VISUAL REVIEW | Vol. 18, No. 8, 2026 | ISSN 2695-9631

International Visual Culture Review / Revista Internacional de Cultura Visual

https://doi.org/10.62161/revvisual.v18.6491

THE GENERATIONAL DIGITAL DIVIDE IN HIGHER EDUCATION

Analysis of social media use according to age and pedagogical implications

La brecha digital generacional en educación superior: análisis del uso de redes sociales según edad e implicaciones pedagógicas

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KEYWORDS

Digital divide
Social media
Technology-Task Fit
Digital exclusion
Segmentation
Higher education
Age

ABSTRACT

This study analyses social media use among 179 students in Pre-primary and Primary Education degrees. Using Kruskal-Wallis and Bonferroni tests, the results show that gender and degree do not significantly influence usage, suggesting the first-level digital divide is closing. However, age is a critical differentiating factor: younger students (18-25) show more intensive use than older ones (31-50). The study concludes that the divide within our context is generational in a quantitative sense. Consequently, it is necessary to segment teaching strategies to optimise user-technology alignment and prevent digital exclusion.

RECIBIDO: 29/ 08 / 2026
ACEPTADO: 03/ 10 / 2026

1. Introduction

Within the framework of the digital era, we are witnessing a context in which higher education is in continuous metamorphosis as a result of the arrival of digital technologies that have transformed both teaching learning processes and those of social interaction inside and outside the classroom (Ortega et al., 2024). Among all these technologies, social media have become an essential resource that facilitates communication and the exchange of ideas, collaboration and, finally, access to information sources. Thus, the use of social media has emerged as a natural extension of the academic social activity of university students, also affecting competence development and the collective construction of knowledge linked to the academic domain (Mejía Lobo et al., 2023).

However, the development of digital integration does not have a homogeneous character. Recently, a digital divide has been detected that discriminates between different generations within university communities. This divide may lead not only to inequalities in access opportunities but, above all, to disparities regarding technological appropriation, in digital competences, and in the uses and practices carried out with digital tools (Martín Cárdaba et al., 2024; Ortega et al., 2024). This situation raises numerous challenges in terms of educational equity, learning quality and teaching effectiveness in a scenario that increasingly demands digitalisation, such as higher education in the post pandemic context.

Initially, the concept of digital divide was largely restricted to the issue of the availability of and physical access to information and communication technologies by the population itself. This concept has gradually evolved into a more complex and broader notion that transcends this level to encompass aspects such as technical competence, digital culture, the cognitive and social capacities needed for the appropriate use of technologies, as well as their actual integration into specific contexts, especially education (Martín Cárdaba et al., 2024; Ortega et al., 2024). Consequently, the gradation of generational typologies becomes evident, materialised in Prensky's (2001) categorisation of "digital natives" and "digital immigrants", the former referring to younger generations who have been self-sufficiently trained since childhood in an omnipresent digital environment, and the latter referring to those who incorporate technologies gradually in adulthood, facing a greater number of learning and adaptation barriers.

Regarding higher education, this gradation is relevant as it represents a point of generational convergence. Empirical studies establish that the use made of social networks is extensive and diverse, bearing in mind that social networks are not only social applications but also devices that generate scenarios for interaction, exchange, information seeking, communication, peer support, interaction and educational research in higher education (Mejía Lobo et al., 2023; Martín Cárdaba et al., 2024). Consequently, digital immigrants tend to make very restricted use of them, limited to specific activities or personal uses. They are associated with below-average levels of digital confidence or self-sufficiency, which may result in limited use and the establishment of barriers to autonomous and collaborative learning in the digital sphere (Rojas, 2024). Thus, this generational distance appears as evidence of the structural inequalities within a digitalised society.

Finally, more recent research corroborates these intergenerational relationships with empirical data. Witcher and Sasso (2022) show that teachers and students from the Baby Boomer and Generation X cohorts report much lower levels of comfort and much higher levels of anxiety when using technology. This contrasts with Generation Y (Millennials), who equate technological use with academic development and learning satisfaction. Similarly, a study with university teachers by Cahyono et al. (2022) showed that 80% of digital native teachers (those born after 1980) had a positive conception of online teaching, unlike digital immigrants, who maintained a more resistant attitude towards technical problems that negatively affect teaching quality and student learning.

On the other hand, the COVID 19 pandemic suddenly and massively accelerated the transition towards the digitalisation of education, with virtual and hybrid methodologies that generated clear evidence of digital divides and, often, amplified those divides (Ortega et al., 2024; Faure

Carvallo et al., 2023). Several studies show that access to technologies also became more universal as a result of extraordinary connectivity measures; however, pedagogical practice with digital tools in university systems was highly unequal, having a particularly negative impact on adults and on groups considered vulnerable (Deng & El Hag, 2024). In the end, these differences become evident in aspects such as motivation, engagement and achievement, calling into question both the principles of equal opportunities and those of universal educational quality.

Furthermore, different quantitative studies have delved into the impact of social media use on the academic performance of university students. The authors argue that intensive use of social networks can have a direct effect on academic performance, particularly affecting university students with limited development of digital competences (Gong et al., 2025). In the same vein, Sakhieva et al. (2024) pointed out that 99.5% of university students use social networks and that there is a significant relationship between the intensity of use of this technology and their grades; in this regard, 62.2% stated that they used social networks to share academic knowledge.

Cabero Almenara (2020, 2022) emphasises the need for a paradigmatic shift in digital educational policies, arguing that the mere distribution of technology does not guarantee inclusion. He proposes an adaptive pedagogy approach that takes into account specific digital competences according to generational profiles, articulated through a coherent pedagogical design that goes beyond the instrumental dimension and fosters real competence development. In this regard, Universal Design for Learning (UDL) and inclusive education emerge as essential theoretical practical resources for guaranteeing equity and effectiveness.

A particularly relevant theoretical framework for understanding the effectiveness of educational technology is the Technology Task Fit (TTF) model, formulated on the basis of the proposal by Goodhue and Thompson (1995). This approach suggests that the effectiveness and performance derived from the use of educational technologies depend on the degree of alignment between task characteristics, the potential and capabilities of the available technology, and the users' own competences (Goodhue & Thompson, 1995; Liu et al., 2025).

Recent studies in higher education have observed that a high level of technology task fit is associated with greater satisfaction and better academic performance, as well as lower levels of digital anxiety (Ali et al., 2020; Liu et al., 2025). This theoretical framework is especially useful for designing generationally differentiated educational interventions, as it facilitates the adaptation of digital tools to the actual capabilities of each cohort, thereby reaching a broader number of students and promoting academic achievement.

Furthermore, the gender variable remains a prominent theme within the literature on educational digitalisation. Empirical evidence suggests important differences in platform use: women are more likely to use features related to communication, interpersonal relationships and social support, whereas men more frequently engage with information and entertainment-oriented contexts (Martín-Cárdaba et al., 2024). In the context of university education, particularly in the social sciences and educational fields, similar levels of basic digital competences and quantitative use can be observed. Having said that, in relation to pedagogical and professional approaches, differences emerge, indicating the need to consider the context as a whole (Mejía Lobo et al., 2023).

As for the assessment of digital competences, recent scholarship has produced valid and reliable tools to measure the degree of digitalisation of university students. Janschitz and Penker (2022) developed the DDS Index (Degree of Digitalisation of Students), which adopts a multidimensional approach encompassing device use, perceived digitalisation levels, and digital competences. The findings revealed significant correlations with academic achievement, revealing that digital proficiency is not uniform among the youth, and that there are even significant differences within the same generation. Likewise, studies conducted in Spain and Latin America indicate that while university students perceive themselves as proficient in communication and information retrieval, they exhibit pronounced deficiencies in digital content creation, cybersecurity, and technical problem-solving (Olavarría & Lozano, 2021; Herrera Solórzano et al., 2025).

From an institutional standpoint, evidence suggests that effectively bridging the generational digital divide requires the implementation of integrative policies aimed at improving technology

and continuous teacher training, the inclusion of active methodologies and the ethical use of social networks in higher education (Erwin & Dakhalan, 2024; Grodner & Rubin, 2025). Security, privacy and the quality of information shared in university digital spaces also require ongoing attention to foster a healthy and high-quality learning environment.

Understanding the subtleties of intergenerational nuances in the use of networks, and their causes and consequences, is key for universities to respond with accreditation policies and practices that ensure higher education remains inclusive, effective, and relevant in the digital era.

2. Objectives

With the aim of contributing to the understanding and overcoming of the generational digital divide in higher education, this study quantitatively analyses university students' use of social media. Consequently, an analysis is conducted based on age, gender, and degree program, examining differentiated usage patterns and their potential implications for instructional design, digital inclusion, and educational equity. To this end, the study seeks to achieve the following specific objectives:

- To determine whether there are statistically significant differences in the number of social networks used according to the sociodemographic variables of age, gender and degree.
- To analyse the characteristic usage patterns of these demographic groups in order to understand their own digital consumption dynamics.
- To investigate the pedagogical implications derived from these differences and provide recommendations for the development of inclusive and contextualised teaching strategies.

3. Methodology

To conduct this research, data were collected using an instrument adapted from the European Framework for the Digital Competence of Educators (DigCompEdu). Among other variables, this questionnaire records the number of social media platforms used by pre-service teachers, categorized by age, gender, and degree programme.

The sample comprises 179 students enrolled in the degrees in Pre-primary Education and Primary Education. Regarding the specific degree studied, 154 students are enrolled in the Primary Education degree and 25 in Pre-primary Education. The distribution by academic year is as follows: 56 first year students, 58 second year, 32 third year and 33 fourth year students. As for sex, the study population consists of 121 women and 58 men.

A quantitative methodology was employed, a common approach for studies of this nature that currently maintains a clear predominance and reliability over qualitative methodologies (Fernández et al., 2021). The collected data were analysed using SPSS v.26, a software package widely used for data analysis in educational research. To determine the most appropriate statistical tests (parametric or non-parametric), the Kolmogorov-Smirnov (K-S) test was initially performed. The results indicated that the variables do not follow a normal distribution. Consequently, the non-parametric Kruskal-Wallis test was applied to determine whether statistically significant differences exist based on gender, degree programme, and the number of social media platforms used according to age. The level of significance for rejecting the null hypothesis was set at $p < 0.05$.

Specifically, the following hypotheses are formulated as expectations about the results:

- Ho: There are statistically significant differences in the number of social networks used by pre-service teachers according to gender, degree and age.
- H1: There are no statistically significant differences in the number of social networks used by pre-service teachers according to gender, degree and age.

Following the identification of statistically significant differences within the age variable, a Bonferroni post-hoc test was conducted. This analysis was selected to specifically identify which age cohorts exhibited these differences.

3.1. Ethical statement

All participants signed an informed consent form prior to taking part in this study and international regulations (e.g., GDPR) were respected. Data were collected and stored securely and anonymously.

4. Analysis

The following analysis examines the influence of sociodemographic variables—namely gender, degree program, and age—on the total number of social networks utilized by the university students in the sample. The primary objective is to ascertain whether statistically significant differences exist in the quantitative use of these platforms through a between-groups analysis.

To determine the appropriateness of parametric versus non-parametric testing, the Kolmogorov-Smirnov (K-S) normality test was performed. As detailed in Table 1, the results indicated that the data distribution deviates significantly from normality ($p < 0.05$).

Table 1. One sample Kolmogorov Smirnov test

		Social media	Gender	Age	Degree
N		179	179	179	179
Exponential Parameter (a,b)	Mean	2.43	1.32	2.68	1.86
Most Extreme Differences	Absolute	.432	.530	.526	.519
Kolmogorov-Smirnov Z		5.785	7.092	7.043	6.945
Asymp. Sig. (2-tailed)		.000	.000	.000	.000

Source: Own elaboration, 2025.

Consequently, a non-parametric approach was adopted; specifically, the Kruskal-Wallis test was employed to determine the existence of statistically significant differences across gender, degree programme, and the number of social networks used according to age. The significance level for rejecting the null hypothesis was established at $p < 0.05$.

As observed in the results, the variables of gender and degree do not show significant differences in relation to age. However, significant differences do emerge regarding the number of social media platforms used in daily life.

Table 2. Kruskal-Wallis test: ranks

	Age	N	Mean rank
Gender	18-20 years	87	90.83
	21-25 years	73	90.42
	26-30 years	9	80.89
	31-50 years	10	87.85
	Total	179	
Degree	18-20 years	87	94.27
	21-25 years	73	82.88
	26-30 years	9	92.56
	31-50 years	10	102.50
	Total	179	
Social media	18-20 years	87	92.79
	21-25 years	73	95.77

	26-30 years	9	79.33
	31-50 years	10	33.20
	Total	179	

Source: Own elaboration, 2025.

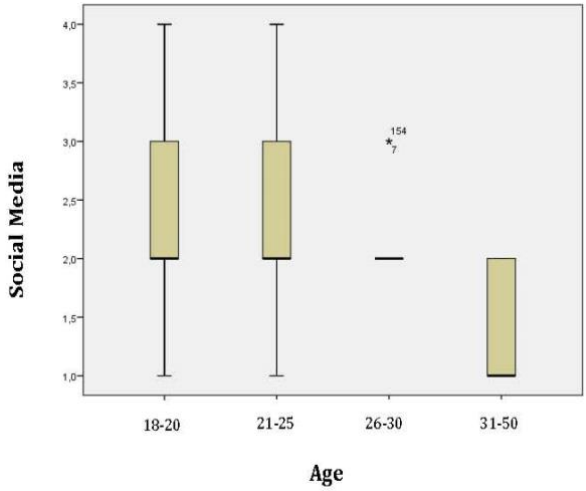
Table 3. Kruskal Wallis test. Grouping variable: age

	Gender	Degree	Social media
Chi-square	.491	7.134	15.442
df	3	3	3
Asymptotic Sig.	.921	.068	.001

Source: Own elaboration, 2025.

The mean number of networks used decreases in the 26-30 age group and even more so in the 31-50 age group. In the younger groups, the mean remains within the same range (Figure 1).

Figure 1. Distribution of mean ranks: Social media use by age group



Source: Own elaboration, 2025.

To identify the specific groups exhibiting differences regarding the age variable—where statistically significant variations were detected—post-hoc tests were conducted, specifically a Bonferroni analysis. The results obtained are shown in Table 4.

Table 4. Bonferroni multiple comparisons test

Dependent variable: social media						
(I) Age	**(J) Age**	**Mean difference (I-J)**	**Std. Error**	**Sig.**	**95% confidence interval**	
					Lower Bound	Upper Bound
18-20 YEARS	21-25 YEARS	-.026	.138	1.000	-.39	.34
	26-30 YEARS	.272	.304	1.000	-.54	1.08
	31-50 YEARS	1.094*	.290	.001	.32	1.87
21-25 YEARS	18-20 YEARS	.026	.138	1.000	-.34	.39
	26-30 YEARS	.298	.307	1.000	-.52	1.12
	31-50 YEARS	1.121*	.293	.001	.34	1.90
26-30 YEARS	18-20 YEARS	-.272	.304	1.000	-1.08	.54

	21-25 YEARS	-.298	.307	1.000	-1.12	.52
	31-50 YEARS	.822	.399	.245	-.24	1.89
	18-20 YEARS	-1.094*	.290	.001	-1.87	-.32
31-50 AÑOS	21-25 YEARS	-1.121*	.293	.001	-1.90	-.34
	26-30 YEARS	-.822	.399	.245	-1.89	.24

Source: Own elaboration, 2025.

5. Results

The between-groups analysis conducted to determine potential differences in the number of social media platforms used by respondents—in relation to degree, gender, and age—yielded divergent outcomes across the different variables.

5.1. Gender

Regarding the "gender" variable, its analysis is essential to assess a potential usage gap between men and women. Descriptive results indicate that the average number of social networks used by men was 2.40 (SD = 1.042), while for women the mean was 2.45 (SD = .826).

On an inferential level, the Kruskal-Wallis test statistic for gender was χ^2 = .491 with an associated p value of .921 (see Table 3), so it is concluded that there are no statistically significant differences in the quantitative use of social media between men and women in relation to age. Both groups report a similar number of platforms used (p = 0.921), suggesting a homogenisation in access and primary use.

These results could be explained by the closure of the first level digital divide (access and quantitative use) in the university population. High connectivity and the ubiquity of platforms in this age group mean that the "gender" variable is no longer a differentiating factor in the mere quantity of social networks adopted. However, recent literature suggests that gender differences have shifted towards the second level of the digital divide, manifesting in the qualitative nature of use (e.g., type of preferred social network, intensity of use, purpose or style of interaction), rather than in the total number of platforms. This suggests a need to delve deeper into the qualitative nature of use.

5.2. Degree

With regard to possible differences according to respondents' degree, descriptive data by group reveal nearly identical means in the number of social networks used: 2.43 (SD = .914) for students in the Primary Education degree and 2.44 (SD = .821) for those in Pre-primary Education.

In examining these differences, the Kruskal-Wallis test yielded the following results (see Table 3): at a global level, the analysis produced a Chi square statistic of 7.134 with a p value of .068, indicating that the "degree" variable is not significantly related to the number of social networks used by students in relation to age (p = 0.068). Although the p value is marginally close to the 0.05 significance threshold, the formal conclusion is the absence of significant differences.

The lack of statistically significant differences in the total number of social networks used between Primary and Pre-primary Education students may be attributed to the convergence of key characteristics in both groups. On the one hand, there is a homogeneity in the admission and socio-professional profiles within a related disciplinary field. Both degrees belong to the same teacher training core (Social Sciences and Humanities) and share similar entry profiles and vocational orientations. These disciplines, traditionally associated with high use of communicative and social skills, align closely with the dynamics of social media. On the other hand, both groups share the same socio digital context. Primary and Pre-primary students are exposed to a similar digital ecosystem. Both must prepare to work with minors in the future, which implies facing similar digital risks and opportunities (cyberbullying, grooming, didactic use of ICT) in the classroom. In addition, initial training in digital competence and technology use is

standardised within the same Faculty or Area of Knowledge, leading to a similarity in the adoption and quantity of personal tools.

5.3. Age

Focusing on the relationship between student age and the number of social media platforms used, the Kruskal-Wallis test results yielded a test statistic of $\chi^2 = 15.442$ with a p value of .001, which shows a statistically significant association with age. This confirms that the number of social networks used in everyday life depends on the respondent's age. The general trend observed in the mean ranks (Table 2) and the box plot (Figure 1) indicates that, as age increases, use tends to decrease, with the lowest means found in the 26-30 and, especially, the 31-50 age groups. Conversely, the 18-20 and 21-25 age groups maintain similar levels of use.

To identify the specific pairs of age groups that differ, a Bonferroni post hoc test was applied (Table 4). It revealed that the 31-50 age group shows statistically significant differences compared to the two youngest groups (18-20 and 21-25 years).

This suggests the existence of a significant gap in social media use between participants under 25 and those over 30. The younger groups have a higher mean score on the "Social media" variable (1.094 points higher for 18-20 years and 1.121 points higher for 21-25 years). In contrast, no significant differences were found among the three youngest age groups (18-20, 21-25 and 26-30 years), indicating that these three groups (18-30 years) behave in a statistically homogeneous manner.

These findings align with the theory of the Generational Digital Divide or the distinction between "Digital Natives" and "Digital Immigrants". Younger students (18-25 years) have grown up in an environment of digital globalisation and adopt multiple social platforms as essential tools for socialisation, communication and academic extension. Their high use reflects greater "literacy" and functional dependence on these technologies. However, older students (31-50 years) are characterised by a later and more utilitarian adoption of social networks. Their lower quantitative use does not necessarily imply exclusion; rather, it may be due to a reduced need for socialisation or exploration across multiple platforms, a preference for more traditional communication channels or the use of social networks for more specific purposes (e.g., professional or family-oriented), limiting the accumulation of platforms. The 26-30 age cohort acts as a transitional group. This indicates that, in our university context, age is the main predictor of quantitative social media use, marking a turning point in the massive and exploratory adoption of platforms around the age of 25–30.

6. Conclusions

The main objective of this study was to analyse whether there are statistically significant differences in the number of social networks used by respondents in relation to their degree programme, gender and age. This analysis is particularly pertinent given the diverse age demographics currently present in Spanish universities, where levels of technological proficiency, access, and social media engagement may vary considerably. Consequently, these factors must be considered when integrating digital tools into curricula and adapting pedagogical strategies to different student profiles.

Of the three sociodemographic variables examined, age proved to be the most relevant and significant factor in explaining differences in the number of social networks used by university students. Neither gender nor degree showed a statistically significant influence on quantitative use of networks. Therefore, our initial hypothesis, which posited that there are statistically significant differences in the number of social networks used by pre service teachers according to gender, degree and age (H0), While the "age" variable yielded significant differences, the data failed to show a significant impact for gender or degree.

From the point of view of the results, the key finding is the marked age-based difference that establishes two clear statistical clusters: a group of "younger users" (18-25 years), with significantly higher mean scores, who make intensive and diversified use of networks, and a group of "older users" (31-50 years), with lower mean scores, who approach these tools in a more

selective and functional way. The study highlights the existence of a generational digital divide in social media use among university students, manifesting in differentiated patterns of access, frequency, and integration of these platforms into the academic experience. This segmentation confirms that age remains a relevant factor for understanding technological uses in higher education, where younger age groups, known as “digital natives”, exhibit greater adoption and use of platforms.

On the other hand, the lack of statistical significance regarding gender may indicate that the digital divide has effectively closed at the level of access and quantitative use. However, the homogeneity observed in the number of social media platforms used should not be interpreted as complete equality. Rather, it suggests that future research should shift its focus from “how much” to “how” these platforms are used, exploring qualitative use, specific skills and different risks or purposes of use between genders.

Similarly, the degree programme does not appear to be a factor that limits or promotes the number of social networks in a differential way between these two pedagogical groups. The homogeneity in the admission and socio professional profile of these students, as future teachers, cancels out the effect of degree on the purely quantitative variable. A possible future line of research should focus on the qualitative or pedagogical use that these two groups may make of this tool. It is very likely that the difference between Primary and Pre-primary Education does not lie in how many networks they use, but in how they plan to apply them in their future professional practice. In Pre-primary Education, the pedagogical use of social networks may be more limited or indirect due to strict regulations on children’s privacy and age. Students’ personal use may be more focused on searching for teaching resources or networking with other teachers. In contrast, Primary Education may envision a broader application, given that they will work with children at ages where social media use becomes a critical issue—specifically during pre-adolescence, a stage where phenomena such as cyberbullying unfortunately begin to emerge.

The most noteworthy practical implication derived from the significant age-based differences, is the suggestion that training programmes aiming at integrating social media tools into university teaching should consider the segmentation of pedagogical strategies. Interventions designed for 18-25-year-old students may not be directly applicable or effective for the 31-50-year-old group, given their lower familiarity with or use of these platforms. The effectiveness of integrating social networks into teaching depends not only on availability (first level of the divide), but also on the alignment between the technological tool and the user’s skills/motivations for the specific task (Technology Task Fit, TTF).

As mentioned above, TTF (Goodhue & Thompson, 1995) holds that performance or success in a specific task (academic or professional) will only improve if the capabilities of the technology match the demands of that task and the characteristics of the user. To maximize performance, the characteristics of these three interdependent components—task, technology and user—must align. Low performance (or low pedagogical effectiveness) occurs when there is a mismatch between the user and the technology in relation to the task. The practical application of TTF requires training programmes to adapt the characteristics of the technology or modulate tasks according to user characteristics (age, in this case). By segmenting, teachers do not only address age; they are implementing an instructional design model that maximises TTF for each student profile, ensuring that digital technology acts as a facilitator rather than an obstacle to the learning process.

Therefore, from an institutional perspective, it is imperative to plan training actions that address these differences without falling into simplistic stereotypes such as "digital natives" or "immigrants." Universities should foster teacher professional development programmes that promote a pedagogically intentional—rather than merely instrumental—use of social networks, tailored to the specific characteristics of each group. Likewise, it is recommended to incorporate flexible digital competence pathways for students, ranging from basic literacy to critical management of digital identity and information quality. Finally, in course design, it is advisable to diversify academic communication channels and formats in order to ensure equity and avoid biases that implicitly favour those already making intensive use of social networks.

An interesting future line of research could focus on cluster analysis to identify user profiles beyond simple demographic variables, combining the number of networks with time of use and type of content consumed. The analysis in this study only determined that the number of social networks does not vary significantly by gender or degree. This implies that the number of networks per se is not the defining characteristic. Cluster analysis would make it possible to combine this quantitative variable with deeper usage factors, generating user typologies or segments of digital behaviour that could be significantly different.

Despite these considerations, the study presents some limitations that should be borne in mind when interpreting the results. As the study was conducted at a single institution within specific Education degrees, with data obtained through a questionnaire at a single point in time, caution is advised when generalising the findings to other contexts and disciplines. Nevertheless, these constraints do not diminish the value of the contribution made, which offers a systematic first approximation of the generational digital divide in social media use within higher education and establishes clear pathways for future research.

References

Al-Rahmi, A. M., Shamsuddin, A. B., y Alismaiel, O. A. (2020). Task-Technology Fit Model: The Factors Affecting Students' Academic Performance in Higher Education. *Universal Journal of Educational Research*, *8*(12), 6849–6862. https://doi.org/10.13189/ujer.2020.081249

Cabero-Almenara, J. (2020). Reflexiones sobre la competencia digital docente. *Cuadernos de Pedagogía*, *530*.

Cabero-Almenara, J. (2022). Competencias digitales de estudiantes técnico-profesionales: creación de un modelo causal desde un enfoque PLS-SEM. *Campus Virtuales, 11*(1), 167–179.

Cahyono, N. A. E., Herawati, N. Y. W., y Anshory, N. A. M. A. (2022). Online teaching by digital native and digital immigrant lecturers of higher education. *International Journal of Innovative Technologies in Social Science*, *4*(36). https://doi.org/10.31435/rsglobal_ijitss/30122022/7934

Deng, X., y El Hag, S. (2024). Digital Inequality and Two Levels of the Digital Divide in Online Learning: A Mixed Methods Study of Underserved College Students. *Journal of Information Systems Education*, *35*(3), 377–389. https://doi.org/10.62273/SSIF6302

Erwin, E., y Dakhalan, A. M. (2024). Ethics of Using Social Media for Learning: Encouraging Appreciation and Responsibility. *Scientechno: Journal of Science and Technology*, *3*(2), 215–232. https://doi.org/10.70177/scientechno.v3i2.1355

Faure-Carvallo, A., Nieto-Fernández, S., Villalba-Palacín, V., y Gustems-Carnicer, J. (2023). Redes sociales y Educación Superior en la era COVID-19: una revisión sistemática. *Education in the Knowledge Society (EKS), 24,* e29929. https://doi.org/10.14201/eks.29929

Gong, Z., Guo, Y., y Tan, J. (2025). Social media use and academic performance among college students: the chain mediating roles of social anxiety and fear of missing out and the moderating effect of teacher-student relationship. *Frontiers in Psychology*, *16,* 1649890. https://doi.org/10.3389/fpsyg.2025.1649890

Goodhue, D. L., y Thompson, R. L. (1995). Task-Technology Fit and Individual Performance. *MIS Quarterly*, *19*(2), 213–236. https://doi.org/10.2307/249689

Fernández-Navas, M., Alcaraz-Salarirche, N., y Pérez-Granados, L. (2021). Estado y problemas de la investigación cualitativa en Educación: Divulgación, investigación y acceso del profesorado universitario. Archivos Analíticos de Políticas Educativas, *29*(46). https://doi.org/10.14507/epaa.29.4964

Herrera-Solórzano, M., Hernando Gómez, A., y Marín-Gutiérrez, I. (2025). Clasificación generacional y competencias digitales en la comunicación profesional: un análisis desde el enfoque tecnológico. *Universitas XX1*, *42*, 143–165. https://doi.org/10.17163/uni.n42.2025.06

Janschitz, G., y Penker, M. (2022). How digital are 'digital natives' actually? Developing an instrument to measure the degree of digitalisation of university students – the DDS-Index.

Bulletin of Sociological Methodology/Bulletin de Méthodologie Sociologique, *153*(1), 127–159. https://doi.org/10.1177/07591063211061760

Liu, K., Yao, J., Tao, D., y Yang, T. (2023). Influence of Individual-technology-task-environment Fit on University Student Online Learning Performance: The Mediating Role of Behavioral, Emotional, and Cognitive Engagement. *Education and Information Technologies*, *29*, 1–20. https://doi.org/10.1007/s10639-023-11833-2

Martín-Cárdaba, M. A., Lafuente-Pérez, P., Durán-Vilches, M., y Solano-Altaba, M. (2024). Estereotipos de género y redes sociales: consumo de contenido generado por influencers entre los preadolescentes y adolescentes. *Doxa Comunicación. Revista Interdisciplinar de Estudios de Comunicación y Ciencias Sociales*, *38*, 81–97. https://doi.org/10.31921/doxacom.n38a2034

Mejía-Lobo, M., González-Cortés, J. H., y Gómez-Tabares, A. S. (2023). Diferencias por edad y género en el uso de redes sociales y su relación con la depresión y el desempeño académico en estudiantes universitarios. *Tecnohumanismo*, *3*(3), 13–33. https://doi.org/10.53673/th.v3i3.234

Olavarría, C. S., y Lozano, M. E. E. C. (2021). Competencias digitales en Educación Superior. *Etic@Net Revista Científica Electrónica de Educación y Comunicación en la Sociedad del Conocimiento*, *21*(1), 28–50. https://doi.org/10.30827/eticanet.v21i1.16944

Ortega, E. A. T., Ahumada, O. I. F., Hernández, P. A. C., y Ramos, C. C. (2024). Efecto postpandemia en la brecha digital generacional entre maestros y alumnos de la FCA. *Revista Scientific*, *9*(32), 169–188. https://doi.org/10.29394/scientific.issn.2542-2987.2024.9.32.8.169-188

Prensky, M. (2001). Digital Natives, Digital Immigrants Part 1. *On the Horizon*, *9*(5), 1–6. https://doi.org/10.1108/10748120110424816

Rojas Chuquihuaccha, G. (2024). Estudiantes universitarios en redes sociales y su alfabetización tecnológica en la era digital. *Aula Virtual*, *5*(12), e329. https://doi.org/10.5281/zenodo.12797401

Sakhieva, R. G., Meshkova, I. N., Gimaliev, V. G., Melnik, M. V., Shindryaeva, N. N., y Zhdanov, S. P. (2024). Exploring the relationship between social media use and academic performance. *Online Journal of Communication and Media Technologies*, *14*(1), e202408. https://doi.org/10.30935/ojcmt/14133

Witcher, S. D., y Sasso, P. A. (2022). A Comparison of Generational Differences in Faculty Perceptions of Online versus Face-to-Face Professional Development – A Community College Case Study. *College Teaching*, *72*(2), 140–151. https://doi.org/10.1080/87567555.2022.2124394