

INSTITUTIONAL SUPPORT, LECTURERS' ICT COMPETENCE, AND INTEGRATION OF DIGITAL TECHNOLOGIES IN TEACHING AND LEARNING IN PUBLIC UNIVERSITIES IN NIGERIA

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Abstract

The study investigated institutional support, lecturers' ICT competence, and the integration of digital technologies in teaching and learning in public universities in Enugu State, Nigeria. A descriptive survey research design was adopted. Four research questions guided the study. The study was conducted at the University of Nigeria, Nsukka (UNN), and Enugu State University of Science and Technology (ESUT), Agbani. The population comprised 683 lecturers, consisting of 400 lecturers from UNN and 283 lecturers from ESUT. Since the population was considered manageable, the entire population was included in the study through total enumeration without sampling. Data were collected using a researcher-developed instrument, titled: Institutional Support, Lecturers' ICT Competence and Digital Technology Integration Questionnaire (ISTICDTIQ). The instrument was face validated by three experts from the Institute of Education, University of Nigeria, Nsukka. The reliability of the instrument was established using Cronbach's alpha, which yielded a coefficient of 0.82. Three research assistants assisted in the direct administration and collection of the questionnaires. Mean and standard deviation were used to analyse the data, with a mean score of 2.50 and above indicating high extent or high level, while a mean score below 2.50 indicated low extent or low level. The findings revealed that institutional support facilitated digital technology integration to a high extent, lecturers demonstrated a high level of ICT competence, and digital technologies were integrated into teaching and learning to a high extent. The study recommended that university management should strengthen ICT infrastructure, provide continuous professional development for lecturers, and encourage the effective use of digital technologies in instructional delivery and assessment.

Keywords: Institutional support, ICT competence, digital technology integration, teaching and learning, public universities

Introduction

The effective integration of digital technologies into teaching and learning in public universities in Nigeria remains an important educational concern because the availability of technological facilities does not automatically translate into meaningful instructional practice. Digital technologies provide opportunities to improve access to learning resources, facilitate communication, support collaborative learning, and promote flexible instructional delivery. However, their educational value depends considerably on the institutional support available to lecturers and the level of competence required using information and communication technologies (ICT) effectively. The central concern is therefore not merely whether public universities possess computers, internet facilities, learning management systems, and digital instructional resources, but whether lecturers receive adequate technical assistance, professional development, institutional encouragement, and opportunities to develop the skills required for effective technology integration. Where these conditions are inadequate, digital technologies may remain

underutilised, serve primarily administrative purposes, or be incorporated into instruction without substantially improving students' learning experiences.

The growing importance of digital technologies in higher education has transformed the ways knowledge is developed, communicated, and assessed. University teaching is no longer restricted to face-to-face lectures, printed materials, and conventional classroom presentations. Digital platforms enable lecturers to distribute instructional materials, facilitate online discussions, organise collaborative assignments, conduct assessments, provide feedback, and connect students with learning resources beyond the physical classroom. These opportunities are particularly relevant to public universities, where large student populations, pressure on instructional facilities, and increasing demand for flexible learning arrangements require adaptable approaches to teaching and learning. Nevertheless, the educational benefits of technology depend on the ability of lecturers to select and apply appropriate digital resources to achieve specific instructional objectives. The United Nations Educational, Scientific and Cultural Organization (UNESCO, 2023) emphasised that the effective use of technology in education depends on appropriate access, governance, and lecturer preparation. This perspective establishes technology integration as a combination of institutional readiness, professional competence, and purposeful pedagogical application rather than simply the acquisition of technological equipment.

Institutional support plays a central role in creating an environment in which lecturers can confidently and consistently integrate digital technologies into teaching and learning. Such support includes the provision of functional ICT infrastructure, reliable internet connectivity, access to digital instructional resources, technical assistance, professional development opportunities, institutional policies, management encouragement, and adequate time for preparing technology-supported instructional materials. University management also has a responsibility to establish clear expectations, provide appropriate incentives, and ensure that lecturers can obtain assistance when technological difficulties arise. Without these provisions, lecturers who demonstrate willingness to adopt digital technologies may encounter difficulties translating their intentions into effective instructional practice. Institutional support therefore extends beyond the availability of digital facilities to include the organisational conditions that enable lecturers to use those facilities meaningfully. Redecker (2017), through the European Framework for the Digital Competence of Educators, identified digital resources, teaching and learning, assessment, learner empowerment, and the development of learners' digital competence as important dimensions of educators' professional digital competence. This framework reinforces the need for institutional arrangements that support lecturers beyond the mere provision of technological equipment.

Lecturers' ICT competence constitutes another important factor in understanding the extent to which digital technologies are integrated into university teaching and learning. ICT competence extends beyond the ability to operate computers or prepare presentation slides. It includes the capacity to identify appropriate digital resources, design technology-supported learning activities, communicate through digital platforms, manage online learning environments, assess students electronically, provide timely feedback, and address basic technological challenges. Lecturers also require pedagogical judgement to determine when and how digital technologies can improve learning experiences and support instructional objectives. Familiarity with digital applications does not automatically demonstrate the ability to incorporate them meaningfully into course content, instructional methods, and assessment practices. Similarly, lecturers with

appropriate technological and pedagogical knowledge may be unable to apply their skills effectively when institutional facilities and support services are inadequate. Claro, Castro-Grau, Ochoa, Hinostroza, and Cabello (2024), in a systematic review of quantitative research on lecturers' digital competence, examined how digital competence has been conceptualised and measured, including competencies associated with planning and instruction. Their review supports the treatment of digital competence as a multidimensional construct rather than a narrow measure of computer literacy.

The relationship between lecturers' knowledge and the practical integration of technology is further explained by the technological pedagogical content knowledge framework. The framework emphasises the interaction among technological knowledge, pedagogical knowledge, and subject-matter knowledge. Effective integration occurs when lecturers understand not only how a digital tool operates but also how the tool relates to the content being taught, the instructional approach being employed, and the learning needs of students. Ifinedo, Rikala, and Hämäläinen (2020), in their investigation of factors affecting Nigerian lecturer educators' technology integration, examined knowledge constructs, ICT practices, beliefs, and lecturers' characteristics. Their study highlighted the relevance of technological knowledge and knowledge required for integrating technology into instructional practice. This perspective indicates that ICT competence should be examined in relation to actual teaching practices rather than inferred solely from access to devices or familiarity with digital applications. In public universities in Nigeria, staff development programmes therefore need to combine practical digital skills with instructional design, subject-specific applications, and opportunities to practise technology-supported teaching.

Research conducted in Nigeria provides a useful foundation for understanding institutional support and ICT competence as related but distinct factors. Ganiyu, Olasedidun, and Badmus (2017), in their study of institutional factors as predictors of Colleges of Education lecturers' versatility in e-learning in South-West Nigeria, examined institutional conditions associated with lecturers' capacity to use e-learning. The study considered factors such as capacity building, institutional strategies, e-learning infrastructure, government policy, and lecturers' conceptions of e-learning. The reported findings indicated that the institutional factors examined were significantly associated with lecturers' versatility in e-learning, with capacity building demonstrating the strongest positive contribution among the reported predictors. Although the study focused on Colleges of Education rather than public universities, the findings provide relevant evidence of the importance of professional development and organisational support in technology-supported instruction. Differences in institutional settings, academic responsibilities, and technological demands further justify examining these relationships within public universities.

Similarly, Badmus (2017), in a study of lecturers' ICT levels and attitudes in secondary schools in Oyo Metropolis, examined lecturers' readiness and dispositions towards ICT use for sustainable educational development. The study is relevant to higher education because effective technology integration requires both the ability and willingness to use digital resources for educational purposes. Positive attitudes may encourage experimentation with instructional technologies, but favourable attitudes alone cannot overcome inadequate facilities, limited training, or insufficient technical assistance. Olasedidun and Badmus (2016) also investigated Colleges of Education lecturers' perceptions of integrating social media into instruction in South-West Nigeria. The study draws attention to the instructional possibilities of digital communication platforms and

the importance of lecturers' perceptions when considering the adoption of emerging technologies. Social media can facilitate academic discussion, resource sharing, and interaction between lecturers and students. Its educational value, however, depends on purposeful application, appropriate instructional guidance, and effective management of its use for learning activities.

Study conducted by Badmus (2020) further examined higher educational institution lecturers' perceptions of ICT applications and the challenges associated with their use in Oyo State, Nigeria. The study reported generally positive perceptions of ICT applications while identifying inadequate facilities and problems with institutional computer laboratories among the challenges affecting effective application. Recommendations included regular ICT training for lecturers and stronger attention to education within government ICT policy. These findings are relevant to the present study because they demonstrate the need to distinguish lecturers' perceptions of technology from the practical conditions required for successful integration. Collectively, the works of Ganiyu, Olasedidun, and Badmus (2017), Olasedidun and Badmus (2016), and Badmus (2017, 2020) establish a useful Nigerian research foundation for investigating institutional support, lecturers' ICT competence, and digital technology integration in higher education.

Further Nigerian studies have highlighted the importance of technological competence and institutional conditions in promoting effective technology use in higher education. Yusuf and Alao (2022), in their examination of ICT adoption as a strategy for promoting lecturers' effectiveness in Nigerian universities, identified inadequate power supply and poor funding among the challenges affecting technology adoption and emphasised the need for appropriate ICT facilities. Umar and Bawa (2022) similarly discussed capacity building, technological pedagogical content knowledge, adequate funding, and infrastructure as important considerations for technology integration in tertiary institutions. These perspectives indicate that institutional support should extend beyond the purchase of computers and the installation of internet facilities. Sustained funding, relevant professional training, maintenance of existing facilities, and opportunities for lecturers to develop and apply digital teaching skills are equally important. Without these provisions, investments in educational technology may fail to produce the desired improvements in instructional practice.

At the university level, Orij and Nnadi (2023) examined lecturers' computer literacy and competence in relation to the integration of Microsoft PowerPoint into teaching and learning at the University of Port Harcourt. The study drew attention to the distinction between computer literacy and effective instructional integration. Familiarity with a digital application does not automatically establish the ability to use it to support student engagement, explain complex concepts, facilitate collaborative learning, or improve assessment practices. Similarly, Ode and Udu (2022), in their investigation of university lecturers' ICT competencies for student assessment in Benue State, focused on the importance of ICT skills in assessment-related academic responsibilities. These studies demonstrate the need to examine competence in relation to specific teaching and learning functions rather than relying exclusively on general measures of computer literacy. Oyefara, Adejoh, Adisa, Abdulsalam, and Alabi (2022) examined ICT utilisation and associated barriers among middle-level academics in Nigerian universities. The study highlighted challenges associated with inadequate funding, weak institutional ICT policies, insufficient broadband connectivity, and unreliable electricity supply. These findings situate lecturers' technology use within the wider organisational and infrastructural conditions of Nigerian universities. A lecturer's ability to integrate digital

technologies may be constrained by the cost of internet connectivity, unreliable electricity, inadequate institutional platforms, and limited access to technical assistance. Examining institutional support alongside lecturers' ICT competence can therefore provide a more comprehensive understanding of the conditions under which digital technologies are effectively integrated into teaching and learning.

Evidence from other African higher education settings provides additional perspectives on these relationships. Zeleke and Mesfin (2021) examined instructors' perspectives on technology-supported teaching and learning. The study considered factors associated with instructors' attitudes, access to ICT facilities, self-efficacy, competence, institutional policies, and administrative support. These dimensions demonstrate the relevance of considering personal capabilities and organisational conditions together. Although the relative contribution of individual factors may vary across institutions, the evidence supports the view that technology integration depends on the interaction between lecturers' knowledge and abilities and the resources, opportunities, and institutional support available to them. This relationship provides a useful basis for examining similar conditions within public universities in Nigeria.

International research further emphasises the importance of continuous professional development and structured institutional assistance. Claro, Castro-Grau, Ochoa, Hinostroza, and Cabello (2024) identified variations in the conceptualisation and measurement of lecturers' digital competence, including areas requiring greater attention in research on lecturers' capacity to support students' digital skills and learning activities. UNESCO (2023) also emphasised the importance of educational purpose, equitable access, appropriate governance, and lecturer preparation in technology adoption. These perspectives indicate that successful integration should be accessed through the actual instructional applications of digital technologies, including learning activity design, student interaction, feedback, assessment, and access to relevant educational resources. Professional development in public universities therefore needs to be continuous, practical, and responsive to lecturers' teaching responsibilities rather than restricted to occasional workshops or general computer training. Research on ICT integration has addressed institutional factors influencing e-learning, lecturers' perceptions of ICT, social media integration, computer literacy, assessment competence, and barriers to technology utilisation. However, these areas have frequently been investigated separately or within specific educational settings and institutional contexts. Findings from secondary schools and Colleges of Education cannot automatically be generalised to public universities, where academic responsibilities, technological demands, student populations, and institutional arrangements may differ. Similarly, evidence from individual universities or particular geographical locations may not adequately represent the conditions across Nigeria's public university system. A comprehensive examination of institutional support, lecturers' ICT competence, and digital technology integration is therefore necessary to establish how organisational conditions and professional capabilities relate to technology-supported teaching and learning in public universities.

Hence, the present study examines institutional support, lecturers' ICT competence, and the integration of digital technologies in teaching and learning in public universities in Nigeria. Institutional support and lecturers' ICT competence are examined in relation to the extent to which digital technologies are incorporated into instructional activities. The study is expected to provide empirical evidence that can inform university management decisions concerning ICT infrastructure, technical assistance, professional development, institutional policies, and the effective application of digital resources in

teaching and learning. The findings may also contribute to the development of strategies for strengthening lecturers' digital competence, improving institutional readiness, and promoting purposeful and sustainable technology integration across Nigeria's public university system.

Statement of the Problem

The integration of digital technologies into teaching and learning in public universities in Nigeria depends on adequate institutional support and lecturers' ICT competence. Ideally, universities should provide functional ICT facilities, reliable internet connectivity, technical assistance, and continuous professional development to enable lecturers to integrate digital technologies effectively into instructional activities. However, inadequate infrastructure, limited technical support, insufficient training, and variations in lecturers' ICT competence may constrain effective technology integration. Existing research has examined aspects of ICT adoption, institutional support, and lecturers' digital skills, but the combined relationship among institutional support, lecturers' ICT competence, and digital technology integration in public universities in Nigeria requires further empirical investigation. The problem of the study, therefore, is the insufficient empirical evidence on how institutional support and lecturers' ICT competence relate to the integration of digital technologies in teaching and learning in public universities in Nigeria.

Purpose of the Study

The main purpose of the study is to examine institutional support, lecturers' ICT competence, and the integration of digital technologies in teaching and learning in public universities in Nigeria. Specifically, the study seeks to:

1. examine the extent of institutional support for integrating digital technologies in teaching and learning in public universities in Nigeria.
2. determine the level of lecturers' ICT competence for integrating digital technologies in teaching and learning in public universities in Nigeria.
3. examine the extent of digital technology integration in teaching and learning in public universities in Nigeria.

Research Questions

The following research questions guide the study:

1. To what extent does institutional support facilitate the integration of digital technologies in teaching and learning in public universities in Nigeria?
2. What is the level of lecturers' ICT competence for integrating digital technologies in teaching and learning in public universities in Nigeria?
3. To what extent are digital technologies integrated into teaching and learning in public universities in Nigeria?

Methodology

The study adopted a descriptive survey research design to investigate institutional support, lecturers' ICT competence, and the integration of digital technologies in teaching and learning in public universities in Enugu State, Nigeria. The study was conducted at the University of Nigeria, Nsukka (UNN), and Enugu State University of Science and Technology (ESUT). The population comprised 683 lecturers, consisting of 283 lecturers from UNN and 400 lecturers from ESUT. Since the population was considered manageable, the entire population was included in the study through total enumeration; therefore, no sampling technique was employed. Three research questions guided the study. Data were collected using a researcher-developed instrument titled Institutional

Support, Lecturers' ICT Competence and Digital Technology Integration Questionnaire (ISTICDTIQ). The instrument was validated by three experts from the Institute of Education, University of Nigeria, Nsukka, who examined its suitability, clarity, and relevance to the objectives of the study. The reliability of the instrument was established using Cronbach's alpha, which yielded a coefficient of 0.82. Three research assistants assisted in the direct administration and collection of the questionnaires. Mean and standard deviation were used to analyse the data. A mean score of 2.50 and above was accepted as high extent or high level, while a mean score below 2.50 was regarded as low extent or low level.

Results

Research Question 1: To what extent does institutional support facilitate the integration of digital technologies in teaching and learning in public universities in Nigeria?

Table 1: Mean Ratings and Standard Deviations of Lecturers on Institutional Support for Digital Technology Integration

S/N	Item statement	Mean	SD	Decision
1	The university provides adequate computers and other digital devices for teaching and learning.	3.21	0.78	High Extent
2	The university provides reliable internet connectivity for instructional activities.	3.09	0.84	High Extent
3	The university organises ICT training programmes for lecturers.	2.95	0.91	High Extent
4	Technical personnel are available to assist lecturers with ICT-related problems.	2.87	0.88	High Extent
5	University management encourages lecturers to adopt digital technologies.	3.01	0.82	High Extent
6	The university provides adequate funding for digital teaching resources.	2.78	0.96	High Extent
7	Digital learning platforms are provided to support teaching and student engagement.	3.17	0.79	High Extent
8	Institutional policies promote the use of ICT in teaching and learning.	2.74	0.93	High Extent
9	Lecturers receive adequate technical and administrative support for digital instruction.	3.06	0.86	High Extent
Grand Mean		2.99	0.86	High Extent

Data in Table 1 indicate that institutional support facilitated the integration of digital technologies in teaching and learning to a high extent, as reflected in the grand mean ($\bar{x}=2.99$). Based on the decision rule ($\bar{x} \geq 2.50$), all nine items were rated high. The provision of adequate computers and other digital devices recorded the highest mean score ($\bar{x}=3.21$, $SD=0.78$), followed by the provision of digital learning platforms ($\bar{x}=3.17$, $SD=0.79$). These results suggest that digital devices and learning platforms constituted important aspects of institutional support for technology integration. Reliable internet connectivity recorded $\bar{x}=3.09$, while technical and administrative support for digital instruction recorded $\bar{x}=3.06$. Management encouragement of digital technology adoption had a mean of $\bar{x}=3.01$, whereas ICT training programmes recorded $\bar{x}=2.95$. Technical assistance from university personnel recorded $\bar{x}=2.87$, while adequate funding for digital teaching resources recorded $\bar{x}=2.78$. Institutional policies promoting

ICT use had the lowest mean score ($\bar{x}=2.74$, $SD=0.93$). Although all items met the decision criterion ($\bar{x} \geq 2.50$), the comparatively lower ratings for institutional policies and funding indicate areas requiring further improvement.

Research Question 2: What is the level of lecturers' ICT competence for integrating digital technologies in teaching and learning in public universities in Nigeria?

Table 2: Mean Ratings and Standard Deviations of Lecturers on ICT Competence

S/ N	Item statement	Mean	SD	Decision
1	I can operate computers and related digital devices for instructional purposes.	3.34	0.67	High Level
2	I can use word-processing and presentation software to prepare instructional materials.	3.23	0.72	High Level
3	I can access and evaluate online educational resources for teaching.	3.11	0.81	High Level
4	I can use digital platforms to communicate with students and share learning materials.	3.03	0.77	High Level
5	I can develop interactive digital learning materials for my courses.	2.92	0.89	High Level
6	I can use online assessment tools to evaluate students' learning.	3.16	0.83	High Level
7	I can troubleshoot common ICT problems encountered during teaching.	2.87	0.92	High Level
8	I can integrate multimedia resources into classroom presentations.	3.06	0.76	High Level
9	I can select digital technologies appropriate for specific instructional objectives.	2.99	0.85	High Level
Grand Mean		3.08	0.80	High Level

Data in Table 2 reveal a high level of lecturers' ICT competence for integrating digital technologies into teaching and learning, with a grand mean of $\bar{x}=3.08$. All nine items exceeded the decision threshold of $\bar{x} \geq 2.50$. The ability to operate computers and related digital devices recorded the highest mean score ($\bar{x}=3.34$, $SD=0.67$), followed by the use of word-processing and presentation software to prepare instructional materials ($\bar{x}=3.23$, $SD=0.72$). These results indicate stronger competence in basic computer operations and the preparation of digital instructional materials. The use of online assessment tools recorded $\bar{x}=3.16$, while accessing and evaluating online educational resources recorded $\bar{x}=3.11$. Multimedia integration had a mean score of $\bar{x}=3.06$, and digital communication with students recorded $\bar{x}=3.03$. Selecting appropriate digital technologies for instructional objectives yielded $\bar{x}=2.99$, while developing interactive digital learning materials recorded $\bar{x}=2.92$. Troubleshooting common ICT problems had the lowest mean score ($\bar{x}=2.87$, $SD=0.92$). Although every item met the high-level criterion, the lower ratings for troubleshooting and interactive material development suggest the need for further practical ICT training.

Research Question 3: To what extent are digital technologies integrated into teaching and learning in public universities in Nigeria?

Table 3: Mean Ratings and Standard Deviations of Lecturers on Digital Technology Integration

S/ N	Item statement	Mean	SD	Decision
1	Digital presentations are used to explain concepts during lectures.	3.12	0.79	High Extent
2	Online resources are incorporated into course content and instructional activities.	3.01	0.86	High Extent
3	Learning management systems are used to distribute course materials to students.	2.89	0.94	High Extent
4	Digital technologies facilitate lecturer–student communication.	3.07	0.82	High Extent
5	Online platforms are used to conduct quizzes and other assessments.	2.79	0.97	High Extent
6	Videos, animations, and other multimedia resources clarify difficult concepts.	2.95	0.88	High Extent
7	Digital collaboration tools support group learning and academic discussions.	3.16	0.81	High Extent
8	Students are encouraged to use digital tools for independent learning and research.	2.73	0.98	High Extent
9	Digital technologies are incorporated into lesson preparation and delivery.	3.03	0.84	High Extent
Grand Mean		2.97	0.88	High Extent

Data in Table 3 show that digital technologies were integrated into teaching and learning to a high extent, with a grand mean of $(\bar{x}=2.97)$. All nine items met the decision criterion of $(\bar{x} \geq 2.50)$. Digital collaboration tools for group learning and academic discussions recorded the highest mean score $(\bar{x}=3.16, SD=0.81)$, followed by digital presentations for explaining lecture concepts $(\bar{x}=3.12, SD=0.79)$. Digital technologies for lecturer–student communication recorded $(\bar{x}=3.07)$, while their incorporation into lesson preparation and delivery yielded $(\bar{x}=3.03)$. These results indicate substantial use of digital tools for communication, presentations, and collaborative learning. Hence, the incorporation of online resources into course content recorded $(\bar{x}=3.01)$, while videos, animations, and other multimedia resources recorded $(\bar{x}=2.95)$. Learning management systems for distributing course materials had a mean score of $(\bar{x}=2.89)$, and online platforms for quizzes and other assessments recorded $(\bar{x}=2.79)$. Encouraging students to use digital tools for independent learning and research recorded the lowest mean score $(\bar{x}=2.73, SD=0.98)$. Although all items exceeded the decision threshold, the comparatively lower ratings for independent digital learning and online assessment suggest the need for more deliberate integration of these practices into instructional delivery.

Discussion of Finding

The findings of the study revealed that institutional support facilitated the integration of digital technologies in teaching and learning in public universities in Nigeria to a high extent. The findings suggest that the provision of digital devices, internet connectivity, digital learning platforms, ICT training, and technical assistance are important institutional conditions for technology integration. This finding agrees with Ganiyu, Olasedidun, and Badmus (2017), who examined institutional factors influencing

lecturers' versatility in e-learning in South-West Nigeria. Similarly, Badmus (2020) examined lecturers' perceptions of ICT applications and challenges in higher education institutions in Oyo State, Nigeria. UNESCO (2023) also emphasised the importance of appropriate infrastructure, lecturer preparation, and effective implementation in achieving educational benefits from technology. The findings suggest that university management should strengthen ICT infrastructure, improve technical support, and provide adequate funding and training to facilitate effective technology integration.

The findings of the study revealed that lecturers demonstrated a high level of ICT competence for integrating digital technologies into teaching and learning. The ability to operate computers and related digital devices was rated highest, while troubleshooting common ICT problems was rated lowest. This suggests that lecturers may possess basic digital skills but require further development in specialised technical and instructional applications. The finding is consistent with Badmus (2017), who examined lecturers' ICT levels and attitudes towards ICT use, and Oriji and Nnadieze (2023), who investigated lecturers' computer literacy and competence in using Microsoft PowerPoint for teaching and learning. Furthermore, Claro et al. (2024) highlighted the importance of digital competence in educational practice, while Redecker (2017) emphasised educators' ability to use digital resources, support learning, and assess students through technology. These findings underscore the need for continuous professional development to strengthen lecturers' technical, pedagogical, and digital assessment skills.

The findings of the study revealed that digital technologies were integrated into teaching and learning in public universities in Nigeria to a high extent. Digital collaboration tools were rated highest, whereas encouraging students to use digital tools for independent learning and research was rated lowest. This suggests that lecturers may use digital technologies more frequently for collaborative activities and instructional presentations than for independent learning and online assessment. The finding relates to Olasedidun and Badmus (2016), who examined lecturers' perceptions of integrating social media into instruction, and Ifinedo, Rikala, and Härmäläinen (2020), who investigated factors influencing technology integration among Nigerian lecturer educators. Similarly, Ode and Udu (2022) examined lecturers' competencies in using ICT for student assessment, while Umar and Bawa (2022) discussed capacity building for effective technology integration in tertiary institutions. The findings indicate the need for universities to encourage broader use of digital technologies in interactive instruction, online assessment, collaborative learning, and independent student research.

Conclusion

The study examined institutional support, lecturers' ICT competence, and the integration of digital technologies in teaching and learning in public universities in Nigeria. The findings revealed that institutional support facilitated digital technology integration to a high extent, lecturers demonstrated a high level of ICT competence, and digital technologies were integrated into teaching and learning to a high extent. However, the findings also indicated areas requiring improvement, particularly institutional ICT policies, funding, lecturers' technical troubleshooting skills, online assessment, and students' independent digital learning. The study concludes that effective digital technology integration requires adequate institutional support, continuous development of lecturers' ICT competence, and purposeful application of digital tools to enhance teaching and learning in public universities.

Recommendations

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

1. University management should improve institutional support by providing adequate ICT facilities, reliable internet connectivity, sufficient funding, effective technical assistance, and clear policies that promote the integration of digital technologies into teaching and learning.
2. University management should organise regular professional development programmes to strengthen lecturers' ICT competence, particularly in troubleshooting technical problems, developing interactive digital learning materials, and using digital technologies for instructional assessment.
3. Lecturers should integrate digital technologies more extensively into teaching and learning by using online assessment platforms, multimedia resources, collaborative learning tools, and digital resources that promote students' independent learning and research.

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