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Digital Transformations and Trust in Child and Family Social Work

The Impact of ICT on the Independent Living of Adolescents in Residential Child Protection Care

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ABSTRACT

In an increasingly digitalized social context, digital competences have become a fundamental resource for social participation, access to opportunities and independent living. Accordingly, this study examines the impact of digital competence on the lives of young people residing in child protection residential care centres in Galicia (Spain). The sample consisted of 245 participants (49.8% female) aged 16 years and over ($M = 16.71$, $SD = 0.71$) living in residential care. Participants completed the PLANE Scale, designed to assess independent living skills, and the Youth Digital Skills Indicator, an instrument measuring digital competences. A nonexperimental, quantitative, descriptive and inferential study design was employed. The results indicate that young people in residential care centres demonstrate high levels of digital competence and independent living skills. Furthermore, the findings show that having a high level of digital competence is associated with greater independence in adult life. These results invite reflection on the importance of digital competence for independent living and highlight the need to continue implementing digital literacy strategies within social work interventions with young people, promoting equitable access to technology and reducing digital vulnerability.

1 | Introduction

1.1 | Independent Living Skills (ILS) of Young People in Care

The transition to adulthood (TTA) is a complex process through which young people achieve full emancipation and develop independence and autonomy across all areas of their lives (Casal 1996). To successfully accomplish this process, a range of needs must be addressed. These include material needs, such as having stable economic income, adequate housing or access to transportation; structural needs related to education, vocational training or participation in social and community support networks; and finally, personal needs, which encompass the development of ILS, emotional autonomy, responsible

decision-making, problem-solving abilities, adaptability to change, as well as social and communication competences (Cuenca-Paris et al. 2018; Goig-Martínez and Martínez-Sánchez 2019; Masten et al. 2004).

In contexts of vulnerability, the TTA involves greater challenges and a lower likelihood of success, and it is particularly complex for young people living in residential care within the child protection system (Grau-Rebollo et al. 2021; Heatley-Tejada 2022). This difficulty is associated with a range of risk factors, including weaker and less consistent support networks, more complex pathways to emancipation, greater exposure to social and labour market exclusion, linguistic or cultural barriers, limited social skills, lower educational attainment or low levels of vocational qualification (Forsman 2025; Torrecilla and Melendro 2023).

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Moreover, it is essential to consider gender differences, as some young women face specific challenges, such as greater difficulties in entering the labour market or high unemployment rates (Martín 2015; Miguela-Torrado et al. 2025). These situations are partly linked to the reproduction of traditional family patterns, particularly those related to gender roles, which assign women caregiving responsibilities and domestic tasks, potentially resulting in high economic dependency and social isolation (Colbridge et al. 2017).

In Spain, data reflect significant vulnerability, as approximately 41% of care-leavers are at risk of poverty or social exclusion, making them the group most likely to experience such circumstances (Aldeas Infantiles SOS 2025). Furthermore, data from the Ministerio de Inclusión, Seguridad Social y Migraciones (2025) show that only 71% of young people who have left care (aged 18–23) are registered with Social Security, indicating that not all of them achieve stable financial independence.

It is worth noting that neither the Spanish Ministry of Youth and Children nor the National Statistics Institute provide statistics on the pathways of young people after they leave the system; only the Ministry of Social Rights and the 2030 Agenda (2023) mentions the reasons for leaving, of which 50% are not due to the young person reaching the age of majority (26%), nor their reintegration with their family (16%), nor their transfer to another resource within the system (8%) but are recorded as 'other causes', without further specification, which highlights a gap in the monitoring of young people's TTA.

Looking at the existing literature, the data from Sanz-Escutia et al. (2025), who assessed the ILS of 90 unaccompanied migrant youth in Catalonia, and the findings of Jiménez-Franco et al. (2021), who interviewed 65 care-leavers in Aragón, converge in showing that upon reaching the age of majority, these young people exhibit significant deficits in ILS. These deficits include financial management, job seeking and retention, household organization, health care and the establishment of stable social relationships—skills that they were mostly unable to develop during their time in care.

Furthermore, a systematic review of longitudinal studies has shown that those who leave the care system without adequate support face a higher risk of poverty, housing instability and social exclusion in adulthood (Starr et al. 2024). In this regard, Fernández-Simo et al. (2020), in their 36-month longitudinal qualitative study comprising 1436 interviews, highlight significant structural limitations within the child protection system that hinder the development of ILS. Consequently, marked deficiencies in the basic competencies required for autonomous living are observed in the ILS of young people leaving the care system (García-Alba et al. 2022; Oshri et al. 2018; Troncoso and Verde-Diego 2022).

1.2 | Digital Competences in Adolescence and Youth

Technologies have brought about a social transformation unprecedented in history; in recent decades, they have progressively

redefined the ways in which contemporary society engages in human activity (UNESCO 2018; United Nations 2019). Information and Communication Technologies (ICT) play a central role in the daily lives of children and adolescents, yet being born into a digital environment does not guarantee advanced digital competences or the ability to use these tools critically and effectively (Symeonaki et al. 2025). In this regard, having access to the internet, devices and adequate competences has become both a necessity and a fundamental right for full inclusion and citizenship (Evangelista et al. 2014; Sun et al. 2023).

However, digital and structural gaps persist due to unequal access to, use of, and engagement with technological resources (Fisk et al. 2023; Hoyos-Muñoz and Cardona-Valencia 2025; Vartanova and Gladkova 2021). The COVID-19 pandemic intensified these inequalities, widening the gap between those who were able to adapt to the digital environment and those who lacked sufficient resources or support (Hernández-Pedreño and García-Luque 2023). Among young people at risk of social exclusion, including those living in residential care, difficulties in accessing technological devices, having stable connectivity or receiving adequate digital training are common (Organization for Economic Co-operation and Development [OECD] 2025; Hoyos-Muñoz and Cardona-Valencia 2025).

One way to address this gap is through the acquisition of digital competences (González-Benito et al. 2023), defined as the set of knowledge, skills and attitudes necessary for the safe, critical and responsible use and participation in digital technologies, whether for learning, work or social engagement (Ferrari 2013). Symeonaki et al. (2025), using data from the 2022 PISA survey, analysed the digital skills of over 30 000 15-year-old students across Europe. Their findings show differences between countries and highlight that ICT development also depends on individual and contextual factors.

Similarly, data from Rioseco-Pais et al. (2024), who administered the DigCompEdu instrument to 4360 university students, indicate that access to devices and the internet alone does not guarantee optimal development of digital competences; greater exposure time does not necessarily translate into more complete ICT proficiency. Here, different levels of competence in digital technologies are established, ranging from the novice or basic level (individuals who have had very little contact with digital technologies) to the leader or pioneer level (individuals who possess a broad repertoire of digital strategies, know how to choose the most appropriate one for a given situation and experiment with highly innovative and complex digital technologies).

Moreover, competent use of technology is associated with greater autonomy, increased confidence in decision-making and better information management (Livingstone et al. 2017). For example, a systematic review of school-aged students found a positive association between digital competence and digital well-being (Arkan and Bal 2025). Likewise, several studies link digital literacy and the proper use of ICT with employability, social participation, problem-solving, personal organization and the ability to navigate complex environments—all skills that contribute to the development of autonomy-related competences (Blanc et al. 2025; Hatlevik et al. 2018). Finally, a systematic review conducted by Barbudo et al. (2021) concluded that digital

competences should be evaluated in an integrated manner, considering individuals as fully competent participants in contemporary society.

1.3 | Digital Competences and ILS: A Focus on the TTA of Young People in Care

In the case of young people in care, ICT can serve as a strategic resource to support their TTA, expanding access to information, support networks, institutional services and participation opportunities (Fallon and Boutilier 2022). Morales-Almeida et al. (2025) argue that digital training is crucial for the development of personal, social, and technological competences. Moreover, ICT can play a compensatory role in the face of structural deficiencies, especially for young people in care who have experienced educational discontinuities and limited opportunities to develop autonomous living skills (Alford et al. 2019).

In this regard, digital competences constitute a resource for those lacking family networks, as they facilitate access to social support and participation in spaces of belonging (Badillo-Urquiola et al. 2017; Denby et al. 2016). Likewise, digital competences contribute not only to the development of instrumental skills but also to the construction of identity and personal agency, strengthening decision-making, fostering self-efficacy and expanding the social participation opportunities of young people in care (Deitz et al. 2024; Gustavsson and MacEachron 2015). Therefore, technology can enhance multiple dimensions of ILS for these young people (McClain and Stuart 2024).

If we examine the literature more closely, several points are reaffirmed. For instance, the systematic review by Sage and Jackson (2022) showed that competent use of digital devices and platforms among young people in care is associated with greater access to psychological and social resources. Furthermore, the study by Gomez et al. (2021), based on a project that provided mobile phones to young people in care, demonstrated that this intervention promoted empowerment and autonomy, facilitated the building of trusting relationships, increased relational competence, strengthened connections with family and support networks and encouraged greater engagement in self-care and personal development, showing that technology can be a valuable tool to support the transition of young people from the child protection system to independence and social and emotional well-being.

However, the literature also warns that ICT use can entail risks and barriers for the development of young people in care, exposing them to situations of harassment, exploitation or inappropriate content (Badillo-Urquiola et al. 2017; Gustavsson and MacEachron 2015). Therefore, guidance centred on meaningful learning and tailored to the specific needs of young people is required (Fernández-Simo et al. 2020). In this regard, caution is urged against a purely instrumental approach to ICT, advocating instead for learning spaces that integrate cognitive, emotional and relational competences within digital skills (Greeson et al. 2020). In short, the TTA cannot be conceived independently of ICT, and digital competence should be regarded as

a highly beneficial component of preparation and development for independent living (Gutiérrez Molero et al. 2025; Lim and Kreijkes 2025; Sage and Jackson 2022).

Therefore, the present study aims to analyse the influence of ICT on the development of independent living among young people residing in child protection residential care centres in Galicia, Spain. The specific objectives are (a) to explore the level of ILS of young people and adolescents in residential care, (b) to assess the digital competence of young people and adolescents in residential care and (c) to analyse and examine the influence of digital competence on the independent living of young people and adolescents in residential care. Consequently, the hypotheses to be tested are as follows: (1) the level of ILS among young people and adolescents in residential care is deficient, (2) young people and adolescents in residential care exhibit a basic (beginner) level of digital competence and (3) digital competence has a significant influence on the independent living of young people and adolescents in residential care.

2 | Materials and Methods

2.1 | Participants

The sample for this study consisted of 245 young people aged between 16 and 20 years residing in residential care across the four provinces of Galicia, Spain (Table 1). The mean age of the sample was 16.71 years ($SD=0.78$), with a balanced gender distribution (49.8% female). The total population was 355 in February 2025, meaning that the sample had a margin of error of 3.49% at a 95% confidence level.

2.2 | Measures

2.2.1 | Independent Life Skills

The PLANE scale was initially developed with 39 items; however, the final version validated by García-Alba et al. (2022) comprised 36 items, following the removal of items 10, 11 and 36 on the basis of psychometric criteria and factor fit identified during the validation process. For this reason, the final validated version of the scale was used directly in the present study. The scale consists of three first-order factors: self-care and well-being (SC-WB, 16 items), daily arrangements and organization (DA-OS, 14 items) and employment and accommodation (EA, 6 items) and one second-order factor: ILS.

Each item is rated on a 4-point Likert scale according to the extent to which the participant is able to perform the corresponding activity: 1 = *not at all*, indicating that the skill is absent or does not manifest under any circumstances; 2 = *a little*, indicating that the skill is present to a limited extent, occurring only occasionally or requiring a high level of support; 3 = *quite a lot*, indicating that the skill is demonstrated in most situations and can be performed with relative autonomy, although occasional support may still be required; and 4 = *a lot*, indicating that the skill has been fully acquired and is consistently demonstrated independently across a wide range of everyday situations.

TABLE 1 | Distribution of the final participant sample ($N=245$).

Variable	Category	<i>n</i>	%
Gender	Female	122	49.8
	Male	123	50.2
Age	16 years	117	47.8
	17 years	76	31
	+18 years	52	21.2
Country of birth	Spain	171	69.8
	Other (Mali, Portugal, Romania ...)	74	30.2
Area of residence	Coast (A Coruña, Pontevedra)	170	69.4
	Inland (Lugo, Ourense)	75	30.6
Type of centre	Family home	55	22.4
	Group home	94	38.4
	Supervised independent living	37	15.1
	Mini residence	59	24.1
Educational level	None	16	6.5
	Primary education	108	44.1
	Secondary	94	38.4
	Vocational training	27	11
Management	Public	66	26.9
	Social	179	73.1
Dependency	Administration	66	26.9
	Associations	77	31.4
	Religious entities	60	24.5
	Foundations	42	17.1
Employment	No	216	88.2
	Yes	29	11.8
Internet access	No	17	6.9
	Yes	228	93.1
Device used	Smart phone	133	54.3
	Computer	84	34.3
	Tablet or iPad	28	11.4
Frequency of use	Daily	184	75.1
	Never/sometimes	61	24.9
Usage time	Less than 3 h	143	58.4
	3 h or more	102	41.6

In this study, the PLANE scale demonstrated adequate reliability and satisfactory structural validity, making it appropriate for evaluating ILS ($\alpha=0.742$, $\omega=0.727$; $\chi^2/df=1.56$, $p<0.001$;

GFI=0.831; CFI=0.811; SRMR=0.051; RMSEA=0.048, 90% CI [0.042/0.054]).

2.2.2 | Digital Competences

Digital competences were measured using the Spanish-translated short version of the Youth Digital Skills Indicator (yDSI), which comprises 25 items assessing young people's digital competences (Helsper et al. 2020). Each item is rated on a 5-point Likert scale according to the extent to which the statement describes the participant: 1 = *not at all true for me*, indicating that the statement does not describe the participant in any way; 2 = *not very true of me*, indicating that the statement describes the participant only to a limited extent; 3 = *neither true nor untrue of me*, indicating a neutral or intermediate position, where the statement only moderately reflects the participant's situation; 4 = *mostly true for me*, indicating that the statement describes the participant to a considerable extent; and 5 = *very true of me*, indicating that the statement largely or fully describes the participant.

The scale is structured around three first-order factors: Technical and Operational Skills (Tech, six items), Information Navigation and processing (Info), Programming (one item), Communication and Interaction (Comm, six items) and Content Creation and Production (Create, six items) and one second-order factor: Young digital skills (YDS) (Table 3). The full version of the questionnaire includes 31 items, but the short version of 25 items was used in this study to reduce length. The reliability and structural validity of the questionnaire in this study were excellent for evaluating digital competences in young people (reliability: $\alpha=0.928$, $\omega=0.931$; structural validity: $\chi^2/df=2.28$, $p<0.001$; GFI=0.819; CFI=0.868; SRMR=0.064; RMSEA=0.073, 90% CI [0.065/0.080]).

As there was no previously validated Spanish adaptation of the short version of the Youth Digital Skills Indicator (yDSI), an ad hoc translation was produced for this study based on the original English version developed by Helsper et al. (2020). The decision to use this instrument was based on its widespread international use and the availability of adaptations in different linguistic and cultural contexts. The translation was reviewed by the research team to ensure the semantic and conceptual equivalence of the items. Although this Spanish version had not been previously validated, the psychometric analyses obtained in the present sample showed adequate indices of reliability and structural validity, which supports its exploratory use in the Spanish youth population.

2.3 | Procedure

Data collection was carried out by the research team between September 2024 and February 2025 within Galicia's child protection system, which comprises a diverse network of residential facilities (family homes, centres organized into households and small residential homes), as well as specialized facilities and those designed to facilitate the TTA (e.g., supported housing) (Xunta de Galicia 2022). These resources vary in size and organizational structure, ranging from small, normalized settings

to larger capacity facilities organized into shared-living units (López-Serrano 2012).

In terms of ownership and management, the system combines centres under direct public management (administered by the regional government) and centres under subsidized management, the latter being managed mainly by third sector organizations (nonprofit organizations) through agreements or contracts with the administration (Xunta de Galicia 2022). In the Galician context, this subsidized model accounts for most residential centres and places (López-Serrano 2012).

Furthermore, the inclusion criterion used was that the young person was residing in any of these resources within the Galician protection system (Spain). All centres, both public and social, were invited to participate. To reach the target population, the public database of Galician centres was consulted, and contact was made via email and/or telephone. Directors of the centres were informed about the option to administer the surveys either in paper or digital format, with digital being the most frequently used option when mobile phones, tablets or computers were available.

Regarding the administration of the questionnaires, a significant proportion of the data collection was carried out in person at the centres themselves. In cases where the questionnaires were not completed in person, they were administered under the supervision of staff at the centre, who remained available throughout the process. Respondents were also given the option of completing the questionnaires in either paper or digital format.

In total, 57 surveys were completed on paper and manually recorded by the research team, while the remaining surveys were completed digitally. Participants first responded to a sociodemographic questionnaire, which included questions on gender, age, country of birth, residential centre, educational level, employment status and internet access, followed by the specific questionnaires to assess ILS and digital competences, as described above.

2.4 | Data Analysis

Data analyses were conducted using SPSS v.24 (IBM SPSS Inc.) and AMOS, with a significance level set at $p \leq 0.05$. First, the reliability of the questionnaires was assessed using Cronbach's alpha and McDonald's omega, and the validity was evaluated through model fit indices for the original instruments applied to the sample. Second, a descriptive analysis was carried out using percentages, and Pearson's correlations were performed to explore linear relationships between variables. Finally, inferential analyses were conducted using ANOVA, and post hoc comparisons were performed using Tukey's DHS test. Effect sizes were also calculated using eta-squared ($\eta^2 < 0.001$ very small; $0.01 > \eta^2 < 0.05$ small; $0.06 > \eta^2 < 0.13$ moderate; $\eta^2 \geq 0.14$ large) and Cohen's d (1992) for significance in post hoc tests (small ≈ 0.20 ; medium ≈ 0.50 ; large ≥ 0.80).

2.5 | Ethical Considerations

This study was conducted in accordance with international and national ethical principles applicable to research with

minors and vulnerable populations, following the Declaration of Helsinki (1975) and the United Nations Convention on the Rights of the Child (1989), ensuring the best interests of the child, their well-being and the right to be heard. In addition, compliance was ensured with the Spanish Organic Law 3/2018 on the Protection of Personal Data and Guarantee of Digital Rights, as well as the General Data Protection Regulation (EU 2016/679), safeguarding privacy, confidentiality and secure data storage and ensuring that data were collected solely for research purposes. The study was approved by the Ethics Committee of the University of Vigo (0060-F-2025-07-11) and received authorization from the Xunta de Galicia. Furthermore, in addition to obtaining the participants' informed consent, participants' anonymity was maintained, data were securely stored and participants retained the right to access, rectify or delete their personal information.

3 | Results

3.1 | Level of Independent Live Skills

Scores related to ILS are presented in Figure 1. Overall, the results show a relatively balanced distribution across the four response categories (not at all, a little, quite a lot and a lot), with a variation of $\Delta 14.13\%$. However, there is a slight predominance ($\Delta 14.2\%$) of participants reporting a high level of skills (quite a lot + a lot = 57.1%) compared to those indicating a low level (not at all + a little = 42.9%).

When analysing the percentages corresponding to the 'quite a lot' and 'a lot' response options, a higher presence is observed in the factor self-care and well-being (37.89%), followed by work and independence (25%) and finally daily management and organization (22.74%). Within the self-care and well-being factor, the most frequent activities ($> 90\%$) are 'enjoying my free time' and 'taking care of my personal hygiene daily', while the least frequent activity ($< 60\%$) is 'preparing a basic first-aid kit for home use'.

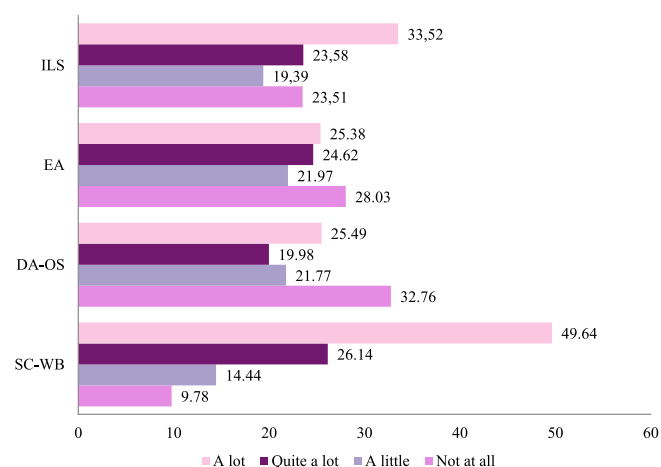


FIGURE 1 | Percentages considering the total and the dimensions. Note: SC-WB: self-care and well-being; daily arrangements and organizational skills (DA-OS); employment and accommodation (EA); ILS: independent life skills.

In the work and independence factor, the most common activities (> 50%) include 'managing my money in a way that allows me to save some' and 'creating my résumé', whereas the least prevalent activity is 'registering at the employment office' (40.8%). Finally, in the daily management and organization domain, the most frequent activities (> 65%) are 'returning a purchased item' and 'shopping online', while the least frequent (< 25%) are 'conducting administrative procedures at the town hall' and 'voting in elections'.

3.2 | Level of Digital Competence

Before calculating the percentages, the variables are recoded into three categories: basic (not at all true for me + not very true for me), intermediate (neutral: neither true nor untrue for me) and advanced (mostly true for me + very true for me). The results of the percentage analysis (Figure 2) indicate that most young people exhibit an advanced level of digital competence (59.94%), followed by an intermediate level (24.80%) and, to a lesser extent, a basic level (15.26%). However, these percentages vary depending on the dimension assessed, with fluctuations of $\Delta 19.95\%$ for the advanced, $\Delta 8.36\%$ for the intermediate and $\Delta 14.48\%$ for the basic level.

More specifically, young people show the highest digital competences in the Communication and Interaction dimension followed by Technical and Operational skills. Conversely, the greatest

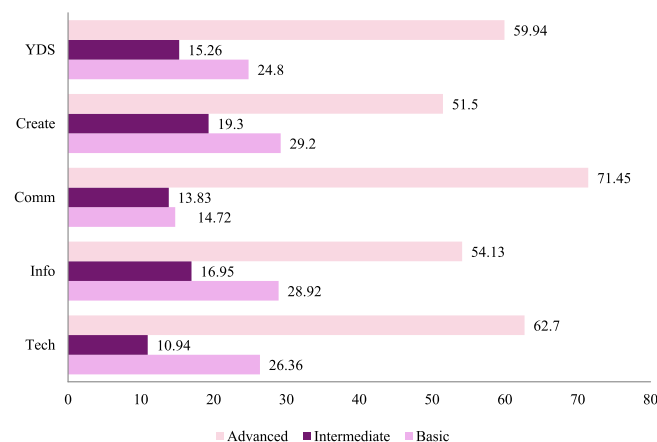


FIGURE 2 | Percentages considering the total and the dimensions. Note: YDS: Young digital skills; Create: Content Creation and Production; Comm: communication and Interaction; Info: Information Navigation and Processing; Tech: Technical and Operational skills.

difficulties are observed in Content Creation and Production and in the Information Search and Navigation dimension.

3.3 | The Relationship Between the Factors That Make Up ILS and Those Relating to yDSI

Regarding the correlations between the three factors of the Planea scale (ILS) and the four factors of the yDSI scale (digital and ICT competence) (Table 2), positive and statistically significant correlations were found between the following factors: self-care and well-being and information navigation and processing skills ($p < 0.01$; moderate) and communication and interaction ($p < 0.05$; weak); daily arrangements and organizational and content creation and production ($p < 0.05$; weak); employment and accommodation and technical and operational skills ($p < 0.05$; weak), information navigation and processing skills ($p < 0.05$; weak), communication and interaction skills ($p < 0.01$; moderate) and content creation and production skills ($p < 0.05$; weak).

By contrast, no statistically significant correlations were found between the following factors: self-care and well-being with technical and operational skills ($p = 0.113$) and with content creation and production ($p = 0.077$) and daily arrangements and organizational with technical and operational ($p = 0.981$), information navigation and processing ($p = 0.417$) and communication and interaction ($p = 0.740$).

3.4 | Inferential Analysis of Differences in Independent Living According to the Level of Digital Competence

In relation to the third objective, which aimed to analyse and examine differences in independent living (self-care and well-being, daily arrangements and organizational, employment and accommodation) based on the level of digital competence recoded (deficient: < 25%, sufficient: 25%–75%, good > 75%) for the factors technical and operational skills, information navigation and processing, communication and interaction, content creation and production), a one-way analysis of variance (ANOVA) was performed and effect sizes (Cohen's d) were calculated when significant differences were found. Additionally, as a complement to this test, Tukey's HSD post hoc test was applied to interpret the results (Table 3).

The ANOVA revealed significant differences in most of the dimensions comprising independent living, with employment and

TABLE 2 | Correlation between independent living and digital competences.

<i>n</i> = 245	Tech	Info	Comm	Create
SC-WB	0.102 (n.s.)	0.389**	0.149*	0.103 (n.s.)
DA-OS	−0.002 (n.s.)	0.052 (n.s.)	−0.021 (n.s.)	0.119*
EA	0.122*	0.169*	0.365**	0.132*

Abbreviations: Comm, communication and interaction; Create, content creation and production; DA-OS, daily arrangements and organizational; EA, employment and accommodation; Info, information navigation and processing; n.s., not significant; SC-WB, self-care and well-being; Tech, technical and operational skills.

**Correlation significant at the 0.01 level (two-tailed).

*Correlation significant at the 0.05 level (two-tailed).

TABLE 3 | Means, standard deviations and analysis of variance (ANOVA) of digital competence independent living.

Technical and operation skills	Deficient = 79 M (DT)	Sufficient = 124 M (DT)	Good = 42 M (DT)	F (2,242)	p	Tukey	d
SC-WB	39.69 (6.80)	40.91 (6.14)	40.28 (7.06)	0.86	0.425	—	—
DA-OS	35.43 (6.10)	34.23 (5.73)	35.21 (6.64)	1.09	0.336	—	—
EA	13.38 (3.60)	14.16 (3.43)	15.54 (4.23)	2.85	0.047	S > D B > D	0.22 0.63
Info	Deficient = 65 M (DT)	Sufficient = 124 M (DT)	Good = 56 M (DT)	F (2,242)	p	Tukey	d
SC-WB	38.90 (7.39)	40.04 (6.61)	43.01 (4.18)	6.63	0.002	B > D B > S	0.68 0.54
DA-OS	33.71 (5.71)	35.31 (6.22)	34.87 (5.83)	1.51	0.221	—	—
EA	13.90 (3.70)	15.24 (3.71)	15.34 (3.32)	3.21	0.042	S > D B > D	0.36 0.41
Comm	Deficient = 71 M (DT)	Sufficient = 69 M (DT)	Good = 105 M (DT)	F (2,242)	p	Tukey	d
SC-WB	38.77 (6.92)	40.57 (6.34)	41.42 (6.18)	3.59	0.029	B > D	0.40
DA-OS	34.95 (6.48)	34.33 (5.48)	34.96 (6.07)	0.27	0.766	—	—
EA	13.46 (3.43)	15.47 (3.68)	14.98 (3.61)	6.16	0.002	S > D B > D	0.57 0.43
Create	Deficient = 62 M (DT)	Sufficient = 133 M (DT)	Good = 50 M (DT)	F (2,242)	p	Tukey	d
SC-WB	39.67 (6.34)	40.47 (6.53)	41.18 (6.72)	0.74	0.476	—	—
DA-OS	33.47 (5.64)	34.67 (5.96)	36.54 (6.40)	2.79	0.046	B > D	0.51
EA	13.12 (3.49)	14.91 (3.74)	15.34 (3.50)	2.98	0.044	B > D B > S S > D	0.64 0.19 0.49

Abbreviations: Comm, communication and interaction; Create, content creation and production; DA-OS, daily arrangements and organizational; EA, employment and accommodation; Info, information navigation and processing; SC-WB, self-care and well-being; Tech, technical and operational skills.

accommodation being significant across all digital competence factors.

First, considering technical and operational skills, the data show significant differences in work and independence among the youth ($p < 0.05$). In contrast, no significant differences were found in self-care and well-being ($p > 0.05$) or daily arrangements and organizational ($p > 0.05$). Thus, young people with good (medium effect size) or sufficient (small effect size) technical and operational skills in ICT report greater benefits in their employment and accommodation compared to those with deficient skills.

Second, regarding information navigation and processing, significant differences were observed in self-care and well-being ($p < 0.05$) and work and independence ($p < 0.05$) but not in daily arrangements and organizational ($p > 0.05$). Young people with good competencies, in information navigation and processing, demonstrate better self-care and well-being than those with sufficient (medium effect size) and deficient (medium effect size) competencies. Likewise, those with sufficient (small effect size) or

good (medium effect size) competencies in information navigation and processing report improvements in their employment and accommodation compared to those with deficient skills.

Third, communication and interaction provided by ICT shows significant differences in self-care and well-being ($p < 0.05$), with higher self-care and well-being scores among young people with good communication and interaction skills compared to those with deficient skills (medium effect size). Significant differences were also found in employment and accommodation ($p < 0.05$), with higher scores for those reporting good (medium effect size) or sufficient (medium effect size) ICT competencies in communication and interaction compared to those with deficient skills. No significant differences were observed in daily arrangements and organizational ($p > 0.05$).

Finally, regarding digital competence in content creation and production, significant differences were found in daily arrangements and organizational ($p < 0.05$) and employment and accommodation ($p < 0.05$) but not in self-care and well-being ($p > 0.05$). Young people with good content creation

and production skills show better daily arrangements and organizational than those with deficient skills (medium effect size). Likewise, possessing good (medium effect size) or sufficient (medium effect size) skills in creation and production enhances daily arrangements and organizational compared to those with deficient skills. Similarly, those with good skills report better daily arrangements and organizational than those with sufficient skills (small effect size).

4 | Discussion

The TTA represents a particularly complex stage for adolescents and young people residing in residential child protection centres. Accordingly, the aim of this study was to analyse the influence of ICT and digital competence on the development of independent living among this population. The first objective was to explore the level of ILS of young people and adolescents in residential care, based on the items of the PLANE scale. In this regard, the findings reject the proposed hypothesis (H1: *The level of ILS among young people and adolescents in residential care is deficient*), as a predominance of participants reported advanced skill levels. This suggests that certain functional and practical competencies are being acquired during their time in the child protection system, in line with previous evidence reported by Starr et al. (2024).

However, the overall level of ILS is predominantly situated at moderate values and reveals significant inequalities across dimensions. In this regard, the findings are consistent with those reported by Sanz-Escutia et al. (2025), who identified shortcomings in institutional and civic competencies, such as managing administrative procedures, engaging in democratic participation and accessing employment-related resources (daily arrangements and organizational and employment and accommodation). These results, in turn, reinforce the data reported by the Spanish Ministry of Social Rights and the 2030 Agenda (Ministerio de Derechos Sociales y Agenda 2030). As noted by Fernández-Simo et al. (2020), the lower presence of certain skills may be linked to limited interaction with institutional management and public services, which underscores the need for independent living programmes to explicitly incorporate practical, hands-on experiences within these contexts.

Regarding young people's digital competence (second objective), the proposed hypothesis is not supported (H2: *Young people and adolescents in residential care exhibit a basic level of digital competence*), as most participants report an advanced level of digital competence. However, this competence is primarily characterized by the predominance of necessary skills—namely, technical and operational skills—alongside a lower presence of more complex skills, such as information navigation and processing or content creation and production. These findings reflect a pattern similar to that observed among vulnerable populations in the post-COVID-19 context in previous studies (Hernández-Pedreño and García-Luque 2023; Hoyos-Muñoz and Cardona-Valencia 2025). Consequently, the persistence of digital divides is confirmed, in line with prior research documenting such inequalities both in Spain (García-Alba et al. 2022; Jiménez-Franco et al. 2021) and in other European contexts (Oshri et al. 2018; Starr et al. 2024).

On the other hand, Badillo-Urquiola et al. (2017) and Greeson et al. (2020) argue that, even when access to devices and connectivity has expanded, the development of deep digital competencies is not guaranteed, particularly among young people who do not consistently receive technological support, guidance or access to appropriate pedagogical spaces that foster meaningful learning. Overall, the findings indicate that young people use technology frequently but do not always possess the competencies required for autonomous, creative and reflective use. Therefore, there is a clear need to strengthen digital training, especially in more advanced and critical skills, rather than focusing solely on the instrumental use of technology (Barbudo et al. 2021; González-Benito et al. 2023).

Regarding the third objective, the inferential analysis between ILS and digital competencies provides robust evidence that digital competence has a differentiated impact depending on the type of ILS considered, thereby supporting the final hypothesis (H3: *Digital competence has a significant influence on the independent living of young people and adolescents in residential care*). These findings are consistent with previous studies that have highlighted the relationship between digital competence and employability and access to educational and labour opportunities (employment and accommodation) (Reiss et al. 2025). Moreover, according to Aldeas Infantiles SOS (2025), for young people in care—who often experience discontinuous educational trajectories and more uncertain labour market integration—the acquisition of digital competencies may constitute a protective factor during the TTA.

More specifically, the influence of competence in information search and navigation on self-care and well-being is particularly noteworthy. Gomez et al. (2021) confirm that this association suggests that young people who are better able to identify reliable information feel more capable of managing their own care and face everyday challenges with greater confidence. Similarly, skills related to communication and interaction are associated with higher levels of self-care and well-being, which aligns with studies highlighting the role of online interactions in maintaining meaningful relationships, accessing support networks and constructing identity during adolescence (Livingstone et al. 2017). In residential care contexts, where social networks may be more fragile, the competent use of these tools may partially compensate for such limitations by facilitating connections with family members, professionals and reference communities (Denby et al. 2016; Sage and Jackson 2022).

On the other hand, content creation and production emerged as the area that showed the most deficient levels of competence. These findings align with emerging studies that link digital production to processes of self-concept development, personal agency and active participation in social and educational environments (Symeonaki et al. 2025). Thus, beyond its instrumental utility, this competence may represent a key resource for social participation and the construction of full digital citizenship, which is particularly relevant for young people who have historically been less visible in social and digital spaces (Deitz et al. 2024; Gustavsson and MacEachron 2015).

In contrast, technical and operational skills are associated with good levels of autonomy, particularly in dimensions related to

work management, everyday decision-making and the organization of daily life (employment and accommodation and daily arrangements and organizational), findings that are consistent with previous research linking basic digital skills to functional independence (Blanc et al. 2025; Gomez et al. 2021; Hatlevik et al. 2018; Livingstone et al. 2017).

In general, digital skills appear to facilitate autonomy, access to opportunities and informed decision-making—key aspects of successful TTA (Blanc et al. 2025; Hatlevik et al. 2018; Livingstone et al. 2017). At the same time, the findings highlight gaps in complex skills which, if left unaddressed, could exacerbate existing inequalities among young people in care (García-Alba et al. 2022; Gomez et al. 2021; Greeson et al. 2020).

5 | Implications for Social Intervention Practice

In addition, these findings are consistent with international recommendations advocating digital inclusion policies aimed at vulnerable groups, highlighting the importance of ensuring equitable access to technological resources, promoting digital literacy strategies and providing educational support within safe and accessible digital environments (UNESCO 2018; United Nations 2019; UNICEF 2017). Similarly, international organizations such as the European Commission (2022) and the OECD (2021) emphasize the need to foster advanced digital competences that support the social, educational and labour-market participation of young people in vulnerable situations.

In this regard, social intervention within the protection system must incorporate a cross-cutting digital approach, both in the design and implementation of socio-educational measures (Livingstone and Stoilova 2021). This implies that digital skills should not be treated as a stand-alone subject but rather as an integral part of the processes of support, autonomy and TTA. To this end, it would be advisable to include the assessment of digital skills in individualized intervention plans, identifying the specific needs of each young person in relation to access to devices, connectivity, the use of digital tools, searching for reliable information, carrying out administrative procedures online and the prevention of digital risks.

From a practical perspective, residential care facilities and support programmes for young people leaving care should develop training initiatives focused on the functional, critical and safe use of ICT. These initiatives could include workshops on digital identity management, cybersecurity, the responsible use of social media, creating digital CVs, job searching on online platforms, accessing training resources, managing administrative appointments, basic online banking, applying for grants or benefits and any other aspects of daily life that are now digitized. It would also be advisable to promote spaces for individualized support where professionals can assist young people with specific digital tasks linked to their daily lives, particularly during the process of leaving the care system.

Similarly, it would be advisable to review practices based on the prohibition or withdrawal of electronic devices as a control measure or sanction within care settings. Although these strategies may be employed with the intention of regulating

behaviour, their punitive use can prove counterproductive, particularly given that mobile phones are a key tool for communication, socialization and young people's day-to-day participation (Vuorikari et al. 2022). Through these technological devices, they maintain contact with their peers, access class groups, receive educational information, organize activities and participate in meaningful social spaces (Wilson 2016).

Therefore, rather than approaching mobile phone use from a perspective of punishment or prohibition, it would be advisable to promote an educational approach geared towards the conscious, critical and safe use of technology. This involves supporting young people in identifying risks, managing their screen time, protecting their privacy and developing healthy digital habits (Council of Europe 2023). From this perspective, the device is no longer seen solely as a problem but is instead regarded as a tool for autonomy, learning and social connection, which they must learn to use responsibly throughout their lives.

Finally, the results obtained have important implications for the design of policies and intervention programmes within the child protection system in Spain and, more specifically, in Galicia. Firstly, they highlight the need to systematically incorporate critical digital literacy, strengthening more complex competences (Cabero and Ruiz 2018; Quiroga et al. 2021). Likewise, it would be appropriate to develop socio-educational initiatives aimed at acquiring practical competences related to employability, financial management and access to social resources (Fernández-Simo et al. 2020; Grech-Santi, Rioboo-Lois, and Pérez Martín 2025). These measures could be integrated into TTA programmes (Espinosa-Bayal and Pérez-Moreno 2021). In the same vein, the importance of training professionals in digital competences and technological support is underlined, with the aim of promoting a more autonomous, critical and safe use of ICT among young people currently or formerly in care (Grech-Santi, Frieiro, and González-Rodríguez 2025).

6 | Conclusions

This study provides robust evidence on the relationship between digital competence and ILS among young people in residential care. The findings indicate that, although most participants demonstrate adequate levels of digital competence, digital gaps persist, particularly in content creation and advanced information searching. Furthermore, it is confirmed that digital competence exerts a differentiated influence across the various domains of ILS, being particularly relevant in areas related to work management, daily planning and decision-making.

These results underscore the need to recognize digital literacy as a structural component of ILS. Beyond access to devices, intermediate and advanced digital competencies constitute a protective resource that facilitates access to educational and employment opportunities, promotes social participation and strengthens personal agency. In this regard, autonomy programmes should systematically integrate digital training as part of transition-to-adulthood pathways, ensuring that young people in care are not placed at a competitive disadvantage relative to their peers.

7 | Limitations

This study presents several limitations that should be considered. First of all, as it relies on self-reports, the results may be affected by social desirability bias or subjective perceptions. In addition, the sample was drawn from a single autonomous community, which limits the generalizability of the findings; replication in other contexts is therefore recommended. Although different dimensions of digital competence were assessed, emerging areas such as Artificial Intelligence literacy were not included. Furthermore, although the age range of the participants was not particularly wide, it could still influence the development of ILS or digital competences. Likewise, this study did not focus on potential differences arising from the type of residential resource or care arrangement (e.g., residential care homes, semi-independent living programmes or supervised housing), factors which could shape opportunities for learning and autonomy.

Another relevant limitation is that variables related to access to and use of digital resources were not specifically controlled for, such as the availability of devices, internet connectivity or previous training experiences in digital competences, all of which could significantly influence the results obtained. Similarly, the length of time spent within the protection or care system was not considered, despite being a potentially relevant variable in the development of ILS. Finally, although several dimensions of digital competence were evaluated, emerging areas such as artificial intelligence literacy, the critical evaluation of algorithmically generated content and the ethical use of advanced digital technologies were excluded; these aspects should be incorporated into future research.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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