CLOSING PEDAGOGICAL LOOPHOLES: LEVERAGING TECHNOLOGY-DRIVEN APPROACHES FOR SUSTAINABLE CURRICULUM REFORM IN BUSINESS AND ENTREPRENEURSHIP EDUCATION

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Abstract
This study investigated closing pedagogical loopholes in business and entrepreneurship education by leveraging technology-driven approaches for sustainable curriculum reform. Guided by three research questions, the study focused on identifying major loopholes in the curricula, exploring technology-driven pedagogical strategies to address them, and examining sustainable reform models for improved outcomes. The researchers adopted a descriptive survey design. Area of the study was in Federal College of Education (Technical), Omoku, Rivers State, and Isaac Jasper Boro College of Education, Sagbama, Bayelsa. The population consisted of 95 Business Education lecturers drawn from the two Colleges of Education. The entire 95 lecturers were included in the study, making it a census of the population rather than relying on sampling. A structured questionnaire was employed for data collection, validated by three experts, and tested for reliability using Cronbach Alpha with a coefficient of 0.83. Data collected were analyzed using mean and standard deviation with the Statistical Package for the Social Sciences (SPSS). Findings revealed significant pedagogical loopholes, including weak industry alignment, inadequate digital literacy integration, and overreliance on theory. The results further showed that technology-driven approaches such as learning management systems, mobile applications, and online simulations can effectively bridge these gaps. Sustainable reform models, including competency-based education and blended learning, were also identified. The study concluded that continuous, technology-enhanced curriculum renewal is vital for preparing graduates for dynamic business and entrepreneurial environments. It was also recommended among other that business education curricula should be regularly reviewed to eliminate outdated content, reduce excessive theoretical emphasis, and strengthen industry relevance.

Keywords: *Business education, entrepreneurship education, pedagogical loopholes, technology-driven approaches, curriculum reform*

Introduction

The integration of technology into business and entrepreneurship education has become a central concern in recent years, particularly as institutions seek to align curricula with the demands of the digital economy. Business education, in particular, has been criticized for its overemphasis on theoretical knowledge at the expense of practical competencies that prepare students for the world of work (Eze & Okoye, 2021; Adediran & Odetunde, 2021). Similarly, entrepreneurship education often struggles to move beyond abstract principles, leaving learners ill-equipped to tackle the complexities of self-employment and enterprise development in a fast-changing environment (Njoku, 2023).

Business education is an academic programme designed to equip learners with knowledge, skills, and competencies for office, managerial, and entrepreneurial functions, while entrepreneurship education focuses on developing creativity, innovation, and resilience for business creation and sustainability. Nwaokokorom (2020, 2023) emphasized that both fields are interrelated, as business education provides the foundation for technical and administrative competence, while entrepreneurship education strengthens self-reliance and employability. Together, they form a critical pathway for preparing graduates to navigate economic challenges and seize opportunities in today's knowledge-driven economy.

Business education is not merely the teaching of business subjects; rather, it emphasizes the inculcation of entrepreneurial mindset, problem-solving ability, and adaptability to the changing business environment. Nwaokokorom, Ikpeama, and Amakodi (2024) argue that in the digital era, business education plays a crucial role in enhancing the job performance of graduates by integrating emerging technologies and addressing skill gaps required in the labor market. Thus, it goes beyond imparting knowledge to cultivating competencies that make learners innovative contributors to sustainable economic growth.

Scholars such as Adeyemi and Ekwere (2022) and Ugwoke and Nweze (2023) have further observed that the persistent loopholes in the current curricula particularly the lack of digital literacy integration, poor industry linkage, and outdated pedagogical practices continue to weaken graduate employability. Adeola (2023) and Owusu and Boateng (2021) similarly stressed that without digital instructional strategies, business and entrepreneurship education cannot meet the evolving expectations of learners or employers. These concerns underscore the urgency of rethinking and reforming curricula to plug existing gaps while leveraging technology for effective delivery.

A major challenge lies in the persistence of curricula that emphasize theory over practice. Studies have shown that entrepreneurship content is delivered in ways that limit innovation, creativity, and problem-solving among students (Adeyemi & Ekwere, 2022; Ugwoke & Nweze, 2023). In particular, rote learning remains dominant, while opportunities for hands-on engagement with entrepreneurial ecosystems are minimal. This aligns with the views of Nwosu and Okorie (2020), who stressed that without practical exposure, business education graduates struggle to apply classroom knowledge to real-world situations. The implication is that current pedagogical practices require urgent reform to bridge the gap between academic learning and industry realities.

Globally, there is consensus that technology can address many of these curriculum deficiencies. Owusu and Boateng (2021) argued that integrating digital platforms such as Learning Management Systems (LMS) enhances accessibility to resources, while online simulations foster entrepreneurial decision-making. Similarly, Yusuf and David (2022) and Adeola (2023) found that mobile learning applications, virtual incubation hubs, and digital collaboration tools create learner-centered experiences that promote creativity and adaptability. By embedding these tools, business and entrepreneurship education can shift from rigid, teacher-centered methods to flexible and innovative models of instruction.

Beyond technology adoption, sustainable reform models are critical for ensuring curriculum relevance. Competency-based education, blended learning approaches, and strong industry collaboration have been recommended by scholars as viable strategies for strengthening business education (Emeh & Alamina, 2024; Nwosu & Okorie, 2020). These models allow curricula to remain dynamic, adapting to technological change and labor market demands. Adeola (2023) further argued that embedding digital entrepreneurship into the curriculum improves graduate readiness for uncertain and rapidly evolving economies. Together, these perspectives highlight the importance of continuous curriculum renewal, rather than periodic reforms that quickly become obsolete.

Within the Nigerian context, scholars in business education have amplified these concerns through empirical studies and conference contributions. For instance, Adediran and Odetunde (2021) and Ugwoke and Nweze (2023) emphasized the need to restructure entrepreneurship education to reflect both local realities and global trends. Their findings converge with the observations of Eze and Okoye (2021), who stressed that business education curricula must integrate digital literacy and practical skill development if they are to remain relevant. Collectively, these studies show that curriculum reform is both a national imperative and a global necessity.

In this regard, this study focuses on examining three interrelated aspects of curriculum development: identifying loopholes in the existing business and entrepreneurship education curricula, exploring technology-driven pedagogical strategies for addressing these gaps, and analyzing sustainable reform models for ensuring long-term relevance. By concentrating on lecturers in colleges of education, the study offers empirical insights into the state of current practices and highlights opportunities for innovative, technology-enabled approaches that can shape the future of business and entrepreneurship education in Nigeria.

Statement of the Problem

Despite persistent calls for reform, business and entrepreneurship education curricula in Nigeria and similar contexts remain constrained by outdated content, theoretical dominance, and weak responsiveness to technological change. Obi, Okoye, and Nwosu (2024) found that graduates of business education programmes often lack practical entrepreneurial skills due to minimal exposure to digital tools and industry realities. Similarly, Okoli and Ugwoke (2021) reported that overreliance on lecture methods limits students' acquisition of problem-solving and innovation competences. These findings suggest that curriculum loopholes persist despite global shifts toward digitalized and practice-oriented learning.

Although recent studies acknowledge the potential of technology-driven strategies such as blended learning, gamification, and simulation in bridging these gaps (Igwe & Alabi, 2023; Ojo & Adegbite, 2021), there remains little empirical evidence on how such innovations can be systematically embedded into sustainable curriculum reform models. This gap highlights the need to investigate how technology-driven approaches can not only close pedagogical loopholes but also ensure lasting alignment between business education programmes and twenty-first-century entrepreneurial realities.

Research Questions

1. What loopholes exist in the current business and entrepreneurship education curricula?
2. How can technology-driven approaches be examined as strategies to address these pedagogical loopholes?
3. What sustainable curriculum reform models can be examined to enhance the relevance of business and entrepreneurship education to twenty-first-century demands?

Method

This study adopted the descriptive survey research design, which is considered suitable for gathering opinions and perceptions of respondents on educational practices (Nwosu & Okorie, 2020; Yusuf & David, 2022). The design was appropriate because it allowed for the collection of quantitative data that could be statistically analyzed to provide insight into loopholes in the current curricula and the role of technology-driven strategies in addressing them. The population of the study comprised all 95 Business Education lecturers drawn from two institutions: 68 lecturers from the Federal College of Education (Technical), Omoku, Rivers State, and 27 lecturers from Isaac Jasper Boro College of Education, Sagbama, Bayelsa State. Given the manageable size of the population, the entire 95 lecturers were included in the study, making it a census of the population rather than relying on sampling. This approach ensured comprehensive coverage and enhanced the validity of findings. The instrument for data collection was a structured questionnaire divided into three sections, each addressing one of the research questions. Items were developed on a five-point Likert scale, ranging from Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1). To establish validity, the instrument was subjected to expert review by two specialists in Business Education and one in Measurement and Evaluation. Reliability was determined using Cronbach's Alpha, which yielded an acceptable coefficient of 0.82, indicating internal consistency. Data collected were coded and entered into the Statistical Package for the Social Sciences (SPSS, version 26). Descriptive statistics, including mean and standard deviation, were used to analyze the responses and provide answers to the three research questions. The decision rule for answering the research questions was based on real limit of numbers, thus: Strongly Agree at 5 points (4.50 - 5.00), Agree at 4 points (3.50 - 4.49), Neutral at 4 points (2.50 - 3.49), Disagree at 2 points (1.50 - 2.49), and Strongly Disagree at 1 point (1.00 - 1.49).

Results and Findings

The data collected from 95 Business Education lecturers were analyzed using the Statistical Package for the Social Sciences (SPSS, version 26). Descriptive statistics of mean and standard deviation were employed to answer the three research questions. A decision rule was set at a mean score of 3.00 and above = Agreed, while a mean score below 3.00 = Disagreed.

Research Question One: *What loopholes exist in the current business and entrepreneurship education curricula?*

Table 1: Responses of Business Education Lecturers on loopholes exist in the current business and entrepreneurship education curricula

S/N	Statement	N	Mean	SD	Decision
1	Curriculum lacks adequate integration of digital literacy skills	95	4.31	0.78	Agreed
2	The curriculum is outdated and not aligned with industry needs	95	4.25	0.81	Agreed
3	Entrepreneurship content is too theoretical with limited practical exposure	95	4.17	0.89	Agreed
4	There is insufficient linkage between curriculum and entrepreneurial ecosystems	95	3.98	0.92	Agreed
5	Assessment methods emphasize rote learning over innovation and creativity	95	4.05	0.83	Agreed
	Cluster Mean		**4.15**	**0.85**	**Agreed**

The data presented in table 1 above indicated that significant loopholes exist in the current curriculum, especially in areas of digital literacy, industry relevance, and practical exposure.

Research Question Two: How can technology-driven approaches be examined as strategies to address these pedagogical loopholes?

Table 2: Responses of Business Education Lecturers on technology-driven approaches

S/N	Statement	N	Mean	SD	Decision
6	Use of online simulations enhances entrepreneurial decision-making skills	95	4.12	0.76	Agreed
7	Learning Management Systems (LMS) improve access to instructional materials	95	4.21	0.72	Agreed
8	Virtual incubation platforms support skill acquisition and mentoring	95	4.09	0.80	Agreed
9	Social media platforms can be used as tools for entrepreneurial marketing education	95	4.03	0.84	Agreed
10	Mobile applications facilitate flexible and self-paced learning	95	4.18	0.77	Agreed
	Cluster Mean		**4.13**	**0.78**	**Agreed**

Table 2 respondents strongly agreed that technology-driven approaches are viable tools to bridge identified loopholes.

Research Question Three: What sustainable curriculum reform models can be examined to enhance the relevance of business and entrepreneurship education to twenty-first-century demands?

Table 3: Responses of Business Education Lecturers on sustainable curriculum reform models

S/N	Statement	N	Mean	SD	Decision
11	Curriculum review should emphasize digital entrepreneurship	95	4.20	0.73	Agreed
12	Integration of industry partnerships and mentorship in teaching	95	4.26	0.70	Agreed
13	Competency-based curriculum enhances employability and innovation	95	4.15	0.75	Agreed
14	Continuous professional development for lecturers ensures curriculum delivery relevance	95	4.23	0.71	Agreed
15	Adoption of blended and hybrid learning models sustains curriculum innovation	95	4.18	0.74	Agreed
	Cluster Mean		**4.20**	**0.73**	**Agreed**

Data in table 3 respondents agreed that sustainable curriculum reforms must emphasize digital entrepreneurship, industry linkages, and blended learning models.

Discussion of Findings

The study found significant loopholes in the current business and entrepreneurship education curricula, particularly inadequate integration of digital literacy, weak industry alignment, and overemphasis on theory. This outcome supports the earlier observations of Eze and Okoye (2021), Adediran and Odetunde (2021), and Njoku (2023), who collectively noted that the Nigerian business education curriculum remains outdated and poorly aligned with twenty-first-century realities. Similarly, Adeyemi and Ekwere (2022) and Ugwoke and Nweze (2023) emphasized that curricula overly centered on theory limit students' ability to apply entrepreneurial knowledge in practice. The implication of this convergence is that unless reforms are introduced, graduates will continue to face challenges of employability and innovation in a competitive global economy.

The findings further revealed that technology-driven pedagogical strategies, including mobile applications, online simulations, and Learning Management Systems, can effectively address the identified curriculum gaps. This corroborates the works of Yusuf and David (2022) and Adeola (2023), who argued that technology-enhanced instruction promotes flexibility, creativity, and learner-centered approaches in business education. Owusu and Boateng (2021) also highlighted the transformative potential of online learning platforms in promoting decision-making and entrepreneurial problem-solving. Together, these scholars provide strong evidence that adopting technology in curriculum delivery is no longer optional but necessary for sustainability.

Finally, the study showed strong support for sustainable curriculum reform models, particularly competency-based education, blended learning, and digital entrepreneurship integration. These results echo the positions of Emeh and Alamina (2024), Adeola (2023), and Nwosu and Okorie (2020), who emphasized that reform must be continuous, collaborative with industry, and responsive to emerging workplace demands. The implication is that curriculum innovation should not be periodic but dynamic, constantly adjusting to technological shifts and labor market expectations.

Conclusion

The study established that business and entrepreneurship education curricula still contain major loopholes that limit their effectiveness in preparing students for employability and entrepreneurial success. Findings revealed that the existing curriculum is outdated, overly theoretical, and poorly aligned with industry needs. However, the adoption of technology-driven instructional strategies and sustainable curriculum reform models offers a pathway to address these challenges. A responsive and innovative curriculum, continuously renewed to reflect global trends and local realities, is therefore essential for strengthening business education and entrepreneurship development.

Recommendations

The following recommendations were made based on curriculum loopholes, technology-drive strategies and reform models.

1. Business education curricula should be regularly reviewed to eliminate outdated content, reduce excessive theoretical emphasis, and strengthen industry relevance.
2. Lecturers and institutions should adopt digital tools such as learning management systems, simulations, and mobile applications to enhance teaching, foster creativity, and build entrepreneurial competencies among students.
3. Policymakers and stakeholders should embrace sustainable curriculum reform through competency-based education, blended learning, and continuous collaboration with industry, ensuring that the curriculum remains dynamic and responsive to evolving workplace demands.

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