



Assessment of Digital-Technology Skills on ... Fasina, J. E. Et. al., (2025)

Assessment of Digital-Technology Skills on Long-Distance Learning among Educational Technology Postgraduate Students in Tai Solarin University of Education, Ijagun, Ogun State, Nigeria

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Abstract

The study was an assessment of digital-technology skills on long-distance learning among Educational Technology Postgraduate students in Tai Solarin University of Education, Ijagun, Ogun State, Nigeria. Three research questions guided the study. A descriptive research design of survey type was used. The population for this study comprised of all Educational Technology postgraduate students in Tai Solarin University of Education, Ijagun, Ogun State, Nigeria. Only 30 Educational Technology postgraduate students were selected as sample size using purposive sampling technique. Researchers developed questionnaire; titled: students' Digital Technology Skills and Effective Long-Distance Learning Questionnaire (DTSELLQ) was used for data collection with reliability coefficient ($r = .90$). Mean and standard deviation were used for analyzing research questions 1, 2 and 3 while research question 4 was answered using Pearson Product Moment Correlation (PPMC). The findings of the study revealed that information and data literacy, communication, collaboration, content creation and safety and problem-solving were among germane students' digital technology skills needed for effective long-distance learning. Technical difficulty, inadequate access to technology, unreliable internet connectivity, lack of face-to-face interaction and reduction in student engagement and difficulties in building a strong learning community were among the issues facing effective long-distance learning. There was relationship between students' digital technology skills as determinants for effective long-distance learning. It was recommended that there should be effective mechanism to overcome the challenges associated with mastering digital literacy skills among students in tertiary institutions.

Keywords: Student, Digital Technology Skills, Long-Distance Learning

Introduction

Distance learning, also known as distance education or online learning, is a method of education where students and instructors are separated by physical distance and communicate through various technologies, primarily online. It allows students to learn remotely, accessing course materials, lectures, and assessments through online platforms, rather than physically attending a traditional classroom. The core feature is that the instructor and learner are not in the same physical location during instruction. Distance learning relies heavily on technology like the internet, learning management systems (LMS), video conferencing, and online resources to deliver course content and facilitate communication. Distance learning offers flexibility in terms of time and location, allowing students to study at their own pace and schedule, often accommodating work and other commitments. It can make education more accessible to students who might not be able to attend traditional classes due to geographic limitations, physical disabilities, or work schedules (McBrien et al., 2019). Distance learning can encompass a wide range of formats, including fully online courses, hybrid courses (combining online and in-person elements), and even correspondence courses delivered via email. Many distance learning programs utilize online platforms like Moodle, Blackboard, or Canvas to deliver course materials, facilitate discussions, and manage assignments. Long distance learning allows students to complete high school, continuing education and college courses without physically being on campus. Classes may be taken online, through audio or videocassette instruction or by email. In conclusion, distance learning provides a flexible and accessible alternative to traditional education, utilizing technology to connect students and instructors across geographical boundaries (Onasanya, 2024).

Distance learning offers numerous benefits, including flexibility, cost savings, and access to a wider range of educational opportunities. It allows students to learn from anywhere with an internet connection, at their own pace, and often at a lower



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cost compared to traditional learning. It also provides access to a wider variety of courses and programs, including those not available locally. Distance learning allows students to study from anywhere with internet access, eliminating the need to commute to a physical campus and often offer asynchronous learning, allowing students to study at times that fit their individual schedules and commitments. Students can progress through coursework at their own speed, revisiting materials as needed and spending more time on challenging concepts. Furthermore, it can significantly reduce or eliminate costs associated with transportation, accommodation, and sometimes even textbooks. Some online programs offer more affordable tuition rates due to lower overhead costs compared to traditional institutions. It open doors to a wider range of courses and degree programges, including those offered by institutions not located nearby and offer personalized learning experiences, adapting to individual student needs and learning styles (Yusuf, 2023). Through distance learning, this can facilitate collaboration among students from diverse backgrounds and locations. Students must be proactive in managing their time and meeting deadlines, which can enhance their time management skills. Distance learning can help students develop essential digital literacy skills and prepare them for the increasingly remote and digital nature of the modern workforce. Distance learning can be particularly beneficial for students with disabilities, those with social anxiety, or those who face other barriers to traditional learning. However, the effectiveness of distance learning could be aided through digital technology skills (Akpan, 2017). Digital technology skills, also known as digital skills, encompass the abilities and knowledge needed to effectively use digital devices, software, and platforms. These skills range from basic computer literacy to more advanced proficiencies in areas like data analysis, cybersecurity, and digital communication. Essentially, they empower individuals to navigate, utilize, and create in the digital world (Reju & Jita, 2020).

The expansion of remote learning has been significantly aided by technological developments and students' learning is improved via multimedia resources, interactive learning materials, and virtual classrooms (Ozerbas & Erdogan, 2016). Digital technology will continue to advance, allowing remote learning to develop and offer ever-better learning options. Digital technology skills offer significant benefits to students in distance learning environments by enhancing learning experiences, improving technical proficiency, and expanding access to educational resources. These skills facilitate interactive lessons, promote personalized learning, and prepare students for future academic and professional endeavours. It allows for interactive elements like virtual field trips, online quizzes, and multimedia presentations, making lessons more engaging and reducing passive learning (Kissane et al., 2021). In distance learning, through digital technology skills, students gain access to a vast array of online resources, including digital libraries, educational websites, and interactive simulations, enriching their learning beyond traditional textbooks. Digital technology enables personalized learning experiences through adaptive learning platforms and tools that adjust to individual student needs and learning styles, allowing students to learn at their own pace. Distance learning necessitates the use of various digital tools, including learning management systems (LMS), communication platforms, and research tools, fostering digital literacy and technical proficiency (Mampane, 2020). The digital technology skills acquired through distance learning are highly transferable to various professional settings, making students more competitive in the job market (Yusuf, 2023). In distance learning, students become more self-directed and responsible for their learning, developing valuable time management and problem-solving skills. However, it is said that distance learning removes geographical limitations, connecting students with educators and peers from around the world. Students can access learning materials and participate in online classes at their convenience, balancing their studies with other commitments. Also, online courses/distance learning can be more affordable than traditional on-campus programmers reducing the financial burden of education (Yusuf, 2023). In conclusion, distance learning is also well known for online learning and it helps students to get familiar with technology. Students become more proficient in using the technology while learning.

Statement of the Problem

Distance learning offers students several key benefits, primarily revolving around flexibility, cost-effectiveness, and access to a wider range of learning opportunities. Students can learn at their own pace, manage their time more effectively, and balance their studies with other commitments, while developing important technical and self-management skills. However, despite the benefits, the issues of distance learning present several challenges for students, primarily revolving around reduced social interaction, difficulties with focus and motivation, and potential technical issues. These factors can impact academic performance, mental well-being, and overall engagement with the learning process. Also, many concerns have be raised in the literature on the effectiveness of distance learning, but less studies have been conducted on how



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students' digital technology skills could bring about effectiveness of digital learning. This study fill this gap by an assessment of digital-technology skills on long-distance learning among Educational Technology Postgraduate students in Tai Solarin University of Education, Ijagun, Ogun State, Nigeria.

Objectives of the Study

The main objective of the study is to examine students' digital technology skills as determinants for effective long-distance learning in Ogun State. Specifically, the study would to:

1. identify digital technology skills needed for effective long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State
2. examine the issues facing effective long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State;
3. find out the relationship between digital technology skills as determinants for effective long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State.

Research Questions

The following research questions would guide this study:

1. What are the digital technology skills needed for effective long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State?
2. What are the issues facing effective long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State?
3. Is there any relationship between digital technology skills on long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State?

Research Method

The study would use a descriptive research design of survey type. This design was considered very appropriate because the researchers intended to collect information from the selected respondents who would provide answer to the study objectives. The population for this study comprised of Educational Technology postgraduate students in in Tai Solarin University of Education, Ijagun, Ogun State, Nigeria. Only 30 Educational Technology postgraduate students would be used to sample size of the study. This would be selected using purposive sampling technique. The study would use researcher developed questionnaire; titled: students' Digital Technology Skills and Effective Long-Distance Learning Questionnaire (DTSELLQ). The questionnaire (DTSELLQ) requested responses on a four (4) – point scale format which was a modification of 5-point Likert scale. The responses rating scales are as follows: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). The questionnaire would be into two sections A and B. Section A focus on demographic characteristics of the respondents, while section B focused on the related items on students' digital technology skills needed for effective long-distance learning; significance of effective long-distance learning and the issues facing effective long-distance learning. The initial draft of the instrument would be subjected to face and contents validity by the experts from the department of Educational Technology. All the issues raised were duly attended to in order to ensure its content, construct, and criterion validity. To ensure the reliability of the instrument, a test-retest reliability of the instrument was carried out. The copies of the instrument were administered to a sample of 10 Educational Technology postgraduate students of University of Ilorin. Pearson Product Moment Correlation (PPMC) was used to determine the level of reliability coefficient and it was reported as 0.90 as reliability coefficient of the instrument. Data were collected using the validated instrument. The researchers personally administered the questionnaire to the respondents. The researcher ensured that respondents are adequately briefed on the content and procedure for filling the questionnaire. Enough time was given to the respondents to respond to each item in the questionnaire. Mean and standard deviation were used for analyzing research questions 1 and 3 while research question 4 were answered using Pearson Product Moment Correlation (PPMC).

Presentation of Results

Research Question 1: What are the digital technology skills needed for effective long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State?

Table 1: Descriptive statistics on the digital technology skills needed for effective long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State

Assessment of Digital-Technology Skills on ... Fasina, J. E. Et. al., (2025)

Items	Mean	SD
Information and data literacy skills	3.16	.783
Communication skills	3.18	.899
Collaboration skills	2.76	.902
Content creation skills	2.92	.966
Safety and problem-solving skills	2.98	.992
Cluster Mean	3.00	

Source: Field Survey, 2025

Fig. 1: Pie-chart showing students' digital technology skills needed for effective long-distance learning

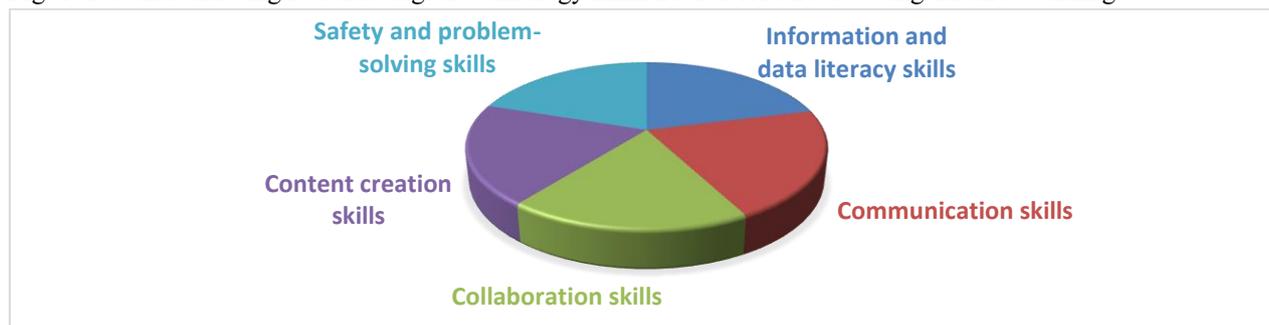


Table 1 revealed that cluster mean was 3.00 and the bench mark was 2.50. Since, $3.00 > 2.50$, this implied that information and data literacy, communication, collaboration, content creation and safety and problem-solving were among digital technology skills needed for effective long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State.

Research Question 2: What are the issues facing effective long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State?

Table 2: Descriptive statistics on the issues facing effective long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State

Items	Mean	SD
Technical difficulty.	3.17	.819
Inadequate access to technology	2.58	.937
Unreliable internet connectivity	2.72	.996
Lack of face-to-face interaction	3.27	.765
Reduction in student engagement and difficulties in building a strong learning community	3.37	.703
Cluster Mean	3.02	

Source: Field Survey, 2025

Fig. 2: Pie-chart showing issues facing effective long-distance learning

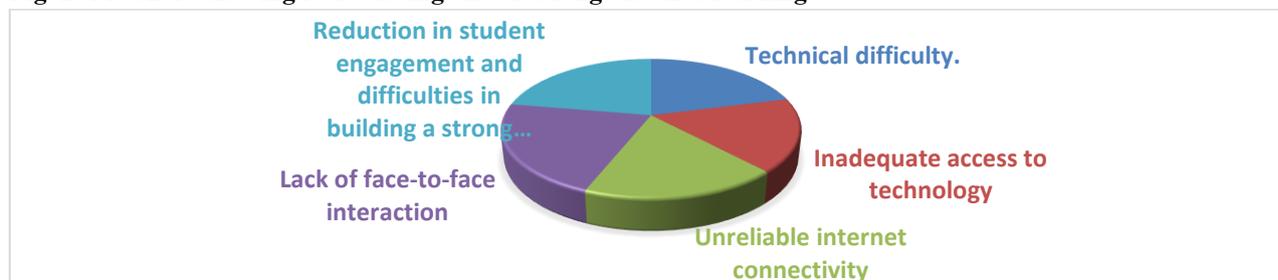


Table 2 depicted that cluster mean was reported as 3.02 and greater than bench mark mean value 2.50. This further implied that technical difficulty, inadequate access to technology, unreliable internet connectivity, lack of face-to-face interaction and reduction in student engagement and difficulties in building a strong learning community were among issues facing effective long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State.



Assessment of Digital-Technology Skills on ... Fasina, J. E. Et. al., (2025)

Research Question 3: Is there any relationship between digital technology skills on long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State?

Table 3: Relationship between digital technology skills on long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State?

Variables	Mean	SD	df	r-value	p-value
Students' digital technology skills	25.941	11.654	28		
Effective long-distance learning	16.936	9.592		.117	.002

Source: Field Survey, 2025

Table 3, showed that there was significant relationship between the independent variable and the dependent variable in the order of ($r = .117, p < .05$). On this premise, the researchers concluded that there was relationship between digital technology skills as determinants for effective on long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State.

Discussion of Findings

Research question 1 showed that information and data literacy, communication, collaboration, content creation and safety and problem-solving were among germane students' digital technology skills needed for effective long-distance learning. These findings were in an agreement with Nnenna and Perpetua (2024) which found that digital skills such as ICT skills, and communication-safety skills were among needed digital skills for long distance learning. It was also found that distance education has proved to be successful for the purpose of widening educational chances but Nigeria faces problems like low ICT penetration, erratic power supply, and meagre economy. It is noted that ICTs play a critical role in the development of distance education in Nigeria. Okpa (2025) which findings indicate that major emerging trends in digital literacy skill requirements among tertiary institution students include improved information retrieval, Artificial Intelligence (AI) and machine learning, data science and analytics, and cybersecurity. The study also revealed that these digital literacy skills significantly impact students' learning outcomes by enhancing information retrieval, expanding access to educational research, increasing collaboration and communication, and facilitating feedback and assessment. Additionally, inquiry-based learning, multimedia presentations, and flipped classroom approaches were identified as the most effective methods for integrating digital literacy skills in tertiary institutions. Debbarma and Shivam (2025) found that digital literacy has influenced all subjects, including science, commerce, arts, technology, music, dance, etc., especially in science, which has changed society. The influence of digital literacy on science achievement among secondary students has been reviewed from the previous learning. The findings of the study reflect the impact of digital literacy on science achievement among secondary students, and it has particular importance these days as a tool in educational fields. The study highlights the importance of use and incorporation for science learning, performing, and assessing.

Research question 2 technical difficulty, inadequate access to technology, unreliable internet connectivity, lack of face-to-face interaction and reduction in student engagement and difficulties in building a strong learning community were among the issues facing effective long-distance learning. These findings were in correlation with Okpa (2025) who which identified challenges, such as the digital divide, the complexity of digital tools, and limited access to technology.

Research question 3 there was relationship between digital technology skills as determinants for effective on long-distance learning among postgraduate students in Tai Solarin University of Education, Ogun State. These findings were in support to Iftanti et al. (2025) results of this study demonstrated that good digital literacy skills are developed from internal factors like strong curiosity towards digital technology, individual desires, and educational needs for digital, students' preference for digitalization, and keeping up to date through using digital technology. Aremu and Udofia (2025) findings show that digital literacy plays a significant and positive role in the outcome of undergraduate performance. The study concluded that the technology is less expensive, has less manpower demand, has lower anxiety levels, is stress-free in marking and scoring, and develops undergraduates' psychomotor and cognitive skills.

Conclusion

This study was an assessment of digital-technology skills on long-distance learning among Educational Technology Postgraduate students in Tai Solarin University of Education, Ijagun, Ogun State, Nigeria and the following conclusions were drawn based on the findings of the study that:



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1. Information and data literacy, communication, collaboration, content creation and safety and problem-solving were among germane students' digital technology skills needed for effective long-distance learning.
2. Technical difficulty, inadequate access to technology, unreliable internet connectivity, lack of face-to-face interaction and reduction in student engagement and difficulties in building a strong learning community were among the issues facing effective long-distance learning.
3. There was relationship between students' digital technology skills and as determinants for effective long-distance learning

Recommendations

The following recommendations were raised in line with the findings of the study:

1. There is the need for collaboration among all relevant stakeholders' government, private companies, and international organizations to enhance ICT infrastructure, implement international cooperation frameworks, and integrate ICT literacy and use into academic courses.
2. There should be effective mechanism to overcome the challenges associated with mastering digital literacy skills among students in tertiary institutions.
3. Digital literacy initiatives, enhancing instructional strategies, improving infrastructure and access, providing comprehensive lecturers training, and fostering collaboration among them.
4. The study recommends targeted training programmes and enhanced institutional support improved internet access and AI tool subscriptions to strengthen teaching and research. The insights inform capacity-building strategies in specialized Nigerian universities.

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Assessment of Digital-Technology Skills on ... Fasina, J. E. Et. al., (2025)

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