

Assessing the Digital Literacy Levels of First-Year Students in Bayelsa State Universities, Nigeria

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Abstract

This study investigated digital literacy among first-year university students in Bayelsa State. The study examined first-year students' level of digital literacy, their competence in using digital communication and collaboration tools, the challenges they face in using digital technologies for academic activities, and strategies for improving digital literacy among first-year students. A descriptive survey research design was adopted for the study. The study population consisted of first-year students in selected universities in Bayelsa State. A structured questionnaire titled "Digital Literacy Questionnaire for First-Year Students (DLQFS)" was used for data collection. Experts in Library and Information Science and Educational Technology validated the instrument, and the researchers established its reliability using Cronbach's alpha. The researchers distributed 200 copies of the questionnaire; 186 were correctly completed and returned, for a response rate of 93%. The researchers analysed the data using frequency counts, percentages, mean scores, and standard deviation. The findings revealed that first-year students have a moderate level of digital literacy. The study also showed that students demonstrated competence in basic digital communication tools such as email, WhatsApp, and participation in online classes, but lower competence in advanced collaborative technologies such as cloud-based platforms and online collaborative learning systems. The study also identified poor internet connectivity, inadequate electricity supply, high internet data costs, insufficient ICT infrastructure, inadequate digital literacy training, and lack of technical support as major challenges affecting students' use of digital technologies for academic activities. The study concluded that digital literacy is essential for effective participation in modern university education and that institutional support is necessary for improving students' digital competence. The study recommended that universities should organise digital literacy training programmes, provide adequate ICT facilities, improve internet connectivity, integrate digital literacy courses into university curricula, and establish technical support services to enhance students' academic use of digital technologies.

Keywords: Digital literacy, first-year students, digital technologies, collaboration tools, universities, Bayelsa State

Introduction

Rapidly evolving digital technologies have transformed university education globally. Universities are now depending heavily on digital platforms for teaching, learning, research, communication, and administration. Learning Management Systems (LMS), digital libraries, institutional repositories, virtual classrooms, and online assessment tools have become integral components of modern university education. As a result, digital literacy has emerged as a foundational competency for academic success in the 21st-century university system.

Nagari, Sahid, & Hussin (2023) define digital literacy as the possession of knowledge, skills, and behaviour related to the use of digital technologies such as tablets, laptops, smartphones, desktop PCs (including personal

computers), mobile devices, smartphones, tablet computers, calculators/tables, and handheld devices. The ability to access, understand, and utilise information in various formats from different sources through digital technologies is what defines digital literacy. Globally, it encompasses proficiency in using digital tools to search and navigate through digital environments. It is not just about using a computer or mobile phone; it is digital literacy. Literally, it includes the ability to find information, evaluate it and use it to create and share it in a critical and ethical way. Globally, it encompasses proficiency in using digital tools to search and navigate through digital environments. It is not just about using a computer or mobile phone; it is digital literacy. Literally, it includes the ability to find information, evaluate it and use it to create and share it in a critical and ethical way

Information and Communication Technologies (ICT) have become more integrated into university education in Nigeria over the past decade. Why is this so? With the advent of COVID-19, universities were forced to shift more to remote learning environments and increasingly adopted electronic platforms (e-learning), online registration systems, electronic databases, and virtual academic services (VAS). This shift highlighted the importance of digital readiness for students and staff. Despite advances in institutional digital infrastructure, uncertainty remains about the level of digital readiness among newly admitted students. First-year students, as defined by Gamze, O. (2021), are those who have recently entered a higher education institution and are in their first year of study. They are often called freshmen, fresh entrants, or newly admitted undergraduates. First-year students admitted to universities come from diverse socio-economic and educational backgrounds. While some students may have had prior exposure to structured ICT training and stable internet access, others, particularly those from rural or under-resourced communities, may have limited opportunities to develop formal digital skills.

Assessing digital literacy levels among first-year students is therefore critical to identify skill gaps, address digital divides, inform curriculum development, and strengthen institutional support systems. Establishing a clear understanding of incoming students' digital competence profiles will enable universities to develop structured digital literacy frameworks that promote equitable access to digital learning opportunities and enhance overall academic success (Alex-Nmecha & Ejitagha, 2023).

Statement of the Problem

The rapid integration of digital technologies into university education has transformed academic activities in higher institutions across Nigeria. Universities now depend heavily on digital platforms such as learning management systems, online databases, virtual classrooms, digital libraries, and communication tools for teaching, learning, research, and academic interaction. As a result, students are expected to have adequate digital literacy skills to participate effectively in these technology-driven academic environments.

However, many first-year students in universities in Bayelsa State appear to have low levels of digital literacy and limited competence in using digital technologies for academic activities. While some students are exposed to ICT tools and internet facilities before admission to the university, many others, especially those from rural and under-resourced backgrounds, enter the university with inadequate digital skills and limited experience using academic digital tools. Inadequate digital literacy among first-year students may negatively affect their ability to access online academic resources, use digital communication and collaboration tools, participate effectively in online learning activities, conduct academic research, and complete technology-based assignments.

In addition, poor digital competence may lead to low academic performance, limited participation in digital learning environments, frustration with university digital platforms, and increased digital inequality among students. If this problem is ignored, many first-year students may continue to struggle to adapt to modern university learning systems, limiting their academic engagement, learning outcomes, and overall educational development in an increasingly digital society.

Therefore, there is a need to assess the level of digital literacy among first-year students in universities in Bayelsa State in order to determine their competence in the use of digital technologies for academic activities, identify the challenges they face, and provide appropriate recommendations that can improve digital literacy development, strengthen institutional support systems, and enhance students' academic success in digital learning environments.

Objectives of the Study

The major objective of this study was to assess the digital literacy levels of first-year students in universities in Bayelsa State, Nigeria. The study seeks to:

1. Determine the level of digital literacy among first-year students in universities in Bayelsa State.
2. Examine the extent to which first-year students are competent in the use of digital communication and collaboration tools in universities in Bayelsa State.
3. Identify the challenges faced by first-year students in utilising digital technologies for academic activities in universities in Bayelsa State.

Review of Related Literature.

The Level of Digital Literacy among First-Year Students in Universities

Digital literacy has become an important requirement for students in higher education, especially with the growing use of technology in teaching and learning. However, studies show that many first-year university students still have only moderate digital competence. Sánchez-Caballé et al. (2020) observed that many students lack important digital skills such as evaluating information, using information ethically, creating digital content, and applying critical thinking when using online resources. Their review further revealed that students are generally more familiar with communication technologies and social media than with academic and information management tools. The researchers therefore stressed the need for universities to develop strategies to improve students' digital competencies.

Similarly, Gamze (2020) examined the digital literacy skills of first-year university students and found that many students experienced difficulties with advanced digital skills such as assessing online sources, organising digital information, and effectively using digital tools for academic tasks. The study also discovered that students often believed they were more digitally competent than they actually were. Based on these findings, the researcher recommended that universities introduce digital literacy training programmes and diagnostic assessments for newly admitted students.

Studies have further shown that students' digital literacy levels are influenced by factors such as access to digital devices, internet connectivity, socio-economic background, educational exposure, and previous ICT experience. According to Audrin and Audrin (2022), students from urban and technologically advanced educational backgrounds generally demonstrate better digital literacy skills than students from rural or under-resourced environments. This indicates that unequal access to technology contributes significantly to differences in students' digital competence when they enter university.

Students with strong digital literacy skills are usually better able to conduct online research, participate in virtual learning environments, communicate through digital platforms, and complete academic tasks effectively. In contrast, students with poor digital competence often struggle to navigate online learning systems and identify credible academic information (Gutiérrez-Ángel et al., 2022).

First-Year Students' Competency in the Use of Digital Communication and Collaboration Tools in Universities

Digital communication and collaboration tools have become very important in higher education because they support teaching, learning, interaction, and academic activities. Universities now use platforms such as email, Zoom, Google Meet, Microsoft Teams, WhatsApp, Google Classroom, Moodle, and social media applications for communication, collaborative learning, assignment submission, and information sharing. As a result, first-year students are expected to have the skills to use these tools effectively for academic purposes.

Digital communication competence refers to the ability to use digital technologies to communicate and share information appropriately and effectively in online environments. Collaboration competence involves the ability to work with others through digital platforms to exchange ideas, complete assignments, and participate in virtual learning communities. Smith and Storrs (2023) explained that digital communication and collaboration are important aspects of digital literacy needed for effective participation in modern higher education. Their study

revealed that undergraduate students considered digital communication tools useful for learning, especially in discussions, information sharing, collaboration, and participation in academic activities.

Several studies have examined first-year university students' competence in using digital communication and collaboration technologies. Gallardo-Echenique, Bullen, and Marqués-Molíás (2016) found that most first-year students were comfortable using digital technologies for social interaction. However, the study revealed that students mainly used social networking platforms for personal communication rather than academic collaboration. The researchers also observed that many students still preferred face-to-face communication for academic purposes despite increased exposure to digital tools.

In another study, Budiman and Syafrony (2023) assessed the digital literacy of first-year students in online learning environments and reported that students' competence in communication and collaboration tools was only moderate. Although students could use messaging applications and participate in online discussions, many lacked advanced collaborative skills such as managing virtual teamwork, participating effectively in online academic forums, and using collaborative productivity tools efficiently. The researchers therefore concluded that first-year students require additional support and training to improve their communication and collaboration skills in digital learning environments.

In Nigeria, studies have also revealed differences in students' competence in using ICT communication tools. Oyigan, Okiy, and Emojorho (2025) reported that although many university students were aware of ICT tools, their effective use for academic communication and collaboration varied. The study identified inadequate infrastructure, poor internet connectivity, and limited practical exposure to digital tools as factors responsible for low digital competence among undergraduates.

Research has also shown that the COVID-19 pandemic increased the use of digital communication platforms in universities. During the pandemic, universities adopted online learning systems that required students to use tools such as Zoom, Google Classroom, Microsoft Teams, and Canvas for lectures and collaborative activities. Hamzat (2025) observed that although students were aware of these online learning applications, differences existed in their ease of use and confidence in using digital learning tools. While some students adapted quickly to online communication platforms, others struggled with virtual interaction, collaborative assignments, and active participation in digital learning.

Studies have identified several factors that influence first-year students' competence in digital communication and collaboration tools. These factors include prior ICT exposure, socio-economic background, internet accessibility, institutional support, digital training opportunities, and students' attitudes toward technology. Asamoah, Ananga, and Annor (2024) found that students' digital skills varied according to demographic and educational factors. The study further revealed that some students lacked sufficient skills in multimedia and collaborative platforms, which negatively affected their participation in digital academic activities.

Challenges Faced by First-Year Students in Utilising Digital Technologies for Academic Activities in Universities

The integration of digital technologies into higher education has transformed teaching, learning, communication, and research activities in universities worldwide. Technologies such as learning management systems, online databases, digital libraries, communication platforms, and virtual learning applications are now widely used to support academic activities. Despite these benefits, many first-year university students still face several challenges in using them effectively for academic purposes. One major challenge first-year students face is inadequate digital literacy. Although many students are familiar with social media and basic smartphone applications, they often lack the advanced digital competencies required for academic work. Faloye (2019) observed that students with limited exposure to technology struggled to use application software, navigate online platforms, download academic materials, and conduct online research. The study also found that computer anxiety and low self-confidence negatively affected students' ability to use digital technologies effectively for learning.

Similarly, Nikolopoulou, Tsimperidis, and Tsinakos (2023) identified several barriers to using mobile technologies for academic learning among undergraduate students. These barriers include limited technical skills, difficulty adapting to digital learning systems, distractions from non-academic activities, and lack of confidence

in using educational technologies. The researchers argued that although mobile technologies provide flexibility in learning, students still encounter several difficulties that reduce the effectiveness of digital learning experiences. Poor internet connectivity and inadequate technological infrastructure also remain major obstacles for first-year students. A study of first-year chemistry students in South Africa found that unreliable internet access limited students' ability to attend virtual lectures, access online resources, and participate in interactive learning activities. The study further showed that students from rural areas were more disadvantaged because of poor network coverage and limited access to digital devices (Dyantyi-Gwanya, Mavenge, Ncanywa, & Asaleye, 2025). In addition, limited access to technological resources remains a serious challenge in many developing countries. Faloye (2019) reported that first-year students frequently encounter inadequate technological facilities, such as insufficient computers, printers, scanners, and an unstable electricity supply, within university environments. These infrastructural challenges negatively affect students' academic engagement and limit opportunities to develop digital competence.

Studies conducted in Nigeria have also highlighted the difficulties associated with ICT utilisation among university students. Dada (2025) examined the challenges of ICT use among undergraduate students in Federal University Dutsin-Ma and found that inadequate ICT infrastructure, unstable power supply, poor internet services, and insufficient technical support hinder the effective use of digital technologies in higher education. The study found that these challenges reduce students' participation in digital learning activities and negatively affect academic performance.

Methods

The study used a descriptive survey research design, enabling the researcher to gather information on students' opinions, attitudes, and practices regarding digital literacy through questionnaires. The study population consisted of first-year undergraduate students from Niger Delta University, the University of Africa, Toru-Orua, and Bayelsa Medical University. A sample of 200 students was selected using simple random sampling to ensure equal chances of participation. The sample was evenly distributed between the three universities, with 66 respondents selected from each institution. Data were collected using a structured questionnaire titled "Digital Literacy Questionnaire for First-Year Students (DLQFS)." The instrument included four sections covering demographic information, level of digital literacy, competence in digital communication tools, and challenges in using digital technologies. The questionnaire used a four-point Likert scale ranging from Strongly Agree to Strongly Disagree. To ensure validity, experts in Library and Information Science and Educational Technology reviewed the questionnaire, and the researchers incorporated their corrections and suggestions into the final version. Reliability was established through a pilot study involving 20 students outside the study area using Cronbach's alpha, which produced a reliability coefficient of 0.82, indicating that the instrument was reliable. The researcher, assisted by two research assistants, personally administered and retrieved the questionnaires to ensure a high response rate. The researcher analysed the collected data using descriptive statistics such as frequency counts, percentages, mean scores, and standard deviation. A criterion mean of 2.50 was used to determine agreement or disagreement on questionnaire items.

Results and Discussion

The data Analysis is based on the research questions:

Research Question One: What is the level of digital literacy among first-year students in universities in Bayelsa State?

Table 1: Mean Ratings on the Level of Digital Literacy among First-Year Students

S/N	Items	Mean	Std. Dev.	Decision
1	I can operate a computer effectively.	3.12	0.81	Agree
2	I can browse the internet without assistance.	3.28	0.76	Agree
3	I can search for academic information online.	2.94	0.89	Agree

S/N	Items	Mean	Std. Dev.	Decision
4	I can use search engines for academic purposes.	3.10	0.84	Agree
5	I can download and upload academic materials online.	3.06	0.87	Agree
6	I can use Microsoft Word for assignments.	2.88	0.91	Agree
7	I can use PowerPoint presentation software.	2.71	0.95	Agree
8	I can access digital library resources.	2.63	1.02	Agree
9	I can evaluate online information sources effectively.	2.49	1.01	Disagree
10	I understand ethical use of digital information.	2.58	0.96	Agree
	Grand Mean	2.88		Agree

Criterion Mean = 2.50

Table 1 reveals that first-year students demonstrated a moderate level of digital literacy with a grand mean score of 2.88. Respondents indicated competence in basic digital operations such as internet browsing, online searching, and use of Microsoft Word. However, students showed weakness in critically evaluating online information sources.

Research Question Two: To what extent are first-year students competent in the use of digital communication and collaboration tools in universities?

Table 2: Mean Ratings on Competence in the Use of Digital Communication and Collaboration Tools

S/N	Items	Mean	Std. Dev.	Decision
11	I can use email for academic communication.	3.01	0.88	Agree
12	I can participate in online classes using Zoom or Google Meet.	2.95	0.84	Agree
13	I can use WhatsApp or Telegram for academic discussions.	3.35	0.70	Agree
14	I can collaborate with classmates using online platforms.	2.87	0.92	Agree
15	I can share academic documents digitally.	3.06	0.79	Agree
16	I can use Learning Management Systems effectively.	2.55	0.98	Agree
17	I can participate in virtual group assignments.	2.69	0.94	Agree
18	I can communicate effectively with lecturers digitally.	2.61	0.97	Agree
19	I can use Google Drive and cloud tools.	2.48	1.03	Disagree
20	I can manage online collaborative learning activities.	2.44	1.01	Disagree
	Grand Mean	2.80		Agree

Criterion Mean = 2.50

Table 2 indicates that first-year students had moderate competence in using digital communication and collaboration tools, with a grand mean of 2.80. Students were more competent in using social communication tools such as WhatsApp and email but less competent in advanced collaborative tools such as cloud-based platforms and online collaborative learning systems.

Research Question Three: What are the challenges faced by first-year students in utilising digital technologies for academic activities in universities?

Table 3: Mean Ratings on Challenges Faced by First-Year Students in Utilising Digital Technologies

S/N	Items	Mean	Std. Dev.	Decision
21	Poor internet connectivity affects digital learning.	3.44	0.71	Agree
22	Lack of digital devices limits academic activities.	3.01	0.88	Agree
23	Inadequate electricity supply affects digital technology use.	3.52	0.66	Agree

S/N	Items	Mean	Std. Dev.	Decision
24	I lack adequate digital literacy training.	2.94	0.92	Agree
25	High cost of internet data affects online learning.	3.47	0.69	Agree
26	I experience difficulty using online learning platforms.	2.76	0.94	Agree
27	I find it difficult to evaluate online academic information.	2.68	0.97	Agree
28	Lack of technical support affects the use of digital tools.	3.08	0.83	Agree
29	Social media distractions affect academic activities.	3.21	0.80	Agree
30	My educational background did not prepare me adequately.	2.83	0.93	Agree
	Grand Mean	3.09		Agree

Criterion Mean = 2.50

Table 3 shows that first-year students face several challenges in utilising digital technologies for academic activities. The major challenges identified include inadequate electricity supply, poor internet connectivity, high internet data costs, inadequate digital literacy training, and social media distractions.

Discussion of Findings

The study's findings revealed that first-year university students in Bayelsa State possess a moderate level of digital literacy, with a grand mean score above the criterion mean of 2.50. Respondents demonstrated competence in basic digital skills, including internet browsing, online searching, downloading academic materials, and using Microsoft Word for assignments and other academic tasks. However, students showed lower competence in advanced digital literacy skills, such as critically evaluating online information sources and effectively using digital library resources. These findings imply that although many first-year students are familiar with basic digital technologies and online activities, they may still lack the higher-order digital competencies required for effective academic engagement in modern university environments. The moderate level of digital literacy observed among students may reflect differences in educational exposure, socio-economic background, and access to ICT facilities before university admission. These findings align with Sánchez-Caballé, Gisbert-Cervera, and Esteve-Mon (2020), who reported that university students generally have moderate digital competence but often lack advanced academic digital skills such as information evaluation and digital content management. This aligns with Audrin and Audrin (2022), who found that first-year undergraduate students demonstrated varying levels of digital literacy depending on their prior ICT exposure and educational background.

The study's findings also revealed that first-year students demonstrated moderate competence in using digital communication and collaboration tools. Respondents showed greater competence with common communication tools such as WhatsApp, Telegram, and email, as well as in participating in online classes via Zoom or Google Meet. However, students showed lower competence with cloud-based collaborative tools such as Google Drive and other online collaborative learning platforms. This suggests that while students are comfortable using digital technologies for social communication and basic academic interaction, many still struggle to use advanced collaborative technologies that support group learning, virtual teamwork, and cloud-based academic activities. This may be because many students primarily use digital technologies for personal communication rather than structured academic collaboration. This finding aligns with Budiman and Syafrony (2023), who found that first-year students have moderate competence in digital communication technologies but struggle with advanced online collaboration and virtual teamwork activities. This also aligns with Gallardo-Echenique, Bullen, and Marqués-Molíás (2016), who observed that students are more familiar with social communication technologies than with academic collaborative platforms.

Furthermore, the study's findings revealed that first-year students face several challenges in using digital technologies for academic activities. The major challenges identified include poor internet connectivity, inadequate electricity supply, the high cost of internet data, inadequate digital literacy training, a lack of technical support services, limited access to digital devices, and distractions from social media platforms. The findings indicate that inadequate digital literacy training and limited institutional support may hinder students' confidence

and competence in using educational technologies. These findings align with Faloye (2019), who reported that first-year students face challenges related to inadequate ICT infrastructure, limited access to technology, and insufficient digital literacy skills. They also align with Dada (2025), who found that students from disadvantaged backgrounds often encounter barriers to accessing and utilising digital communication technologies in higher education. In addition, the findings support the study by Nikolopoulou, Tsimperidis, and Tsinakos (2023), who identified poor technical skills, technological barriers, and digital distractions as major challenges affecting students' use of educational technologies.

Conclusion

The study concluded that digital literacy is essential for effective participation in modern university education. Although first-year students in universities in Bayelsa State possess moderate digital literacy skills, many still face challenges in using digital technologies effectively for academic purposes.

The study also found that students are more competent in basic digital communication tools than in advanced digital collaboration and academic technologies, showing that familiarity with social media and communication platforms does not necessarily translate into strong academic digital competence.

Furthermore, the study found that poor internet connectivity, inadequate electricity supply, limited ICT facilities, high internet data costs, inadequate digital literacy training, and insufficient institutional support negatively affect students' use of digital technologies for learning.

The study therefore concluded that improving digital literacy among first-year students requires deliberate efforts by universities, including providing adequate ICT infrastructure, structured digital literacy programmes, digital orientation services, and supportive learning environments to help students adapt to digital learning systems and improve academic performance.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Universities in Bayelsa State should organise regular digital literacy training programmes and workshops for first-year students to improve their competence in the use of digital technologies for academic activities.
2. Lecturers should integrate digital technologies and collaborative learning tools into teaching and learning activities to encourage students' active participation in digital learning environments.
3. Universities should establish technical support units to assist students in resolving technological challenges associated with the use of digital platforms and online learning systems.

References

- Alex-Nmecha, J. C., & Ejitagha, M. (2023). An evaluation of digital information literacy skills among undergraduate students of Library and Information Science in universities in Nigeria. *Mousaion: South African Journal of Information Studies*, 41(2).
- Asamoah, M. K., Ananga, P., & Annor, F. (2024). Investigating digital artistry of university students in a low-tech economy. *Education and Information Technologies*.
- Audrin, C., & Audrin, B. (2022). Key factors in digital literacy in learning and education: A systematic literature review using text mining. *Education and Information Technologies*, 27, 7395–7419.
- Budiman, R., & Syafrony, A. I. (2023). The digital literacy of first-year students and its function in an online method of delivery. *Asian Association of Open Universities Journal*, 18(2), 176–186.

- Dada, K. S. J. (2025). Assessment on the challenges of using ICT for teaching undergraduate students in Federal University Dutsin-Ma, Katsina. *Journal in Teaching and Education Area*.
- Dyantyi-Gwanya, N., Mavenge, L., Ncanywa, T., & Asaleye, A. J. (2025). Digital literacy and chemistry proficiency among first-year university students in Eastern Cape, South Africa. *Frontiers in Education*, 10.
- Faloye, S. T. (2019). *Managing the challenges of digital divide among first year students: A case of UKZN*. University of KwaZulu-Natal.
- Gallardo-Echenique, E. E., Bullen, M., & Marqués-Molíás, L. (2016). Student communication and study habits of first-year university students in the digital era. *Canadian Journal of Learning and Technology*, 42(1).
- Gamze, O. (2020). Defining the need: Digital literacy skills for first-year university students. *Journal of Applied Research in Higher Education*, 13(4), 925–943.
- Gutiérrez-Ángel, N., Sánchez-García, J. N., Mercader-Rubio, I., García-Martín, J., & Brito-Costa, S. (2022). Digital literacy in the university setting: A literature review of empirical studies between 2010 and 2021. *Frontiers in Psychology*, 13, 896800.
- Hamzat, A. A. (2025). Bridging the digital gap: Students' awareness, ease of use, and self-efficacy towards online learning among university students in Nigeria. *At-Tarbawi: Jurnal Kajian Kependidikan Islam*.
- Nagari, P. M., Sahid, S., & Hussin, M. (2023). Critical success factors for enhancing digital literacy among undergraduate students. *Pegem Journal of Education and Instruction*, 13(4), 45–57.
- Nikolopoulou, K., Tsimperidis, I., & Tsinakos, A. (2023). Undergraduate students' perceived mobile technology-learning barriers in their academic studies: A study in Greece. *Discover Education*, 2(46).
- Oyigan, D., Okiy, R. B., & Emojorho, D. (2025). Assessing the awareness and use of ICT tools among university students in Nigeria: Implications for digital literacy. *International Journal of Multidisciplinary Approach Research and Science*.
- Sánchez-Caballé, A., Gisbert-Cervera, M., & Esteve-Mon, F. (2020). The digital competence of university students: A systematic literature review. *Aloma: Revista de Psicologia, Ciències de l'Educació i de l'Esport*, 38(1), 63–74.
- Smith, E. E., & Storrs, H. (2023). Digital literacies, social media, and undergraduate learning: What do students think they need to know? *International Journal of Educational Technology in Higher Education*, 20(29).