E-LEARNING AS A TOOL FOR TRANSFORMATIVE EDUCATION: UNIVERSITY STUDENTS' AWARENESS, COMPETENCY AND READINESS IN NIGER STATE, NIGERIA

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Abstract

Educators worldwide prioritize transformative education to build sustainable communities. In Niger State, universities have adopted the use of e-learning especially for year one students. Therefore, this study investigated students' awareness, competency, and readiness for e-learning in Niger State. This study uses an explanatory sequential mixed-methods design. The population comprises of all the 2024/2025 year one students in public universities in Niger State. The researchers developed and used a structured questionnaire with closed and open-ended questions for data collection. The instrument was validated by two experts in Science Education, Federal University of Technology Minna. The internal consistency of the instrument was tested using Cronbach's Alpha formula and 0.76 was obtained. The instrument was distributed via WhatsApp, and 123 students responded. The researchers analysed the quantitative data using descriptive statistics, while thematic analysis was carried out on the open-ended responses. The findings of the study show that university entry students are aware of learning through electronic media. Also, their competency and readiness for e-learning were high. The qualitative data supported the quantitative findings by showing that university entry students are ready for e-learning. It was therefore recommended that universities invest in campus networks, launch mandatory training and workshops, and encourage student mentorship programs.

Keywords: E-learning, Transformative Education, Awareness, Readiness, and Competency.

Introduction

Education is universally recognised as a gateway for society's development. It fosters economic growth, health equity, and democratic participation (UNESCO, 2021; World Bank, 2022). Educators globally use transformative education as a strategy for sustainable development. This is essential for cultivating resilient, equitable communities capable of addressing systemic inequalities and environmental challenges (United Nations, 2023). E-learning, a dynamic tool, drives this transformation. It democratizes access to education and equips individuals with digital literacy, critical thinking, and adaptive skills for sustainable development (Zubairi et al., 2022; UNESCO, 2022).

Universities around the world have accepted the technological change and integrated e-learning as one of the resilient and transformative strategies. E-learning provide access to quality education while fosters digital literacy (Selwyn, 2021; Zubairi et al., 2022). It makes learning more accessible, cost-effective and provides uniform delivery of lessons to students, as well as promoting learning and collaboration (Swaminathan et al., 2021; Mohammed et al., 2025). The use of e-learning platforms also enables easy tracking of learners' progress and promotes learning retention (Aboyade et al., 2021). In Niger State, universities primarily adopted e-learning majorly for entry level students—all their courses are learned electronically. To successful utilize e-learning at this level in Niger State, it is essential to understand the students' awareness of the e-learning, their competency and readiness for e-learning.

Students' e-learning awareness enables them to expand their technology skills and explore many ways to engage with the platforms (Ibrahim et al., 2024). Furthermore, e-learning awareness aids the students to be successful in the virtual learning environment (Oriji & Nnadieze, 2023). Students with e-learning awareness can personalise learning with technological tools (Falade, 2023). Prior awareness of e-learning enables students to share and collaborate with their colleagues across the globe (Asogwa et al., 2023).

On the other hand, e-learning competency enables students to recognise the needed technology to successfully use the platform (Adenekan et al., 2023; Mohammed et al., 2024). E-learning competency enables effective navigation of the learning management system and virtual collaboration tools (Martins & Bolliger, 2022). Studies indicates that marginalised students in terms of e-learning competency often face challenges (Adeoye et al., 2023; Ibrahim & Suleiman,

2023; OECD, 2022). The challenges strengthen the need for university students to possess e-learning competency.

More so, the use of e-learning platforms is influenced by the readiness of the students to access the platforms (Nwankwo & Ibrahim, 2023). The students' readiness for e-learning may also depend on their awareness and competency. The objective of this study is to understand the university student's awareness, competency, and readiness for e-learning in Niger State as a link to building sustainable communities through transformative education. Using a mixed method approach, this study was guided by the following research questions:

1. What are the university students' e-learning awareness in Niger State?
2. What are the university students' e-learning competency in Niger State?
3. What are the university students' readiness for e-learning in Niger State?
4. How would the university can assist the students to improve their competency and readiness for e-learning in Niger State?

Literature Review

Transformative education is to transcend traditional pedagogical paradigms by fostering critical thinking, civic engagement, and adaptive skills necessary for addressing global challenges (UNESCO, 2023). Central to this paradigm is the integration of e-learning. It is a learning through electronic media (Mohammed et al., 2024; Kyari et al., 2018). Globally, e-learning has been lauded for its potential to reduce educational disparities and promote environmental sustainability (Selwyn, 2021). Also, rapid adoption of digital learning solutions was documented across Nigerian universities during the COVID-19 pandemic (Olawale et al., 2021; Oyelere et al., 2020). Studies have shown that Nigeria universities achieved localised successes through blended learning

models, which improved student engagement and reduced dropout rates (Okoro & Eke, 2023). Similarly, others demonstrate widespread familiarity with e-learning platforms such as Moodle and Google Classroom, as well as video conferencing tools like Zoom (Adeoye et al., 2022; Okeke & Eze, 2021).

Awareness in this study connotes the students' mindfulness, knowledge or understanding of existing e-learning platforms that can be utilised for teaching and learning. Studies have reported that students actively utilise e-learning for accessing course materials, submitting assignments, and participating in virtual classrooms (Adarkwah 2021; Adu et al., 2022). More importantly, students have adapted to blended learning approaches that combine traditional classroom instruction with online components, indicating an evolving educational paradigm in Nigerian higher education institutions (Eze et al., 2023; Yusuf et al., 2021). This is apparently possible, since institutional supports are fostering e-learning awareness among Nigerian university students (Onyejegbu & Nkamnebe, 2022; Igwe et al., 2021). Also, studies note the importance of university policies in promoting e-learning adoption (Adesina & Ayanwale, 2023; Okoli et al., 2022). However, Ajayi and Afolabi (2021) emphasis the value of continuous improvement in digital infrastructure to sustain and enhance student' engagement with online learning resources.

While awareness sets the stage for e-learning engagement, competency determines its effectiveness. Competency refers to the ability of students to use e-learning (Mohammed et al., 2025). Studies indicate that Nigerian university students have developed varying levels of competency in utilising e-learning platforms, with many demonstrating proficiency in basic digital learning functions (Bello et al., 2021). For instance, Nwosu et al. (2022) reveal that a majority of students can competently navigate learning management systems, participate in online discussions,

and submit digital assignments. Other studies advocate that competency levels differ significantly across disciplines, with students in technology-related fields showing higher proficiency in advanced e-learning tools compared to their counterparts in humanities and social sciences (Adekunle & Ojo, 2023). Furthermore, the development of e-learning competency among Nigerian students appears closely tied to institutional training initiatives and peer learning opportunities (Emezie & Nwachukwu, 2022). More importantly, students who engage in peer-to-peer knowledge sharing tend to develop more comprehensive e-learning skills (Okonkwo et al., 2021). Therefore, it is necessary for an ongoing competency development to match evolving e-learning technologies (Adeleke & Yusuf, 2023; Okafor et al., 2023; Mohammed & Ibrahim, 2022).

Readiness in this study refers to the students' wiliness and interest for e-learning. Studies highlight varying levels of e-learning readiness among Nigerian university students, with several key factors influencing their preparedness for digital education (Ogunbase & Adekunjo, 2023; Adebayo & Lawal, 2022; Eze & Onyeke, 2021). For instance, Adebayo and Lawal (2022) indicate that while many students possess basic digital literacy skills, their readiness for comprehensive e-learning experiences remains inconsistent. Additionally, students' technological self-efficacy plays a crucial role, with those confident in using digital tools demonstrating higher readiness levels (Ogunbase & Adekunjo, 2023). Other studies note that access to reliable devices and stable internet connectivity continues to be a significant determinant of e-learning readiness across different institutions (Eze & Onyeke, 2021). Also, institutional support and prior exposure to digital learning tools significantly impact students' readiness for e-learning transitions (Balogun & Adeleke, 2023). Students with previous experience in e-learning exhibit greater readiness compared to those exclusively familiar with traditional classroom settings (Yusuf & Afolabi, 2021). Similarly, on the

importance of digital infrastructure, students in institutions with well-established e-learning platforms adapt more quickly to online education (Okorie et al., 2022). Moreover, students' motivation and psychology also affect their e-learning readiness (Nwankwo & Ibrahim, 2023). Studies identify self-regulation skills as another critical component, as students capable of managing their online learning schedules show higher readiness levels (Adebowale & Ojo, 2022). However, Oladipo and Mohammed (2023) recommend assessments and targeted interventions to address students' readiness for technological access, digital skills, and learning motivation among Nigerian university students. Given this, the study investigates university students' awareness, competency, and readiness for e-learning in this era of transformative education in Niger State.

Methodology

The researchers used an explanatory sequential mixed-methods design to understand the students' awareness, competency and readiness for e-learning in a transformative education. This involve collecting qualitative data using open-ended question after a quantitative phase in order to explain the quantitative data in more depth. The population of this study was 2024/2025 university entry students known as year one. The responses recorded was 123 and used for the study. A closed and Open-ended questionnaire with four subsections was developed from the literature by the researchers. The purpose of the study and the consent note requesting the student's involvement in the study were contained in the initial part of the questionnaire. In the quantitative phase of the study, the respondents were asked about their e-learning awareness, competency and readiness. As contained in the first, second, and third sections of the research instrument. The second qualitative phase was follow-up to explore the respondents' readiness to use e-learning which was contained in the fourth section of the research instrument. This deals with open-ended question to have an

in-depth understanding of how the university can assist the respondent improve their competency and readiness for e-learning. Two experts validated the instrument, and pilot-tested with a 0.76 Cronbach's Alpha index. The final copy of the instrument was converted to Google Form and distributed to the respondents through social media, particularly WhatsApp. The study was conducted between February and April 2025. One researcher managed timely reminder distributions. Niger State has four public universities, one was used to pilot the instrument. The researchers recorded responses from other universities in the state. Descriptive analysis was undertaken using Microsoft Excel for quantitative analysis. Thematic analysis was used to analyse the open-ended responses using NVivo 15.

Results & Discussion

The results were presented in Tables 1 to 3. To understand the direction of data distribution, demographic responses of the respondents are illustrated in Figures 1 and 2.

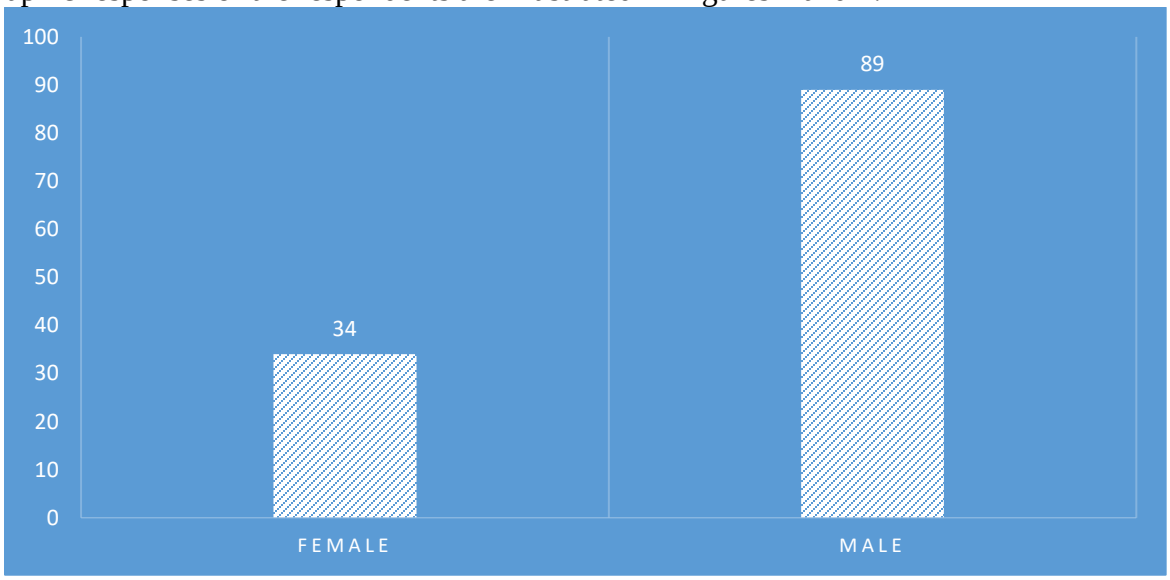

Figure 1: Response distribution based on gender

In Figure 1, 34% of the respondents were females and 89% of the remaining respondents were males. These responses were from two public universities in Niger State as presented in Figure 2.

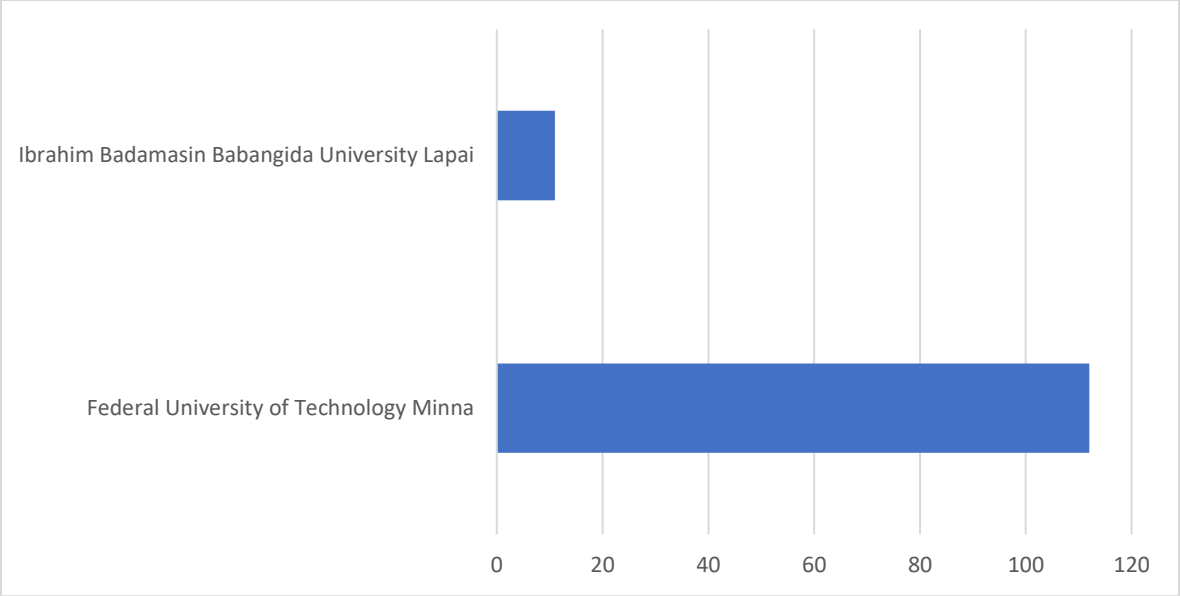

Figure 2: Response distribution based on university

Table 1: Percentage Summary of Student Responses on E-Learning Awareness

SN	Items	Yes (%)	Somehow (%)	No (%)	Remarks
1	Are you aware of learning over electronic devices in the university?	84	8	8	Aware
2	Are you aware that you can use the internet for academic purposes?	93	5	2	Aware
3	Are you aware that a Learning Management System (LMS), e.g Moodle or Google Classroom, can be used for academic purposes?	83	6	11	Aware
4	Are you aware that Google Tools (e.g., Google Meet, Forms and Sheets) can be used for academic purposes?	80	15	5	Aware
5	Are you aware that Online Collaboration Tools (e.g., Slack, Trello) can be used for academic purposes?	64	18	18	Aware
6	Are you aware that Open Educational Resources, like simulations can be used for academic purposes?	68	13	19	Aware
7	Are you aware that Blended learning, like flipped classrooms, can be used for academic purposes?	61	22	17	Aware
8	Are you aware that Cloud storage services (Dropbox, Google Drive, I Cloud) can be used for academic purposes?	71	13	16	Aware
9	Are you aware that social media platforms (Facebook, WhatsApp, Telegram) can be used for academic purposes?	92	6	2	Aware
10	Are you aware that Digital Education Tools like Edmodo can be used for academic purposes?	64	16	20	Aware

Table 1 present the students' awareness of e-learning in the universities in Niger State. From the ten items in the table, the respondents were aware of various e-learning platforms that are used for educational activities, and their level of awareness was between 61% to 93%. This level of

awareness may be attributed to the schools' widespread adoption of e-learning technologies. Supporting this finding were studies e.g., Nwadi et al. (2023), Aboyade et al. (2023), Almaiah et al. (2020), Dhawan (2020), Rasheed et al. (2020), Okeke et al. (2020), and Ogunbase (2016) show that Nigerian students are increasingly aware of e-learning platforms, especially post-Covid-19. However, studies like Adeoye et al. (2019) highlight low awareness of e-learning among university students.

Table 2: Percentage Summary of Student Responses on E-Learning Competency

SN	Items	SA (%)	A (%)	D (%)	SD (%)	Remarks
1	I have engaged in one form of academic activity on electronic devices	26	64	9	1	Agreed
2	I can use the internet for any form of academic activity	25	69	6	0	Agreed
3	I can use the Learning Management System, like Moodle or Google Classroom, for academic activities	33	60	7	0	Agreed
4	I can use Online Collaboration Tools to collaborate with colleagues, parents and lecturers on academic activities	37	58	4	1	Agreed
5	I can use Google Tools for academic activities	37	59	4	0	Agreed
6	I can use Open Educational Resources like simulations for academic activities	31	63	4	2	Agreed
7	I can use Blended learning, like Flipped Classroom, for academic activities	28	61	11	0	Agreed
8	I can use Cloud Storage Services like Dropbox for academic activities	26	61	12	1	Agreed
9	I can use Social Networks like WhatsApp for academic activities	45	54	1	0	Agreed

10	I can use Digital Education Tools for academic activities	35	63	2	0	Agreed

The result presented in Table 2 shows the students competency to use e-learning in Niger State. Despite the respondents' diverse educational backgrounds, they agree to have competency in using e-learning as presented in the Table. This competency level may be due to their level of awareness on e-learning platforms. This finding was supported by studies like Adegbija et al. (2023), Okafor and Eze (2022), Eze et al. (2021) and Omodunbi et al. (2020) found that university students demonstrated proficient use of e-learning platforms. Contrary to this finding, studies such as Bello & Ajayi (2024), Oluwajana et al. (2023), and Ekwunife-Orakwue and Adesina (2022) found university students with low e-learning competency.

Table 3: Percentage Summary of Students' Readiness to Use E-Learning

SN	Items	SA (%)	A (%)	D (%)	SD (%)	Remarks
1	I am ready to use E-learning resources for academic activities	42	56	1	1	Agreed
2	I am comfortable using online learning platforms for any academic activities	37	56	5	2	Agreed
3	I have reliable access to digital devices and the internet to participate in e-learning activities	29	61	6	4	Agreed
4	I am ready to manage my time and stay organised when studying in an online learning environment	40	55	3	2	Agreed
5	I am comfortable engaging with my colleagues and lecturers through virtual communication channels	36	57	6	1	Agreed

On the students' readiness for e-learning, Table 3 presents their level of e-learning readiness. The Table shows that respondents agreed they were ready for e-learning platforms available in the

university with high percentages. This may be attributed to their level of e-learning awareness and competency. Supporting this finding, studies like Akinola et al. (2023) and Okafor et al. (2022) found students in Nigerian universities with high readiness for e-learning. However, Ekwunife-Orakwue et al. (2024), Bello and Ajayi (2024), and Oluwajana et al. (2023) found students with low percentages in their readiness for e-learning.

These quantitative results decorate the students' e-learning awareness, competency, and readiness, but qualitative data unveil their hidden complexities. The qualitative data on how the university can support the students to improve their technological competence and readiness for e-learning were analysed. The analysis identified five notable themes including infrastructure and access, training and skill development, technical and academic support, resource provision, and community and peer engagement. On the infrastructure, the respondents were quoted *"The university should make sure there is WiFi available for students."* In another narration, "*Providing free internet connection, power supply, and reliable service for login.*" This implies that availability and accessibility of e-learning infrastructures is fundamental to enhancing student competency and readiness. Our findings support those observed in previous studies, that poor internet/devices access were identified factor hindering the implementation of e-learning (OECD, 2021; Smith et al., 2022; OECD, 2022). Supporting the findings of this study further, a study argued that infrastructure alone is insufficient, digital literacy must accompany access (Selwyn et al., 2020).

Training and skill development were the second theme identified in this study. Despite the level of awareness, competency and readiness for e-learning identified in the quantitative part of this study, the majority of the respondents feel unprepared to use e-learning tools effectively. They agree to require more training and skill development. an example of their quotes is "*By teaching*

us how to participate in e-learning activities", "*Workshops on using LMS, research database, and multimedia tools*", and "*The university should teach me how to learn through online platforms*." This implies that the respondents require beginner-friendly workshops, including cybersecurity basics, to use e-learning effectively. This finding is in line with previous studies that recommended mandatory training and workshops for students to improve their confidence to use e-learning tools (Balogun & Adeleke, 2023; Lee and Patel, 2021; JISC, 2021; Selwyn, 2020; Ng, 2018). In contrast, Bennett and Maton (2010) claimed that digital native assumptions overestimate students' tech competence.

Beyond training, students emphasized systematic barriers such as technical support delays that undermined their readiness. This theme reveals influence of technical and academic support available for students by the university on their readiness. For example, some of the respondents were quoted "*IT support takes days to reply*", others said as quoted "*videos on fixing common errors would help.*" This emphasises the need for availability and accessibility of adequate technical support 24/7 to help the students during any login failures or software issues. This would help to improve the respondents' competency and readiness for e-learning. The finding of this theme is consistent with previous studies that found Nigerian universities with few functional IT helpdesks, with delays averaging 3 to 5 days (Oyediran et al., 2020; Adeoye et al., 2021).

The respondents felt that the content provided through e-learning should be made available offline or downloadable. For example, "*Access to video tutorials, e-books, and an open resource*." In another narration, "*Provide materials for students with poor internet access.*" This implies that students' perceived flexibility in accessing materials and collaborative learning as advantage to enhance their competence and readiness for e-learning. This finding aligns with prior studies

(Swaminathan et al., 2021; Blissitt, 2016). It is evident from these findings that the respondents are ready to adopt e-learning.

The respondents agree that to enhance their competency and readiness for e-learning, there is a need for community and peer support. This forms the last theme of this study. For instance, the respondents were quoted "*peer mentoring programs for tech support*", "*Online discussion forums and study groups*", and "*Hybrid social events (virtual and in-person)*". This emphasises the importance of social presence and community as contended in the previous studies (Garrison et al., 2000; Smith & Peterson, 2020).

Conclusion & Recommendations

The entry level universities students are aware of learning electronically in Niger State. Their competency and readiness for e-learning were high. The qualitative data provide strong support that the entry students are fully ready for e-learning. Therefore, to promote equitable e-learning, universities must holistically address students' needs for reliable infrastructure, hands-on training, responsive academic/technical services, and community-driven engagement. Based on this conclusion, the study recommended that universities invest in campus-wide high-speed WiFi, launch mandatory digital literacy workshops and create student-led tech mentorship programs.

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