetizacion-digital

INAPAM. (2023). Guide for digital literacy in older adults.

Federal Telecommunications Institute (IFT). (2023). Older adults and the use of technology in Mexico. https://www.ift.org.mx

National Institute for Older Adults (INAPAM). (2023). Digital literacy and active aging. https://www.gob.mx/inapam/articulos/alfabetizacion-digital-y-envejecimiento-activo

Juárez, BF (2016). Digital literacy for older adults [Undergraduate thesis, National Autonomous University of Mexico]. UNAM University Repository. https://ru.dgb.unam.mx/handle/20.500.14330/TES01000750603

Juárez, L. (2016). Educational strategies for technology learning in older adults. Ibero-American Journal of Education, 71(2), 123-139. https://doi.org/10.35362/rie.v71i2.123

Martínez, L. Á., Morales Vázquez, E., & Arias Ovando, JC (2023). Literacy among elderly Mexicans. Ciencia Latina Multidisciplinary Scientific Journal, 9(4), 122–138. https://doi.org/10.37811/cl_rcm.v9i4.19533

Martínez, P., Morales Vázquez, M., & Arias Ovando, R. (2023). Psychological well-being and digital learning in old age.

Oliveira Santos, A., Barros da Paixão, F., & Arango Morales, C. (2021). Technology and aging: Impact of ICTs on the quality of life of older adults in Latin America. Latin American Journal of Technology and Society, 19(3), 99–117. https://doi.org/10.22201/rltas.2021.19.3.06

Organization of Ibero-American States & Ibero-American Social Security Organization. (2022). Guide for the digital inclusion of older adults. OEI. https://www.oei.org/inclusion-digital-mayores

Organization of Ibero-American States (OEI) & Ibero-American Social Security Organization (OISS). (2022). Protocol to promote the digital inclusion of older people in Ibero-America. https://oei.int

Pinzón Zamora, E., & Mortis Lozoya, C. (2025). Acceptance of technologies among older Mexican adults: Application of the UTAUT model. Mexican Journal of Systems Research, 8(1), 45-62. https://doi.org/10.22201/rmis.2025.8.1.0045

Pinzón Zamora, E., & Mortis Lozoya, C. (2025). Models of technological acceptance and older adults in Mexico. Mexican Journal of Computer Science, 12(1), 33-50. https://doi.org/10.22201/rmcc.2025 .12.1.0033

Pinzón Zamora, JV, & Mortis Lozoya, SV (2025). Acceptance and use of technology by older adults in the process of digital literacy. Contemporary Dilemmas: Education, Politics and Values, 13(1), 1–20. https://doi.org/10.46377/dilemas.v13i1.4762

Pinzón Zamora, L. & Mortis Lozoya, A. (2025). Technological acceptance in older adults: an analysis from the UTAUT model.

Editorial Staff / Noventa Grados. (2025, April 28). SEDIF Offers Digital Inclusion to Seniors in Plan Vida Programs. Informa Oriente. https://www.informaoriente.com.mx/politica/ofrece-sedif-inclusion-digital-a-personas-adultas-mayores-de-plan-vida.htm

Latin American Journal of Human Rights. (2022). Digital inclusion and accessibility in the elderly population.

Santos Oliveira, A., Barros da Paixão, F., & Arango Morales, C. (2021). ICTs and active aging in Latin America: A systematic review. Latin American Journal of Gerontology, 14(2), 99–117. https://doi.org/10.22333/rlg.2021.14.2.08

Santos Oliveira, MC, Barros da Paixão, ML, & Arango Morales, M. (2021). Older adults facing digital inclusion in Latin America: A network study (Vol. 1). Autonomous University of Nuevo León. https://libros.uanl.mx/index.php/u/catalog/book/81

Romero, M. Ángel V., & Galeana, MR (2025). Delivery of a Financial Education Course for Older Adults: An Initial Approach. South Florida Journal of Development, 6(11), e5955. https://doi.org/10.46932/sfjdv6n11-019