



Artificial Intelligence (AI): An Indispensable Enhancer for The Teaching and Learning of Business Education in Nigeria

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Abstract

This study examined and evaluate the influence of Artificial Intelligence (AI) in enhancing teaching and learning of business education in Nigeria. The study employs a desk research strategy, analyzing past data to gain insights into the influence of Artificial Intelligence (AI) in fascinating teaching and learning of business education process in Nigeria. The dynamism of Artificial Intelligence (AI) has positively impacted teachers in planning lessons, creating engaging content, and managing classrooms more effectively. AI can be used to analyze data, identify trends, and develop new insights in business education research. This paper has thus x-ray the application of AI in teaching and learning of Business Education. Personalized learning, intelligence tutoring systems, improved accessibility, career counseling and automated grading, chat bots, and virtual assistants are only a few of the significant functions of artificial intelligence that were highlighted. Lack of artificial intelligence literacy, curriculum development, access to AI resources, ethical considerations, faculty training, industry partnerships, data quality and availability, scalability, regulatory and legal considerations, and more are some of the issues the paper further uncovered regarding AI in business education. The paper also identified some possible solutions to artificial intelligence and consequently the possible solutions to the challenges of AI in teaching and learning of Business Education to include, development of literacy, update of curricular, students data management, regulatory awareness, amongst others. The study concludes by recommending that AI be incorporated into the national curriculum, that sufficient funds and resources be made available, that instructors continue their professional development, and that a curriculum be developed strategically to support a blended learning environment.

Keywords: Artificial Intelligence (AI), Indispensable, Enhancer, Teaching and Learning, Business Education, Nigeria

I. Introduction

Artificial Intelligence (AI) holds immense potential for enhancing teaching and learning of business education in Nigeria. AI tools can personalize learning experiences, provide tailored support, and automate tasks, ultimately improving the efficiency and effectiveness of teaching and learning of business education programs. Which can lead to better learning outcomes and prepare students more effectively for the demands of the modern business world. AI-powered systems can adapt to individual student needs and learning styles, providing customized learning paths and resources. AI can provide students with immediate advice and feedback, assisting them in comprehending difficult ideas and identifying areas in which they require more assistance. Automated grading, feedback, and even customized tests based on student performance are all possible using AI tools.

Artificial Intelligence (AI) can assist teachers in planning lessons, creating engaging content, and managing classrooms more effectively. AI can be used to analyze data, identify trends, and develop new insights in business education research. AI use in education raises ethical concerns, such as privacy and accountability, which need to be addressed. Ensuring that all students have access to AI tools and resources is crucial to avoid exacerbating existing inequalities in education. Educators need to be trained on how to effectively integrate AI into their teaching practices. AI-powered tools need to be integrated into the curriculum in a way that supports student learning and prepares them for the future. ChatGPT: Can be used for research, writing assistance, and even as a learning companion. Grammarly: Helps students with writing and grammar, improving their communication skills.



Through task automation, individualized learning experiences, and increased teaching and learning efficiency, artificial intelligence (AI) holds the potential to completely transform business education in Nigeria. Innovative research insights are also provided by AI-based methods, which also make literature reviews and study topic selection more effective. Recommendation systems help researchers stay abreast of emerging trends, fostering innovative and impactful learning (Siemens, 2013). Without a question, the use of AI-based teaching and learning tools is crucial to the advancement of knowledge generation and education. Furthermore, many international educational systems have used digital technology-based methods for teaching and evaluating instruction, including gamification, cloud computing, artificial intelligence, e-learning, remote learning, and e-assessment (Ukeh & Nwankwo, 2023; Anih & Ukeh, 2023; Okechukwu & Ukeh, 2022; Ukeh, et al. 2020).

The rapidly evolving landscape of technology and industry demands that educational institutions continually adapt to provide students with relevant skills and knowledge. Artificial intelligence (AI) abilities are crucial in business education programs because they prepare students to enter and thrive in the fast-paced corporate world. Bupo and Akpomi (2023) defined artificial intelligence (AI) as the replication of human intelligence patterns by computer systems, codes, or machines to act and reason like humans. AI is a field of computer science that focuses on developing systems that can perform tasks that would normally require human intelligence (Igbokwe, 2024). This suggests that machines, such as computers, are designed to think like people and solve issues logically. Additionally, according to Suo in Okiridu, Ogwunte, and Godpower (2024), China's robotics sector has made considerable strides thanks to artificial intelligence, which is now replacing humans in riskier and repetitive tasks. Artificial Intelligence (AI) mimics human intelligence patterns in computer programs, systems, or devices to behave and think like people. Similarly, Godpower and Egbunefu (2024) define artificial intelligence as the use of scientific techniques and methodologies to build intelligent robots and machines using clever computer programs that can mimic humans and make daily activities easier. Problem-solving, natural language comprehension, pattern recognition, experience-based learning, and decision-making are some of these tasks. Godpower and Egbunefu (2024) claim that artificial

intelligence systems use a variety of tools and methods to accomplish these goals, including:

A kind of artificial intelligence called machine learning (ML) uses data to train algorithms so they can make judgments or predictions without explicit programming. ML encompasses methods such as reinforcement learning, supervised learning, and unsupervised learning.

Deep Learning: A branch of machine learning that models intricate patterns in data using multi-layered neural networks (hence the term "deep"). Speech and picture recognition have seen the most progress with deep learning.

Natural Language Processing (NLP): The ability of AI to understand and generate human language. NLP is used in applications like Chabot, language translation, and sentiment analysis.

Robotics: The design and creation of robots that can perform tasks autonomously or semi autonomously, often using AI for navigation, object manipulation, and interaction with humans.

Expert Systems: AI programs that simulate the decision-making abilities of a human expert. These systems use a set of rules and knowledge base to provide advice or make decisions in specific domains, such as medical diagnosis or financial planning.

Applications of AI are found in many field, such as entertainment, healthcare, education, finance, and transportation. Virtual assistants like Siri and Alexa, Netflix and Amazon's recommendation engines, and driverless cars are a few examples of artificial intelligence in daily life. Without a question, artificial intelligence (AI) has benefited humanity and may be used in a variety of contexts, including business education.

Several scholars and researchers have shown ways the applications of AI are evident in the field of business education. Business education employs the assistance of AI intelligent tutoring systems, as observed in some institutions. Intelligent tutoring systems are computer programs that use AI to provide personalized instruction to students. According to Zhang and Li (2021), these systems can "adapt to the individual learning style of each student." AI can be used to grade assignments and exams, saving educators time and providing more consistent grading. This aligns with the findings of Ecker, Langer, König, and Schmitz (2018), who stated that "automated grading systems have been shown to be as accurate as human graders in many cases." AI can also be used to analyze student data to identify at-risk students and provide targeted



interventions. According to Wang, Zhang, Li, and Wang (2020), "predictive analytics can help educators identify students who are at risk of dropping out or failing a course, allowing for early intervention." Furthermore, AI makes personalized learning possible, which has numerous positive impacts, including improved learning outcomes and increased student engagement (Chen, Li, Li, & Li, 2021). Stated differently, AI can design customized learning programs for pupils according to their unique requirements and preferences (Akpomi, Nwile & Kayii, 2022).

Chatbots with AI capabilities can assist kids after school hours and give them prompt responses to their inquiries. These chatbots can offer timely and effective support to students, thereby increasing retention and student satisfaction (Liu, Zhao, Li & Zhang, 2020). Singh and Smith (2022) lists the following numerous uses of AI in school management:

1. **Personalized learning:** AI is able to design unique learning programs for each student according to their interests, learning preferences, strengths, and shortcomings.
2. **Intelligent tutoring systems:** AI-powered tutoring systems can provide real-time feedback to students, adapt to their individual learning needs, and track their progress.
- 3 **Student performance prediction:** AI algorithms can analyze data on student performance, attendance, and other factors to predict which students may be at risk of falling behind and intervene early.
- 4 **Automated grading:** AI can grade multiple-choice and short-answer questions, freeing up teacher time for other tasks.
5. **Learning analytics:** AI can help educators analyze student data to identify trends and patterns, evaluate the effectiveness of teaching methods, and make data-driven decisions.
6. **Chatbots and virtual assistants:** AI-powered chatbots and virtual assistants can provide students with instant answers to common questions, freeing up teachers and administrators to focus on more complex tasks.
7. **Campus safety:** AI-powered surveillance systems can detect unusual behavior and potential threats, alerting campus security personnel in real-time.
8. **Recruitment and admissions:** AI can analyze applicant data to identify candidates who are most likely to succeed in a given program.
9. **Student services and financial aid:** AI can assist organizations in automating financial aid

applications, identifying students who might qualify for scholarships or other types of financial aid, and offering them individualized support.

10. Curriculum development: AI can identify the knowledge and skills that students will need in the future by analyzing employment market trends. This information may then be used to inform the creation of new programs and curricula.

The presentation of Artificial Intelligence in business education programmes for students has the potential to revolutionize the field by enhancing learning capabilities; by leveraging AI technologies, educational institutions can create a more engaging, efficient, and effective learning environment that prepares teachers and students for future challenges and opportunities in the business world.

Importance of AI in Business Education

AI has the potential to transform various aspects of education, including business education. Here are some of the ways in which AI can be important in business education:

1. **Personalized Learning:** AI can help in creating personalized learning experiences for students by analyzing their learning styles and abilities. This allows educators to customize their teaching methods, curricula, and materials to meet the individual needs of each student. AI-powered learning platforms are able to create personalized learning experiences by analyzing student data, including learning preferences, pace, and style. Better learning outcomes may result from increased motivation and engagement (Oztok & Zingaro, 2019).
2. **Intelligent Tutoring:** By giving students tailored and flexible feedback, artificial intelligence (AI) in business education can enhance intelligent tutoring systems (ITS) (VanLehn, 2011). In order to offer tailored support and interventions, AI-powered ITS may gather and evaluate data on student performance, learning trends, and engagement levels (O'Neil & Chuang, 2019). Additionally, AI can enable ITS to adjust the difficulty of the content based on the student's proficiency level, promoting mastery learning and increasing motivation (Woolf, 2010). AI-powered intelligent tutoring systems can provide immediate feedback to students, identify knowledge gaps, and suggest suitable learning strategies, which is particularly beneficial for students needing extra support in their learning.
3. **Streamlining Administrative Tasks:** AI can improve the efficiency of administrative tasks in educational institutions. AI-powered systems can automate routine tasks such as grading, scheduling, and record-keeping, freeing up educators' time to



focus on more impactful work like lesson planning and student engagement (Oztok & Zingaro, 2019). Educational institutions deal with numerous administrative tasks, and AI can automate many of these, allowing educators to focus on teaching and supporting students.

4. Enhancing Learning Outcomes: Recent research suggests that the application of AI in business education can help improve learning outcomes for students (Gupta, 2020). AI-powered tutoring systems can provide personalized feedback and adaptive learning experiences tailored to each student's needs and learning style (O'Neil & Chuang, 2019). AI can analyze large amounts of student data, such as assessment scores and behavioral patterns, to identify areas where students may be struggling and provide targeted interventions (Zawacki-Richter & Anderson, 2014). AI can help educators identify which teaching methods and materials are most effective, refining and improving the curriculum for better student performance.

Limitations and Challenges of Applying AI in Business Education

AI has the potential to revolutionize business education by improving the efficiency and effectiveness of various processes, such as student learning, curriculum design, and administrative tasks. However, there are limitations to the application of AI in business education that need to be considered:

1. Bias and Discrimination: One significant limitation of AI in business education is the potential for bias and discrimination. AI algorithms may replicate and amplify existing biases in educational systems, leading to further inequality and injustice (Mason & Rennie, 2018). For example, AI may perpetuate gender or racial biases in student evaluations or admissions decisions. Business educators need to be aware of these limitations and work to ensure AI is used fairly and equitably.

2. Lack of Transparency and Interpretability: Another limitation of AI in business education is the lack of transparency and interpretability. AI algorithms can be complex and difficult to understand, making it challenging for educators to evaluate their effectiveness and identify potential errors or biases (Veletsianos, 2019). This lack of transparency can make it difficult for business managers to make informed decisions and improve their institutions' performance.

3. Data Privacy and Security Breaches: The use of AI in business education requires access to large amounts of data, including personal information

about students, faculty, and staff. This data is vulnerable to cyberattacks and other security breaches, potentially exposing sensitive information and undermining the trust and confidence of stakeholders (AkkayaKalayci & Yildirim, 2020).

3. Intelligent Tutoring: By giving students tailored and flexible feedback, artificial intelligence (AI) in business education can enhance intelligent tutoring systems (ITS) (VanLehn, 2011). In order to offer tailored support and interventions, AI-powered ITS may gather and evaluate data on student performance, learning trends, and engagement levels (O'Neil & Chuang, 2019). **STOP HERE**

Future of AI in Business Education

AI is rapidly transforming business education by improving the efficiency and effectiveness of various processes, such as personalized learning, student assessment, and administrative tasks. The future of AI in business education is bright and promising:

1. Personalized Learning: Using data on each student's performance and learning history, AI can assist teachers in customizing lessons to meet their unique requirements and preferences. More successful educational systems can result from AI-based individualized learning, which can enhance student motivation, engagement, and learning results (Singh, Nahar, & Kumar, 2021).

2. Student Assessment: By analyzing vast volumes of data, AI-based assessment technologies can give students more precise and fast feedback, enabling them to pinpoint areas in need of development and monitor their progress over time. AI-based assessment tools can reduce bias and subjectivity in grading, leading to fairer and more consistent evaluation of student performance (Hill, Song, & West, 2020).

3. Administrative Tasks: Routine administrative duties like scheduling, grading, and record-keeping can be automated by AI, giving administrators and teachers more time to work on more strategic and innovative projects. Educational systems can become more efficient and streamlined with the use of AI-based administrative solutions that increase productivity and decrease errors (Teixeira, Ribeiro, & Costa, 2021). But there are also serious ethical issues and problems with AI's future in business education, including the possibility of bias, privacy violations, and a loss of human interaction. Educators and policymakers need to develop a comprehensive framework for ethical and responsible use of AI in business education, considering the potential benefits and risks of AI-based systems (Baroody & Wilkins-Yel, 2021).



4. Predictive Analytics: The use of AI in business education has enabled the application of predictive analytics to identify students at risk of academic failure and implement targeted interventions (Kovanović, Joksimović, Poquet, Hennis, & de Graaff, 2019). AI can analyze large amounts of data on student performance, such as test scores and attendance records, to predict which students may be struggling or at risk of dropping out (Baker & Siemens, 2014). This information can be used to provide early interventions and support to these students, improving their chances of success (Rui, Chen, & Cui, 2020).

5. Development of Curriculum and Instructional Materials: AI can assist educators in developing curriculum and instructional materials. By analyzing data related to student performance and feedback, AI can help identify areas where curriculum and instructional materials may need revision or improvement. This can lead to more effective teaching and learning experiences for students (Mandernach, Gonzales, & Garrett, 2020).

6. Analyzation and Interpretation of Data: One of the most significant benefits of AI in business education is its ability to analyze and interpret data. With AI tools, educational institutions can gather and analyze data related to student performance, attendance, and behavior. This information can then be used to develop personalized learning plans for individual students, identify areas where teachers may need additional support, and improve overall student outcomes (Mandernach, Gonzales, & Garrett, 2020).

7. Accurate and Timely Assessment and Feedback: AI-powered assessment can provide real-time feedback to students, allowing them to identify areas where they need to improve and adjust their learning strategies accordingly (McKenna, 2021). According to Kulkarni, Shabadi, and Hulipalled (2019), artificial intelligence (AI) can help teachers automate the grading process, save time and effort compared to manual grading, and enable more consistent and objective assessment. By using AI to find trends in student performance data, teachers can modify their lesson plans and materials to better suit the requirements of specific students or student groups (Blikstein, 2019).

All things considered, AI has the potential to greatly enhance the teaching and learning process in business education through the provision of intelligent tutoring, personalized learning, streamlined administrative tasks, improved learning outcomes, predictive analytics, data analysis and interpretation, curriculum development, and instructional materials. However, it is important to

use AI features like Natural Language Processing, data analysis, predictive analytics, and automation responsibly, ensuring that AI complements and enhances the learning capacity of business education students rather than replacing the human element of education (Igbokwe, 2024)

Artificial intelligence (AI) and machine learning are poised to revolutionize the business educational landscape by providing personalized learning experiences for teachers and students. For teachers, this means access to tools that can adapt to the learning pace and style of individual students in business education that offer real-time feedback and generate an insight into students' performance that can give instructional strategies. According to Adamopoulou and Moussiades (2020), artificial intelligence (AI) is a vast field that includes a variety of methods and strategies used to create intelligent computers that can carry out jobs that normally call for human intellect. It is changing business education in a number of ways, such as by customizing learning systems and catering to the requirements, abilities, and learning preferences of each individual student. Additionally, it has created virtual mentors who provide professors and students with direction, support, and criticism while mimicking real-world business situations (Surugiu, Gradinaru & Surugiu, 2024).

Education that helps people develop abilities that they can use to handle difficulties in office and business settings is known as business education. Nwaigburu and Eneogwe (2019) assert that business education plays a significant role in preparing and empowering students with skills that enhance their employment prospects outside national borders. Nwaigburu and Eneogwe go on to say that business education gives students the information and abilities they need to start their own businesses. The core concepts and procedures of business are taught to students as part of business education. It usually prepares students for a profession in academic teaching or a business-related field, according to Anyaeneh and Nzegwu (2017). Because it teaches management, office technology, marketing, and accounting, business education is available in both secondary and postsecondary educational institutions. It is anticipated that students will possess the necessary abilities, know-how, and disposition to function well in both their private and public businesses.

Concept of Artificial Intelligence (AI)

Artificial Intelligent (AI) refers to the development of computer system that can perform tasks that typically require human intelligence; and



the system can learn from data experiences and interactions, enabling them to improve their performance and adapt to new situations. It can also draw conclusions, make decisions and solve problems using logic, rules and patterns. Artificial Intelligence system can identify and resolve problems often using creative and innovative approaches. Through the interpretation and comprehension of sensor, image, audio, and text data, the system is able to comprehend their surroundings. The ability of artificial intelligence systems to understand and produce human language allows them to communicate with people, according to Berglund, Bousfiha, and Mansoori (2020). These systems use algorithms to process data, learn from experiences, and rely on high-quality data to learn, improve, and make accurate decisions. According to Berglund, Bousfiha, and Mansoori, the system needs a lot of processing power in order to handle big data sets and carry out intricate operations. Actuators are used by artificial intelligence systems to interact with the physical world, while sensors are used to sense their surroundings. Artificial intelligence comes in three varieties: super intelligence, general intelligence, and limited intelligence. It is a device that can be designed to mimic some aspects of education.

Business Education

Business education is a programme of study which aims at creating awareness for business occupation and preparing youths for work and people to become better citizens and intelligent consumers of goods and services (Gidado and Akaeze, 2014). It is an educational programme that provides its learners with competent skills to perform several tasks in the world of business and education comes in different specialties. According to Edokpolor and Owenvbiogie (2017), business education is an essential element in vocational and general education that concerned with the impartation of business orientation and knowledge for personal and national development. Edokpolor and Owenvbiogie go on to say that teaching students the core ideas, theories, and procedures of business is an important part of business education. According to Amaewhule (2017), business education's dynamic nature and operations are intended to prepare young people for careers including self-employment and economic literacy in the marketplace. Elujekwute, Nwaokwa, Aja, and Oigoche (2021) assert that students can be better equipped to thrive in the dynamic and complex business environment by comprehending the idea of business education. According to Anyaeneh and

Nzegwu (2017), business education is a course of study that gives students who want to work in the business world the chance to acquire the knowledge and abilities necessary to enter, operate, and advance in the field after high school or university. Therefore, producing capable, skilled, and energetic business instructors, office managers, and entrepreneurs who can successfully compete in the labor market is the main objective of business education. company education is the kind of education that helps people learn skills that they may use to address problems in office and company settings. Students are expected to possess the necessary abilities, information, and mindset to function well in both public and private settings.

Relevance of Artificial Intelligence in Business Education

Artificial Intelligence is significant in business education through the following ways: **Intelligence Tutoring System**; an Intelligent Tutoring System (ITS) is a computer-based system that provides personalized guidance and feedback to students, mimicking the role of human tutor. It aims to adapt to individual learning needs, offering tailored support and instruction. Assessing students' knowledge, skills and learning style. Also, organizing and storing content expertise. It adapts to individual pace and needs of the students. Tuomi (2018) asserts that intelligent tutoring enhances traditional teaching methods, prepares students for standardized tests, and offers specialized help for a variety of learners. It also provides effective and efficient learning experiences, making education more accessible and enjoyable.

Modified Learning: Modified learning is an educational approach that tailors learning experiences to individual students' needs abilities, and learning styles. It aims to provide each student with a unique learning pathway, allowing them to learn at their own pace and focus on their strengths and weaknesses. It is student centered thereby focuses on individual students' needs and materials and also allows students to learn at their own speed, adjust difficulty and content to match student progress, offers various routes to achieve learning goals. Regularly evaluates students' progress and adjusts instruction. Teachers guide and support students rather than lecturing. More so, artificial intelligence in business education helps to leverage digital tools and resources to enhance learning through technology integration. Chen, Jane and Wenting (2023) state that the submission of artificial intelligence in business education increases student's motivation and interest and enhances



comprehension and retention among students, it also reduces time spent on reviewing materials; it provides a clearer picture of students' knowledge, foster strong bonds and trust that enhances teacher-student relationship. By tailoring education to each students' unique needs, modified learning aims to maximize academic potential and foster a lifelong interest of learning.

Improved Accessibility: By leveraging artificial intelligence to improve accessibility, business education can become more inclusive, providing equal opportunities for all students to succeed and reach their full potential. Enhance accessibility in the application of Artificial Intelligence (AI) in business education is the use of AI technologies to make learning more inclusive and accessible for all students, particularly those with disabilities or limitations.

Vocation Guidance: Vocation guidance in the application of Artificial Intelligence (AI) in business education is to the use of Artificial intelligence technologies to support students in exploring and navigating their career paths; it can assess students' interest, skills and values to suggest relevance career options. Also it offers tailored career guidance based on individual student strengths, weaknesses and aspirations. Artificial intelligence driven analytics can forecast career projections, helping students make informed decisions. It can pinpoint areas where students need skill development, enabling targeted learning. AI can assist students in setting and achieving career goals and creating personalized plans. Artificial intelligence powered career guidance can revolutionize the way students approach their professional futures, making business education more effective and impactful (Banfield, Lombard & Wax, 2015).

Automated Grading; Automated grading in the application of Artificial Intelligence in business education is the use of AI algorithms to evaluate and grade students' assignments, exams and other assessments. Artificial intelligence-powered automated grading can accurately score objective questions and instantly grade multiple-choice, true/false and numerical answers questions. It can also access subjective answers and evaluate essay-type questions, using natural language processing (NLP) to analyze content, structure and language use. According to Berglund, Bousfiha and Mansoor (2020), artificial intelligence can generate feedback reports, highlighting strength, weaknesses and areas for improvement. The provided feedback can help students identify knowledge gaps and improve their

understanding. Supporting adaptive learning through adjust assessment difficulty and content based on student performance. Facilitating data analysis by providing insights into student performance, helping instructors refines their teaching methods. It can automate much faster than human teachers, freeing up time for teaching and mentoring and increasing grading consistency, apply grading criteria consistently reducing bias and errors. It enhances student learning, providing feedback that can help students identify knowledge gaps and improve their understanding.

Challenges of Artificial Intelligence in Business Education

The challenges of artificial intelligence in business education are briefly discussed below:

Lack of Artificial Intelligence Literacy: Teachers and students may not have the necessary knowledge and skills to effectively integrate artificial intelligence into business education. The limited understanding and knowledge of artificial intelligence concepts, technologies and applications among business education students and professionals is a challenge. This literacy gap hinders the effective integration of Artificial Intelligence in business education leading to limited AI adoption, inadequate AI education, misconceptions and fear, ineffective AI integration and widening skills gap, among others.

Curriculum Development: Developing curricula that incorporate Artificial Intelligence (AI) and its application in business education is a significant challenge, because artificial intelligence is a rapidly changing field, making it challenging to develop curricula that keep pace with the latest advancement. Again many business teachers may not have the necessary AI knowledge or experience to develop effective AI related curricula due to lack of AI expertise, integration with existing courses: AI concepts must be integrated into existing business education courses, requiring significant curriculum redesign. The curricula must balance technical AI skills with business education acumen and soft skills. Addressing ethical and social implication; AI curricula must include ethical and social implications such as data privacy, bias and job displacement. The curricula must provide hands-on-experience with AI tools and technologies to prepare students for real world application thereby developing practical skills. Curricula development may require partnership with industry experts and AI professionals to ensure relevance and practicality. More so, developing AI-related curricula may



require significant resources, including funding, infrastructure, and personnel.

Access to Artificial Intelligence (AI) Resources: Access to artificial intelligence resources is a challenge in integrating artificial intelligence in business education because the cost of purchasing artificial software, hardware, and tools can be expensive, making it difficult for educational institutions to afford. As the result, the institutions may lack the necessary infrastructure, such as high performance computing, data storage and internet bandwidth. Access to relevant high-quality data for artificial intelligence projects and research may be limited. Institutions may thus rely on cloud services, which can be vulnerable to outage and data privacy concerns (Nwosu, 2019).

Ethical Consideration: Artificial intelligence system can perpetuate existing biases and discrimination, if not designed with fairness and equity in mind. Artificial intelligence system often relies on vast amount of personal data which raises concern about privacy and data protection. It has the potential to automate jobs, potentially displacing workers and exacerbating income inequality. It can be complex and difficult to understand, making it challenging to explain their decisions and actions.

Faculty Training: Many business faculty members may not have the necessary artificial intelligence knowledge or experience to teach artificial intelligence related courses. Faculty may not fully understand how artificial intelligence applies to business disciplines, making it difficult to integrate it into the curricula. Oguejiodor and Ezeabasili (2017) affirm that faculty members may have limited time and resources to devote to artificial intelligence training and curriculum development. They require need for up skilling is required training to develop skills in artificial intelligence tools, technologies and pedagogies. Artificial intelligence is a rapidly evolving field, making it challenging for faculty to stay current with the latest development and advancement. They may need training on how to effectively integrate artificial intelligence concepts into existing business courses.

Students Preparation: Students preparation is a challenge in integrating Artificial Intelligence (AI) in business education. This is because many students may not have strong understanding of artificial intelligence concepts and technologies. Many students may not possess the necessary technical skills, such as programming and data analysis, to fully understand and work with artificial

intelligence. According to Nwanewezi (2018), students may need to work on their critical thinking and problem-solving abilities in order to use artificial intelligence in commercial settings. Students must understand the ethical ramifications of artificial intelligence in the workplace, including privacy issues and bias. Additionally, students need to stay up to date with the quickly changing field of artificial intelligence.

Industry Partnership: Industry partnership is a challenge in integrating artificial intelligence in business because identifying industry partners with relevant artificial intelligence expertise and interest can be challenging, ensuring industry partners needs align with academic goals and curricular requirement can be difficult. Balancing academic priorities with industry needs and timeliness can be challenging.

Data Quality and Availability: Data quality and availability are challenges in integrating artificial intelligence in business education, this is because artificial intelligence algorithms require high-quality, accurate and reliable data to learn and make decisions. The data must be relevant to the specific business problem and representative of the population or market. Accessing and sharing data across organization and industries can be challenging due to legal and ethical agreement (Nwaigburu and Eneogwe, 2019).

Balancing artificial intelligence: Balancing artificial intelligence with human skills is a challenge in integrating artificial intelligence in business education; this is because artificial intelligence may lead to over-automation, diminishing human skills and judgment. It may neglect essential human skills like communication, empathy and creativity.

Assessment and Evaluation: Assessment and evaluation are challenges in integrating artificial intelligence in business education. This is because creating assessment that accurately measure artificial intelligence related skills and knowledge is difficult. Assessing skills like creativity, critical thinking, and problem-solving which are enhanced by artificial intelligence is challenging. Ensuring that assessments are valid, reliable and free from bias is crucial.

Scalability: Scalability and accessibility are challenges in integrating artificial intelligence in business education; this is because artificial



intelligence powered tools may struggle to handle large student's numbers, leading to performance issues. Thus managing and storing large amounts of data for artificial intelligence application can be difficult.

Regulatory and legal Consideration: Regulatory and legal considerations are challenges in integrating artificial intelligence in business education, this is because ensuring compliance with data privacy laws, such as GDPR and CCPA when collecting and processing student data for artificial intelligence applications. In ensuring artificial intelligence meets accreditation standards and regulatory requirement as well ensuring artificial intelligence system complies with cyber security regulations is a challenge.

Solutions to the Challenges of Artificial Intelligence in Business Education

Speaking on the challenges of integrating artificial intelligence in Business education requires a multifaceted approach. By addressing these challenges, business education can effectively integrate artificial intelligence, preparing students for the future of work and fostering responsible artificial intelligence adoption in business. According to Nwagwu (2020), these approaches are briefly discussed below:

- i. **Develop AI literacy:** Incorporate artificial intelligence basics into curricula, enabling students to understand AI concepts and applications.
- ii. **Update curricula:** Regularly review and update curricula to reflect AI's rapid evolution and industry needs.
- iii. **Invest in V resources:** Provide access to V-related hardware, software, and data, ensuring hands-on experience.
- iv. **Ethical considerations:** Integrate ethical discussions into AI courses, addressing bias, privacy, and responsibility.
- v. **Faculty development:** Offer training and support for faculty to develop AI expertise and teaching skills.
- vi. **Students support:** Provide additional resources and support for students to develop AI-related skills.
- vii. **Industry partnerships:** Collaborate with industry partners to provide practical experience, case studies, and mentorship.
- viii. **Data management:** Ensure access to high-quality data and develop data management skills.

ix. **Balance AI with human skills:** Emphasize the complementarity of AI and human skills, like creativity and critical thinking.

x. **Assessment innovation:** Develop innovative assessment methods to evaluate student learning in AI-related topics.

xi. **Scalability and accessibility:** Implement AI-powered education that is scalable, accessible, and inclusive.

xii. **Regulatory awareness:** Stay updated on regulatory and legal developments related to AI in business.

II. Conclusion

Artificial intelligence (AI) is a complex field with variety of methods and strategies to create intelligent computers that can carry out tasks that normally need the use of human intelligence. The fact that artificial intelligence has had a significant impact on almost every aspect of society, including the political, social, and economic domains, in the shortest amount of time since its inception is fascinating. This paper therefore succinctly highlighted the positive influence that AI has on the Teaching and Learning of Business Education in Nigeria. And agreeably, the discoveries unveil the fact that AI could be applied in Teaching and Learning of Business Education through intelligence tutoring system, personalized learning, career guidance, automated grading, amongst others, Among other things, AI could be used in chatbots, virtual assistants, automation and efficiency, market research, idea generation, and predictive analytics. Therefore, there is a strong need for its advancement and maintenance despite the obstacles that have been found to hinder the presentation of AI in business education teaching and learning.

III. Recommendations

Based on the research, the following recommendations are pointed out:

1. Workshops should be organized at all levels of academic institution in order to create awareness of the importance of AI-based tools for teaching and learning among lecturers and students.

2 They should Facilitate Collaboration and Networking, which should be done through interdisciplinary teamwork that involve experts in AI, education, and various academic disciplines. Collaboration can inspire innovative approaches to integrating AI in teaching and learning, leading to the development of new tools and methodologies that cater to the specific needs of academic expert.



3.To Establish an AI Center or Hub, creating a dedicated AI center or hub within universities, Polytechnics and colleges of Education across Nigeriawhich can serve as a centralized resource for both information dissemination and technical support. It can provide ongoing support, troubleshooting assistance, and collaboration opportunities for lecturers interested in incorporating AI into their academic activities. The establishment of an AI hub demonstrates the university's commitment to embracing technological advancements and fostering a culture of innovation.

4. Teacher training programmes are becoming a significant focus for future research endeavours. It is crucial to investigate efficient methods for teacher education programs, both for those who are already working as teachers. These programmes should not only improve instructors' proficiency in using AI technology but also tackle any reluctance towards adopting technological advancements. Exploring effective approaches to smoothly incorporate AI into current teaching methods which would enable educators to fully leverage the capabilities of these technologies.

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