INTELLIGENT TUTORING SYSTEM AND LEARNING MANAGEMENT SYSTEMS AS CORRELATES OF SUCCESSFUL IMPLEMENTATION OF BUSINESS EDUCATION CURRICULUM IN UNIVERSITIES IN ANAMBRA STATE

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Abstract

The study investigated intelligent tutoring systems and learning management systems as correlates of the successful implementation of business education curricula in universities in Anambra State. Two research questions guided the study, and two hypotheses were tested at 0.05 level of significance. A correlational research design was adopted for the study. The population comprised 124 300 level business education students from two public universities in the 2024/2025 academic session, with the entire population used due to its manageable size. Data were collected using two structured instruments: the Intelligent Tutoring System and Learning Management System Questionnaire (ITSLMSQ) and the Questionnaire on Successful Implementation of Business Education Curriculum (QSIBEC). Three experts validated both instruments; two from the Department of Business Education and one from the measurement and evaluation unit of the Department of Educational Foundations. The reliability of the instruments was confirmed using Cronbach's Alpha, yielding coefficient values of 0.84 and 0.87, respectively. The analysis was conducted using Pearson Product-Moment Correlation, with decision rules based on correlation coefficients and p-values (≤0.05 indicating significance). Findings revealed a high positive relationship between ITS, LMS, and the successful implementation of the business education curriculum. Based on these findings, the researcher recommended that the Federal and State governments in collaboration with private technology companies, should invest in the integration of intelligent tutoring systems to enhance the implementation of business education.

Keywords: Business Education, Curriculum, Intelligent Tutoring System (ITS), Learning Management Systems (LMS), Implementation

Introduction

Universities are formal institutions where students receive training to develop research skills and acquire academic qualifications. Universities may be owned and administered by the federal or state government, as well as by private individuals or organisations (Ugwu & Orsu (2017). Universities offer a range of academic programmes designed to equip students with relevant knowledge and skills for various professions like business education among others.

Business education is a branch of vocational education provided at the tertiary level, aimed at preparing students for careers in business. It equips individuals with essential business competencies required for teaching business-related attitudes, concepts, skills and knowledge. Obiete, Nwazor and Vin-Mbah (2015) defined business education as distinct due to its capacity to provide learners with the skills required to operate independently as self-employed individuals and job creators. Similarly, Ikpesu (2017) defined business education as a field of study that imparts essential skills, knowledge, and values, enabling graduates to perform efficiently in the professional environment. The National Universities Commission (NUC, 2023) emphasised that the business education programme is designed to equip individuals with the necessary knowledge, skills, and competencies to promote self-reliance, economic independence and employability.

The business education programme aims to enhance individuals' capacity for meaningful living while contributing to societal development. It is structured to align with the evolving demands of the business sector, ensuring that the education and training provided remain relevant to current and emerging job roles. Furthermore, the NUC (2023) outlined the objectives of the Business Education programme as follows: Provide students with practical vocational training to enable them to deliver efficient and effective services in office, distributive, and service-related occupations; Prepare students, based on their interests and abilities, to enter, progress, and succeed in business-related careers; Offer students opportunities to understand the nation’s business and economic systems empowering them to actively engage as both producers and consumers of goods and services (Onyiorah, 2021).

The objectives of business education also include to Cultivate in students an awareness of the contributions of business and office employees to the national economy; Foster and enhance students' personal qualities and attitudes necessary for professional and personal development; Guide students towards appropriate career placement in business and office-related employment; Develop career awareness and economic literacy in students, particularly regarding the free enterprise system; Equip students with the skills and knowledge required to educate and mentor future generations and Prepare students for leadership roles in both the public and private sectors. The NUC (2023) stated that the integration of civic and social learning in business education to promote active citizenship, ethical responsibility, and professional competence. The curriculum incorporates governance awareness, legal rights, teamwork, and communication skills to prepare students for collaborative business environments. Critical thinking and ethical decision-making are enhanced through practical applications such as case studies and community projects. Additionally, the programme strengthens both practical and cognitive skills, ensuring that students develop the technical expertise and intellectual foundation required for effective teaching and professional success.

The revised curriculum also prioritises financial literacy, entrepreneurship, and industry-relevant competencies to equip students for the evolving business landscape (NUC, 2023). Emphasis is placed on financial management, business ethics, and career development to enhance students' readiness for leadership roles. Digital and accounting skills are incorporated to align business education with global practices while bridging the gap between academic knowledge and industry demands. Sadly, it appears that business education in tertiary institutions in Anambra State has struggled to adequately equip students for the world of work.

Studies indicated that business education programmes in tertiary institutions in Anambra State face significant challenges in effectively preparing students for the workforce. According to Okoye and Onwuna (2023), these programmes encounter issues related to curriculum relevance

and accreditation standards, which hinder their ability to meet current labour market demands. Additionally, Akudolu and Onyeneke (2023) stated that a notable digital skills gap among graduates, suggesting that the existing curriculum does not sufficiently equip students with the technological competencies required in today's digital economy. The gap between academic training and practical workforce requirements suggests a need for more effective curriculum implementation, industry collaboration, and hands-on learning experiences to ensure that students develop the necessary skills for professional success. This is why Hui (2020) asserted that to keep up with the changing business environment, business education programmes should engage artificial intelligence like intelligent tutoring system and learning management system.
Intelligent Tutoring Systems (ITS) utilise artificial intelligence to provide personalised learning experiences, adjusting to individual students' learning styles and paces. According to Onyesom (2024), ITS analyses students' responses in real time, offering instant feedback that helps learners navigate complex subjects while reinforcing comprehension. This system proves particularly beneficial in subjects such as mathematics, science, and languages, where adaptive support enhances understanding. Abu Naser (2016) stated that by simulating human tutoring, ITS increases student engagement and learning outcomes, especially in self-directed and remote learning environments. ITS utilises artificial intelligence to adapt instruction to individual student needs, providing tailored feedback and guidance that fosters a deeper understanding of complex business concepts (Ghosh, 2017). This personalised approach is particularly beneficial in business education, where students must grasp theoretical and practical applications essential for real-world business environments. The adaptability of ITS allows learners to progress at their own pace, reinforcing comprehension and improving learning outcomes (Onyesom, 2024). Similarly, Learning Management Systems (LMS) integrate AI to optimise course delivery and improve overall educational effectiveness.

A Learning Management System (LMS) is an advanced web-based platform designed to facilitate content delivery, assessments, communication, and course administration. It supports learners in both online and blended learning environments and is widely employed in educational institutions and corporate training programmes (Ajijola, Ogunlade, Aladesusi & Olumorin, 2021). Brush (2019) defined LMS as a software or web-based technology used for planning, executing, and evaluating learning processes. Functioning as an e-learning platform, it comprises two key elements: a server responsible for managing core operations and a user interface that provides access to lecturers, students, and administrators. The integration of ITS into LMS provides a seamless learning experience, supporting adaptive learning paths and real-time performance analytics that help educators design more effective curricula (Ghosh, 2017). Onyesom (2024) reported that such integration enhances student engagement and retention, ultimately producing graduates who are well-equipped with the necessary skills for the dynamic business environment. These views have not been empirically proven in business education programme in universities in Anambra State. It is against this background that the researcher investigated intelligent tutoring system and learning management systems as correlates of successful implementation of business education curriculum in universities in Anambra State.

Statement of the Problem

The increasing rate of unemployment among business education graduates in Anambra State raises serious concerns about the effectiveness of the programme in equipping students with the skills required for the evolving labour market (Okoye, Nwakoby & Ezike, 2021). Despite the introduction of the new Core Curriculum Minimum Academic Standards (CCMAS),

which emphasises digital literacy, entrepreneurship, and industry-relevant skills, many graduates still struggle to adapt to technological advancements in the business environment (Amaewhule & Obele, 2021). This disconnect suggests that the intended impact of the revised curriculum is yet to be fully realised, leaving graduates inadequately prepared for the competitive and technology-driven job market.

This situation calls into question the traditional teaching strategies employed by business educators in universities across Anambra State. Conventional instructional methods may no longer be sufficient in addressing the dynamic demands of the digital workplace, necessitating the adoption of innovative approaches such as Intelligent Tutoring Systems (ITS) and Learning Management Systems (LMS). These technologies have been widely acknowledged for their potential to enhance personalised learning, improve engagement, and bridge the gap between theoretical knowledge and practical application. Therefore, this study sought to examine ITS and LMS as correlates of the successful implementation of the business education curriculum in universities in Anambra State.

Purpose of the Study

The main purpose of the study was to investigate intelligent tutoring system and learning management systems as correlates of successful implementation of business education curriculum in universities in Anambra State. Specifically, the study sought to:

1. Investigate the relationship between intelligent tutoring system and successful implementation of business education curriculum in universities in Anambra State.
2. Ascertain the relationship between learning management systems and successful implementation of business education curriculum in universities in Anambra State.

Research Questions

The following research questions guided the study.

1. What is the relationship between intelligent tutoring system and successful implementation of business education curriculum in universities in Anambra State?
2. What is the relationship between learning management systems and successful implementation of business education curriculum in universities in Anambra State?

Null Hypotheses

The null hypotheses were tested at 0.05 level of significance:

1. There is no significant relationship between intelligent tutoring system and successful implementation of business education curriculum in universities in Anambra State.
2. There is no significant relationship between learning management systems and successful implementation of business education curriculum in universities in Anambra State.

Research Method

This study adopted a correlational survey design. The population of the study comprised one hundred and twenty four (124) 300 level business education students from two public universities in Anambra State in the 2024/2025 academic session. The choice of 300-level Business Education students was because 300-level students have generally overcome initial academic adjustment challenges typical of lower-level students, while still being actively involved in the core academic activities of their discipline. This makes them an ideal group for evaluating educational trends, interventions, or methodologies. Final-year students are often

preoccupied with project writing, industrial training, and other graduation requirements, which may affect their availability and focus. In contrast, 300-level students are more accessible and likely to participate meaningfully in the study. The entire population was used because it was manageable. Two structured instruments were used to collect data for the study. The first instrument is titled "Intelligent Tutoring System and Learning Management System Questionnaire (ITSLMSQ)". The instrument contains 20 items spread in two clusters. Cluster 1 contains 10 items on ITS and Cluster 2 contains 10 items on Learning Management Systems. The second instrument is titled "Questionnaire on Successful Implementation of Business Education Curriculum (QSIBEC)." The instrument contains 15 items on successful implementation of business education curriculum. Both instruments are structured on 4-point rating scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Agree (SA).

To ensure validity, the instrument underwent face and content validation by three experts, two from the Department of Business Education and one from measurement and evaluation unit of Department of Educational Foundations. Additionally, a pilot study was conducted with 20 three (300) level students in business education in universities in Enugu State. The reliability of the instrument was established using the Cronbach Alpha method. The ITSLMSQ yielded coefficient value of 0.84 while the QSIBEC yielded reliability co-efficient value of 0.87. The questionnaire was administered directly by the researchers with the help of three research assistants. The instruments were distributed and retrieved on the spot and in cases where immediate retrieval was not possible, appointments were scheduled for collection. This process lasted for two weeks. Out of the 124 questionnaires administered, 107 were successfully retrieved in good condition, resulting in an 86% response rate. The 107 valid responses were used for data analysis.

Furthermore, data for the study were analysed using Pearson Product Moment Correlation Analysis. The decision rule for interpreting correlation coefficients was on a scale from very low (0.00–0.20) to very high (0.80 and above), with positive values indicating a direct relationship and negative values showing an inverse relationship. Hypotheses were assessed based on p-values: if $p \leq 0.05$, the null hypothesis was rejected, indicating a significant relationship; if $p > 0.05$, it was retained, suggesting no significant correlation.

Results

Research Question One

What is the relationship between intelligent tutoring system and successful implementation of business education curriculum in universities in Anambra State?

Table 1: Pearson Correlation between Intelligent Tutoring System and Successful Implementation of Business Education Curriculum In Universities in Anambra State

Variables	N	r	Remarks
Intelligent Tutoring System Successful Implementation of Business Education Curriculum	107	0.74	High positive relationship

Data in Table 1 reveals that the Pearson's Correlation Coefficient is r = 0.74. This means that use of ITS has high positive relationship with successful implementation of business education curriculum in universities in Anambra State. This implies that the use of ITS in public universities would positively improve successful implementation of business education curriculum in universities in Anambra State. Thus, the Pearson's Correlation Coefficient r of 0.74

indicated that ITS has high positive relationship with successful implementation of business education curriculum in universities in Anambra State.

Research Question Two

What is the relationship between learning management systems and successful implementation of business education curriculum in universities in Anambra State?

Table 2: Pearson Correlation between Learning Management Systems and Successful Implementation of Business Education Curriculum In Universities in Anambra State

Variables	N	r	Remarks
Intelligent Tutoring System Successful Implementation of Business Education Curriculum	107	0.79	High positive relationship

Data in Table 2 reveals that the Pearson's Correlation Coefficient is r = 0.79. This means that use of LMS has high positive relationship with successful implementation of business education curriculum in universities in Anambra State. This implies that the use of LMS in public universities would positively improve successful implementation of business education curriculum in universities in Anambra State. Thus, the Pearson's Correlation Coefficient r of 0.79 indicated that LMS has high positive relationship with successful implementation of business education curriculum in universities in Anambra State.

Hypothesis One

There is no significant relationship between intelligent tutoring system and successful implementation of business education curriculum in universities in Anambra State.

Table 3: Test of Significance between Intelligent Tutoring System and Successful Implementation of Business Education Curriculum in Universities in Anambra State

Variables	N	r	p	Remark
Intelligent Tutoring System Successful Implementation of Business Education Curriculum	107	0.74	0.00	Significant

The results in Table 3 show that there was a significant positive relationship between intelligent tutoring system and successful implementation of business education curriculum in universities in Anambra State, r = 0.74, p < 0.05. Since the p-value was less than 0.05, the null hypothesis was rejected.

Hypothesis Two

There is no significant relationship between learning management systems and successful implementation of business education curriculum in universities in Anambra State.

Table 4: Test of Significance between Learning Management Systems and Successful Implementation of Business Education Curriculum in Universities in Anambra State

Variables	N	r	p	Remark
Learning Management Systems Successful Implementation of Business Education Curriculum	107	0.79	0.00	Significant

The results in Table 4 show that there was a significant positive relationship between learning management systems and successful implementation of business education curriculum in universities in Anambra State, $r = 0.79$, $p < 0.05$. Since the p-value was less than 0.05, the null hypothesis was rejected.

Discussion

The findings of this study indicated that Intelligent Tutoring Systems (ITS) have a high positive relationship with the successful implementation of the business education curriculum in universities in Anambra State. This is in agreement with of Onyesom (2024) who revealed that ITS provides immediate feedback by analysing students' responses, thereby guiding them through complex topics and reinforcing their understanding. The adaptability of ITS to individual learning paces and styles enhances students' comprehension, particularly in technical subjects such as accounting and entrepreneurship. Similarly, Abu Naser (2016) asserted that ITS mimics human tutors, fostering engagement and improving learning outcomes, which is essential for ensuring that business education graduates are adequately prepared for the workforce. The integration of ITS into the business education curriculum helps bridge the gap between theoretical knowledge and practical application, addressing the challenges faced by graduates in adapting to digital advancements. Furthermore, the study revealed a significant positive relationship between ITS and the successful implementation of the business education curriculum in universities in Anambra State. This supports the assertion of Abu Naser (2016) that ITS enhances self-directed learning and is particularly effective in remote education settings. Ghali et al. (2018) noted that ITS promotes deeper engagement in learning by continuously assessing students' progress and adjusting instructional strategies accordingly.

The findings of the study revealed that Learning Management Systems (LMS) have a high positive relationship with the successful implementation of the business education curriculum in universities in Anambra State. One possible reason for this is that LMS provides an organised and efficient platform for delivering educational content, facilitating assessments, and managing communication between students and lecturers. This aligns with Ajijola et al. (2021), who noted that LMS enhances instructional delivery by integrating various learning tools, thereby improving students' access to educational materials and promoting self-paced learning. Additionally, Brush (2019) emphasised that LMS supports blended and online learning environments, ensuring flexibility in teaching and learning processes. By offering diverse learning resources and real-time interaction, LMS helps business education students develop digital competencies necessary for adapting to modern work environments. Furthermore, the study found a significant positive relationship between LMS and the successful implementation of the business education curriculum in universities in Anambra State. This could be attributed to the system's ability to facilitate continuous learning, assessment, and feedback, which enhances students' engagement and academic performance. According to Ajijola et al. (2021), LMS serves as a comprehensive platform that streamlines course administration, making learning more

structured and accessible. The ability to track students' progress and provide instant feedback ensures that educators can tailor their instructional methods to meet individual learning needs. These findings suggest that the effective use of LMS in business education enhances curriculum implementation by fostering interactive and technology-driven learning experiences that prepare graduates for the digital economy.

Conclusion

Based on the findings of the study, the researcher concluded that Intelligent Tutoring Systems (ITS) and Learning Management Systems (LMS) can significantly ensure improve the successful implementation of the business education curriculum in universities in Anambra State. Findings revealed a significant positive relationship between ITS and successful implementation of business education curriculum in universities in Anambra State. This highlights the effectiveness of ITS in providing personalised learning, immediate feedback and enhanced comprehension in business education. Similarly, LMS was found to have a high positive relationship with successful implementation of business education curriculum in universities in Anambra State. This is due to ability of LMS to facilitate flexible learning, improve instructional delivery and enhance students' digital competencies.

Recommendations

Based on the findings of this study, the researcher proffers the following recommendations:

1. Federal and State governments in collaboration with private technology companies should invest in the integration of intelligent tutoring systems to enhance the implementation of business education. Training programmes should be provided for lecturers to improve their understanding and effective utilisation of these ITS for instructional purposes.
2. Administrators of business education programme in Universities should enhance their LMS by ensuring accessibility, technical support and continuous updates. Institutions should also encourage lecturers to undergo training on LMS functionalities to maximise its potential in business education curriculum implementation.

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