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Socio-Communicative Needs and Digital Competence in Women with Basic Education: An Exploratory Study

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Abstract

This study explores the barriers that hinder the acquisition of digital skills in women with basic education, as well as their relationship with socio-communicative needs in contexts of exclusion. A validated questionnaire ($\alpha = 0.970$), based on the DigCompEdu framework, was applied to a sample of 575 women in Granada (Spain). Using non-parametric analyses (Kruskal–Wallis test), significant differences were identified according to variables such as age, educational level, employment status and income. The results reveal that older women, women with low incomes, lower educational levels and unemployed women have greater difficulties in accessing, searching for information, creating content, and solving problems with ICT. However, a positive attitude towards technology was observed in all profiles, which constitutes an opportunity for intervention. It is concluded that the digital divide in women with basic training is conditioned by structural factors that generate specific socio-communicative needs. We propose the implementation of training policies with an intersectional and gender focus that favor digital equity and the active inclusion of these women in the digital society.

Keywords: digital divide; digital competence; discriminations; training

1. Introduction

In recent decades, socio-technological transformations have redefined modes of social, work and educational interaction, emphasizing the importance of socio-communicative skills for full participation in social life. In this context, certain groups continue to face structural barriers that limit their opportunities for inclusion. Among them, women with basic levels of education constitute a group that is particularly vulnerable to the communicative and social challenges of the contemporary environment.

These challenges translate into socio-communicative needs that affect these women's interpersonal interaction, thus hindering their personal, educational and professional development. These needs not only affect the quality of personal relationships, but also have an impact on access to information, citizen participation and employment, especially in technology-mediated environments.

There are several factors that can reinforce or amplify these needs, such as low educational attainment or unfavorable socio-economic conditions, reinforcing situations of



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isolation, low communicative self-esteem and low perceived self-efficacy, particularly in women.

The purpose of this study is to analyze the barriers and factors that hinder the acquisition of digital skills, thus generating socio-communicative needs in women, in order to identify strategies and intervention proposals that contribute to reducing the gender digital divide and promoting their effective inclusion in the digital society.

1.1. Theoretical Framework

1.1.1. Digital Competence

Digital competence is defined as the set of knowledge, skills and attitudes necessary for the safe, critical and creative use of information and communication technologies (ICT) in different areas of life. This competence is essential for social inclusion, access to information and active participation in the digital society ([National Institute of Educational Technologies and Teacher Training \[INTEF\], 2022](#)).

In the digital age, technological literacy has become a fundamental tool for individual and collective empowerment. [UNESCO \(2023\)](#) emphasizes that digital competence involves not only the technical handling of devices, but also the ability to understand and actively participate in digital environments, which is essential for full citizenship in contemporary societies.

Beyond competence-based frameworks, international research on digital inequality highlights that digital divides operate as cumulative and sequential processes. Structural factors such as educational background, income, employment trajectories, and social support networks shape not only access to digital technologies, but also the development of skills and the capacity to translate digital engagement into meaningful social, educational, and economic outcomes ([Van Dijk, 2020](#); [A. J. A. M. Van Deursen & van Dijk, 2023](#); [Helsper, 2021](#)). From this perspective, digital competence cannot be understood in isolation from broader socio-economic conditions, particularly among vulnerable adult populations whose opportunities for sustained learning and practice are often limited.

Recent studies further emphasize that digital inequality also involves unequal exposure to online risks and harms, including privacy threats, hostile communication, and self-inhibiting behaviors. These dimensions are especially relevant for women in vulnerable situations, as perceived or experienced risks may discourage active participation, reduce confidence, and narrow the range of digital practices in which they engage ([Meier & Bol, 2025](#)). Consequently, analyzing digital competence in women with basic education requires considering not only levels of access and skill acquisition, but also the contextual conditions that shape safe participation, trust, and the perceived benefits of digital engagement.

Despite technological advances, a gender digital divide persists in Spain. According to the National Observatory of Technology and Society ([ONTSI, 2025](#)), women have lower levels of digital skills than men, especially in rural areas and among older women. In Andalusia, this gap is accentuated by factors such as fewer training opportunities and limited access to technological resources ([EAPN España, 2022](#)).

The [WomANDigital \(2023\)](#) report points out that women face inequalities not only in access to technology, but also in its use. While health-related activities predominate in women's use of the Internet, men tend to use it more for playing video games and listening to music. Furthermore, the presence of women in STEM disciplines and in specialized technology roles remains significantly lower than that of men.

Incorporating a gender perspective into digital education is essential to address existing inequalities. This involves designing training programs that consider the specific

experiences and needs of women, promoting their empowerment and active participation in the digital society (Sánchez-Caballé et al., 2020).

In addition, initiatives such as Yes We Tech, a feminist association based in Granada, work to promote gender equality in the technology sector by offering talks, workshops and events to encourage women's interest in technology from an early age (García, 2025).

1.1.2. Training Requirements in Today's Society

The European Commission has recently published the "Report on the State of the Digital Decade 2024" (European Commission, 2024b), which assesses the European Union's progress towards the digital targets set for 2030. This report highlights the importance of digital skills in Europe's digital transformation. It stresses the need for at least 80% of the European population to have basic digital skills by 2030 and for there to be 20 million Information and Communication Technology (ICT) specialists employed in the EU.

The most recent version of the Digital Competence Framework for Citizenship is DigComp 2.2 (Vuorikari et al., 2022). This update incorporates more than 250 new examples of knowledge, skills and attitudes, adapting to emerging technologies such as artificial intelligence and remote working. The aim is to maintain the relevance of the framework in learning, working and social participation.

This framework provides a common language for identifying and describing key areas of digital competence, serving as a tool for improving citizens' digital competence and supporting policymakers in formulating policies that promote the development of these competences.

This framework is structured around five areas of competence:

1. Information and data literacy: searching for and managing data and information.
2. Communication and collaboration: interacting and collaborating through digital tools.
3. Digital content creation: developing digital content.
4. Safety: protecting devices, data and digital well-being.
5. Problem solving: using digital tools to solve everyday problems.

According to this framework, digital competence involves the safe, critical and responsible use of digital technologies in learning, work and participation in society (Vuorikari et al., 2022).

On the other hand, at the European level, there are many plans and reference frameworks that emphasize the need to promote the improvement of digital skills and capabilities for digital transformation, as well as the promotion of the development of a digital educational ecosystem. One example is the "Digital Education Action Plan (2021–2027)" (European Commission, 2020).

At the national level, there is the "National Plan for Digital Skills in Spain" (Government of Spain, 2021) and the "Spain Digital 2026 Plan" (Ministry for Digital Transformation and Public Administration, 2023), which expands and updates the country's digital strategies, including aspects related to digital skills. This plan sets out objectives and measures to strengthen citizens' digital skills and adapt to new technological demands.

These initiatives reflect the Spanish government's ongoing commitment to improving the digital skills of the population and adapting to the challenges of digital transformation.

Regarding the most recent data in Spain, it is noteworthy that in 2024, 66.2% of the Spanish population aged between 16 and 74 had basic or higher digital skills, placing Spain above the EU average (55.6%) and in sixth position in the European ranking (European Commission, 2024a; Eurostat, 2024, 2025).

1.1.3. Gender Gap

International research conceptualizes the gender digital divide as a multidimensional phenomenon that extends beyond differences in access to technology, encompassing disparities in digital skills, patterns of use, and the capacity to obtain tangible benefits from digital engagement. These gendered inequalities are shaped by intersectional factors such as age, educational attainment, income level, and labor market participation, which interact with social norms, care responsibilities, and occupational segregation to produce cumulative disadvantages for women in lower socio-economic positions (Helsper, 2021; OECD, 2018a).

Empirical studies consistently show that women with lower levels of education and unstable employment trajectories are less likely to engage in advanced digital practices, such as content creation, strategic information management, and problem solving. Instead, their digital participation tends to be restricted to more routine or passive uses, which limits opportunities for skill development and reduces the potential social and economic returns of ICT use (A. J. A. M. Van Deursen & van Dijk, 2023; Peláez-Sánchez & Glasserman-Morales, 2023). As a result, gender digital inequalities persist even in contexts where overall access has improved.

From an inclusion perspective, the persistence of the gender digital divide reflects structural mechanisms rather than individual deficits. Unequal access to training opportunities, reduced exposure to digital tools in professional contexts, and differentiated expectations regarding technology-intensive roles contribute to reinforcing these gaps over time (OECD, 2018a; Rebollo-Catalán et al., 2017). Addressing gender digital inequality therefore requires policies and educational interventions that go beyond access provision and explicitly target skill development, confidence-building, and meaningful digital participation among women in vulnerable situations.

1.1.4. Socio-Communicative Needs in the Acquisition of Digital Skills

A socio-communicative need is defined as a deficiency or difficulty in social interaction and interpersonal communication that requires educational or psycho-pedagogical intervention to promote adequate adaptation and functioning in real contexts. It involves identifying the communicative barriers (verbal, non-verbal and pragmatic) that affect the person and establishing lines of intervention that enhance their skills in everyday environments (Latorre Cosculluela & Puyuelo Sanclemente, 2016).

Socio-communicative needs refer to the skills required to interact effectively in digital environments, including communication on social media, digital identity management, and participation in virtual communities. Women face specific challenges in this area, such as a lack of confidence in using technology, under-representation in digital spaces, and exposure to risks such as cyberbullying (Gómez-Trigueros & Carabias Álvaro, 2025).

In addition, recent studies indicate that women perceive a greater amount of hate speech online, which can affect their active participation in digital environments (Instituto de las Mujeres, 2025). This situation highlights the importance of developing digital competencies that include skills for managing digital identity and resilience in the face of negative online content.

In this study, socio-communicative needs are conceptualized as functional barriers that limit effective participation in digital environments and emerge from the interaction between individual competences and structural conditions. Rather than constituting an independent or isolated construct, these needs are understood as cross-cutting mechanisms that become visible through difficulties in specific digital competence domains, particularly those related to interaction, communication, information practices, and safe participation. This perspective aligns with international research on digital inequality, which emphasizes that limitations in skills are often embedded within broader patterns

of exclusion and unequal opportunities for meaningful digital engagement (Helsper, 2021; A. J. A. M. Van Deursen & van Dijk, 2023).

More specifically, socio-communicative needs in digital contexts are expected to manifest in reduced competence for online communication and collaboration, challenges in managing digital identity and security, and constrained information search and evaluation practices. These limitations can undermine digital self-efficacy and foster self-inhibiting behaviors, especially among women who anticipate negative online experiences or feel insufficiently prepared to manage digital risks (Meier & Bol, 2025). Previous studies have shown that unequal exposure to online harm—such as hostile communication or privacy concerns—can discourage participation and reinforce withdrawal from digital interaction spaces, thereby intensifying socio-communicative barriers (Helsper, 2021; OECD, 2018b). From this standpoint, analyzing socio-communicative needs alongside digital competence dimensions allows for a more nuanced understanding of how structural inequalities translate into everyday difficulties in digital participation.

The objective was to analyze the barriers and factors that hinder the acquisition of digital skills among women, with the aim of identifying strategies and proposals for intervention that contribute to reducing the gender digital divide and promoting their effective inclusion in the digital society.

The following specific objectives were derived from this general objective:

- Identify how generational differences influence the difficulties women face in acquiring digital skills and analyze the specific gaps between different age groups.
- To examine the impact of income levels on women's access to and development of digital skills, assessing how economic constraints affect their training and use of technologies.
- Analyze the relationship between women's educational level and their ability to acquire digital skills, considering how prior academic training facilitates or hinders their learning.
- Assess how women's employment status influences the acquisition and application of digital skills, including access to digital training in the professional sphere.

2. Materials and Methods

This research was conducted using a non-parametric inferential methodology to test whether a variable follows a normal distribution. Therefore, a questionnaire was designed based on DigCompEdu: European Framework for the Digital Competence of Educators. The aim is to identify the socio-communicative needs of women in Granada.

2.1. Population

As already mentioned, the study population consists of adult women in the city of Granada. The sample comprises a total of 575 women (N = 575).

2.2. Instrument

Data collection was carried out using a structured questionnaire originally designed by Soler-Costa et al. (2024), based on the European Framework for Digital Competence in Education (DigCompEdu). This instrument was developed to assess different dimensions of digital competence in educational contexts, particularly those related to the integration of digital technologies in teaching and learning processes.

The questionnaire consists of 66 items distributed across seven dimensions:

1. Access to Information and Communication Technologies;
2. Information search and management using Information and Communication Technologies (ICT);

3. Communication and collaboration using Information and Communication Technologies (ICT);
4. Creation of digital content using Information and Communication Technologies (ICT);
5. Security in Information and Communication Technologies (ICT);
6. Problem solving using Information and Communication Technologies (ICT);
7. Attitude towards Information and Communication Technologies (ICT).

This instrument follows a 5-point Likert scale, where 1 = very rarely and 5 = very often.

In this study, the instrument was used without structural modifications, but its internal reliability was analyzed in the sample under study. The Cronbach's alpha coefficient obtained for the entire questionnaire was $\alpha = 0.970$, indicating an excellent level of internal consistency according to the criteria of [George and Mallery \(2003\)](#). In other words, the items in the questionnaire are highly consistent with each other and accurately measure the construct analyzed (Table 1). On the other hand, a normality analysis was performed.

Table 1. Reliability analysis of the instrument.

Reliability Statistics	
Cronbach's alpha 0.970	No. of items 61

2.3. Data Analysis

The data were analyzed using IBM SPSS Statistics software (version 28) (IBM (International Business Machines Corporation), New York, NY, USA). The Kolmogorov–Smirnov normality test was applied to check the distribution of the variables.

Non-parametric inferential tests were also used, specifically a Kruskal–Wallis H test, when it was necessary to compare differences between groups, given that some variables did not follow a normal distribution. The level of statistical significance adopted was $p < 0.05$.

3. Results

3.1. Description of the Sample

First, the Kolmogorov–Smirnov normality test was used, obtaining values lower than 0.05 (Table 2). Therefore, non-parametric techniques were used to calculate the results.

Table 2. Kolmogorov–Smirnov normality test.

	Mean	Skewness	Deviation	Kurtosis
Access	3.5936	−0.497	1.01061	−0.635
SearchManage	3.7626	−0.723	0.98253	−0.216
CommColl	3.0287	−0.061	0.93282	−0.738
Creation	2.1835	0.794	0.99848	−0.029
Security	3.2326	−0.362	0.98474	−0.679
Problemsolv	3.2254	−0.217	0.96897	−0.613
Attitude	3.8174	−0.814	0.80702	0.662

3.2. Comparison by Age

With regard to age, a Kruskal–Wallis H analysis was performed (Table 3). The results show that there were significant differences due to age in all factors except attitude. For the attitude factor, $\chi(2) (6) = 3.813$, $p = 0.702$, the group that seemed to show the most difference from the rest was that comprising women between 65 and 74 years of age, with a mean range of 152.32 lower than the rest of the group (Figure 1). Of all the factors, the one that stands out is Creation, $\chi(2) (6) = 78.076$, $p = 0.000$.

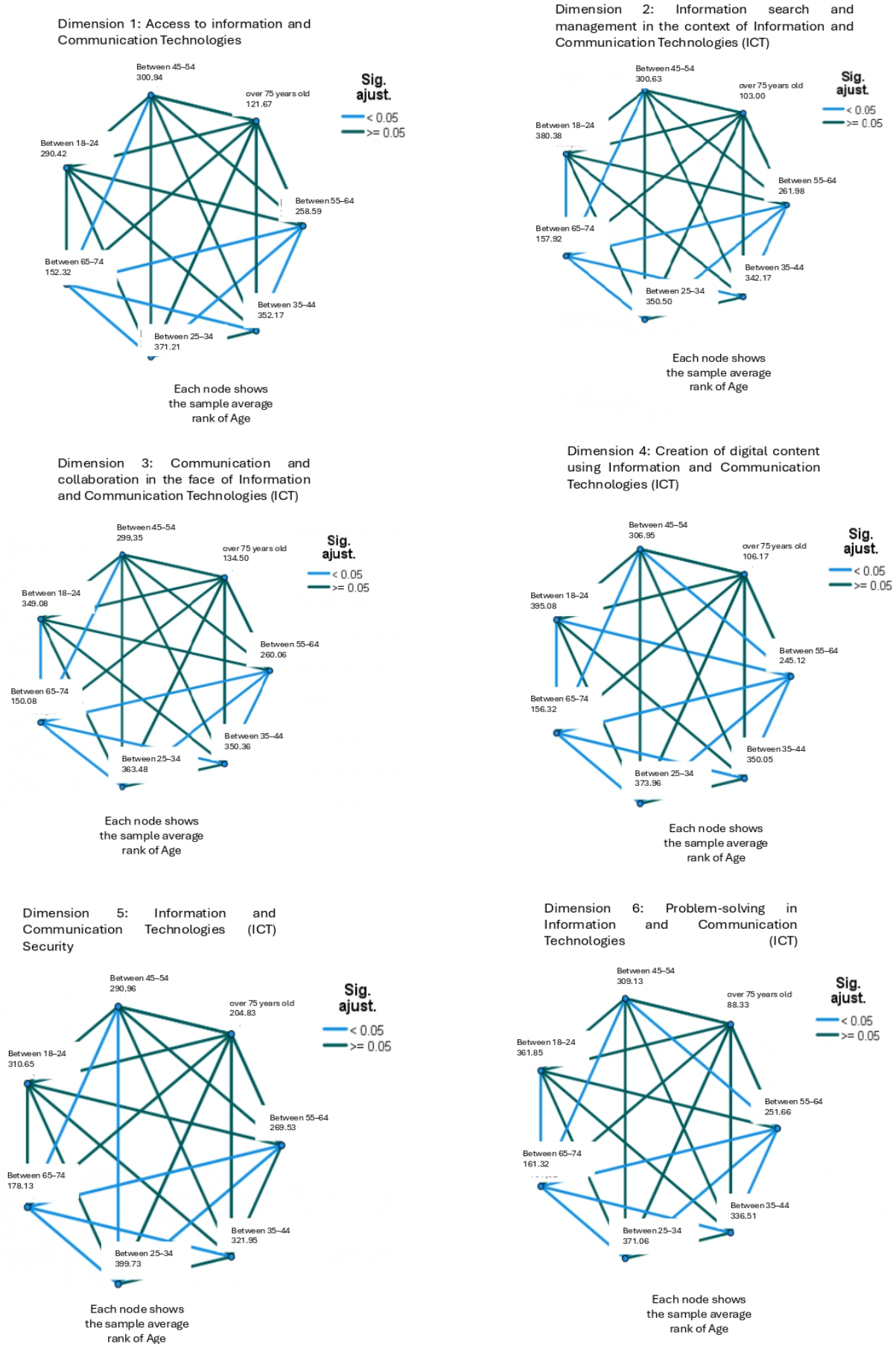


Figure 1. Kruskal–Wallis test for the age variable.

Table 3. Kruskal–Wallis H test for the age variable.

	Test Statistics ^{a,b}						
	Access	SearchManage	CommColl	Creation	Security	Problemsolv	Attitude
Chi-square	67.191	58.677	65.126	78.076	46.969	65.213	3.813
gl	6	6	6	6	6	6	6
Asymptotic sign	0.000	0.000	0.000	0.000	0.000	0.000	0.702

a. Kruskal–Wallis test. b. Grouping variable: Age.

The results showed statistically significant differences ($p < 0.001$) in all dimensions except for the dimension of attitude towards ICT ($p = 0.702$). In particular, the 65–74 age group had the lowest mean scores in all dimensions analyzed, reflecting a clear disadvantage in access to, use of, and exploitation of ICT in this population segment. This suggests a deep generational gap in the acquisition of digital skills, which has a direct impact on these women's opportunities for communication and access to information.

3.3. Comparison by Level of Education

With regard to educational level (Table 4), the Kruskal–Wallis test identified statistically significant differences in all dimensions of the questionnaire, except for the dimension related to attitude towards ICT ($p = 0.087$). These results show that educational level is a determining factor in the acquisition of digital skills.

Table 4. Kruskal–Wallis H test for the variable level of education.

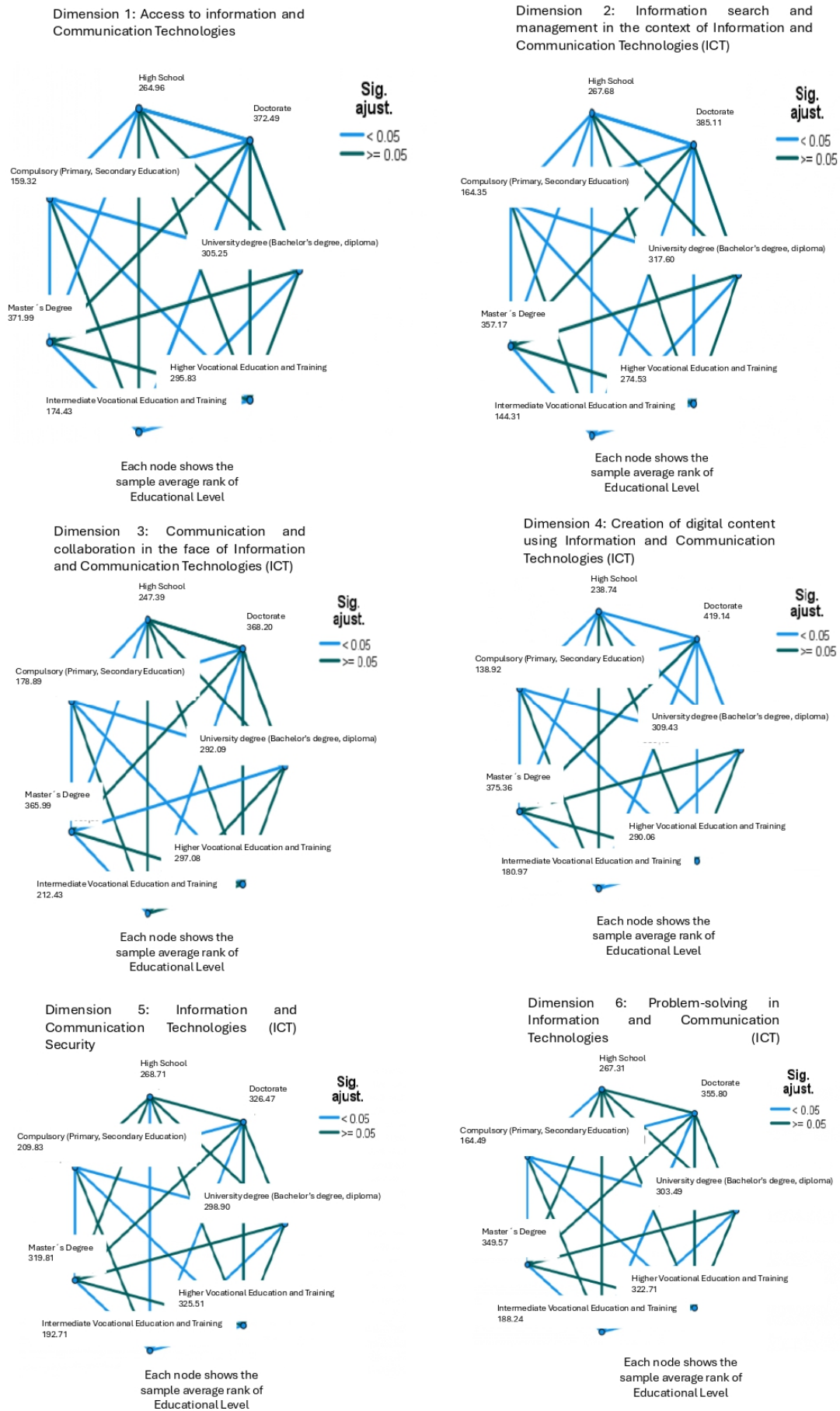
	Test Statistics ^{a,b}						
	Access	SearchManage	CommColl	Creation	Security	Problemsolv	Attitude
Kruskal-Wallis H	88.495	101.436	59.845	119.114	36.952	70.374	11.029
gl	6	6	6	6	6	6	6
Next	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.087

a. Kruskal–Wallis test. b. Grouping variable: Level of education.

Specifically, women with lower levels of education have greater difficulties in accessing and using ICT, with a more pronounced gap in dimensions such as digital content creation, information search and management, and problem solving using digital tools. These results suggest that a lower level of education limits not only access to digital devices, but also the development of the technical, cognitive and critical skills necessary for the efficient use of ICT.

Conversely, women with higher levels of education showed greater mastery of digital skills in all dimensions evaluated, reinforcing the close relationship between educational capital and digital literacy. This finding is consistent with previous studies that highlight formal education as a protective factor against digital exclusion, facilitating active participation in digital environments and reducing socio-communicative barriers.

In this regard, the results obtained (Figure 2) highlight the need to design inclusive training strategies that pay special attention to women with lower levels of education in order to promote full and equitable digital citizenship.



3.4. Comparison According to Employment Status

The results obtained through the Kruskal–Wallis test (Figure 3) revealed statistically significant differences in all dimensions analyzed in the questionnaire, except for the dimension referring to attitudes towards Information and Communication Technologies (ICT) ($p = 0.104$). These findings show that employment status is a relevant factor in the acquisition and development of digital skills.

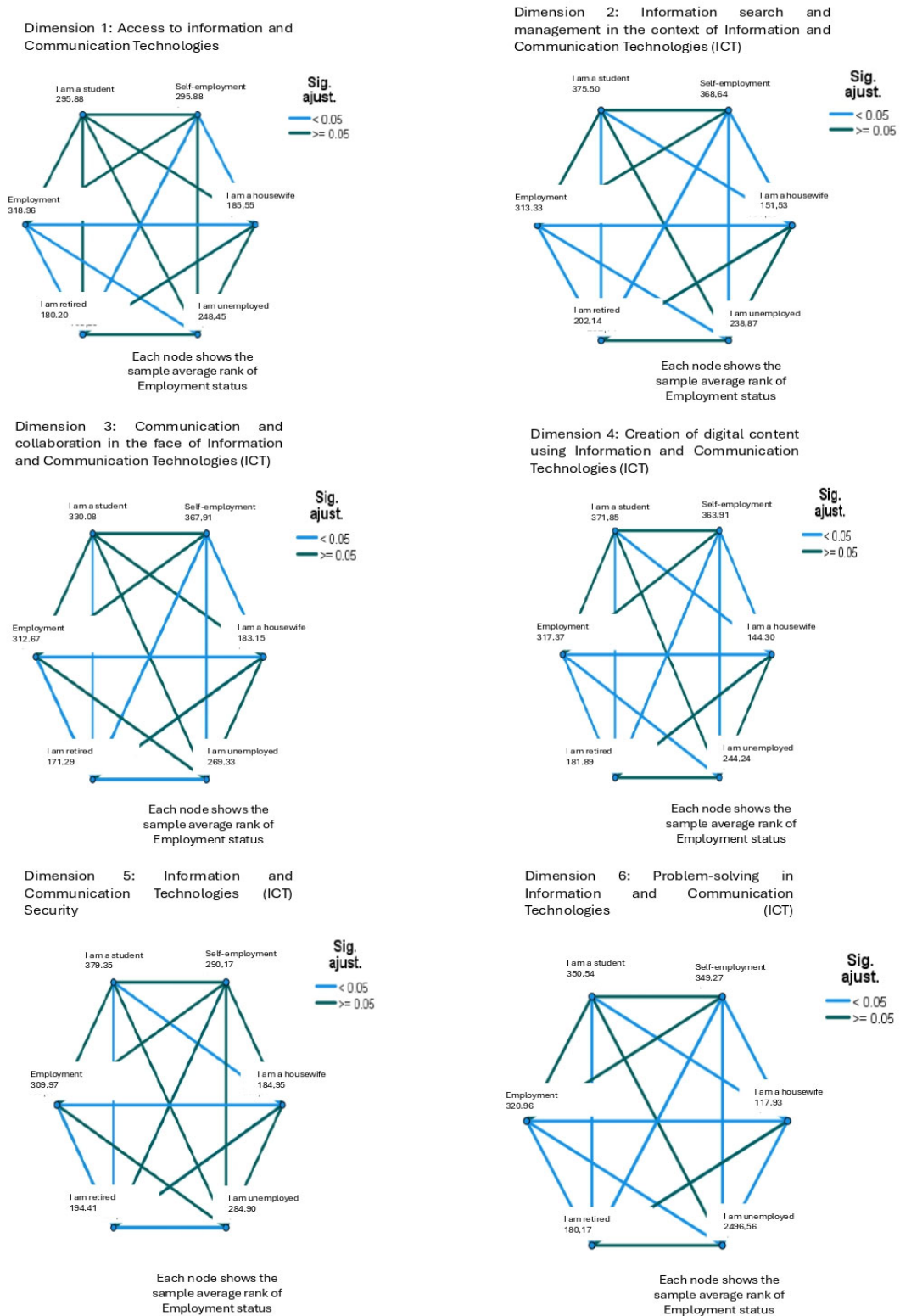


Figure 3. Kruskal–Wallis test for the employment status variable.

In general terms, women who are unemployed or economically inactive have greater difficulties in accessing and using ICT, as well as in searching for and managing information, digital communication and collaboration, creating digital content, security and problem solving using technological tools (Table 5). This pattern suggests that the lack of connection to the workplace limits exposure to and daily practice with ICT, which has a negative impact on the development of digital skills.

Table 5. Kruskal–Wallis H test for the employment status variable.

	Test Statistics ^{a,b}						
	Access	SearchManage	CommColl	Creation	Security	Problemsolv	Attitude
Kruskal-Wallis H	60.168	60.786	62.424	72.871	41.531	78.186	9.136
gl	5	5	5	5	5	5	5
Next	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.104

a. Kruskal–Wallis test. b. Grouping variable: Employment status and occupation.

Conversely, women who are active in the labor market exhibit greater proficiency in all the digital skills assessed. This result is consistent with the existing literature (Đorđević et al., 2025; Rebollo-Catalán et al., 2017), which points to the close relationship between work activity and the acquisition of digital skills, given that the work environment often requires the frequent use of technological tools to perform various tasks.

In this context, it is important to promote digital training policies and programs aimed specifically at women who are unemployed or economically inactive, with the aim of reducing digital divides and promoting their social, educational and labor market inclusion. These findings also reinforce the need to consider employment status as a key variable in the design of interventions for the development of digital skills in women.

3.5. Comparison According by Income Level

The inferential analysis performed using the Kruskal–Wallis test (Figure 4) showed statistically significant differences in most dimensions of the questionnaire based on the monthly income level reported by participants, except for the dimension related to attitude towards ICT, where no significant differences were found ($p = 0.336$).

In particular, the most pronounced differences were identified in the dimensions related to access to ICT, information search and management, digital content creation, and problem solving using technological tools. Women with lower incomes had lower average scores in these dimensions, highlighting the existence of structural barriers associated with the availability and quality of access to technological resources. This situation can translate into limitations in both the basic use of devices and the development of more complex digital skills.

The results reinforce the evidence that income level has a direct impact on women's ability to access, use and benefit from digital technologies. In contexts of economic vulnerability, access to quality Internet, adequate devices, continuous training, and support services is often restricted, which significantly hinders the acquisition of key skills for functioning in a digitalized society. This relationship between economic limitation and digital deficit is linked to a form of multidimensional exclusion, in which material restrictions are combined with training gaps and socio-cultural barriers.

Furthermore, although there were no statistically significant differences in attitudes towards ICT, it should be noted that a positive attitude towards technology does not always translate into effective use of it, especially when there are economic obstacles (Table 6). This dissonance suggests that motivation or a favorable perception of digitalization is not

enough if it is not accompanied by the minimum material conditions that allow for the development and consolidation of digital skills.

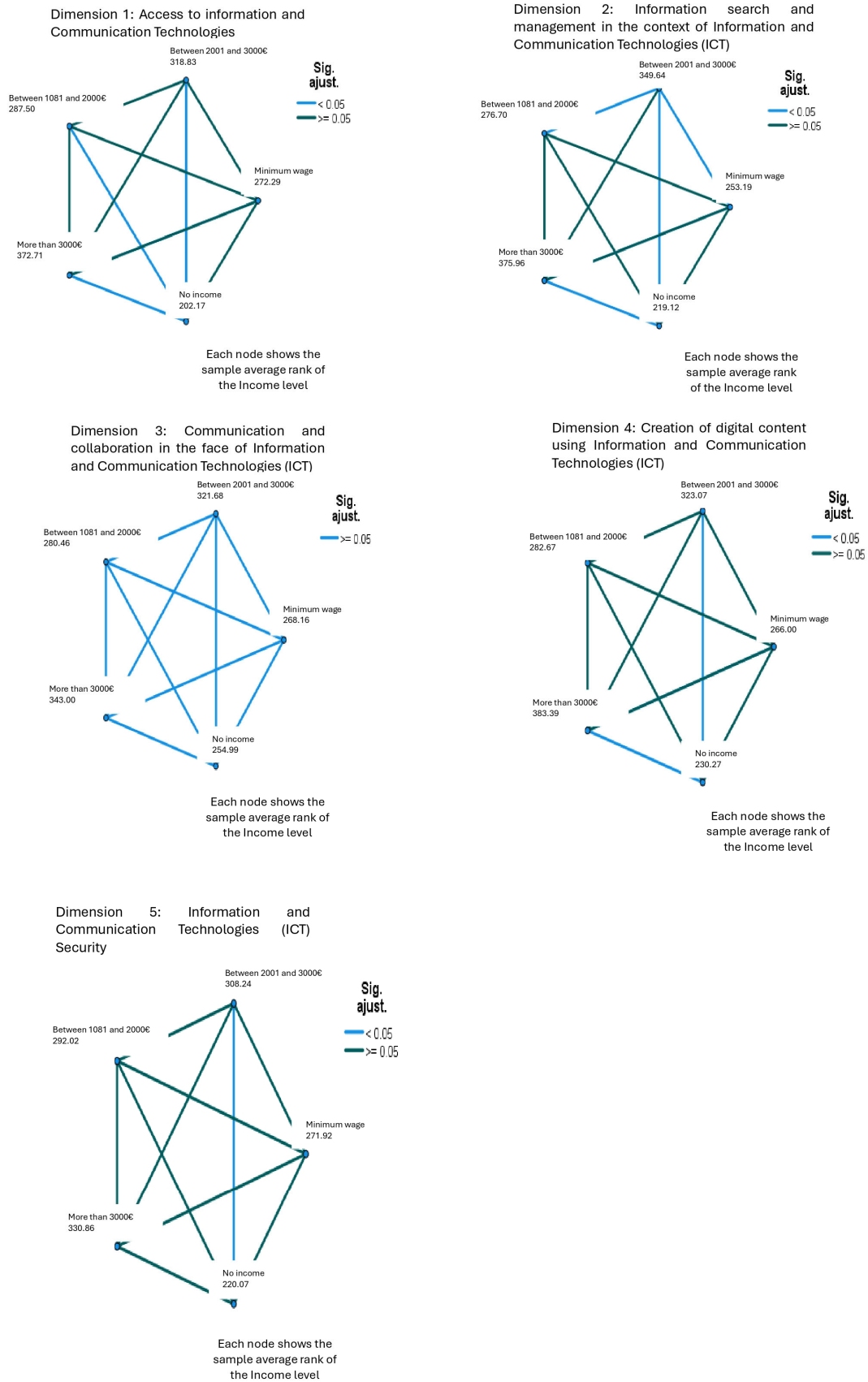


Figure 4. Kruskal–Wallis test for the income level variable.

Table 6. Kruskal–Wallis H test for the income level variable.

	Test Statistics ^{a,b}						
	Access	SearchManage	CommColl	Creation	Security	Problemsolv	Attitude
Kruskal-Wallis H	21.319	36.290	11.018	18.289	7.694	11.678	4.556
g1	4	4	4	4	4	4	4
Next	<0.001	<0.001	0.026	0.001	0.103	0.020	0.336

a. Kruskal–Wallis test. b. Grouping variable: Employment status and occupation.

Consequently, the findings underscore the need to design public policies and training programs that give priority to women with lower income levels, ensuring equitable access to digital media and continuous training in key skills. Addressing this gap from an intersectional approach will not only reduce inequalities in the technological sphere, but also promote the social, educational and labor inclusion of women in situations of economic vulnerability.

4. Discussion

The findings of this study confirm that the acquisition of digital competence among women with basic education is strongly conditioned by structural variables such as age, educational attainment, employment status, and income level. These results align with international research on digital inequality, which conceptualizes digital divides as cumulative and sequential processes in which offline disadvantages shape not only access to technologies but also the development of skills and the capacity to transform digital engagement into meaningful social, educational, and economic outcomes (Van Dijk, 2020; A. J. A. M. Van Deursen & van Dijk, 2023; Helsper, 2021).

Age emerged as a particularly salient factor. Women aged 65 years and older showed significantly lower scores across all competence domains except attitude toward ICT. This pattern reflects a well-documented generational digital divide, whereby older cohorts have experienced reduced exposure to digital technologies throughout their educational and professional trajectories, fewer opportunities for structured training, and limited informal support networks for digital learning (Van Dijk, 2020; Whitcomb et al., 2020). From a socio-cognitive perspective, these constraints may contribute to lower digital self-efficacy, reinforcing avoidance behaviors and restricting progression toward more complex digital practices such as content creation and problem solving (Stang et al., 2020).

Educational level also showed a strong and consistent association with digital competence. Women with lower levels of formal education experienced greater difficulties in information search and management, digital content creation, and problem solving—domains that require not only technical skills but also critical, cognitive, and strategic abilities. This finding is consistent with previous research identifying education as a key form of digital capital that facilitates access to advanced digital practices and enhances the likelihood of obtaining tangible benefits from ICT use (A. J. A. M. Van Deursen & van Dijk, 2023; Sánchez-Caballé et al., 2020). In this sense, limited educational trajectories may constrain women’s ability to navigate complex digital environments autonomously, thereby amplifying socio-communicative barriers.

Employment status further differentiated women’s digital competence profiles. Women who were unemployed or economically inactive scored significantly lower across most dimensions, confirming that labor market participation plays an important enabling role in digital skill acquisition. Work contexts often provide repeated exposure to digital tools, opportunities for situated learning, and incentives to develop problem-solving and communication skills through ICT (Rebollo-Catalán et al., 2017; Đorđević et al., 2025). Conversely, detachment from the labor market may intensify digital disengagement and

reduce the perceived relevance of developing certain competences, reinforcing patterns of social and digital exclusion (OECD, 2018b).

Income-related differences were particularly evident in dimensions associated with access, information management, content creation, and problem solving. Women with lower incomes reported lower competence levels, supporting the existence of an economic digital divide in which material resources—such as device quality, connectivity, and access to training opportunities—condition digital skill development (OECD, 2018a; Pawluczuk et al., 2021). Importantly, although attitudes toward ICT were generally positive across income groups, favorable dispositions did not translate into higher competence when structural constraints limited opportunities for practice and learning. This finding reinforces prior evidence that motivation alone cannot compensate for deficits in resources and institutional support (A. J. Van Deursen & Helsper, 2018).

From an analytical standpoint, the concept of socio-communicative needs provides a useful lens to interpret these patterns. In this study, such needs are not understood as a separate competence but as cross-cutting functional barriers that manifest in specific digital domains—particularly communication and collaboration, security, and information practices. Lower competence in these areas may hinder effective participation in digital environments, weaken digital self-efficacy, and increase self-limiting behaviors, especially among women who anticipate negative online experiences or feel insufficiently prepared to manage digital risks (Meier & Bol, 2025; Gómez-Trigueros & Carabias Álvaro, 2025).

Recent international research highlights that digital inequality also entails unequal exposure to online risks and harms, including privacy threats, hostile communication, and mistrust, which disproportionately affect socially vulnerable groups and can discourage active participation (Meier & Bol, 2025; Helsper, 2021). In this regard, the lower scores observed in security-related competences may contribute to heightened perceptions of vulnerability, reinforcing withdrawal from digital interaction spaces and exacerbating socio-communicative needs.

The absence of statistically significant differences in attitudes toward ICT across sociodemographic variables is a particularly relevant finding. Rather than indicating homogeneous competence levels, this result suggests that positive orientations toward technology may coexist with limited skills and constrained opportunities. From a policy and intervention perspective, this represents a critical opportunity: training programs can build upon women's favorable attitudes while directly addressing structural barriers and targeting the competence domains most closely linked to safe participation, communication, and autonomy (UNESCO, 2023; OECD, 2024).

Overall, these findings underscore the need for intersectional digital inclusion strategies that combine material support, targeted competence development, and socio-communicative empowerment. Interventions aimed at women with basic education should prioritize not only access and basic skills, but also higher-order competences related to information evaluation, problem solving, content creation, and safe digital interaction. Addressing these dimensions simultaneously is essential for reducing persistent digital inequalities and promoting equitable participation in an increasingly digitalized society.

5. Conclusions

The results of this study show that the acquisition of digital skills in women with basic education is conditioned by structural factors such as age, educational level, employment status and income. These variables act as barriers that not only limit access to and use of technologies but also generate socio-communicative needs that affect these women's active participation in the digital society.

Older women with lower levels of education and limited economic resources were found to be more digitally vulnerable, which has a negative impact on their autonomy, social inclusion, and training and employment opportunities. Despite this, a generally positive attitude towards ICTs was observed, which represents an opportunity to implement inclusive and gender-focused training strategies.

It is concluded that there is an urgent need to develop public policies that integrate adapted digital training, the provision of technological resources and psychosocial support, especially aimed at women in vulnerable situations. Only through intersectional and sustained intervention will it be possible to move towards a more just and equitable digital citizenship.

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