



APPLICATION OF ARTIFICIAL INTELLIGENCE IN TEACHING AND LEARNING OF BUSINESS EDUCATION IN UNIVERSITIES IN ENUGU STATE

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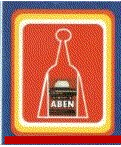
Abstract

The study examined the application of artificial intelligence in teaching and learning of Business Education in universities in Enugu State. The study was guided by two research questions and two null hypotheses. Descriptive survey design was adopted for the study. The population of the study was 195 Business Educators and students offering Business Education programme in Universities in Enugu State. Since the population was manageable, there was no sampling. A 20 items structured questionnaire validated by two experts in the field of Business Education and one expert in measurement and evaluation was used for the study. A reliability index of 0.78 was established using Cronbach Alpha Coefficient. The data collected were analyzed using mean to answer the research questions, standard deviation to ascertain the closeness and homogeneity of the responses while t-test was used to test the null hypotheses at .05 level of significance. Findings showed among others that Artificial Intelligence is applied to a high extent in teaching and learning of Business Education in universities in Enugu state. They agreed to all the items as challenges faced in teaching and learning of Business Education in universities in Enugu state. The findings further showed no significant difference in the mean ratings of Business Educators and Business Education students on application of AI in teaching and learning of Business Education in universities in Enugu state. It was concluded that application of AI in teaching and learning was to a high extent and faced by many challenges. It was recommended among others that Universities should apply AI tools more systematically into the Business Education curriculum to leverage their full potential. This includes developing a clear strategy for incorporating AI in teaching methods, assessments, and administrative processes. This is important since a structured approach to AI integration will ensure that both educators and students can effectively utilize AI resources, improving overall educational outcomes. Government should encourage and support the use of AI in academic research within the Business Education field.

Keywords: Artificial Intelligence, Business Education, Teaching, Learning, Technology

Introduction

Technological advancements have led to significant changes in the society which have brought about tremendous changes in the educational system and mode of instructional delivery. Technology is a tool that sharpens the global economy and equips Business Educators with quality and efficient teaching and learning. Every facet of human endeavor is now revolutionized with digital technology. The traditional pedagogical practices of lecturing in educational institutions are gradually paving way for new technological system of instructional delivery. In line

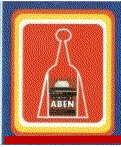


with the above view, Harry (2023) noted that the application of various technological systems in teaching and learning is rapidly becoming one of the most important and widely discussed issues in contemporary education policy. This will improve the quality of programmes. Technology holds great promise to improve education in addition to shaping workforce opportunities. A more recent technological development is the emergence of the term Artificial Intelligence (AI) which is currently starting to steal attention as a tool to act like human. AI has been transforming various industries and education is no exception.

The technology of artificial intelligence (AI), sometimes called machine intelligence is intelligence demonstrated by machine in contrast to natural intelligence displayed by humans. According to Fitria (2023), Artificial Intelligence is the process of modelling human thinking and designing a machine so that it can behave like humans or other terms called cognitive tasks, namely how machines can learn automatically from programed and information. Fitria further stated that artificial intelligence technology refers to machines that can think, weight the actions to be taken, and can make decisions as humans do and is currently being developed on a large scale so that this technology will imitate and even take over the work normally done by humans in for of programs and robots. Yeruva (2023) stated that AI has the potential to revolutionized the way we learn and teach making it more personalized, engaging and efficient. It is gradually changing the landscape of the education system across the work.

Similarly, Thompson and Zhao (2023) explained that artificial intelligence is the theory and development of computer systems capable of performing tasks that historically required human intelligence, such as recognizing speech, making decisions, identifying patterns. Coursera further stated that artificial intelligence encompasses a wide varies of technologies, including machine learning, deep learning, natural language processing, speech recognition and machine vision. Fitria (2021) noted that Artificial Intelligence systems work by ingesting large amounts of labelled training data, analyzing the data for correlations and patterns, and using these patterns to make predictions about future states. It can create realistic text, images, music and other media. Fitria postulated four cognitive skills artificial intelligence focusses on, which include: learning and it involves acquiring data and creating rules for how to turn it into actionable information. The rules which are called algorithms provide computing devices with step-by-step instructions for how to complete a specific task. Reasoning which focusses on choosing the right algorithm to reach a desired outcome. Self-correction which is designed to continually fine-tune algorithms and ensure they provide the most accurate results possible to address issues in AI output and creativity which uses neural networks, rules-based systems, statistical methods and other AI techniques to generate new images, new text, new music and new ideas. In the same vein, Maccorduck (2014) stated that the ability to reason logically is an important aspect of intelligence and has always been a major focus of artificial intelligence.

According to Maccorduck (2014) artificial intelligence has four main components known as expert system, heuristic problem solving, natural language processing and vision. Expert system is a machine system in which useful human knowledge is added in machine memory in order to give intelligence advice and offer explanation and justification of its decisions or demand. Expert system relies on a large database of well-defined specialized knowledge about a particular area. It handles the situation as an expert and gives performance. Heuristic problem solving is meant to evaluate small range of solutions. When it sees impossible to tackle a specific problem with a step-by-step approach, heuristics are utilized in artificial intelligence. Heuristic functions in AI prioritize speed above accuracy, hence they are frequently paired with optimization techniques to provide better outcome. Natural language processing provides communication between human and machine in natural language. This is the ability of AI technology to understand human



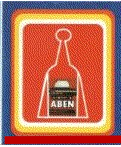
language as its spoken and written. Computer vision is a field of Artificial Intelligence that enables AI to interpret and analyze visual data and derives meaningful information from digital images, videos and other visual inputs. It has the ability to recognize shapes and features automatically.

AI application are widely used today by learners and teachers. Johnson (2023) stated that AI facilitates personalized learning and provide universal access to all levels and types of quality education beyond all limitations as well as promotes distance, open online and digital education. AI cannot replace human teachers but yet it can deal with teaching and learning to a great extent. Furthermore, Jackson and Wilson (2024) referred to artificial intelligence in education as the use of AI technologies, such as machine learning and natural language processing to enhance the learning experience. It involves the use of algorithms that analyze data, identify patterns and make predictions, enabling educators to personalise learning for each student. According to Harry (2023) Artificial Intelligence can be applied in education to design and analyze the mechanical elements on basis of size limitations, greater assistance to humans, greater advance in technology, development of better safety and peace, greater assistance in education. Michael further stated that in classrooms, machines can be used to properly teaching and answer on the spot questions in a universally accepted manner, and it can collaborate with virtual networks to make a perfect learning environment to students.

AI represents progress in education, offering benefits on multiple levels, and stimulates the evolution of teaching and learning through technologies like robots, chat bots, automated assessment, digitized artifacts, intelligent tutoring systems, despite occasional organizational challenges (Chiu et al, 2023). Yu (2023) noted that Robots is a machine that is programmed to perform specific tasks autonomously or remotely, often in a repetitive or dangerous environment. Robots can be powered by electricity, hydraulics or pneumatics and are commonly used in industries and educational institutions. Robots are designed to improve efficiency, productivity and safety in various industries and applications. Yu further stated the benefits of Robot in teaching and learning to include: consistency reducing variability in teaching quality. Personalization- Robots can be programmed to adapt to individual learning styles and abilities. Accessibility: Robots can reach remote or underserved areas, expanding access to education. Efficiency: Robots can automate routine tasks, freeing up human instructors for more interactive and creative aspects of teaching. Scalability: Robots can handle large classes and multiple sections, reducing the need for multiple instructors. Robots can be used as pre-recorded video lecture, virtual teaching assistants, animated avatars, live streaming, adaptive learning, virtual reality and chatbots (Yu, 2023).

In the same vein, Abdellatif et al (2020) noted that chat bots are used in artificial intelligence technology and is a software program which acts like a human when interacted with via message or voice over the internet to simulate a conversation in a scripted way and understands human language and reply to conversation automatically. Chatbots can be used to provide instant support and answers to students queries. The requirements of chatbot design include accurate knowledge representation, strategy for answering and predefined responses to reply when input is not understood or not in a system (Augello, Gentile & Dignum, 2018).

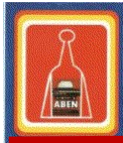
According to Ferguson (2017), adaptive learning is a pedagogical approach that utilizes advanced technologies, particularly machine learning algorithms to tailor educational content, instructional strategies, and assessment methods to individual learners. It aims to adapt the learning process in real time, based on each learner's performance, preferences, knowledge level and learning style. Through continuous analysis of learner data, including assessment results, interaction patterns and progress tracking, adaptive learning systems can provide timely and targeted interventions, ensuring that learners receive the most relevant and effective educational



materials and activities. Because they can convey education information and change to meet the requirements of certain students, adaptive learning systems are becoming more popular (Kizilcec, Desai & Kizilcec, 2017). Adaptive learning uses data-driven algorithms and artificial intelligence to adjust the content, the delivery and the pace of instruction based on learning academic performance and activities and it promotes efficiency in instructional delivery, and enhances the achievement of educational objectives. Adapting learning experiences sustains student progress and engagement in virtual environments, promoting skills development (Khosravi et al, 2022). There is need to incorporate emerging technologies such as artificial intelligence among others in Business Education programme (Marc & Marjorie, 2022).

Business Education exposes its recipients to diversity curricula, hence, it is that type of education that inculcates in its recipients' attitudes, knowledge, skills, and values that are required in business world. According to Emeasoba and Nwatalari, (2021) business education at university level is concerned mainly with the development of relevant saleable skills and knowledge that would enable an individual to function effectively in the world of works. Business Education is one of the most important programmes offered in the university which can engineer students' interest on range specialties including realization of the different talents, opportunities and future roles; provision of trained manpower in the applied sciences, technology and commerce at sub-professional grades: provision of technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development, organization, human resources management and marketing and so forth (Ganyaupfu, 2017). For Business Education programmes to remain relevant in providing the needs of the individuals and that of the society, it must embrace current trends in academic and economic demands of the society. Ufodu and Obi (2023) noted that artificial intelligence can be applied in Business Education by offering courses that delve deeper into AI concepts, algorithms and applications in business, assign hands-on projects that require students to apply AI techniques to solve real-world business problems, use case studies from various industries to illustrate how AI has been successfully integrated into business strategies, partner with business that are actively using AI to provide students with internship opportunities, guest lectures and real-world projects among others. According to Ali, Wardat and Qahtani (2023) artificial intelligence enables intelligence tutoring system that uses natural language processing and machine learning techniques to evaluate student response and determine individual progress by analyzing their learning behaviours. AI also automate the grading and assessment process by providing instant feedback to students and saving educators time and efforts.

Business Education is one of the courses taught in Nigerian universities. University education provides high level skills and competencies that are required for the labour market. It promotes better career opportunities, clear advancement and enhancement of personal growth among others (Enang, 2016). It exposes students to technological skills that will empower them to fit into the world of work and compete with its counterparts globally for economic development. Universities in Enugu is made up of public and private universities. Public universities are made up of Federal and State Universities. Federal Universities are sponsored by the Federal Government while the state universities are sponsored by State government. Private universities are owned by individual or faith-based organisations. There is need for Business Education programs to sustain its relevance in providing the needs of individuals and that of the society. In order to achieve this, it must embrace current trends of AI application in the academic demands of the society by encouraging the AI in teaching and learning of Business Education in universities. Thus the drive to determine the application of artificial intelligence (AI) in teaching and learning of Business Education in universities in Enugu State.



Statement of the Problem

The application of Artificial Intelligence (AI) technologies in teaching and learning has become increasingly prevalent in educational institutions globally. AI has offered new opportunities for Business Education to function effectively in information technology-based organizations and institutions, innovation and economic growth. Business Education on the other hand, is a skill acquisition course that focuses on fundamental management principles, financial knowledge, entrepreneurs and marketing strategies to prepare its recipients for technological proficiency and opportunity for economic development and innovation. However, there is a disparity between the demand for AI technologies in Business Education programme and skills acquired by its graduates. This imbalance highlights the urgent need to apply AI training into Business Education programme to ensure that its graduates are well-equipped with AI tools and technologies effectively to enhance entrepreneurial and economic development. More theoretical concept of new technologies are being taught than practical. In the light of this, this study is poised to determine the extent AI is applied in teaching and learning of Business Education in universities in Enugu State.

Purpose of the study

The purpose of the study was to determine the application of artificial intelligence in teaching and learning of Business Education in Universities in Enugu State. Specifically, the study determined the;

1. Extent of application of Artificial Intelligence in teaching and learning of Business Education in Universities in Enugu State.
2. Extent of challenges facing the application of Artificial Intelligence in teaching and learning of Business Education in Universities in Enugu State.

Research Questions

The following research questions guided the study:

3. What is the extent of application of Artificial Intelligence in teaching and learning of Business Education in universities in Enugu State?
4. What are the challenges facing the application of Artificial Intelligence in teaching and learning of Business Education in universities in Enugu State?

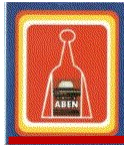
Hypotheses

The following null hypotheses were formulated to guide the study and were tested at .05 level of significance.

- Ho₁ There is no significant difference between the mean ratings of Business Educators and Business Education students on the extent Artificial Intelligence is applied in teaching and learning of Business Education in universities in Enugu State.
- Ho₂ There is no significant difference between the mean ratings of Business Educators and Business Education students on the challenges facing the application of Artificial Intelligence in teaching and learning of Business Education in universities in Enugu State.

Method

The study adopted descriptive survey research design. The study was carried out in public Universities in Enugu State. The population was 195 Business Educators and students in public universities in Enugu state offering Business Education programme. No sampling technique was adopted as the population for the study was sizeable and manageable. A validated structured questionnaire titled "Questionnaire on Application of Artificial Intelligence in teaching and learning of Business Education programme" (QAAITLBEP) was developed by the researchers. The instrument is a four-point rating scale of: Very High Extent (VHE), High Extent (HE), Low Extent



(LE) and Very Low Extent (VLE) and Strongly Agree (SA); Agree (A); Disagree (D); Strongly Disagree (SD) with values of 4,3, 2 and 1 respectively. The instrument was validated by three experts in Business Education and measurement and evaluation from Michael Okpara University of Agriculture, Umudike. Cronbach Alpha Coefficient was used to measure the internal consistency of the instrument and co-efficient of 0.76 and 0.78 were obtained respectively. Mean was used to answer the research questions, standard deviation was used to ascertain the closeness and homogeneity of the responses while t-test of independence was used to test the null hypotheses at .05 level of significance. The decision was based on the cluster mean score in relation to the boundary mean score of 2.50. A cluster with mean score equal to or above 2.50 was high extent or agreed while mean score less than 2.50 was low extent or disagreed. In testing the hypothesis of no significant difference using t-test, the decision rule for the hypotheses was that any hypothesis with a t-calculated value less than the t-critical value is considered not rejected whereas if the t-calculated value is more than the t-critical value it is considered rejected.

Results:

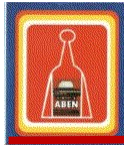
Research Question 1: What is the extent of application of Artificial Intelligence in teaching and learning of Business Education in universities in Enugu state?

Table 1: Respondents' Mean and Standard Deviation Scores on the extent of application of AI in teaching and learning of Business Education Programme

S/N	The following AI application in teaching and learning of Business Education programme are as follows:	Business Educators		Rmk	Business students		Rmks
		X ₁	SD ₁		X ₂	SD ₂	
1	AI serves as an educational partner that enhance content and competencies in Business Education.	3.84	0.63	HE	3.75	0.42	HE
2	AI is used to improve students understanding of complex concepts and topics in Business Education	3.92	0.54	HE	3.82	0.52	HE
3	AI is used in assessments and administrative services in Business Education programme	3.64	0.76	HE	3.56	0.56	HE
4	AI provides feedback after students' assessment process that supports students in improving skills.	3.76	0.51	HE	3.63	0.41	HE
5	Integrated AI technologies is applied into traditional Business Education curriculum.	3.22	0.88	HE	3.12	0.52	HE
6	Business Educators make use of AI tools in teaching and learning of Business Education.	2.23	0.92	LE	2.14	0.53	LE
7	AI is applied in research work in Business Education programme	2.44	0.75	LE	2.31	0.61	LE
8	AI is used in fostering creative thinking and problem solving in Business Education programme	3.42	0.66	HE	3.36	0.67	HE
9	Students' skills are enhanced through the use of AI in Business Education.	3.83	0.42	HE	3.94	0.56	HE
10	AI enhances students' freedom in asking questions and seeking clarification from AI	3.51	0.58	HE	3.43	0.63	HE
Grand mean score		3.38	0.67	HE	3.31	0.54	HE

Source(s): Author Construction from SPSS version 27 computation, 2024. Critical mean score = 2.50

Note: HE = High extent and LE - Low Extent.

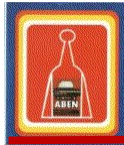


The result in Table 1 shows that both groups consistently rated AI applications positively, with most items receiving a "High Extent" (HE) remark, indicating that AI is viewed as significantly enhancing the educational process. Specifically, both Business Educators and Business Education students rated AI application in teaching and learning of the Business Education program to a high extent in item questions No. 1, 2, 3, 4, 5, 8, 9, and 10, with mean scores greater than 3.00. The highest mean score for Business Educators was 3.92, attributed to the use of AI in improving students' understanding of complex concepts and topics in Business Education. For Business Education students, the highest mean score was 3.94, reflecting the enhancement of students' skills through AI in Business Education. Conversely, the use of AI tools by Business Educators (item No. 6) and AI's application in research (item No. 7) received lower scores, falling into the "Low Extent" (LE) category, with mean scores below 2.50. This suggests that these areas may need further development or integration. The overall grand mean scores were 3.38 for educators and 3.31 for students, both within the "High Extent" range, reflecting a generally positive perception of AI's role in Business Education among both educators and students. The standard deviation was relatively small and shows that responses clustered around the mean. This further implies that the inter-rating of the questions by the respondents was close. Thus, both Business educators and Business education students concurred on the significance of AI applications in enhancing the teaching and learning processes of Business Education program.

Research Question 2: What are the challenges facing the application of Artificial Intelligence in teaching and learning of Business Education in universities in Enugu state?

Table 2: Respondents' Mean and Standard Deviation Scores on the challenges facing the application of AI in teaching and learning of Business Education Programme

S/N	Challenges facing AI application in teaching and learning of Business Education programme are as follows:	Business Educators			Business Education students		
		X ₁	SD ₁	Rmks	X ₂	SD ₂	Rmks
1	Lack of human interaction and feeling	3.73	0.61	A	3.85	0.55	A
2	Lack understanding of decision-making logic and its description in human terms	3.62	0.52	A	3.81	0.63	A
3	Artificial Intelligence enhancing automation is also causing huge job losses around the world	3.56	0.71	A	3.75	0.76	A
4	Misuse of AI can be deadly and devastating	2.26	0.93	D	2.32	0.81	D
5	Heavy regulations and cautions are involved in usage of AI	3.82	0.61	A	3.74	0.57	A
6	It requires more and more training for Business Educators thereby involving a huge sum of money	3.45	0.81	A	3.62	0.72	A
7	Lack of understanding the functioning of AI algorithms and technology.	3.32	0.73	A	3.66	0.66	A
8	Lack of funds to set up and implement Artificial Intelligence and invest in it.	3.55	0.62	A	3.62	0.58	A
9	Religious intolerance can seriously militate against AI technology	2.36	0.81	D	2.44	0.93	D
10	Shortage of data science skills within humans to get maximum output from artificial intelligence.	3.62	0.53	A	3.76	0.62	A
	Grand mean score	3.33	0.69	A	3.46	0.68	A



Source(s): Author Construction from SPSS version 27 computation, 2024. Critical mean score = 2.50

Note: A = Agreed; D = Disagreed

The result in Table 2 shows that both groups consistently rated the challenges facing the application of AI in the teaching and learning of the Business Education program, with most items receiving an "Agreed" (A) remark, indicating that these challenges are viewed as significant by both Business Educators and Business Education students. Specifically, both groups rated the challenges listed in items No. 1, 2, 3, 5, 6, 7, 8, and 10 as significant, with mean scores greater than 3.00. The highest mean score for Business Educators was 3.82, attributed to the challenge of heavy regulations and cautions involved in the use of AI. For Business Education students, the highest mean score was 3.85, reflecting the concern over the lack of human interaction and feeling in AI applications. Conversely, the challenges related to the misuse of AI (item No. 4) and religious intolerance (item No. 9) received lower scores, falling into the "Disagreed" (D) category, with mean scores below 2.50. This suggests that these areas are perceived as less critical concerns by both groups. The overall grand mean scores were 3.33 for Business Educators and 3.46 for Business Education students, both within the "Agreed" range, reflecting a generally consistent recognition of the challenges associated with AI in the Business Education program. The standard deviations were relatively small, indicating that the responses were closely clustered around the mean. This further implies that both Business Educators and Business Education students shared a common understanding of the significant challenges posed by AI applications in their educational context.

Test of Hypotheses

The three null hypotheses of the study were tested using paired samples t-test. The null hypotheses were tested at 0.05 level of significance.

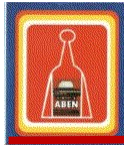
Hypotheses 1: There is no significant difference between the mean ratings of Business Educators and Business Education students on the extent Artificial Intelligence is applied in teaching and learning of Business Education in universities in Enugu State.

Table 3: t-test analysis of significant difference in the mean ratings of Business Educators and Business Education students on the extent Artificial Intelligence is applied in teaching and learning of Business Education in universities in Enugu State.

Groups	Number	Mean	SD	df	t-cal	t-tab	Level of Sig.	Decision
Business Educators	25	3.38	0.67	193	0.51	1.96	0.62	Not Rejected
Business Education Students	170	3.31	0.54					

Source(s): Author Construction from SPSS version 27 computation, 2024. $P \leq 0.05$

Table 3 shows that Business Educators and Business Education students in universities in Enugu State reported similar mean ratings for the extent to which Artificial Intelligence (AI) is applied in teaching and learning. Business Educators had a mean score of 3.38 with a standard deviation of 0.65, while Business Education students had a mean score of 3.31 with a standard deviation of 0.61. The calculated t-value was 1.94 (df = 193), and the observed p-value was 0.645. This p-



value is higher than the significance level of 0.05 ($P \leq 0.05$). Therefore, the null hypothesis was not rejected, indicating that there was no significant difference between the mean ratings of Business Educators and Business Education students regarding the extent of AI application in their teaching and learning contexts. This implies that both groups perceive the application of AI in teaching and learning in a similar manner, suggesting a consistent view on the integration and impact of AI within their educational settings in Enugu State.

Hypotheses 2: There is no significant difference between the mean ratings of Business Educators and Business Education students on the challenges facing the application of Artificial Intelligence is applied in teaching and learning of Business Education in universities in Enugu State.

Table 4: t-test analysis of significant difference in the mean ratings of Business Educators and Business Education students on the challenges facing the application of Artificial Intelligence in teaching and learning of Business Education in universities in Enugu State.

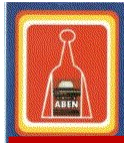
Groups	N	Mean	SD	df	t-cal	t-tab	Level Sig.	of	Decision
Business Educators	25	3.33	0.69	193	-0.88	1.96	0.385		Not Rejected
Business Education Students	170	3.46	0.68						

Source(s): Author Construction from SPSS version 27 computation, 2024. $P \leq 0.05$

Table 4 shows that Business Educators and Business Education students in universities in Enugu State reported different mean ratings concerning the challenges facing the application of Artificial Intelligence (AI) in teaching and learning. Business Educators had a mean score of 3.33 with a standard deviation of 0.69, while Business Education students had a mean score of 3.46 with a standard deviation of 0.68. The calculated t-value was -0.88 ($df = 193$), and the observed p-value was 0.385. This p-value is higher than the significance level of 0.05 ($P \leq 0.05$). Therefore, the null hypothesis was not rejected, indicating that there was no significant difference between the mean ratings of Business Educators and Business Education students regarding the challenges of AI application in their teaching and learning contexts. This implies that despite the slight difference in mean scores, both groups perceive the challenges associated with AI in teaching and learning similarly, suggesting a common level of concern or awareness about the issues posed by AI in their educational settings in Enugu State.

Discussion of findings

From the findings of the study, the result showed that the study offers a nuanced understanding of the application and challenges of Artificial Intelligence (AI) in teaching and learning within Business Education programs at universities in Enugu State. The results reveal significant insights into the extent of AI's integration into educational practices and the challenges that both educators and students face. This discussion contextualizes these results within the broader



framework of AI's role in education and its implications for enhancing Business Education programs.

Extent of AI Application

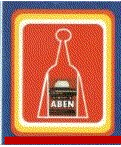
The results indicate that both Business Educators and Business Education students perceive AI as a valuable tool in enhancing the teaching and learning experience. AI's role in improving students' understanding of complex concepts and enhancing their skills is particularly noteworthy. This positive perception aligns with previous research that highlights AI's capacity to personalize learning, provide timely feedback, and support complex problem-solving (Johnson et al., 2023; Wang & He, 2024). The high ratings for AI's contribution to enhancing understanding and skills suggest a growing recognition of AI's potential to address educational challenges. AI tools, such as intelligent tutoring systems and adaptive learning platforms, have been shown to improve educational outcomes by tailoring content to individual learning needs and providing interactive learning experiences (Smith & Hill, 2022). These findings reflect a shift towards recognizing AI's role not just as a supplementary tool but as an integral component of the educational process. However, the lower ratings concerning the use of AI tools by educators and in research suggest areas for further development. While AI's potential in research and tool usage is acknowledged, its practical integration into everyday teaching practices and research activities appears limited. This discrepancy highlights the need for targeted professional development and resource allocation to better equip educators with AI tools and foster their application in research (Thompson & Zhao, 2023).

Challenges in AI Application

The study identifies several challenges associated with the application of AI in Business Education. The concerns about lack of human interaction, understanding AI decision-making processes, and heavy regulations reflect broader apprehensions about AI's integration into educational settings. These challenges are consistent with the findings of recent studies that emphasize the need for transparency and ethical considerations in AI applications (Lee et al., 2023; Kaur & Sethi, 2024). The lack of human interaction is a significant concern, as it can impact the quality of student engagement and the relational aspects of teaching. AI's role in replacing or supplementing human interaction remains a contentious issue, with some studies suggesting that while AI can enhance learning, it cannot fully replicate the interpersonal dynamics of face-to-face education (Williams et al., 2023). The challenge of understanding AI's decision-making logic also underscores the need for educators and students to have a clear understanding of how AI systems function to effectively utilize them (Brown & Davis, 2024). The heavy regulations and need for extensive training further complicate the integration of AI in education. These challenges highlight the need for policy frameworks and institutional support to facilitate the adoption and effective use of AI technologies. Ensuring that educators are adequately trained and supported can mitigate these challenges and enhance the overall effectiveness of AI in education (Miller & Singh, 2024). Conversely, concerns about the misuse of AI and religious intolerance were rated as less critical. This suggests a consensus that while these issues are relevant, they may not be as immediate or significant as other challenges identified. This perception could reflect a broader awareness of the ethical implications of AI and a recognition that these issues, while important, are secondary to more pressing operational and pedagogical concerns (Jackson & Wilson, 2024).

Conclusion

Based on the findings obtained, the authors concluded that both Business Educators and Business Education students perceive AI positively, recognizing its significant role in enhancing



educational processes. More so, the high extent of agreement on AI's ability to improve understanding of complex concepts, provide valuable feedback, and support skill development underscores its potential to enrich the Business Education curriculum. However, the study also highlights critical areas for improvement. While AI's potential is acknowledged, the current utilization of AI tools by Business Educators and its application in research are relatively low. This disparity suggests that despite the positive perceptions, practical integration and application of AI remain limited. The study also identifies several challenges, such as the lack of human interaction, the need for substantial training, and the heavy regulations surrounding AI use, which hinder its full potential. The consistency in responses between Business Educators and Business Education students regarding both the extent of AI application and the challenges suggests a unified perspective on AI's role and the issues that need to be addressed. The lack of significant differences in their views implies a shared recognition of the strengths and weaknesses of AI in Business Education.

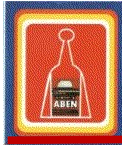
Recommendations

Based on the findings and conclusion of the study, the following recommendations were made;

1. Universities should integrate AI tools more systematically into the Business Education curriculum to leverage their full potential. This includes developing a clear strategy for incorporating AI in teaching methods, assessments, and administrative processes. This is important since a structured approach to AI integration will ensure that both educators and students can effectively utilize AI resources, improving overall educational outcomes.
2. Institutions should invest in comprehensive training programs for Business Educators to build proficiency in using AI tools. These programs should include workshops, seminars, and continuous professional development opportunities. Such training will equip educators with the skills needed to effectively use AI, thus enhancing their teaching practices and fostering a more AI-adept educational environment.

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