THE USE OF ARTIFICIAL INTELLIGENCE IN TEACHING AND LEARNING OF BUSINESS EDUCATION STUDENTS IN THE UNIVERSITY OF BENIN

BY

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DEPARTMENT OF BUSINESS EDUCATION

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BENIN CITY

APRIL, 2026.

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A RESEARCH STUDY SUBMITTED TO THE DEPARTMENT OF BUSINESS EDUCATION, FACULTY OF VOCATIONAL AND TECHNICAL EDUCATION, UNIVERSITY OF BENIN, BENIN CITY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF B.Sc (Ed) DEGREE BUSINESS EDUCATION (ACCOUNTING OPTION)

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APPROVAL PAGE

I certify that this work was carried out by **EDOROR Gloria** with Matriculation Number **EDU2102638** in the Department of Business Education, Faculty of Vocational and Technical Education, University of Benin, Benin City, Edo State.

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CERTIFICATION

We the undersigned certify that this research work was carried out by **EDOROR Gloria** with matriculation number **EDU2102638** in partial fulfilment of the requirements for the award of B.Sc (Ed) Business Education (Accounting) in the Department of Business Education, Faculty of Vocational and Technical Education, University of Benin, Benin city, Edo State.

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DEDICATION

This research work is dedicated to Almighty God, the giver of knowledge and wisdom who dwells in heaven and rule the affairs of men.

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ABSTRACT

This study examined the use of artificial intelligence in teaching and learning of business education students in the University of Benin. Three research questions were raised to guide the study and one hypothesis was formulated and tested at 0.05 level of significance. The study adopted a descriptive survey research design. The population of the study comprised all business education students and lecturers within the University of Benin. A sample of one hundred and twenty-three (123) respondents was drawn from the population using a simple random sampling technique. The research instrument used for data collection was a structured questionnaire titled "The Use of Artificial Intelligence in Teaching and Learning of Business Education Students in the University of Benin". The questionnaire consisted of two sections: Section A captured the demographic information of respondents such as age grade and gender, while Section B contained 12 items in which items were derived from each research questions. The instrument for data collection was based on face validity by the researchers supervisor and two experts from the Faculty of Vocational and Technical Education, University of Benin, Benin City. The reliability of the instrument was determined using the Cronbach Alpha method, which yielded a coefficient of 0.70, indicating that the instrument was reliable for the study.

The findings revealed that Artificial Intelligence (AI) is being used in the teaching and learning of Business Education at the University of Benin to a high extent. And that business education students showed positive perceptions regarding the use of AI tools in their learning experience. However, the findings also revealed that students and lecturers face diverse challenges such as poor internet connectivity, the high cost of AI-based applications, lack of technical skill on optimizing the use of AI in learning and teaching, and concerns about plagiarism and academic dishonesty in integrating AI into Business Education. Based on these findings, it was concluded that the use of artificial intelligence significantly promotes effective teaching and learning of business education students in University of Benin. It was recommended, among others, the reorientation for students so as to use AI as a complementary tool rather than a replacement for their own critical thinking and problem-solving skills, while the University of Benin should ensure adequate provision of AI facilities especially for Business Education students to promote their use in teaching.

CHAPTER ONE

INTRODUCTION

Background to the Study

Artificial Intelligence (AI) is the ability of computer systems, and other computer related machines, to execute tasks that usually require human intelligence. The concept of AI is to establish systems that equals (or exceed) the human cognitive capability: which include mental processes like logic, reasoning, learning, remembering, perception, problem solving, and decision making. AI creates the possibility for machines to execute the higher-level brain functions.

AI, according to Poole et al. (2023), is the field that studies the synthesis and analysis of computational agents that act intelligently. Although AI is a field of science, however the vast use of AI has made an indelible effect on every aspect of life. In fact, according to Holmes et al. (2019) AI is driving technological force of the first half of this century, and will transform virtually every industry, if not human endeavours at large. Business and government worldwide are pouring enormous sums of money into a very wide array of implementations, and dozens of start-ups are being funded to the tune of billions of dollars. Hence, it would be naive to think that AI will not have an impact on education.

Education is the process of acquisition of skills, knowledge, values, habits, attitude, and beliefs, through training, mentorship, instructions, learning, practice, reflection, and experience. Education is an integral component of human life that transcends civilisations, cultures, and historical periods. John Dewey perceived education as the means of societal continuity of life (Dewey (1916)). Education is a lifelong process that plays a crucial role in personal growth, societal progress, and cultural preservation. It is evident that each stage of human civilisation had a significant influence on education acquisition.

For instance, the Pre-Civilisation era featured informal education passed down through oral traditions and hands-on learning; Ancient Civilisation focused on literacy, numeracy, and cultural heritage; during the Medieval Period, the Church controlled

education and emphasized on religious studies, philosophy and classical text; the Renaissance and Enlightenment eras experienced the foundation of modern education, sciences and humanism; the Industrial Revolution experienced formal education focused on vocational training and practical skill; education during the Modern Era emphasized on scientific and technological advancement. Education in the current 21st Century is highly influenced by Information Communication Technology (ICT), and formal education is progressively globalised, digitalized, and personalised.

This 21st century heralds the integration of AI in education. The incorporation of AI in education is revolutionising the approach to teaching and learning in every part of the world (including the University of Benin). AI algorithms, Machine Learning (ML), Computer Vision, and Virtual Assistants in the form of Chatbots are fast becoming essential components of learning management and training systems, enhancing teaching and learning activities. It is however important to note that the journey of using AI in education dates back to the 1960s. According to AL-Smadi (2023), the history of using AI in education dates back to the 1960's with the development of early intelligent tutoring systems that were designed to provide personalised instruction to students, tailored to their individual needs and learning styles. A group of researchers developed the Intelligent Tutoring System (ITS) called PLATO (Programmed Logic for Automatic Teaching Operations) at the University of Illinois, Urbana-Champaign (Bitzer et al. (1961)). PLATO was the first computer system that enabled students with graphical user interfaces to interact with educational materials that were developed and adapted using AI to their needs. Another example on early attempts of using AI in Education is the" Automatic Grader" system that was developed in the 1960's to automatically grade programming classes (Hollingsworth (1960).

The introduction of personal computers by Henry Edward Robert in 1974 escalated the developments of ITS, including the TICCIT (Time-Shared, Interactive Computer-Controlled Instructional Television) developed at the University of Pittsburgh. The advent of the World-Wide-Web (WWW) in 1989 by Tim Berners-Lee made a significant

transformation in the delivery medium of intelligent educational services. The WWW enabled ITS to reach a vast audience and enhanced a more adaptive learning experience (Chen et al. (2020)). The advancement in hardware capabilities and performance (like the CPU (Central Processing Unit), GPU (Graphic Processing Unit), and RAM (Random Access Memory), Big Data Mining, and AI Models and Architecture gave rise to many intelligent models such as the Generative Pre-Trained Transformers (GPT) in 2018. Since then, AI-based educational tools are being developed.

Statement of the Problem

Without doubts the use of artificial intelligence (AI) in teaching Business Education student in University of Benin has numerous benefits. These benefits include the ability of AI: to customised learning by tailoring learning experience to individual learning style, experience, unique characteristic and ability; to deliver real-time feedback and guidance via the AI powered Intelligent Tutoring Systems (ITS); perform automated grading, which offers teachers extra time to more hand-on and interactions with students; make education accessible to special students such as those who are hearing impaired and visually impaired through personalised Education.

However, there are technological and ethical drawbacks that call for careful consideration before the implementation of AI in teaching and learning Business Education students in the University of Benin. Although many research works have been carried out on the development, introduction, benefits, and drawbacks of the use of AI in education, but not many has treated the development, introduction, benefits, and drawbacks as peculiar to West Africa, nor the University of Benin. Many of these research works tackled the challenges faced by the Western World and other developed countries; which proffer solutions that best fit the nature of these countries. The cultural differences and digital divides between the Western World and West Africa (especially the University of Benin) necessitate the need for research works that address the use of AI in teaching and learning.

This research work studies the development, introduction, benefits, and drawbacks of the use of AI in teaching and learning Business Education in the University of Benin. It addresses the drawbacks of the use of AI in education peculiar to the University of Benin, and proffers a holistic solution to these drawbacks.

Purpose of the Study

The main purpose of this was to determine the use of artificial intelligence significantly promote effective teaching and learning of business education students in university of Benin. The study specifically determined:

1 The extent AI tools are currently used in teaching and learning Business Education.

2 Students' awareness and perception of AI in education.

3 The challenges and opportunities of implementing AI in teaching and learning Business Education in the University of Benin.

Research Questions

The following research questions were raised to guide the study.

1 To what extent is Artificial Intelligence (AI) being used in the teaching and learning of Business Education at the University of Benin?

2 What are the perceptions of Business Education students regarding the use of AI tools in their learning experience?

3 What challenges and opportunities do students and lecturers face in integrating AI into Business Education?

Significance of the Study

By exploring the history and the degree of implementation of AI in teaching and learning, the challenges and limitations of AI implementation in education would be identified for proper solution recommendations. Through a thorough examination of the use of Artificial Intelligence (AI) in teaching and learning Business Education students in the University of Benin valuable insights on effectiveness of the integration of AI in education

on the learning outcomes, students' academic performance would be obtained. Also, an inquiry into the perceptions and attitudes of Business Education lecturers and students with address cultural and ethical draw backs, proffer a resolution, thus bringing an end to the prejudice against the use of AI in education.

The essence of this study is to improve the understanding of AI in Business Education, providing insights into the benefits and challenges of AI in education. Findings from this research work will guide policymakers and educators on the development of an ideal AI-integrated curriculum.

Scope and Delimitation of the Study

The research work covered the review of other research work on the history and development of AI, and the introduction of the use of AI in education. A comprehensive study of the degree of implementation of AI in teaching and learning, and the challenges and limitations of AI implementation in education was examined. The study covered a questionnaire survey to inquire into the perceptions and attitudes of Business Education lecturers and students. The research work also proffers ideal solutions that address the challenges and limitations of AI implementation in the University of Benin.

Limitations of the Study

Just like many other, this research work has some limitation. One of such limitations is that the research work is focused on the population within the University of Benin, specifically the Business Education students. Since, Business Education lecturers and students' needs and preferences in using AI-powered tools might differ from those lecturers and students in other fields, therefore findings might not apply to students in other disciplines.

Another limitation of this study is that due to the rapidly evolving AI landscape, some findings or recommendations made in this study might become obsolete by the time the project is completed. Similarly, a positive change in government policy and building needed infrastructures that promotes the use of AI in education might render some findings or

recommendations outdated by the time the project is completed.

Definition of Terms

The following were operationally defined

Artificial Intelligence (AI): This is simply the development of computer systems that can perform tasks that originally require human intelligence

Business Education: This is an academic field of study that prepares students for careers in business and business-related fields

E-learning: This is written as electronic learning in full. It is the use of electronic technologies, usually involving computer systems, and internet, to deliver educational content and support learning.

Intelligent Tutoring System (ITS): This is a computer system that imitates human tutors with the aim to provide personalized instructions and feedback to learners, usually without the intervention from a human teacher.

Learning Management System (LMS): This is a computer software application for the administration, documentation, delivery of educational content, reporting, tracking student progress, and facilitates communication.

Machine Learning (ML): This is a subfield of AI that involves the development of algorithms to learn from data and make predictions and decisions.

Natural Language Processing (NLP): This is a subfield of AI that deals with the interaction between user language and computer. It enables computers to understand and communicate with human language.

Personalized Learning: This is an approach to learning that customizes the training, content, pace, and style to individual learners' need.

AI Virtual Assistants: This is an example of conversational AI that can perform tasks, provide information, and assist human users.

CHAPTER TWO

LITERATURE REVIEW

The review of literature was treated under the following subheadings:

- Theoretical Framework
- Concept of Artificial Intelligence in Education
- Overview of Business Education
- Application of AI Tools in Teaching (e.g., ChatGPT, personalized learning platforms)
- Student Engagement and Learning Outcomes
- Challenges of Ai Adoption in Nigerian Universities- University of Benin.
- Summary of Reviewed Literature

Theoretical Framework

Every empirical study is strengthened by a solid theoretical foundation that guides its inquiry, interpretation, and analysis. This research is grounded in two complementary frameworks: the Technology Acceptance Model (TAM) and Constructivist Learning Theory. Together, these theories provide both a behavioral and pedagogical lens for understanding how students in the Business Education program at the University of Benin engage with Artificial Intelligence (AI) tools for learning.

- ***Technology Acceptance Model (TAM):***

The Technology Acceptance Model (TAM), originally developed by Davis (1989), is one of the most influential frameworks in the field of information systems and educational technology. It seeks to explain and predict users' acceptance of new technology, focusing primarily on two key variables: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). In simple terms, PU refers to the degree to which a user believes that using a particular technology will enhance their performance, while PEOU refers to how effortless the user believes the technology will be to use.

TAM posits that these perceptions shape users' attitudes toward the technology, which in

turn influence their intention to use it, and eventually, their actual usage behaviour. The model has been widely used to study technology integration in educational settings—from e-learning platforms to mobile applications and, more recently, AI-based tools (Venkatesh & Davis, 2000).

In the context of this study, TAM is used to investigate how Business Education students at the University of Benin evaluate AI tools such as ChatGPT, adaptive learning systems, or simulation platforms. It helps answer key questions such as: *Do students find AI tools useful in helping them understand business concepts? Are the tools intuitive and easy to navigate? What influences their willingness to adopt these tools as part of their daily learning practices?*

Given that the success of any educational technology depends not just on availability but on actual use, TAM provides a critical framework for understanding adoption behaviour. It also helps uncover potential barriers, whether psychological, technical, or institutional—that might prevent students from engaging fully with AI-enhanced learning environments.

- ***Constructivist Learning Theory:***

While TAM focuses on technology acceptance, the Constructivist Learning Theory addresses how meaningful learning occurs. Rooted in the works of scholars like Jean Piaget, Lev Vygotsky, and Jerome Bruner, Constructivism posits that learners build their own understanding through active engagement with their environment. Rather than passively receiving information, students make sense of new knowledge by connecting it with prior experiences, asking questions, solving problems, and reflecting on their learning process (Bruner, 1996; Vygotsky, 1978).

This theory aligns natural with the capabilities of AI-powered educational tools. Many of these systems—particularly those with adaptive learning features—encourage self directed, inquiry-based learning. For example, AI can provide a virtual simulation where students must make business decisions based on evolving data. As they interact with the simulation, receive

feedback, and reflect on the outcomes, they are essentially engaging in a constructivist learning process.

Constructivism is especially relevant in Business Education, a field where students are expected to think critically, solve real-world problems, and develop decision-making skills. AI tools support this learning by enabling authentic, contextualized learning experiences—whether through simulations, case-based problem-solving, or personalized feedback loops that prompt learners to revise and improve their understanding over time. In the Nigerian context, where traditional education is often lecture- dominated and exam-centred.

Constructivism challenges educators to rethink pedagogy in ways that empower students as active participants in their own learning. By integrating AI tools that align with these constructivist principles, institutions like the University of Benin can begin to shift from passive to active learning paradigms.

A Complementary Lens:

Used together, TAM and Constructivist Learning Theory offer a holistic lens for examining the integration of AI in Business Education. While TAM helps to assess the students' attitudes, perceptions, and behavioural intentions toward AI, Constructivism provides insight into how these tools support learning at a deeper, cognitive level. TAM asks, "Will students use AI?" Constructivism follows up with, "Will they learn from it, and how deeply?"

This dual-theoretical approach is particularly important in environments where technology adoption is not guaranteed and where educational transformation depends not just on access to tools, but on how those tools are used pedagogically. In this study, TAM helps to capture the students' readiness and openness to using AI tools; Constructivism explains how those tools shape the quality and outcomes of the learning experience.

In summary, the Technology Acceptance Model and Constructivist Learning Theory together provide a robust theoretical foundation for this research. They support a nuanced understanding of both the behavioural factors that drive AI adoption and the cognitive

processes that lead to effective learning. This dual framework is essential for exploring the impact and potential of AI in the teaching and learning of Business Education at the University of Benin.

Concept of Artificial Intelligence in Education

Artificial Intelligence (AI) is broadly defined as the simulation of human intelligence processes by machines, particularly computer systems. These processes include learning (the ability to acquire and apply knowledge), reasoning (using rules to reach conclusions), problem-solving, perception, and language understanding. In simple terms, AI enables machines to "think" and "respond" in ways that resemble human intelligence, though often with greater speed, scale, and accuracy. Within the field of education, AI represents a powerful technological shift that is reshaping how students learn, how teachers instruct, and how institutions operate.

In educational contexts, AI is not just a futuristic concept—it is already embedded in numerous teaching and learning tools. AI applications in education are used to personalize instruction, automate administrative tasks, facilitate communication, and provide real-time feedback to learners and educators. Holmes et al. (2021) note that AI in education appears in various forms, such as intelligent tutoring systems (ITS), adaptive learning platforms, automated essay scoring, AI-powered chatbots, and virtual teaching assistants. These tools have grown in sophistication over the past decade, moving from static rule-based systems to dynamic platforms that analyze student behavior and adjust their responses accordingly.

At the heart of AI's educational utility is its ability to analyze massive datasets quickly and accurately. This includes tracking how long students take to answer questions, identifying common errors, predicting future performance, and offering timely interventions. In doing so, AI systems can tailor educational content to suit the pace, level, and learning preferences of individual students. This kind of personalization stands in contrast to the traditional classroom model, where lessons are typically designed for a generalized group and may overlook the unique needs of individual learners.

AI tools are especially valuable in large or online classes where individualized attention from instructors is limited. For example, an AI-powered learning platform might detect that a student is struggling with financial accounting concepts and recommend supplemental video tutorials or practice questions based on their specific errors. These immediate, targeted interventions help prevent students from falling behind and reduce the burden on instructors to identify and respond to every learner's needs manually.

Moreover, AI's role in education is not limited to content delivery; it also includes its capacity to foster student engagement. Interactive AI tutors can simulate conversation, answer questions, pose challenges, and even offer encouragement, enhancing the affective side of learning. Tools like ChatGPT and Google's Socratic allow students to explore topics in a conversational and exploratory way, mimicking the benefits of one-on-one tutoring without the cost or scheduling barriers.

Importantly, scholars emphasize that AI should not be viewed as a replacement for human educators. Rather, it should be seen as a support system—an assistant.

Overview of Business Education

Business Education is a multidisciplinary field that equips students with the knowledge, skills, attitudes, and values required to participate meaningfully in economic life—whether as employees in corporate organizations, entrepreneurs, or public sector professionals. At its core, Business Education combines theoretical instruction with practical training in areas such as accounting, finance, management, marketing, entrepreneurship, office technology, and digital literacy. It emphasizes both conceptual understanding and hands-on competence, with the goal of producing graduates who are not only employable but also adaptable and innovative in a constantly evolving economic landscape.

In today's globalized, fast-paced, and technology-driven economy, the relevance of Business Education cannot be overstated. Employers are increasingly looking for graduates who are digitally literate, entrepreneurial, critical thinkers, and capable of solving real-world business problems. Business Education, by design, is intended to cultivate these

competencies. However, the extent to which it does so often depends on how well the curriculum aligns with contemporary economic demands and technological realities.

In Nigeria, Business Education is offered at various levels of the educational system, including Colleges of Education, Polytechnics, and Universities. Within university settings, faculties of education such as the one at the University of Benin house Business Education programs that prepare pre-service teachers and professionals for roles in teaching, administration, and industry. The National Policy on Education (NPE, 2014) recognizes Business Education as vital for national development, given its role in producing a skilled workforce that can contribute to productivity, self-employment, and poverty reduction.

Despite its recognized importance, Business Education in Nigeria faces a number of longstanding challenges that limit its effectiveness. These include outdated curricula that fail to reflect current trends in global business practices, inadequate training facilities, poor access to industry-standard software, and an overemphasis on theory at the expense of practical exposure. Teaching methods often rely heavily on rote learning and lecture-based delivery, with limited use of technology, case studies, simulations, or problem-based learning strategies (Okolie et al., 2020). This results is a disconnect between what students learn in the classroom and the skills they need to thrive in the real world.

Moreover, the rapid pace of technological advancement particularly in areas like digital finance, data analytics, e-commerce, and artificial intelligence, means that Business Education must evolve to remain relevant. The traditional textbook approach is no longer sufficient in preparing students to compete in a 21st-century economy. Students now need to understand not only the foundational principles of business but also how to leverage technology in creating value, making decisions, and managing operations in digital environments.

It is in this context that the integration of AI tools into Business Education becomes both necessary and promising. AI offers the potential to transform business classrooms from static to dynamic learning spaces. For example, real- time simulations can help students

experience decision-making in a virtual business environment; data analytics tools can allow them to practice interpreting market trends; and AI-powered platforms like ChatGPT or automated financial planning systems can provide interactive learning experiences tailored to each student's level of understanding.

These innovations can bridge the gap between theory and practice, exposing students to tools and thinking patterns used in the modern business world. More importantly, they can foster a culture of self-directed learning, creativity, and innovation, skills that are crucial not only for employment but for entrepreneurship and national development.

Furthermore, the COVID-19 pandemic has highlighted the urgency of digital transformation in education, and Business Education is no exception. The shift to remote and hybrid learning models during the pandemic exposed both the limitations and the opportunities in how business content is delivered. Institutions that had already begun integrating digital tools into their programs were better positioned to continue effective instruction during the crisis. For Nigerian institutions like the University of Benin, this serves as a wake-up call to rethink traditional models of business teaching and embrace technology, including AI, as a core instructional strategy rather than a supplementary tool.

In summary, Business Education plays a critical role in shaping Nigeria's economic future, but it must evolve to remain relevant. The inclusion of Artificial Intelligence and other emerging technologies in the teaching of Business Education offers a powerful avenue to modernize instruction, promote student engagement, and align learning with the demands of today's digital and entrepreneurial economy.

Application of AI Tools in Teaching

The application of Artificial Intelligence (AI) tools in teaching has moved from experimental to essential in many parts of the world, and its relevance in the field of Business Education continues to grow. With increasing demand for student-centred, technology-integrated instruction, AI tools now play a pivotal role in transforming how business concepts are taught, learned, and applied.

These tools support both the delivery and personalization of content, helping to create more interactive, efficient, and adaptive learning environments.

AI tools in education are designed to perform tasks such as content recommendation, grading, speech recognition, predictive analytics, and natural language processing—all of which can significantly enhance the teaching and learning experience. In the context of Business Education, where students must acquire not only theoretical knowledge but also practical and analytical skills, these tools are especially valuable. They bridge the gap between abstract classroom concepts and real-world business applications.

One widely discussed example is ChatGPT, an advanced language model developed by OpenAI. ChatGPT can engage students in interactive conversations about business topics, provide instant explanations of complex concepts such as break-even analysis or SWOT frameworks, and even generate business case studies, marketing plans, or financial summaries on demand. For students who may be hesitant to ask questions in a traditional classroom or who need additional support outside regular lecture hours, ChatGPT acts as a round-the-clock academic companion. Instructors can also use it to generate quiz questions, lesson summaries, or prompts for class discussions, thereby saving time and stimulating student thinking.

Another common application is the use of adaptive learning platforms, such as DreamBox Learning, Squirrel AI, or Coursera's inbuilt AI algorithms. These systems assess a learner's progress in real time and dynamically adjust the difficulty and style of instruction to suit individual learning paths. For instance, in a Business Mathematics or Accounting course, an AI-powered system can identify a student’s weak areas—say, cost analysis or balancing ledgers and serve up tailored practice problems until mastery is achieved. This kind of scaffolding is critical for improving student retention and performance, especially in large classes where individual attention is limited.

AI is also being integrated into virtual simulations and digital labs. These tools allow students to "learn by doing" in a safe, simulated environment. For example, a student can use

an AI-powered simulation to run a virtual business, make pricing decisions, manage virtual employees, or react to market shocks in real time. The AI engine monitors their choices, predicts possible outcomes, and provides feedback essentially functioning like a virtual case study. Such applications develop not just technical knowledge, but critical thinking, decision-making, and entrepreneurial skills.

Furthermore, AI-driven assessment systems are making it easier for instructors to track and evaluate student progress. These systems automatically grade objective tests and quizzes and are now advancing toward evaluating written assignments using natural language processing. While human grading remains essential for nuanced understanding, AI tools can assist by flagging plagiarism, assessing grammar and clarity, and identifying patterns in student responses that may indicate misunderstanding or gaps in knowledge. This enables educators to intervene early and adjust instruction accordingly.

Another growing application is in predictive analytics, where AI systems analyze student data such as attendance, participation, assignment scores, and even engagement patterns to predict academic risk. Instructors and academic advisors can use this data to identify students who may need extra support or mentoring. In Business Education programs where students are often balancing coursework with entrepreneurship, family obligations, or part-time jobs, such tools can provide life-changing early alerts.

Even classroom interaction has seen transformation through AI-powered chatbots and voice assistants. These tools can respond to student queries about assignments, deadlines, or course materials offloading routine questions from instructors and making communication faster and more efficient. For example, a student in an Introduction to Marketing class could ask a course-specific chatbot to explain the difference between demographic and psychographic segmentation, and receive an immediate, accurate response.

The integration of these tools is not without challenges particularly in under-resourced environments like many Nigerian universities. However, even low- bandwidth versions of AI tools, including mobile-friendly applications or offline AI learning modules,

are beginning to find space in educational settings across Africa. The key lies in adopting the tools that best align with institutional capacity, student needs, and pedagogical goals.

In summary, AI tools are reshaping the teaching of Business Education by offering personalized instruction, automating administrative tasks, enriching learning through simulations, and enhancing assessment and feedback. For institutions like the University of Benin, where faculty often face large class sizes, limited resources, and a need for more hands-on learning opportunities, these tools represent an opportunity to innovate instruction and better prepare students for a rapidly evolving business landscape.

Student Engagement and Learning Outcomes

Student engagement and learning outcomes are two of the most critical indicators of educational effectiveness. Engagement refers to the level of interest, participation, and emotional investment a student exhibits in the learning process, while learning outcomes refer to the measurable knowledge, skills, and attitudes acquired as a result of instruction. In recent years, Artificial Intelligence (AI) has been recognized not only for its capacity to deliver content but also for its potential to transform how students engage with that content and how well they learn it. AI tools in education are increasingly being used to create dynamic, interactive, and personalized learning environments conditions that have been shown to enhance student motivation and achievement. Research has consistently indicated that when students are more engaged, they are more likely to persist through academic challenges, retain knowledge longer, and apply what they've learned in real-world contexts (Fredricks et al., 2004; Kay et al., 2022). In the context of Business Education, where applied knowledge and critical thinking are essential, the stakes for meaningful engagement are even higher.

AI-driven platforms foster engagement in several ways. First, they enable immediate feedback, which is a powerful motivator for learners. Instead of waiting days or weeks for instructors to return assignments or assessments, students can receive real-time corrections, explanations, and suggestions for improvement. This kind of instant feedback loop encourages active learning and self-regulation, as students are prompted to reflect on their

mistakes and try again often multiple times until mastery is achieved (Luckin et al., 2016).

Second, AI applications often incorporate gamification elements, such as badges, leaderboards, and progress tracking, which can boost motivation, especially for digital-native students. When used appropriately, these features make learning feel less like a chore and more like an engaging, interactive experience. In Business Education, gamified simulations and virtual market competitions can help students understand complex concepts like supply chain dynamics or investment strategies while actively participating in the learning process.

Moreover, adaptive learning systems keep students engaged by matching the difficulty of instructional materials to their current level of understanding. Students who find the material too easy are challenged with more complex problems, while those who struggle receive additional support and simplified explanations. This individualized approach reduces both boredom and frustration; two common causes of disengagement in traditional classrooms and helps to maintain student attention throughout the learning experience (Holmes et al., 2021).

In terms of learning outcomes, AI has shown promise in improving student performance across multiple domains. A meta-analysis conducted by Zawacki- Richter et al. (2019) found that students who used AI-supported educational tools generally performed better on standardized assessments than those in control groups taught through traditional methods. This improvement was particularly notable in subjects requiring analytical thinking and iterative problem-solving skills that are central to Business Education.

In a typical Nigerian classroom, especially in large public institutions like the University of Benin, instructors often face challenges related to overcrowding, limited instructional time, and lack of access to real-world business tools. These conditions can hinder student engagement and result in surface-level learning. AI, however, offers scalable solutions. For example, an AI-based simulation platform can allow 300 students in a single course to participate in individualized virtual case studies or role-play business decision-making in real time. Students become active participants in the learning process, not just

passive recipients of information.

Additionally, AI helps foster data-driven instruction, which improves learning outcomes by allowing instructors to identify trends in student performance and intervene early when issues arise. Learning analytics generated by AI systems can show which students are at risk of failure, which concepts are most misunderstood, and which parts of a course need re-teaching. With this information, instructors can make informed decisions about how to adjust their teaching methods, pacing, and content delivery to better meet learners' needs.

That said, the success of AI in enhancing engagement and outcomes depends largely on contextual factors. These include the quality of the AI tools used, the digital literacy of students and instructors, the relevance of content to the learners' experiences, and the support structures available for technology use. In Nigerian universities, where technological infrastructure may be inconsistent, these factors must be carefully considered. Engagement cannot be improved by technology alone, it must be supported by inclusive pedagogy, accessible design, and culturally relevant content.

In conclusion, AI has the potential to significantly enhance both student engagement and learning outcomes in Business Education. By delivering personalized, interactive, and feedback-rich instruction, AI tools can create learning environments that are responsive to individual student needs and aligned with 21st-century business practices. For institutions like the University of Benin, AI offers a valuable means of improving educational quality despite resource constraints, provided the implementation is thoughtful, inclusive, and strategically aligned with the curriculum.

Challenges of AI Adoption in Nigerian Universities

While Artificial Intelligence (AI) holds tremendous potential to revolutionize teaching and learning, especially in disciplines like Business Education, its adoption in Nigerian universities is fraught with significant challenges. These challenges are rooted not only in technological and infrastructural limitations but also in broader institutional, economic, cultural, and policy-related constraints. As promising as AI integration might be,

the reality for many Nigerian institutions particularly public universities such as the University of Benin, is that implementation is not as straightforward as it may be in more developed contexts.

- **Inadequate Technological Infrastructure**

One of the most pressing barriers to AI adoption is the lack of adequate digital infrastructure. Most public universities in Nigeria struggle with basic ICT resources, including reliable internet connectivity, electricity, and access to up-to-date hardware and software. AI systems often require substantial computing power, stable bandwidth, and consistent access to cloud services—none of which can be guaranteed across many Nigerian campuses (Afolabi et al., 2022).

Even when institutions have some level of ICT infrastructure, it is frequently outdated or poorly maintained. Computer labs may lack functioning systems, and wireless internet access is either limited or nonexistent. This makes it difficult for students and instructors to access AI-powered platforms, let alone engage with them consistently in the classroom.

- **Limited Digital Literacy and Capacity**

Another major hurdle is the digital literacy gap among both students and academic staff. Many lecturers, especially those trained under more traditional models of teaching, are unfamiliar with AI technologies and may be hesitant or resistant to adopt them. The fear of being "replaced" by machines, or the perception that AI is too complex or foreign, can discourage experimentation with new tools.

Furthermore, students especially those from rural or under-resourced backgrounds may also lack the digital skills required to navigate AI-based learning environments. While younger generations are generally more tech-inclined, exposure to AI-specific applications is not widespread. Without structured training and ongoing support, both faculty and students are likely to underutilize or misuse available AI tools.

- **Cost and Funding Constraints**

AI technologies are not cheap. From licensing fees for proprietary platforms to the cost of purchasing new hardware or upgrading infrastructure, the financial burden of adopting AI is significant. Nigerian universities operate within tight budget constraints, and education funding at the federal and state levels is often inconsistent or inadequate. As a result, institutions are forced to prioritize more immediate needs such as paying salaries or maintaining existing facilities over investments in emerging technologies like AI.

Private universities and foreign-affiliated institutions in Nigeria may be better positioned to experiment with AI due to more flexible funding models, but public institutions like the University of Benin face systemic resource limitations. This financial strain makes it difficult to scale up even pilot AI programs or to partner with technology providers who can offer affordable, long-term solutions.

- **Absence of Policy and Strategic Frameworks**

The successful integration of AI in higher education requires a coherent policy environment—one that outlines ethical guidelines, curriculum standards, training requirements, and evaluation mechanisms. In Nigeria, however, there is still a lack of clear national or institutional policies guiding the use of AI in education.

While the Federal Ministry of Education and agencies such as the National Universities Commission (NUC) have begun to explore the potential of digital learning, concrete frameworks for AI adoption are still largely missing. Without such frameworks, institutions are left to experiment in isolation, often without institutional support or clarity on how AI fits within broader educational objectives.

- **Cultural and Pedagogical Resistance**

There are also cultural barriers to AI integration. Nigerian classrooms have traditionally favored teacher-centered instruction, where the lecturer is seen as the sole authority and

source of knowledge. AI, with its emphasis on learner autonomy, peer interaction, and self-directed learning, represents a shift that some educators may view as a threat to established pedagogical norms.

In addition, the idea of delegating aspects of teaching such as grading, feedback, or content generation to a machine may feel uncomfortable or even unethical to some instructors. This resistance is compounded by a general skepticism toward new technologies, especially when their effectiveness has not been locally tested or validated.

- **Data Privacy and Ethical Concerns**

Finally, the deployment of AI in education raises important ethical questions around data privacy, algorithmic bias, and informed consent. Most AI tools collect and analyze user data to function effectively. In environments where data protection laws are either weak or poorly enforced, this can expose students and staff to risks such as data breaches or misuse of personal information.

There is also the issue of algorithmic transparency. Many AI platforms function as "black boxes," with users unaware of how decisions or recommendations are made. This lack of transparency can be problematic in academic settings, where fairness, accuracy, and accountability are paramount. Without clear ethical guidelines and legal protections, widespread adoption of AI could potentially do more harm than good.

In summary, while AI offers exciting possibilities for improving Business Education and overall teaching and learning quality in Nigerian universities, the challenges of adoption are substantial and multifaceted. Addressing these issues will require a deliberate, multi-level approach that includes investment in infrastructure, capacity building for faculty and students, policy reform, and cultural reorientation. For institutions like the University of Benin, the path forward involves not only embracing innovation but doing so in a way that is context-sensitive, inclusive, and sustainable.

Summary of Reviewed Literature

This chapter reviewed existing literature on the integration of Artificial Intelligence (AI) into educational settings, with a specific focus on its application within Business Education. The discussion began with a conceptual overview of AI in education, outlining its capabilities in automating instruction, personalizing learning, and enhancing both teacher and student experiences. The chapter also provided a contextualized understanding of Business Education in Nigeria, highlighting its goals, current limitations, and the growing need to integrate AI tools to meet modern economic and pedagogical demands.

The review examined the application of AI tools such as ChatGPT, adaptive learning platforms, simulations, and analytics in enhancing the teaching and learning of business concepts. These technologies have been shown to improve student engagement, promote deeper learning, and support data-informed instruction. However, the chapter also acknowledged the challenges specific to Nigerian universities—including infrastructure deficits, digital literacy gaps, limited funding, policy shortcomings, and cultural resistance—that hinder the effective adoption of AI.

To frame the investigation, two theoretical lenses were applied: the Technology Acceptance Model (TAM) and Constructivist Learning Theory. TAM helps explore how students perceive and adopt AI technologies, while Constructivism illuminates how these tools foster active, meaningful, and context-driven learning experiences.

Together, the literature reviewed in this chapter provides a critical foundation for understanding both the opportunities and the limitations of AI use in Business Education in Nigerian universities, particularly the University of Benin. This groundwork sets the stage for the next chapter, which outlines the research methodology used to examine student experiences, perceptions, and outcomes related to AI-based learning in this context.

CHAPTER THREE

METHODOLOGY

In this chapter, the processes and procedures that were followed in carrying out the study are discussed under the following sub-headings:

- Research Design
- Population of the Study
- Sample and Sampling Technique
- Instrumentation
- Validity of the Instrument
- Reliability of the Instrument
- Method of Data Collection
- Method of Data Analysis

Research Design

The study employ in this study was descriptive survey research design. Descriptive survey research design, according to Saleh and Bista (2017), is the use of tools like tests, questionnaires, and observation to gather data on a sample of a population's characteristics, attitudes, and opinions about an issue of interest. This design is considered appropriate for this study because it will help to describe how the use of artificial intelligence AI in teaching and learning business education students in the university of Benin.

Population of the Study

The population of this study comprised 52 (fifty-two) business education students in the Department of Vocational and Technical Education at the University of Benin, Benin City, Edo State. This was shown in Table 1 below:

Table 1: Population of Vocational and Technical Education Students

S/N	Level of Students	Number of Students
1	100	10
2	200	17
3	300	10
4	400	15
	TOTAL	52

Sample and Sampling Technique

The sample size of this study was made up of 52 (fifty-two) business education students in the Department of Vocational and Technical Education at the University of Benin, Benin City, Edo State. As a result, the manageable size of the entire population was used as the sample, hence a census.

Research Instrument

The instrument used for data collection was a self-structured questionnaire, titled: "The Use of Artificial Intelligence in Teaching and Learning of Business Education Students". The questionnaire was segmented into two sections A and B. Section A measured the demographic variable of the respondents such as gender, level, and institution, while section B, comprised thirty-six (36) item statements which were drawn from the research questions. The respondents rated the items on a four-point rating scale, ranging from Very High Extent (VHE), High Extent (HE), Low Extent (LE) and Very Low Extent (VLE).

Validity of the Instrument

The instrument for data collection was face-validated by the researcher supervisor, and other experts in the Department of Vocational and Technical Education, Faculty of Education, University of Benin, Benin City, Edo state. It was suggested among others that, the rating scale remained (VHE, HE, LE, VLE) Very High Extent, High Extent, Low Extent, Very Low Extent. Also, a few suggestions and corrections were made on the possible research questions guiding this study. Suggestions that a few questions on the questionnaire be recast to fit in

well with the rating scale. These suggestions, clarity, and recommendations were added to the final draft of the instrument.

Reliability of the Instrument

To establish the reliability of the instrument, copies of the instrument were administered to the twenty (20) Business Education undergraduate students from University of Benin who were not part of the study population. Thereafter Cronbach alpha statistical tool was used to ascertain consistency. It yielded an alpha value of 0.71 which indicated the instrument was considered reliable.

Method of Data Collection

The questionnaire was administered to the respondents by the researcher with the help of research assistant who was briefed on the procedure to be used in administering the instrument. The research assistants helped in distribution of the instrument and retrieval from the respondents. The questionnaire was checked after completion, to ensure the level of completeness by respondents. There was 100% return rate.

Method of Data Analysis

The data collected from the respondents was analysed using mean (x), standard deviation (SD) and two sample independent t-test. The mean and standard deviation were used to answer that data collected for the research questions while two sample independent t-test was used to test hypothesis at 0.05 level of significance. Decision rule was based on mean value of 2.50 such that any calculated mean (x) equal or greater than 2.50 was regarded as high extent while any mean (x) less than 2.50 was regarded as low extent. On the basis of the hypothesis, the probability value (p) was used. If p-value rule was less than or equal to0.05, null hypothesis was not retained, but if p-value was greater than 0.05, null hypothesis was retained.

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

This chapter deals with presentation of results and discussion of findings. The results of the analysis are presented in the order of the research questions that guided the study.

Presentation of Results

Research Question One

To what extent is Artificial Intelligence (AI) being used in the teaching and learning of Business Education at the University of Benin?

Table 2: Mean and standard deviation showing the extent is Artificial Intelligence (AI) being used in the teaching and learning of Business Education

S/N	Item	N	Mean	SD	Remarks
1	AI tools are commonly used by Business Education lecturers during teaching sessions.	52	3.59	.684	High Extent
2	Students in Business Education frequently use AI applications to assist with assignments and projects.	52	3.54	.515	High Extent
3	The University provides access to AI-supported learning platforms or software.	52	3.49	.558	High Extent
4	Lecturers in Business Education encourage the use of AI in coursework and research.	52	3.33	.599	High Extent
5	AI tools are integrated into classroom instruction (e.g., for presentations, grading, or simulations).	52	3.49	.597	High Extent
6	AI contributes to improving students' understanding of Business Education concepts.	52	3.41	.603	High Extent
7	AI applications are used in Business Education to enhance student engagement and participation.	52	3.41	.638	High Extent
8	The extent of AI use in Business Education is	52	3.50	.571	High Extent

	significantly increasing each academic session.				
9	Students receive formal training or orientation on the use of AI tools in learning.	52	3.47	.596	High Extent
10	The overall adoption of AI in teaching and learning Business Education is high at the University of Benin.	52	3.43	.605	High Extent
	Cluster Mean		**3.47**	**0.05**	**High Extent**

Note: SD (Standard Deviation), N (Sample Size).

In response to research question one, Table 2 showed the extent Artificial Intelligence (AI) is being used in the teaching and learning of Business Education at the University of Benin. The respondents rated item one to ten as high extent with a mean rating ranging from 3.33 to 3.59 while the standard deviation also ranged from .515 to .684. The cluster mean showed a mean of 3.47. With these results, the above mean score shows that Artificial Intelligence (AI) being used in the teaching and learning of Business Education at the University of Benin to a high extent.

Research Question Two

What are the perceptions of Business Education students regarding the use of AI tools in their learning experience?

Table 3: Mean and standard deviation showing the perceptions of Business Education students regarding the use of AI tools in their learning experience

S/N	Item	N	Mean	SD	Remarks
11	AI makes learning more interactive and enjoyable.	52	3.47	.571	Agreed
12	AI improves my academic performance in Business Education courses.	52	3.48	.571	Agreed
13	AI tools help me complete assignments faster and more accurately.	52	3.35	.627	Agreed

14	I believe AI enhances creativity and innovation in learning.	52	3.32	.619	Agreed
15	I feel confident using AI tools for learning purposes	52	3.44	.569	Agreed
16	AI tools promote independent and self-paced learning.	52	3.36	.630	Agreed
17	AI can replace some traditional teaching methods effectively.	52	3.31	.629	Agreed
18	I trust the accuracy of information provided by AI systems.	52	3.23	.855	Agreed
19	The use of AI makes learning Business Education more relevant to modern industry trends.	52	3.33	.773	Agreed
20	Overall, my perception of AI use in Business Education is positive.	52	3.38	.711	Agreed
	Cluster Mean		**3.38**	**.101**	**Agreed**

Note: SD (Standard Deviation), N (Sample Size)

The data analysis presented in Table 3 depicts the perceptions of Business Education students regarding the use of AI tools in their learning experience. The respondents' rated item eleven to twenty as high agreed with a mean rating ranging from 3.23 to 3.48 while the standard deviation also ranged from .571 to .855. The cluster mean disclosed a mean of 3.38. The above mean score shows that ICT skills that business education students showed positive perceptions regarding the use of AI tools in their learning experience.

Research Question Three

What challenges and opportunities do students and lecturers face in integrating AI into Business Education?

Table 4: Mean and standard deviation showing challenges and opportunities students and lecturers face in integrating AI into Business Education

S/N	Item	N	Mean	SD	Remarks
21	Lack of technical skills among students limits effective AI use.	52	3.45	.582	Agreed
22	Poor internet connectivity hinders the adoption of AI tools.	52	3.40	.549	Agreed
23	There is inadequate access to AI devices and software on campus.	52	3.41	.590	Agreed
24	Lecturers lack sufficient training on how to integrate AI into teaching.	52	3.30	.647	Agreed
25	There is fear that AI might replace human teachers in the future.	52	3.37	.620	Agreed
26	AI integration raises concerns about plagiarism and academic dishonesty.	52	3.41	.616	Agreed
27	The cost of AI-based applications and tools is a major barrier.	52	3.26	.782	Agreed
28	AI provides opportunities for personalized and adaptive learning.	52	3.32	.750	Agreed
29	Collaboration between students and lecturers improves through AI-assisted learning platforms.	52	3.41	1.002	Agreed
30	AI can help bridge the gap between academic learning and real-world business applications.	52	3.39	.691	Agreed

31	There is institutional support from the University of Benin for AI integration in teaching.	52	3.45	.582	Agreed
32	Overall, the opportunities of using AI outweigh its challenges in Business Education.	52	3.40	.549	Agreed
	Cluster Mean		**3.37**	**.134**	**Agreed**

Note: SD (Standard Deviation), N (Sample Size)

Research question three reveals the challenges and opportunities students and lecturers face in integrating AI into Business Education. The respondents rated item twenty-one to thirty-two as agreed with a mean rating ranging from 3.26 to 3.45 while the standard deviation ranged from .549 to 1.002. The cluster mean indicated a mean of 3.37. With these results, the above mean score shows that students and lecturers face diverse challenges and opportunities in integrating AI into Business Education.

Discussion of Findings

The findings of research question one revealed that Artificial Intelligence (AI) is being used in the teaching and learning of Business Education at the University of Benin to a high extent. AI has a high influence in the academic activities of Business Education students and lecturers. It shows clearly that the University encourages and integrated the use of AI in learning process. The University provided access to AI-supported learning platforms, lectures encourage the use of AI in coursework, and students often use AI applications to assist with assignments and projects. This finding corroborates with that of Forero-Corba et al (2024) who argued that AI in schools offers multiple possibilities for school teachers, administrators and students.

Research question two findings indicated that ICT skills that business education students showed positive perceptions regarding the use of AI tools in their learning experience. AI is making learning more interactive and enjoyable, improving academic performance and academic confidence, enhancing creativity and timely completion of

excellent assignments. This finding is in line with that of Dubey (2024) who stated that AI can enhance classroom engagement by creating interactive and dynamic content, making learning more enjoyable and effective.

The data output of research question three showed that students and lecturers face diverse challenges and opportunities in integrating AI into Business Education. Poor internet connectivity, the high cost of AI-based applications, lack of technical skill on optimizing the use of AI in learning and teaching, and concerns about plagiarism and academic dishonesty. This finding support that of Raza et al. (2022) who stated that financial constraint and ethical considerations are significant barriers to integrating AI in education.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter focuses on summary, conclusion and recommendations.

Summary

This study examined the use of artificial intelligence in teaching and learning business education students in university of Benin. Three research questions were raised to guide the study.

The study employ in this study was descriptive survey research design. The population of this study comprised 52 (fifty-two) business education students in the Department of Vocational and Technical Education at the University of Benin, Benin City, Edo State. The sample size of this study was made up of 52 (fifty-two) business education students in the Department of Vocational and Technical Education at the University of Benin, Benin City, Edo State. As a result, the manageable size of the entire population was used as the sample, hence a census. The instrument used for data collection was a self-structured questionnaire, titled: "The Use of Artificial Intelligence in Teaching and Learning of Business Education Students". The questionnaire was segmented into two sections A and B. Section A measured the demographic variable of the respondents such as gender, level, and institution, while section B, comprised thirty-six (36) item statements which were drawn from the research questions. The instrument for data collection was face-validated by the researcher supervisor, and other experts in the Department of Vocational and Technical Education, Faculty of Education, University of Benin, Benin City, Edo state. To establish the reliability of the instrument, copies of the instrument were administered to the twenty (20) Business Education undergraduate students from University of Benin who were not part of the study population. Thereafter Cronbach alpha statistical tool was used to ascertain consistency. It yielded an alpha value of 0.71 which indicated the instrument was considered reliable. The data obtained from the respondents were analyzed using the mean ($\bar{x}$) and standard deviation (SD) using Statistical Packages for the Social Science (SPSS). The findings generally showed that the

use of artificial intelligence significantly promote effective teaching and learning of business education students in university of Benin. The major findings of the study were as follows:

1. Artificial Intelligence (AI) being used in the teaching and learning of Business Education at the University of Benin to a high extent.
2. ICT skills that business education students showed positive perceptions regarding the use of AI tools in their learning experience.
3. Students and lecturers face diverse challenges and opportunities in integrating AI into Business Education.

Conclusion

Based on the findings of the study, it was concluded that the use of artificial intelligence significantly promotes effective teaching and learning of business education students in university of Benin. They promote class attendance, improve assignment submission, increase participation in classroom activities, and expand access to relevant learning information. However, infrastructural limitation such as inconsistent internet connectivity and digital literacy gaps may hinder the full benefits.

Recommendations

The following recommendations were made

1 Reorientation for students so as to use AI as a complementary tool rather than a replacement for their own critical thinking and problem-solving skills.

2 The University of Benin should ensure adequate provision of AI facilities especially for Business Education students to promote their use in teaching.

3 The Federal Government of Nigeria or corroboration among private individual should be advocated for, so as to build a fiber optic backbone network within the University of Benin, thereby ensuring high bandwidth availability, universal funding, and software for a hitch free access to AI.

4 Business education students should be encouraged and trained to make full use of digital remainders and applications to support consistent class attendance.

5 Lecturers should incorporate interactive digital tools such as pols, chats, and virtual whiteboards to boost student confidence and participation in class.

Suggestions for Further Studies

This study the determined the use of artificial intelligence significantly promote effective teaching and learning of business education students in university of Benin.

The following suggestions for further research were outlined:

1 Factors affecting the use of artificial intelligence in the teaching and learning of business education programme in university of Benin

2 Influence of artificial intelligence academic performance of business education students in university of Benin.

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APPENDICES

APPENDIX A

Department of Business Education,

Faculty of Vocational and Technical Education,

University of Benin,

Benin City,

Edo State

18/11/2025.

Dear Respondent,

LETTER TO RESPONDENTS

My name is **Edoror Gloria** from the above-named institution. I am currently carrying out a research on "The Use of Artificial Intelligence in Teaching and Learning of Business Education Students". I therefore solicit for your objective responses to the questions in this paper at this would give soundness and validity to this research work. This questionnaire is purely for academic research purpose. Please read the questions carefully and give responses each of the items as best as you can. Your responses will be treated with strict confidentiality. Thanks for your anticipated co-operation.

Yours faithfully,

Edoror Gloria

EDU2102638

(Researcher)

APPENDIX B

QUESTIONNAIRE

QUESTIONNAIRE ON THE USE OF ARTIFICIAL INTELLIGENCE IN TEACHING AND LEARNING BUSINESS EDUCATION STUDENTS IN THE UNIVERSITY OF BENIN

UNIVERSITY OF BENIN

FACULTY OF VOCATIONAL AND TECHNICAL EDUCATION

DEPARTMENT OF BUSINESS EDUCATION

SECTION A

Demographic Information

(Please tick [✓] where appropriate)

1. **Gender:** ☐ Male ☐ Female

2. **Age Bracket:** ☐ Below 18 ☐ 18–22 ☐ 23–27 ☐ 28 and above

3. **Level of Study:** ☐ 100 Level ☐ 200 Level ☐ 300 Level ☐ 400 Level

4. **Area of Specialization in Business Education:** ☐ Accounting Education ☐ Office Technology Management ☐ Marketing Education ☐ Management Education

5. **Have you ever used or interacted with any AI tool in your learning** (e.g., ChatGPT, Grammarly, Google Bard, or AI-based learning apps)? ☐ Yes ☐ No

SECTION B

Key: Very High Extent (VHE), High Extent (HE), Low Extent (LE), Very Low Extent

Instruction: Tick [✓] the option that best describes your opinion.

SN	ITEMS	LIKERT SCALE			
Q1	To what extent is Artificial Intelligence (AI) being used in the teaching and learning of Business Education at the University of Benin?	**VHE**	**HE**	**LE**	**VLE**
1	AI tools are commonly used by Business Education lecturers during teaching sessions.				
2	Students in Business Education frequently use AI applications to assist with assignments and projects.				
3	The University provides access to AI-supported learning platforms or software.				
4	Lecturers in Business Education encourage the use of AI in coursework and research.				
5	AI tools are integrated into classroom instruction (e.g., for presentations, grading, or simulations).				
6	AI contributes to improving students' understanding of Business Education concepts.				
7	AI applications are used in Business Education to enhance student engagement and participation.				
8	The extent of AI use in Business Education is significantly increasing each academic session.				
9	Students receive formal training or orientation on the use of AI tools in learning.				
10	The overall adoption of AI in teaching and learning Business Education is high at the University of Benin.				

Q2	What are the perceptions of Business Education students regarding the use of AI tools in their learning experience?	VHE	HE	LE	VLE
1	AI makes learning more interactive and enjoyable.				
2	AI improves my academic performance in Business Education courses.				
3	AI tools help me complete assignments faster and more accurately.				
4	I believe AI enhances creativity and innovation in learning.				
5	I feel confident using AI tools for learning purposes				
6	AI tools promote independent and self-paced learning.				
7	AI can replace some traditional teaching methods effectively.				
8	I trust the accuracy of information provided by AI systems.				
9	The use of AI makes learning Business Education more relevant to modern industry trends.				
10	Overall, my perception of AI use in Business Education is positive.				
Q3	**What challenges and opportunities do students and lecturers face in integrating AI into Business Education?**	**VHE**	**HE**	**LE**	**VLE**
1	Lack of technical skills among students limits effective AI use.				
2	Poor internet connectivity hinders the adoption of AI tools.				
3	There is inadequate access to AI devices and software on campus.				
4	Lecturers lack sufficient training on how to integrate AI into teaching.				
5	There is fear that AI might replace human teachers in the future.				

6	AI integration raises concerns about plagiarism and academic dishonesty.				
7	The cost of AI-based applications and tools is a major barrier.				
8	AI provides opportunities for personalized and adaptive learning.				
9	Collaboration between students and lecturers improves through AI-assisted learning platforms.				
10	AI can help bridge the gap between academic learning and real-world business applications.				
11	There is institutional support from the University of Benin for AI integration in teaching.				
12	Overall, the opportunities of using AI outweigh its challenges in Business Education.				

APPENDIX C

OUTPUT OF RELIABILITY OF THE STUDY

Scale: ALL VARIABLES

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	20	100.0
	Excluded[a]	0	.0
	Total	20	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.710	32

APPENDIX D

OUTPUT OF RESEARCH QUESTIONS

Research Question One

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	52	1	4	3.59	.684
Q2	52	2	4	3.54	.515
Q3	52	2	4	3.49	.558
Q4	52	1	4	3.33	.599
Q5	52	2	4	3.49	.597
Q6	52	1	4	3.41	.603
Q7	52	2	4	3.41	.638
Q8	52	2	4	3.50	.571
Q9	52	1	4	3.47	.596
Q10	52	1	4	3.43	.605
Valid N (listwise)	52				

Research Question Two

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q11	52	1	4	3.47	.571
Q12	52	1	4	3.48	.571
Q13	52	1	4	3.35	.627
Q14	52	1	4	3.32	.619
Q15	52	1	4	3.44	.569
Q16	52	1	4	3.36	.630
Q17	52	1	4	3.31	.629
Q18	52	1	4	3.23	.855
Q19	52	1	4	3.33	.773
Q20	52	1	4	3.38	.711
Valid N (listwise)	52				

Research Question Three

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q21	52	1	4	3.45	.582
Q22	52	1	4	3.40	.549
Q23	52	1	4	3.41	.590
Q24	52	1	4	3.30	.647
Q25	52	1	4	3.37	.620
Q26	52	1	4	3.41	.616
Q27	52	1	4	3.26	.782
Q28	52	1	4	3.32	.750
Q29	52	1	4	3.41	1.002
Q30	52	1	4	3.39	.691
Q31	52	1	4	3.45	.582
Q32	52	1	4	3.40	.549
Valid N (listwise)	52				