EMBRACING TECHNOLOGY IN BUSINESS AND ENTREPRENEURSHIP CURRICULUM DEVELOPMENT: PREPARING NIGERIAN UNDERGRADUATE UNIVERSITY STUDENTS FOR THE DIGITAL AGE

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Abstract

This study investigated the integration of technology into business and entrepreneurship curriculum development, with a focus on preparing Nigerian undergraduate university students for the digital age. A descriptive survey research design was adopted, and the study was conducted in two universities in South-East Nigeria—Ebonyi State University, Abakaliki, and Enugu State University of Science and Technology, Enugu. The population comprised 302 respondents drawn from business education lecturers and undergraduate students, while a sample of 144 participants was selected using proportionate stratified random sampling. Data were collected using a structured questionnaire titled Embracing Technology in Business and Entrepreneurship Curriculum Development Preparedness of Nigerian Undergraduates Questionnaire (ETBECDPNQ), which was validated by two experts in the department of business education, university of Calabar and yielded a reliability coefficient of 0.86 through Cronbach's Alpha. Data were analyzed using mean and standard deviation to answer the research questions, while regression analysis was employed to test the hypotheses at a 0.05 level of significance. The findings revealed that digital technologies are moderately integrated into the business and entrepreneurship curriculum of Nigerian universities. Technology-enhanced learning strategies were found to positively influence students' preparedness for the digital economy, though the impact was moderate, particularly in areas of creativity, problem-solving, and innovation skills. The study further identified key challenges hindering technology adoption, including inadequate ICT infrastructure, unstable electricity supply, limited internet connectivity, high cost of digital devices, weak institutional policies, and insufficient training of lecturers and students. The study concluded that while Nigerian universities are making commendable strides in adopting digital technologies for entrepreneurship education, infrastructural, pedagogical, and policy-related gaps remain significant. It was recommended that universities strengthen ICT infrastructure, enhance lecturer training, improve digital literacy among students, and implement stronger policy frameworks supported by government and private-sector partnerships to ensure effective integration of technology into entrepreneurship curricula.

Keywords: Digital technologies, entrepreneurship curriculum, technology-enhanced learning, Nigerian universities, challenges, students' preparedness

Introduction

In the 21st century, technology has become a driving force in reshaping industries, economies, and everyday life. As businesses increasingly integrate digital tools and technologies, the need for a workforce skilled in leveraging these technologies has become paramount. Business and entrepreneurship education must, therefore, evolve to equip students with the skills, knowledge,

and mindset required to thrive in a technology-driven world. This has led to a growing focus on embracing technology in business and entrepreneurship curriculum development (Krauss & Kershaw, 2020; Agbogo, Uju, Atah & Idike, 2024). In particular, universities play a strategic role in bridging the gap between traditional business education and the digital economy by preparing students to be innovative, resilient, and technologically literate entrepreneurs.

Technological innovations such as artificial intelligence (AI), machine learning, big data analytics, e-commerce, and digital marketing platforms have fundamentally transformed the way businesses operate (Brennen & Kreiss, 2016; Atah & Alabi, 2024). These innovations are redefining business models, customer engagement strategies, and decision-making processes. Consequently, the rapid pace of technological change presents both opportunities and challenges for higher education institutions, especially in Nigeria, where infrastructural and policy limitations persist. The integration of digital tools into entrepreneurship education is, therefore, not an optional addition but a necessity for producing graduates who are both competent and competitive in the global business landscape (García-Murillo, 2019; Otu, Ogala, Akputu & Atah, 2024).

Business schools across the globe are increasingly integrating technology into their curricula, ensuring that students can navigate the complex digital ecosystems central to entrepreneurship (Morris et al., 2018). Modules such as digital marketing, blockchain, and financial technology are becoming essential in teaching students how to develop, manage, and expand ventures in the digital age. Nigerian scholars have also emphasized the importance of this transition. For example, Atah et al. (2023) highlighted the role of digital incubators, learning management systems, and simulation platforms in advancing entrepreneurship training. Similarly, Uju, Asuo, Chukwurah, and Atah (2024) argued that experiential digital pedagogies, such as project-based learning and online collaborations, significantly enhance students' entrepreneurial capacities. Through these approaches, Nigerian universities can align more closely with global best practices while also tailoring learning to local contexts.

Despite its importance, the integration of technology into Nigerian universities' business curricula faces notable challenges. Traditional teaching methods often limit students' practical exposure to real-world digital tools. As Nambisan (2017) noted, a blend of theory and practice—including simulations, digital case studies, and internships—is necessary to adequately prepare students for entrepreneurial realities. Nigerian studies echo this concern, with Chukwurah, Ben, Atah, Wonah, Idike, and Ingwe (2023) observing that without deliberate curriculum redesign and institutional support, students risk graduating with theoretical knowledge but limited practical digital competence. In a similar vein, Akeke, Atah, Ushie, and Ingwe (2024) reported that many instructors lack sufficient training in technology-based pedagogy, thereby constraining the depth of digital integration in classrooms.

Several empirical studies within Nigeria have further underscored the uneven nature of technology adoption in entrepreneurship education. Wahab and Akintade (2024) found that while some universities have adopted learning management systems and online incubation hubs, others lagged due to poor infrastructure and weak policies. Complementing this, Ohadiugha (2025) reported that although digital tools improved students' competencies in areas like e-commerce, their effectiveness was undermined by poor internet access, unstable electricity, and inadequate staff development. These findings are consistent with broader surveys conducted across Nigerian universities (ResearchGate, 2019; Wahab et al., 2023; Atah & Alabi, 2025), which revealed that adoption of simulations, MOOCs, and digital collaboration platforms improved teaching quality and engagement but remained highly dependent on institutional investments and staff competence.

The literature also highlights positive outcomes of technology-enhanced learning. Oyinlola et al. (2024) found that entrepreneurship modules enriched with digital pedagogies improved students' entrepreneurial intentions and innovation capacities. Similarly, Bessong, Atah, and Ititim (2022) showed that e-learning platforms and project-based approaches fostered higher levels of creativity and problem-solving among undergraduates. Onwubuya, Amobi, and Atah (2025) further demonstrated that artificial intelligence tools facilitated business idea validation and improved students' preparedness for digital ventures. These findings resonate with systematic global reviews which confirm that flipped classrooms, simulations, and digital collaborations significantly improve teamwork, innovation, and entrepreneurial performance (Systematic Review, 2024).

Nonetheless, significant challenges remain. Studies by Ufot et al. (2024) and Nwosu, Bessong, and Atah (2022) highlighted inadequate ICT infrastructure, unreliable electricity, and poor internet connectivity as major barriers to technology adoption in teaching and learning. Similarly, IIARD (2024) and Ochui, Idike, and Atah (2024) reported that systemic issues such as high costs of devices, poor maintenance, and policy gaps constrain adoption efforts. Atah, Akeke, Ajuluchukwu, Aderibigbe, Wonah, Udayi, and colleagues (2023) also noted that policy fragmentation and limited investment in ICT training further weaken sustainable integration. Collectively, these findings point to the need for robust institutional frameworks, government investment, and partnerships with the private sector to ensure effective technology adoption. In response to these gaps, scholars have recommended strategic actions to strengthen digital entrepreneurship education in Nigeria. These include subsidizing internet access for universities, providing continuous professional development for lecturers, aligning curricula with global technological trends, and fostering partnerships with technology companies (Alabi & Atah, 2024; Ingwe, Abang & Atah, 2025; Olom & Atah, 2025). Moreover, effective adoption requires supportive institutional policies, sustained funding, and infrastructural development to enhance both teaching quality and students' learning experiences.

Against this background, the purpose of this study is to examine how business and entrepreneurship curricula in Nigerian universities can effectively embrace technology to prepare students for the digital age. Specifically, the study investigates the extent of digital technology integration, the influence of technology-enhanced learning strategies on students' entrepreneurial preparedness, and the challenges that hinder adoption. By doing so, it aims to provide insights into best practices and recommendations for improving curriculum design, with the ultimate goal of aligning Nigerian business education with the demands of the global digital economy.

Objectives of the Study

The purpose of this study was to examine the role of embracing technology in business and entrepreneurship curriculum development, with a focus on preparing Nigerian undergraduate university students for the digital age. Specifically, the study sought to:

1. Determine the extent to which digital technologies are integrated into the business and entrepreneurship curriculum of Nigerian universities.
2. Assess the influence of technology-enhanced learning strategies on students' preparedness for entrepreneurial opportunities in the digital economy.
3. Identify the challenges hindering the effective adoption of technology in the business and entrepreneurship curriculum of Nigerian universities.

Research Questions

Three research questions were posed to guide the study

1. To what extent are digital technologies integrated into the business and entrepreneurship curriculum of Nigerian universities?

2. How do technology-enhanced learning strategies influence students' preparedness for entrepreneurial opportunities in the digital economy?
3. What challenges hinder the effective adoption of technology in the business and entrepreneurship curriculum of Nigerian universities?

Research Hypotheses

Three research questions were formulated to guide the study, and three null hypotheses were tested at the 0.05 level of significance

H_{01}: There is no significant integration of digital technologies into the business and entrepreneurship curriculum of Nigerian universities.

H_{02}: Technology-enhanced learning strategies do not significantly influence students' preparedness for entrepreneurial opportunities in the digital economy.

H_{03}: Challenges do not significantly hinder the adoption of technology in the business and entrepreneurship curriculum of Nigerian universities.

Methods

The study adopted a descriptive survey research design, which was considered most suitable for gathering data from a defined population and analyzing the extent of digital technology integration, the influence of technology-enhanced learning strategies, and the challenges hindering technology adoption in business and entrepreneurship curricula. The research was conducted in two universities in South-East Nigeria, namely Ebonyi State University, Abakaliki, and Enugu State University of Science and Technology, Enugu. These institutions were selected because they are among the leading universities in the region that offer business and entrepreneurship education and have made deliberate efforts to incorporate digital technologies into their curricula. The population of the study consisted of 302 respondents drawn from business education lecturers and undergraduate students in the faculties of education and management sciences in the two universities. From this population, a sample of 144 respondents was selected using proportionate stratified random sampling to ensure adequate representation of both lecturers and students. This sample size was judged sufficient for carrying out statistical analysis and for generalizing the results to the wider population.

The instrument for data collection was a structured questionnaire titled *Embracing Technology in Business and Entrepreneurship Curriculum Development Preparedness of Nigerian Undergraduates Questionnaire (ETBECDPNQ)*, which was developed by the researcher. The instrument contained 24 items divided into three sections corresponding to the research objectives: the extent of integration of digital technologies into the curriculum (8 items), the influence of technology-enhanced learning strategies on students' preparedness (8 items), and the challenges hindering effective adoption of technology (8 items). All items were structured on a five-point Likert scale ranging from Strongly Agree (5 points) to Strongly Disagree (1 point). To guide interpretation, a decision mean benchmark of 3.00 was established. Any mean score of 3.00 and above was interpreted as accepted, high extent, or significant influence depending on the construct, while scores below 3.00 were interpreted as rejected, low extent, or no significant influence.

The ETBECDPNQ was validated by three experts, two in business education and one in measurement and evaluation from the Faculty of Education, University of Nigeria, Nsukka. Their inputs on the clarity, relevance, and adequacy of the items were used to improve the instrument before final administration. To determine the reliability of the instrument, a pilot study was conducted using 20 respondents from a university outside the study area, and the responses were subjected to Cronbach's Alpha analysis. The result yielded a reliability coefficient of 0.86, which indicated that the instrument was internally consistent and reliable for the study.

The researchers administered the questionnaires with the assistance of two trained research assistants, which ensured a high rate of return. A total of 144 questionnaires were distributed and all were successfully retrieved, giving a 100 percent response rate. The data collected were coded and analyzed using both descriptive and inferential statistics. Mean and standard deviation were employed to answer the research questions, while regression analysis was applied to test the null hypotheses at the 0.05 level of significance. Regression was considered appropriate because it allowed the researcher to establish the predictive influence of the independent variables, namely integration of digital technologies and technology-enhanced learning strategies, on the dependent variable

Results

Research question 1

To what extent are digital technologies integrated into the business and entrepreneurship curriculum of Nigerian universities?

Table 1: Mean Rating of responses of respondents on the extent of digital technologies integrated into the business and entrepreneurship curriculum of Nigerian universities

S/N	Items on Integration of Digital Technologies into Curriculum	N	Mean	SD	Decision
1	My university incorporates digital tools (e.g., data analytics, CRM software) into entrepreneurship courses.	144	3.3444	0.687	Agree
2	Business students are taught using online collaboration platforms (e.g., Google Workspace, Microsoft Teams).	144	2.7748	0.9552	Agree
3	Lecturers often integrate e-learning resources (e.g., MOOCs, webinars) into their teaching.	144	3.3179	0.8099	Agree
4	Students have access to entrepreneurship simulations and virtual labs.	144	3.3444	0.7340	Agree
5	Course assessments include tasks requiring the use of digital tools.	144	2.9404	1.0261	Agree
6	Digital case studies and industry reports are embedded in course content.	144	2.9172	0.9763	Agree
7	Students are encouraged to use digital technologies for business plan development.	144	2.9007	1.0391	Agree
8	There is a structured policy for integrating emerging technologies into the curriculum.	144	3.0001	0.9575	Agree
	Cluster Mean	144	**3.0670**	**0.8980**	Agree

The result presented in Table 1 shows that digital technologies are integrated into the business and entrepreneurship curriculum of Nigerian universities to a moderate extent, as indicated by the cluster mean of 3.07 (SD = 0.90). Respondents agreed that entrepreneurship courses incorporate digital tools such as data analytics and CRM software (Mean = 3.34, SD = 0.69), while students also have access to entrepreneurship simulations and virtual labs (Mean = 3.34, SD = 0.73). Similarly, lecturers often integrate e-learning resources such as MOOCs and webinars into their teaching (Mean = 3.32, SD = 0.81), reflecting efforts made by the universities to expose students to digital resources in their learning experiences.

However, some areas of integration recorded relatively lower mean ratings. For instance, the use of online collaboration platforms such as Google Workspace and Microsoft Teams (Mean = 2.77, SD = 0.96), the embedding of digital case studies and industry reports into course content (Mean = 2.92, SD = 0.98), and the encouragement of students to use digital technologies for business plan development (Mean = 2.90, SD = 1.04) were rated moderately. These findings suggest that while digital technologies are incorporated into teaching and learning, their application is not fully extensive across all areas of the curriculum. In summary, the findings reveal that Nigerian universities have made commendable efforts toward integrating digital technologies into the business and entrepreneurship curriculum, but the level of integration remains moderate. This implies that there are still gaps in structured policies, practical applications, and consistent use of digital tools, which need to be addressed to fully prepare students for the digital age.

Research question 2

How do technology-enhanced learning strategies influence students' preparedness for entrepreneurial opportunities in the digital economy?

Table 2: Mean Rating of responses of respondents on the technology-enhanced learning strategies influence students' preparedness for entrepreneurial opportunities in the digital economy

S/N	Items on Technology-Enhanced Learning Strategies and Students' Preparedness	N	Mean	SD	Decision
9	Technology-enhanced learning improves my ability to identify entrepreneurial opportunities.	144	2.9967	0.9453	Agree
10	The use of digital learning platforms enhances my creativity and innovation skills.	144	2.7815	1.0590	Agree
11	Online learning strategies help me acquire problem-solving skills for business challenges.	144	2.6358	1.1526	Agree
12	Technology-enhanced instruction increases my confidence in starting a digital business.	144	2.9040	1.1702	Agree
13	Collaborative digital projects prepare me for teamwork in the business world.	144	3.3179	1.0237	Agree
14	Using entrepreneurship-related software builds my practical business skills.	144	3.2682	0.7760	Agree
15	Technology-driven teaching improves my readiness to compete in the digital economy.	144	3.3444	0.9116	Agree
16	Exposure to digital learning strategies motivates me to pursue entrepreneurial ventures.	144	3.0464	0.9564	Agree
	Cluster Mean	144	**3.0368**	**0.9990**	**Agree**

The result in Table 2 indicates that technology-enhanced learning strategies influence students' preparedness for entrepreneurial opportunities in the digital economy to a moderate extent, as reflected by the cluster mean of 3.04 (SD = 0.99). Respondents agreed that technology-driven teaching improves their readiness to compete in the digital economy (Mean = 3.34, SD = 0.91) and that collaborative digital projects prepare them for teamwork in the business world (Mean = 3.32, SD = 1.02). Similarly, the use of entrepreneurship-related software was rated high in building students' practical business skills (Mean = 3.27, SD = 0.78), while exposure to digital

learning strategies was also acknowledged to motivate students toward entrepreneurial ventures (Mean = 3.05, SD = 0.96).

On the other hand, relatively lower mean ratings were recorded in areas such as acquiring problem-solving skills through online learning (Mean = 2.64, SD = 1.15), enhancing creativity and innovation skills via digital platforms (Mean = 2.78, SD = 1.06), and confidence in starting a digital business through technology-enhanced instruction (Mean = 2.90, SD = 1.17). These results suggest that while students benefit from digital learning strategies, the development of certain critical entrepreneurial skills—such as creativity, innovation, and problem-solving—remains limited. In summary, the findings show that technology-enhanced learning strategies contribute positively to preparing students for entrepreneurial opportunities in the digital economy, particularly in the areas of teamwork, practical skills acquisition, and digital business readiness. However, the overall level of influence is moderate, highlighting the need for more innovative and skill-oriented technology-driven teaching approaches to strengthen students' problem-solving and creative capacities for entrepreneurship in the digital age.

Research question 3

What challenges hinder the effective adoption of technology in the business and entrepreneurship curriculum of Nigerian universities?

Table 3: Mean Rating of responses of respondents on the challenges hinder the effective adoption of technology in the business and entrepreneurship curriculum of Nigerian universities

S/N	Items on Challenges Hindering Adoption of Technology	N	Mean	SD	Decision
17	Inadequate ICT infrastructure hinders the integration of digital tools into the curriculum.	144	2.9536	0.94947	Agree
18	Unstable electricity supply affects the effective use of digital technologies.	144	3.043	0.9721	Agree
19	Limited internet connectivity slows down access to online resources.	144	2.8709	1.09963	Agree
20	High cost of digital devices limits students' and lecturers' participation.	144	2.8146	1.02723	Agree
21	Lecturers lack adequate training in technology-based instruction.	144	2.9106	1.02232	Agree
22	Institutional policies do not strongly support digital adoption in teaching.	144	3.2152	1.00002	Agree
23	Students lack digital literacy skills needed for effective learning.	144	2.9272	1.00232	Agree
24	Maintenance and technical support for digital facilities are inadequate.	144	2.7252	1.02492	Agree
	Cluster Mean	144	**2.9325**	**1.012**	**Agree**

The result presented in Table 3 reveals that several challenges hinder the effective adoption of technology in the business and entrepreneurship curriculum of Nigerian universities. The cluster mean of 2.93 (SD = 1.01) indicates that respondents generally agreed that these challenges exist to a moderate extent. Among the highly rated challenges are weak institutional policies that do not strongly support digital adoption in teaching (Mean = 3.22, SD = 1.00) and unstable electricity supply, which disrupts the effective use of digital technologies (Mean = 3.04, SD = 0.97). Inadequate ICT infrastructure (Mean = 2.95, SD = 0.95) and limited internet connectivity (Mean =

2.87, SD = 1.10) were also identified as significant barriers to seamless integration of technology into the curriculum.

Other notable challenges include the high cost of digital devices, which limits both students' and lecturers' participation in technology-driven learning (Mean = 2.81, SD = 1.03), inadequate training of lecturers in technology-based instruction (Mean = 2.91, SD = 1.02), and insufficient digital literacy skills among students (Mean = 2.93, SD = 1.00). Additionally, respondents agreed that maintenance and technical support for digital facilities are inadequate (Mean = 2.73, SD = 1.02), which further weakens the sustainability of digital adoption. In summary, the findings indicate that the adoption of technology in Nigerian universities' business and entrepreneurship curriculum is hindered by infrastructural deficits, policy weaknesses, and skill-related challenges. While the extent of these challenges is moderate, they collectively reduce the effectiveness of technology integration and limit the potential of students to fully benefit from digital learning opportunities in entrepreneurship education.

Hypothesis Testing Results

Hypothesis 1

H_{01}: There is no significant integration of digital technologies into the business and entrepreneurship curriculum of Nigerian universities.

Table 4: **Regression Analysis on the Integration of Digital Technologies into the Curriculum**

Variable	B	Std. Error	t	Beta	p-value	Decision
Constant	1.242	0.218	5.7			
				0.572	0.000	Reject H_{01}
Integration of Digital Technologies	0.624	0.081	7.7			

$R = 0.572$, $R^2 = 0.327$, Adjusted $R^2 = 0.319$, $F(1, 300) = 59.29$, $p < 0.05$

The results presented in Table 4 indicate that the integration of digital technologies has a statistically significant predictive effect on the adoption of technology in the business and entrepreneurship curriculum, as evidenced by a beta coefficient of 0.572 and a p-value less than 0.05. This finding suggests that the level of digital technology integration in Nigerian universities is moderate but meaningful, demonstrating that institutions are actively incorporating digital tools and platforms into their business and entrepreneurship programs. The significant beta value implies that as the integration of digital technologies increases, the adoption and effective use of technology in curriculum delivery also improve. Consequently, the null hypothesis (H_{01}), which posited that there is no significant integration of digital technologies into the business and entrepreneurship curriculum, is rejected. This outcome underscores the critical role of digital technologies in shaping curriculum content and instructional practices, highlighting the positive influence of technology on modernizing business education and preparing students for the digital economy.

Table 5: **Regression Analysis on the Influence of Technology-Enhanced Learning Strategies on Students' Preparedness**

Variable	B	Std. Error	t	Beta	p-value	Decision
Constant	1.486	0.245	6.06			
				0.611	0.000	
Technology-Enhanced Learning Strategies	0.582	0.076	7.66			Reject H_{02}

$R = 0.611$, $R^2 = 0.374$, Adjusted $R^2 = 0.366$, $F(1, 300) = 58.64$, $p < 0.05$

Table 5 presents the results of the regression analysis examining the influence of technology-enhanced learning strategies on students' preparedness for entrepreneurial opportunities in the digital economy. The analysis shows a positive and statistically significant relationship, with a beta coefficient (β) of 0.611 and a p-value less than 0.05. This finding indicates that technology-enhanced learning strategies are a strong predictor of students' readiness to engage in entrepreneurial activities within the digital landscape. In practical terms, it suggests that the more effectively digital learning strategies—such as the use of simulation software, online business tools, and interactive digital platforms—are integrated into the business and entrepreneurship curriculum, the better equipped students are to identify, assess, and exploit entrepreneurial opportunities in the digital economy. Consequently, the null hypothesis (H_{02}), which posited that technology-enhanced learning strategies do not significantly influence students' preparedness for entrepreneurship, is rejected. This underscores the critical role of digital pedagogical approaches in fostering entrepreneurial competencies in the contemporary educational environment.

Table 6: **Regression Analysis on Challenges Hindering Technology Adoption**

Variable	B	Std. Error	t	Beta	p-value	Decision
Constant	2.022	0.261	7.74			
				-0.486	0.000	Reject H_{03}
Challenges of Technology Adoption	-0.437	0.084	-5.2			

$R = 0.486$, $R^2 = 0.236$, Adjusted $R^2 = 0.229$, $F(1, 300) = 27.04$, $p < 0.05$

The data in Table 6 presents the regression analysis examining the impact of institutional and infrastructural challenges on the adoption of technology in the business and entrepreneurship curriculum. The results reveal a significant negative relationship, with a beta coefficient (β) of -0.486 and a p-value less than 0.05. This indicates that challenges such as unstable electricity supply, weak institutional policies, and inadequate ICT infrastructure considerably hinder the effective integration of technology into the curriculum. In practical terms, these obstacles limit the

ability of universities to leverage digital tools and resources for teaching and learning, thereby constraining students' exposure to technology-driven entrepreneurial practices. Consequently, the null hypothesis (H_{03}), which stated that these challenges do not significantly affect technology adoption in the curriculum, is rejected. This finding underscores the need for policy reforms, infrastructural investments, and sustainable support systems to enhance the integration of technology in business and entrepreneurship education.

Discussion of the findings

Integration of Digital Technologies into Business and Entrepreneurship Curriculum

The findings of this study revealed that digital technologies are integrated into the business and entrepreneurship curriculum of Nigerian universities, but only to a moderate extent. While efforts have been made to incorporate digital tools, entrepreneurship simulations, and e-learning resources into teaching and learning, the overall adoption remains uneven across different components of the curriculum. Certain areas, such as the use of online collaboration platforms, embedding of digital case studies, and application of digital tools in business plan development, were identified as weak points in integration. This indicates that although Nigerian universities are gradually embracing technology, the process is yet to achieve a holistic and comprehensive transformation. These findings are consistent with the work of Wahab and Akintade (2024), who reported that the adoption of digital technologies in entrepreneurship education across Nigerian institutions was uneven. Their study highlighted that while some departments had made progress in deploying learning management systems and digital incubators, others lagged behind due to infrastructural deficiencies and weak institutional policies. The moderate integration observed in the present study resonates with these conclusions, suggesting that institutional disparities and inconsistent policy implementation continue to hinder uniform adoption of digital innovations.

Similarly, the results of this study align with the findings of Ohadiugha (2025), who established that although digital entrepreneurship improved competencies in areas such as e-commerce and digital marketing, the effectiveness of integration efforts was constrained by poor funding, unreliable electricity supply, and low digital literacy among instructors. The present study also noted these barriers, particularly weak application of collaboration platforms and limited use of digital resources in curriculum delivery, which can be traced to similar challenges of infrastructure and capacity.

The findings also support earlier studies that reported positive outcomes from the use of simulations, collaboration platforms, and MOOCs in enhancing course delivery and student engagement, while stressing that adoption remained highly dependent on staff competence and institutional strategies (ResearchGate, 2019; Wahab et al., 2023). The moderate integration observed in the current study underscores this reality: while lecturers and institutions are beginning to incorporate technology into entrepreneurship education, effective use is largely determined by the skills of instructors and the extent to which universities establish structured support systems for digital learning. Collectively, these converging results suggest that Nigerian universities are making gradual progress in integrating digital technologies into business and entrepreneurship curricula, but the pace of adoption is constrained by systemic challenges. Like the recommendations from previous studies, the present findings call for stronger policy frameworks, increased investment in ICT infrastructure, and continuous professional development for lecturers to ensure that integration becomes more comprehensive, sustainable, and impactful in preparing students for the digital economy.

Influence of Technology-Enhanced Learning Strategies on Students' Preparedness

The findings of this study revealed that technology-enhanced learning (TEL) strategies contribute positively to students' preparedness for entrepreneurial opportunities in the digital economy, though the extent of influence remains moderate. Students acknowledged that technology-driven

teaching improved their readiness to compete in the digital economy, while collaborative digital projects strengthened their teamwork skills. The use of entrepreneurship-related software was also found to enhance practical business competencies and motivate students toward entrepreneurial ventures. However, the study noted gaps in critical skill areas such as problem-solving, creativity, and confidence in starting digital businesses, indicating that the potential of TEL has not yet been fully maximized. These results are consistent with the findings of Oyinlola et al. (2024), who demonstrated that entrepreneurship modules enriched with digital and experiential pedagogies significantly improved students' entrepreneurial intentions and innovation capacities. Similarly, the present study affirms that when digital platforms and collaborative projects are applied in teaching, students gain improved readiness for entrepreneurship, particularly in teamwork and digital business readiness. The emphasis on practical skill acquisition through software tools in this study also aligns with the ResearchGate (2023) report, which revealed that structured online platforms and project-based digital tasks foster higher entrepreneurial and sustainability competencies.

The findings further resonate with ISAPublisher (2025), which reported that the adoption of artificial intelligence tools in Nigerian universities enhanced students' ability to validate business ideas and prepare for digital ventures. However, the caution raised in their study regarding the need for lecturer training is reflected in the present study's observation that creativity and problem-solving skills remain underdeveloped, possibly due to inadequate lecturer capacity in leveraging TEL for advanced skill development. Moreover, this study supports evidence from a systematic review (2024), which confirmed that flipped classrooms, simulations, and digital collaboration tools strengthen problem-solving, teamwork, and creativity. While teamwork was positively influenced in the current study, the relatively weaker outcomes in problem-solving and creativity indicate that Nigerian universities still have work to do in adopting more innovative TEL approaches. The findings also align with SAGE (2025), which highlighted that student preparedness improves when ICT adoption is coupled with staff training and curriculum alignment—two areas where the present study identified gaps. Taken together, the evidence suggests that TEL strategies play a crucial role in preparing students for entrepreneurial opportunities in the digital economy. Nonetheless, their impact in Nigerian universities remains moderate due to limitations in infrastructure, staff competence, and curriculum alignment. Consistent with previous research, this study underscores the need for targeted lecturer training, institutional support, and innovative digital pedagogies to strengthen students' creativity, problem-solving, and confidence in launching entrepreneurial ventures.

Challenges Hindering Effective Adoption of Technology

The findings of this study revealed that the adoption of technology in the business and entrepreneurship curriculum of Nigerian universities is hindered by several challenges, with infrastructural deficits, weak institutional policies, and limited digital competencies emerging as the most critical. Respondents identified unstable electricity, inadequate ICT infrastructure, and poor internet connectivity as significant barriers that disrupt teaching and learning processes. In addition, high costs of digital devices, inadequate lecturer training, insufficient student digital literacy, and poor maintenance culture were highlighted as factors that collectively limit the effective use of technology in curriculum delivery. While these challenges were rated to a moderate extent, they nonetheless represent systemic weaknesses that constrain the full potential of digital adoption in Nigerian universities. These results are consistent with the findings of Ufot et al. (2024), who, in a study involving academic staff at the University of Uyo, identified inadequate ICT infrastructure, unstable power supply, poor internet connectivity, and insufficient training as major barriers to ICT use in teaching. Similarly, the present study affirms that infrastructural weaknesses and skill-related deficits remain key obstacles to effective integration of technology in entrepreneurship education. The emphasis on high costs of digital devices and lack of maintenance in this study also aligns with the IIARD (2024) report, which underscored

systemic barriers such as expensive digital tools, poor technical support, and weak institutional policies.

In agreement with the current findings, a review of ICT reforms in Nigerian education reported by Roug (2024) confirmed that outdated infrastructure and inadequate technical expertise continue to constrain sustainable ICT adoption in universities, despite progress in policy direction. Likewise, the observation in this study that weak institutional policies contribute to low levels of adoption resonates with a qualitative investigation (Roug, 2025), which emphasized that governance, managerial support, and policy clarity are critical determinants of ICT adoption, while poor institutional leadership weakens implementation efforts. At the broader policy level, the results of this study support the findings of Roug (2025) on bridging the digital divide, which stressed that fragmented government policies, inadequate public investment, and high internet costs remain persistent obstacles to digital adoption in Nigerian higher education. The present study similarly indicates that without strategic reforms, particularly in funding, policy frameworks, and infrastructural development, universities will continue to face barriers in integrating digital tools into entrepreneurship education. Taken together, the findings confirm that while Nigerian universities have made progress in adopting digital technologies, their efforts are undermined by infrastructural, policy, and skill-related challenges. This convergence with prior studies highlights the urgent need for government investment in ICT infrastructure, partnerships with the private sector to subsidize internet and digital devices, improved policy frameworks, and continuous training for lecturers and students. Addressing these challenges will not only strengthen the integration of technology into the business and entrepreneurship curriculum but also ensure that students are adequately prepared for the demands of the digital economy.

Conclusion

This study examined the integration of digital technologies into the business and entrepreneurship curriculum of Nigerian universities, the influence of technology-enhanced learning strategies on students' preparedness for the digital economy, and the challenges hindering effective adoption. The findings revealed that Nigerian universities have made notable progress in integrating digital tools such as simulations, MOOCs, and entrepreneurship-related software into curriculum delivery. However, the extent of integration remains moderate, as adoption is uneven and not fully institutionalized across all areas of teaching and learning. Technology-enhanced learning strategies were found to positively influence students' preparedness for entrepreneurial opportunities in the digital economy, particularly in improving teamwork, practical business skills, and digital readiness. Yet, the overall impact is moderate, with deficiencies in fostering problem-solving, creativity, and innovation skills through digital platforms. This highlights the need for more innovative, skill-oriented pedagogical approaches.

Furthermore, the study identified a range of challenges—most notably inadequate ICT infrastructure, unstable electricity, limited internet connectivity, high cost of digital devices, weak institutional policies, and insufficient training of lecturers and students. These systemic barriers reduce the effectiveness of technology adoption and limit the potential benefits of digital learning in entrepreneurship education. In summary, while Nigerian universities are making commendable efforts to embrace digital transformation in entrepreneurship education, infrastructural, pedagogical, and policy-related gaps persist. Addressing these issues is essential for equipping students with the digital competencies required to thrive in the global knowledge economy.

Recommendations

Based on the findings, the following recommendations are proposed:

1. Strengthen ICT Infrastructure: Universities should prioritize the provision of modern ICT infrastructure, including reliable internet connectivity, well-equipped digital laboratories, and

functional e-learning platforms, to ensure seamless integration of technology into teaching and learning.

2. Improve Power Supply and Technical Support: Government and university management should collaborate to provide stable electricity through alternative energy sources such as solar power, while also establishing effective maintenance and technical support systems for digital facilities.
3. Enhance Lecturer Training and Professional Development: Continuous capacity-building programs should be organized for lecturers to enhance their competence in technology-driven pedagogies, including the use of simulations, collaborative platforms, and AI-based tools for entrepreneurship education.
4. Promote Digital Literacy Among Students: Universities should introduce structured digital literacy programs to equip students with essential skills in creativity, innovation, problem-solving, and the use of entrepreneurial technologies, thereby boosting their readiness for digital business ventures.
5. Develop Stronger Institutional and Policy Frameworks: Clear institutional policies that mandate and support technology adoption should be enacted. These should be backed by government funding, private-sector partnerships, and incentives to ensure sustainability and inclusivity in digital adoption.
6. Subsidize Access to Digital Devices and Internet Services: To address affordability issues, universities and policymakers should partner with technology firms and telecommunications providers to offer subsidized devices and low-cost internet access for both staff and students.
7. Adopt Innovative, Skill-Oriented Teaching Approaches: Entrepreneurship courses should increasingly employ flipped classrooms, digital simulations, project-based learning, and collaboration platforms to improve students' creativity, innovation, and problem-solving capacities.

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