



HARNESSING ARTIFICIAL INTELLIGENCE TO ENHANCE BUSINESS EDUCATION TEACHING IN RIVERS STATE GOVERNMENT TERTIARY INSTITUTIONS

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Abstract: Artificial Intelligence (AI) is rapidly improving the teaching and learning process globally. Therefore, this study determined exploring the power of artificial intelligence (AI) for improving the teaching of business education courses in government tertiary institutions in Rivers State. Two research questions guided the study and two null hypotheses were tested. Descriptive survey research design was adopted. From a population of 99 lecturers, a census survey sampling was employed. A four-point response options questionnaire was used for data collection, and it was validated by three experts. The reliability of the instrument was established using Cronbach's alpha which yielded coefficients of 0.79 and 0.78. Mean and Standard Deviation were used to answer the two research questions and measure the spread in respondents' opinions, while oneway analysis of variance (ANOVA) was used to test the two null hypotheses at 0.05 level of significance. Findings revealed that all the types of AI listed were highly needed to be explored, and were very highly powerful for improving the teaching of business education courses. From the findings, it was concluded that if AI is included in the teaching of business education courses, it will transform the programme positively, lead to AI skills development and enable the learners to acquire the needed AI employability skills for the global workplace. Therefore, among other things, it was recommended that AI should be included in the business education curriculum through yearly internal curriculum review by lecturers in collaboration with their institutions and a five-year national review by all levels of government.

Keywords: Artificial intelligence (AI), exploring the power of artificial intelligence, teaching business education courses.

Introduction

Artificial Intelligence (AI) is rapidly transforming various industries, including education. AI as an aspect of information and communication technology is being used in educational management to enhance teaching and learning process, improve student outcomes, and streamline administrative tasks (Ukata & Agburuga, 2024a). In recent years, AI has also made inroads into the education sector, particularly in educational management (Igbokwe, 2023). Exploring the power of AI can help improve the teaching and learning process, enhance teacher's performances, student outcomes, and automate administrative tasks. Although the use of AI in teaching and learning is still in its early stages, moreover in Nigeria it has already shown promising results (Gupta, 2020).

AI in schools offers multiple possibilities for school administrators, teachers, and students. One example is ChatGPT, the latest version, GPT-4, is integrated into software such as Microsoft Office, Edge, and Bing, optimizing educational tasks (Forero-Corba, & Negre Bennasar, 2024). AI and Machine Learning (ML) have been oriented towards educational tasks (Zafari et al., 2021), which highlights the need to strengthen Teachers' Digital Competence (TDC). AI as a technology in education is expected to grow significantly in the coming decades, presenting new opportunities and challenges (Surugiu, Grădinaru, & Surugiu, 2024; Khosravi, 2022). Researchers, policymakers, and practitioners are exploring the power of AI by integrating Artificial Intelligence Education (AIE) to improve teaching, personalised learning, assessments, and administrative services (Zhang & Aslan, 2021; Chiu et al., 2023). AI represents progress in education, offering benefits on multiple levels, and stimulates the evolution of teaching and learning through technologies like market research and trend analysis, chatbots, Mavis Beacon Teaches Typing (MBTT), robots, automated assessment, digitised artefacts, and intelligent tutoring systems, despite occasional organisational challenges (Ukata & Agburuga, 2024b; Veletsianos, 2019).

Teaching

Teaching is an attempt to assist people acquire knowledge, tools, entrepreneurship skills, attitudes, ideas or appreciation (Ukata, Wechie & Nmehielle, 2017). Teaching is also an interaction between teachers and students under the auspices of the teacher in order to bring about the expected change in the students' behavior (Ukata & Silas - Dikibo, 2019). Teaching is a great profession, it is an act of relating information to the learner or assisting in the learning on how to do something in a required manner (Ukata & Nmehielle, 2020). It is a process of assisting the learner to gain useful artificial intelligence skills, attitudes, ideas, values in a designed and undersigned environment that will help the learner become an acceptable person to the society as well as be independent in life. Teaching leads to learning. Teaching is an exchange of ideas between a teacher and students (learners) on what to learn, how to learn, what to use in learning and what to do with the learning (Ukata, 2019a; Ukata, 2019b).

Meaning of Artificial Intelligence (AI)

AI is the theory and development of computer systems that are able to perform tasks requiring human intelligence, such as teaching, visual perception, speech recognition, decisionmaking, and translation between languages (Pattam, 2021). Artificial intelligence is the science of making machines that can think and act like humans. AI is an advanced part of information and communication technology (ICT) which adopts the application of hardware and software in imitation to demonstrate what human beings can do with those technologies.

Meaning of Business Education and Its Courses Contents

National Universities Commission (2022) posited that Business Education is a specialized profession designed to provide students with knowledge, skills and competence leading to employability and advancement in office occupations, pedagogical skills in teaching business subjects at different levels of educational system as well as self-employment or being an employer of labour. As an aspect of Vocational Education and Training, Business Education is designed to fill the gap between knowledge and practice by exposing students to General Education as well as specialized areas in Accounting, Entrepreneurship, Marketing and Office Technology and Management. Business Education contents are all encompassing programmes in which courses contents are in the areas of Business Management, Business Administration, Office Information Management System, Office Technology and Management, (Information and Communication

Technology or Information Management System, Purchase/Supply Education. Others are Accountancy Education, Marketing Education, Communication Skills, English Language, Distributive Education, Entrepreneurship Education, Management/Marketing, Education Psychology, Philosophy and Sociology of Education, Business Law, Research Methodology etc, these require exploring the power of Artificial Intelligence

(AI) (Ukata & Sila-Dikibo, 2020; Ukata, 2019). It is an education that theoretically and practically prepares the learners with the required skills needed at the global workplaces (Ukata, Adejola & Okoye, 2018). Business education programme is offered as a course in universities, colleges of education and as an option in the polytechnics (Ukata & Wechie, 2020; Ukata & Silas-Dikibo, 2020). Accordingly, running his list, Lynch cites current areas AI is explored in education which are applicable to business education programme to include but not limited to: Classroom/Behavior Management, Lesson Planning, Classroom Audio-Visual, Parent-Teacher Communication, Language Learning, Test Prep, Assessment, Learning Management Systems, Gamification for Enhanced Student

Engagement, Staff Scheduling and Substitute Management, Professional Development, Transportation, Maintenance, Finance, Cybersecurity, Academic Fraud Detection, Safety and Security (Onlinedegrees, 2024; Smith, 2021; Singh & Singh, 2021).

Areas AI can be Explored that are Applicable to Business Education Courses

AI is currently used in Plagiarism Detection (Turnitin, Eagle Scan), Academic Research, Online Teaching and Learning, Chatbots for Enrollment and Retention, Learning Management Systems, Transcription of Faculty Lectures, Enhanced Online Discussion Boards, Analyzing Student Success Metrics and Connected Campuses (Online Degrees, 2024; Smith, 2022). According to Rose Luckin, a professor of learning-centred design at University College London, as quoted saying, “The real power of artificial intelligence for education is in the way that we can explore it to process vast amounts of data about learners, about teachers, about teaching and learning interactions.” Ultimately, AI can “help teachers understand their students more accurately, more effectively (Online Degrees, 2024).” Unfortunately, in the Core Curriculum and Minimum Academic Standard for Nigerian University System (CCMAS) published by the National Universities Commission in 2022, nothing was mentioned about AI in Business Education programme, and exploring it by business education teachers despite the abundant benefits in the teaching and learning process. These are issues of serious concern looking at the need of the current global workplace and if Nigeria wants to produce graduates of high global standards.

AI in Education for Business Education Teachers with Benefits

Artificial Intelligence Education

Artificial Intelligence Education (AIE) builds upon previous learning theories, facilitating teacher adoption of educational tools and integrating best practices to enhance learning (Cope, Kalantzis, & Sears, 2021).

AIE benefits teachers and the teaching process through tailored contents for individual learners, at-risk or gifted students, learning predictive models, personalised educational resources, improved classroom management, enhanced teaching across various subjects, academic progress facilitation, and qualified development in pedagogical skills, human behaviour, and interactions (Zhang & Aslan, 2021; Chiu et al., 2023). AIE unlocks new research potential in universities and other tertiary institutions by expanding experimental and investigative activities, and disseminating study results. Teachers can explore AI in complex tasks since AIE provides students support and answers (Southworth et al., 2023). Khosravi et al (2022) advocates integrating explainable AI in education, prioritising human-centred design of educational tools, assessing AI implementation, and enhancing AIE systems for reliability and knowledge transfer support during teaching and learning.

AI in Education for Business Education Learners with Benefits

Exploring the power of AI in education significantly enhances learners’ involvement and performance (Zhang and Aslan, 2021). Chiu et al. (2023) identified essential AI roles for learners to include: competency-based task assignments, learner-machine discussions, feedback, and adaptive digital environments. Zhang and Aslan (2021) added other AI facilitations to include; engagement, enriched learning resources, and intellectual stimuli. Southworth et al. (2023) highlight AIE’s benefits to be fostering technical skills, creativity, critical thinking, and

problem - solving abilities for students. AIE personalised learning experiences and communication to cater for individual needs and abilities, enhancing efficiency (Hopcan et al., 2022; Southworth et al., 2023). AIE customised learning materials that are tailored based on students' evaluations, addressing their strengths and weaknesses (Hopcan et al., 2022). Li and Wang (2023) proposed using advanced technology (AI) to create a comfortable communication environment, fostering learner networks with increased information accessibility for future generations. Adapting learning experiences sustains student progress and engagement in virtual environments, promoting skill development (Southworth et al., 2023). Khosravi et al. (2022) emphasise the significance of AI in various learning interfaces. For remote learners, exploring the power of AI offers a crucial advantage through simulation cases on complex life topics that are very challenging to be addressed in traditional settings (e.g., welfare system, losses, violence and traditional skills acquisition). Ouyang and Jiao (2021) identified three AIE paradigms: "AI-direct, learner-as-recipient", where AI leads learning with a defined pathway for the learner, "AI-supported, learner-as-collaborator", where AI optimises interaction among learners, information, and technology, and "AI-empowered, learner-as-leader", where AI enhances learners' intelligence through a complex system which can be apply in teaching business education courses.

Types of AI that can be Explored in Teaching Business Education Courses with Benefits

Accordingly, the following stated and explained are some of the AI tools with power needed to teach learners for effective and efficient digital marketing, business management and entrepreneurship skills development, (Amesi & Peterside, 2024).

Market Research and Trend Analysis

Crimson hexagon, an artificial intelligence that empowered students and lecturers as an insights tool that analyses online conversations and trends, provides data-driven insights for business strategy.

Example, google trends and think with google utilizes artificial intelligence to analyse search trends, which could also be used to help business and entrepreneurship education students to identify emerging market demands and consumer behaviours. In this way, business and entrepreneurship education students will be effective and efficient in market research and trend analysis.

Based Mentorship and Networking

This is an Artificial intelligence-driven tool like MentoBot, a connecting device that connects business, marketing and entrepreneurship students with virtual mentors or coaches, by offering advice, feedback, and guidance on various business-related issues. Business, marketing and entrepreneurship education students could also use devices like LinkedIn's to help them connect with the right networks based on interests, industry trends, and mutual connections.

The following are also some AIs and it power that can be explored in teaching business education courses with Benefits:

Zotero (AI)

Zotero (AI) is powerful open-access, easy-to-use reference management tool that serves as your personal research assistant and helps you collect, organize, cite, and share your research sources. Zotero allows teachers and learners to: save references from library catalogues, research databases, and the web. It is explored by researchers to add PDFs, images, audio and video files, snapshots of web pages, and more, write annotations and attach them to citations and create bibliographies using most major citation styles (Libraries Central Michigan University, 2024).

Mavis Beacon Teaches Typing (AI)

Gentle, (2024) posited that the software Mavis Beacon Teaches Typing was first released in 1987 as a tool to train new computer and advanced users on keyboard skills (touch typing). Beacon was praised for helping make computer education more accessible and easier to people of colour, with modern day super fans going so far as to create deep fake footage of Barack Obama and Oprah Winfrey celebrating her influence. The software (AI), Mavis Beacon Teaches Typing, whether you want to learn essential keyboarding skills or improve your overall typing efficiency, Mavis Beacon Teaches Typing Anniversary Edition will guide you on your road to success. It gives you beginner ways and improves speed and accuracy with detailed assessments, customized lessons and skill-building games which are needed in different global workplace (Ukata & Aguruga, 2024a; Broderbund, 2024).

Quillbot Paraphrasing Tool (AI)

QuillBot paraphrasing tool (AI) is an online writing platform with a bunch of powerful tools that can be explored in elevating and perfecting writings. QuillBot (AI) paraphrases, summarizes, checks for grammar error and plagiarism, translates, outlines, creates citations and sets researchers up for success in schools, workplaces and personal engagements (QuillBot, 2024). Online Degrees (2024) outlined some AI tools for teachers and learners in the educational system to comprise Palitt which was built to help instructors to easily create “their own custom lecture series, syllabus or textbook for teaching and learning. Jill Watson is also an AI-enabled virtual teaching assistant introduced by the Georgia Institute of Technology in 2016 for teaching and learning. Brainly is another wonderful social media site for classroom questions.

Nuance is a great speech recognition software used by students and faculty; capable of transcribing up to 160 words per minute; especially very helpful for students who struggle with writing or have accessibility needs. Contents Technologies is another instructional design and content application solution fuelled by artificial intelligence with research engines to aid in teaching and learning.

Similarly, Smith (Ukata & Agburuga, 2024a; Ukata & Agburuga, 2024b; 2021 & 2022) outlined several areas of applications of AI in teaching and learning with benefits as follows:

1. **Personalized learning:** The power of AI can be explored to customise learning paths for individual students, based on their strengths and weaknesses, learning styles, and interests.
2. **Intelligent tutoring systems:** AI-powered is explored in tutoring systems that provide real-time feedback to students, adapt to their individual learning needs, and track their progress.
3. **Student performance prediction:** Is an AI algorithm that analyses 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:** Is an AI that is used to grade multiple-choice and shoot-answer questions, freeing up teacher time for other tasks.
5. **Learning analytics:** Is an AI that helps educators in analyzing students` data to identify trends and patterns, evaluate the effectiveness of teaching methods, and make data-driven decisions.
6. **Chatbots and virtual assistants:** Are AI-powered chatbots and virtual assistants that provide students with instant answers to common questions, freeing up teachers and administrators to focus on more complex tasks.
7. **Campus safety:** Is an AI-powered surveillance system that detects unusual behavior and potential threats, alerting campus security personnel in real-time.
8. **Recruitment and admissions:** Is an AI that is used to analyze applicant data and identify candidates who are most likely to succeed in a given program.

9. Financial aid and student services: Is an AI that helps institutions to automate financial aid applications, identify students who may be eligible for scholarships or other forms of aid, and provide personalized support to students.

10. Curriculum development: Is an AI used to analyze trends in the job market and identify the skills and knowledge that students will need in the future, informing the development of new curricula and programs (Southworth et al., 2023; Chiu et al., 2023 & Hopcan et al., 2022).

Subjects and Moderating Variables of the Study

The subjects for this study are male and female business education lecturers with different levels of educational attainment and years of teaching experience in government tertiary institutions in Rivers State. Ezenwafor & Ukata, (2022a) averred that how well lecturers demonstrate the knowledge of AI related teaching experience depend on their level of educational qualification, training and retraining, age and teaching experience. For example, lecturers with higher degrees such as (PhD and M.Sc. /M.Ed.) are expected to possess higher knowledge and skills with AI related teaching experience than those with HND/B.Sc./B.Ed (Ukata & Udeh, 2022; Ezenwafor & Ukata, 2022b). Accordingly, Ukata and Okeke, (2023), Ukata and Nmihelle, (2022), Ukata and Amini, (2022) claimed that teaching experience and age are among the factors that influence lecturers' knowledge and skills with AI related teaching experience because, younger and experienced lecturers are more likely to possess them higher than older and less experienced ones.

Also, lecturers who have spent above 10 years in teaching AI related courses are expected to possess higher knowledge and skills to be able to identify the types of AI and their power to be explored in improving the teaching of business education courses than those with 6 to 10 and 1 to 5 years teaching experience. Consequently, the study tested the influence of these respondents' variables of their educational attainment and years of teaching experience with AI related knowledge and skills in exploring the power of AI for improving the teaching of business education courses in government tertiary institutions in Rivers state.

Statement of the Problem

Artificial Intelligence (AI) as an aspect of information and communication technologies (ICTs) appear to be rapidly transforming various industries, including education. The power of AI seems to have not been explored in the Nigeria educational system to improve teaching and learning process, enhance students' learning outcomes, and streamline administrative tasks in tertiary institutions. In recent years, AI in schools appears to offer multiple possibilities for school administrators, teachers, and students. Despite many available types of AI and rich benefits in improving teaching, learning and administrative tasks, nothing about AI was mentioned in the Core Curriculum and Minimum Academic Standard for Nigerian University System (CCMAS) of Business Education programme published by the National Universities Commission in 2022. Also, not much about AI has been noticed in the Nigeria educational system and exploring its power in improving the teaching of business education courses in tertiary institutions in Rivers State. The researchers are highly worried that AI has not been incorporated into the teaching of business education courses, and business education lecturers seem not to have given the needed attention to the various types of AI available and exploring them in the teaching and learning process. The reasons may be associated with not being specifically mentioned in the curriculum, lack of knowledge about the available types of AI and skills required to deploy and explore the power of

AI in improving the teaching business education courses. Therefore, the justifications for the study, "exploring the power of artificial intelligence (AI) for improving the teaching of business education courses in government tertiary institutions in Rivers state." The study will reveal the necessity for including AI in the curriculum via yearly internal review process by lecturers, the types of AI and their power to be explored in improving the teaching of business education courses in government tertiary institutions in Rivers State. Findings

of this study will close the gap in the body of knowledge since there is no study with exact purpose like this. It will as well provide empirical data to enable stakeholders suitably address the issues arising from exploring the power of artificial intelligence (AI) for improving the teaching of business education courses for AI employability skills development among graduates to reduce the level of unemployment in Rivers state in specific and Nigeria at large.

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

1. There is no significant difference in the mean rating of male and female business education lecturers on the types of AI to be explored for improving the teaching of business education courses in government tertiary institutions in Rivers State based on their educational attainment.
2. Male and female business education lecturers do not differ in their mean rating on exploring the power of AI for improving the teaching of business education courses in government tertiary institutions in Rivers State based on their years of experience.

Methodology

The study adopted a descriptive survey research design. Descriptive survey research design was deemed appropriate since it sought to obtain the views of Business Education lecturers on the topic. The population of the study was 99 lecturers. Federal College of Education (Technical) Omoku 57, Rivers State University 21 and Ignatius Ajuru University of Education 12. Census survey was adopted to sample all the 99 business education lecturers because it was of manageable size. The instrument used for data collection was a self-designed four-point response options questionnaire titled “Exploring the Power of Artificial Intelligence (AI) for Improving the Teaching of Business Education Courses ((EPAIITBEC)”. It contains two sections. Sections A and B. Each section carries 15 items and were rated as very highly (4.50 - 500), highly (3.50 - 4.49), moderately (2.50 - 3.49), and lowly (1.50 - 2.49). The questionnaire was subjected to face and contents validation by three experts from the Faculty of Education in Nnamdi Azikiwe University, Awka. The measure of internal consistency method was used to establish the reliability of the instrument. The instrument was administered to 15 lecturers from the University of Uyo who were not part of the population of the study. Cronbach's alpha was applied to compute the reliability coefficient which yielded alpha values of 0.79 and 0.78. These high reliability coefficients show that the instrument was reliable for the study as recommended by Nworgu (2015) that a research instrument with a reliability index of 0.70 and above is reliable. The researchers personally administered the copies of the questionnaire to the respondents in their schools with the help of three research assistants who were adequately briefed on the modalities to follow. The researcher(s) first visited each of the tertiary institutions and sought consent from the relevant Heads of Department for the study. Thereafter, the researcher(s) and assistants visited each school and handed over the required number of copies of the instrument to the Heads of the Department to distribute to the business education lecturers for completion and, revisited after five working days to retrieve the completed copies. Eighty-two copies of the instrument, representing 83%, were correctly filled, retrieved and used for data analysis. The arithmetic mean and standard deviation were used to answer the two research questions and ascertain how homogeneous or heterogeneous the respondents' opinions were relative to the questionnaire items and the aggregated mean. The one-way analysis variance (ANOVA) was used to test the null hypothesis at 0.05 level of significance. The ANOVA was used for the two null hypotheses because it measured one categorical independent variable with three levels of moderating variables. A null hypothesis was accepted where the calculated significant (Sig.) value, (p- value) was greater than or equal to ($\geq$) the alpha value of 0.05. Otherwise, the null hypothesis was rejected. The data analysis was carried out using Statistical Package for Social Sciences (SPSS) version 25.

Result Presentation, Analysis and Discussion

Research Question 1

What are the types of AI needed to be explored for improving the teaching of business education courses in government tertiary institutions in Rivers State?

Table 1: Respondents' mean ratings on the types of AI needed to be explored for improving the teaching of business education courses

SN Types of AI needed for Improving the teaching of business education courses		$\bar{X}$ SD		Remarks	N = 82	
1	Mavis Beacon Teaches Typing	3.61	.88	Highly		
2	ChatGPT and Chatbots	3.64	.92	Highly		
3	Intelligent tutoring systems	3.73	.81	Highly		
4	Text to image converter (I love my pdf)	3.71	.89	Highly		
5	Turnitin, Eagle Scan	3.72	.85	Highly		
6	AI-direct, learner-as-recipient	3.75	.84	Highly		
7	AI-supported, learner-as- collaborator	3.60	.88	Highly		
8	AI-empowered, learner-as-leader	3.69	.92	Highly		
9	Quillbot Paraphrasing Tool	3.76	.81	Highly		
10	Based Mentorship and Networking	3.79	.81	Highly		
11	Contents Technologies	3.74	.79	Highly		
12	Market Research and Trend Analysis	3.72	.85	Highly		
13	Intelligent tutoring systems	3.67	.84	Highly		
14	Student performance prediction	3.64	.88	Highly		
Aggregate Mean		3.69		Highly	15	Zotero
	3.67 .91 Highly					

Table 1 shows that all the 15 listed as types of AI were highly needed to be explored for improving the teaching of business education courses with mean scores that ranged from 3.61 to 3.79. In the same manner, the aggregated mean score of 3.69 also shows that all the listed types of AI were highly needed to be explored for improving the teaching of business education courses. The standard deviations for the 15 listed items ranged within 0.78 to 0.91 which shows that respondents were homogeneous in their opinions that all the listed types of AI needed to be explored for improving the teaching of business education courses in government tertiary institutions in Rivers State.

Research Question 2

How do exploring the power of the different types of AI lead to improving the teaching of business education courses in government tertiary institutions in Rivers State?

Table 2: Respondents' mean ratings on exploring the power of the different types of AI for improving the teaching of business education courses

SN	Benefits of the application of the types of AI stated in	SD	Remarks	$\bar{X}$	Remarks
16	Mavis Beacon Teaches Typing teaches keyboarding skills	4.55	.83	Very Highly	(touch typing)
17	ChatGPT and Chatbots are online customers and learners	4.53	.81	Very Highly	support
18	Intelligent tutoring systems provides feedback to students,	4.54	.84	Very Highly	adapt to their individual learning needs, and track their progress

19	Text to image converter (I love my pdf) assist to convert	4.52	.88	Very Highly documents of different forms into different format for use
20	Turnitin is for anti-plagiarism detection and academic fraud	4.51	.92	Very Highly
21	AI-direct see the learner-as-recipient during teaching and	4.52	.82	Very Highly learning
22	AI-supported see the learner-as- collaborator during	4.51	.81	Very Highly teaching and learning
23	AI-empowered see the learner-as-leader in teaching and	4.54	.80	Very Highly learning
24	Quillbot paraphrasing tool assist to summarizes sentences,	4.53	.85	Very Highly checks grammar and plagiarism, translate and create citations
25	Palitt assists instructors to easily create “their own custom	4.52	.81	Very Highly lecture series, syllabus or textbook.
26	Contents Technologies assist in instructional design and	4.51	.85	Very Highly contents creation
27	Personalized learning AI is used to create customized	4.50	.84	Very Highly learning paths for individual students
28	Intelligent tutoring systems track learners progress and	4.52	.88	Very Highly gives feedback
29	Student performance prediction predicts which students	4.52	.92	Very Highly may be at risk of falling behind and intervene early
30	Zotero helps you to organize, cite, reference and share your	4.52	.81	Very Highly research sources.

Aggregate Mean 4.52 Very Highly

Table 2 shows that all the 15 different types of AI stated were very highly powerful to be explored for improving the teaching of business education courses with mean scores that ranged from 4.50 to 4.55. The aggregated mean score of 4.52 also shows that all the different types of AI stated were very highly powerful to be explored for improving the teaching of business education courses. The standard deviations for the 15 listed items ranged within 0.80 to 0.92 which shows that respondents were homogeneous in their opinions that all the different types of AI were as well very highly powerful to be explored for improving the teaching of business education courses in government tertiary institutions in Rivers State.

Hypotheses Testing

Table 3: ANOVA summary of lecturers on the types of AI needed to be explored for improving the teaching of business education courses based on educational attainment.

Sources of Variance	Sum of Squares	Df.	Mean Square	F-cal.	Sig.	Decision
Between Groups	2.458	2	1.239	1.289	.283	Accept H ₀₁
Within Groups	53.357	80	.779			
Total	58.615	82				

Table 3 shows a calculated F-value of 1.28 with a significant (sig.) p-value of 0.28 which is greater than the alpha value of 0.05 (0.28 > 0.05) at degrees of freedom of 2 and 80. Therefore, the null hypothesis (H₀₁) was accepted. This means that there is no significant difference in the mean rating of male and female business education lecturers on the types of AI to be explored for improving the teaching of business education courses in government tertiary institutions in Rivers State based on their educational attainment.

Table 4: ANOVA summary of lecturers on exploring the power of AI for improving the teaching of business education courses based on their years of experience.

Sources of Variance	Sum of Squares	Df.	Mean Square	F-cal.	Sig.	Decision
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Between Groups	1.841	2	.840	1.271	.282	Accept H_{02}
Within Groups	47.959	80	.794			
Total	48.600	82				

Data on Table 4 show a calculated F-value of 1.27 with a significant (sig.) p-value of 0.28 which is greater than the alpha value of 0.05 ($0.28 > 0.05$) at degrees of 2 and 80. Therefore, the null hypothesis (H_{02}) was accepted. This means that male and female business education lecturers do not differ in their mean rating on exploring the power of AI for improving the teaching of business education courses in government tertiary institutions in Rivers State based on their years of experience.

Discussion

Findings of the study shows that all the listed types of AI were highly needed to be explored for improving the teaching of business education courses in government tertiary institutions in Rivers State. The finding agrees with Forero-Corba and Negre Bennasar, (2024) who argued that AI in schools offers multiple possibilities for school teachers, administrators and students. One example is ChatGPT, the latest version, GPT-4, which is usually integrated into software such as Microsoft Office, Edge, and Bing for optimizing educational tasks. The findings also concur with Ouyang and Jiao (2021) as they identified three AIE paradigms to include: “AI-direct, learner-as-recipient”, “AI-supported, learner-as- collaborator”, and “AI-empowered, learner-as-leader” as other types of AI for teaching and learning. Furthermore, the findings see eye to eye with Ukata and Agburuga (2024), Gentle (2024) who identified Mavis Beacon Teaches Typing, QuillBot, (2024) that indicated Quillbot Paraphrasing Tool, and Online Degrees (2024) that outlined Palitt, Contents Technologies, Personalized learning among others as types of AI needed for teaching and learning business education courses. The fact that all the lecturers indicated that all the types of AI listed are highly needed for improving the teaching business education courses is a serious call that they should be urgently included in the business education curriculum, and lecturers should do internal inclusion during teaching and learning while waiting for national curriculum review. The findings of the study as well shows that all the types of AI stated were very highly powerful to be explored for improving the teaching of business education courses. Finding of the study harmonises with the views of Veletsianos, (2019), Online Degrees, (2024), Smith, (2022), Zhang and Aslan, (2021); Chiu et al., (2023) who identified ChatGPT and Chatbot as online chat channel for students and customer supports, Turnitin for plagiarism academic fraud detection. Also, AI personalised educational resources, improved classroom management, enhanced teaching across various subjects, and created academic progress facilitation. The finding further agrees with the views of Broderbund, (2024), that Beacon Teaches Typing teach various class of learners keyboarding skills (touch typing), while Libraries Central Michigan University, (2024) noted that Zotero AI allows teachers and learners to organize their work, do citations, save references from library catalogues, research databases, and the web. Findings of the study further show that there is no significant difference in the mean rating of male and female business education lecturers on the types of AI to be explored for improving the teaching of business education courses in government tertiary institutions in Rivers State based on their educational attainment.

This finding corresponds with the report of Ezenwafor and Ukata (2022a) that how well lecturers explore the types of AI in improving the teaching of courses depend on their level of educational qualification, training and retraining. Additionally, finding of the study indicates that male and female business education lecturers do not differ in their mean rating on exploring the power of AI for improving the teaching of business education courses in government tertiary institutions in Rivers State based on their years of experience. The finding concurs too with the opinions of Ukata and Okeke, (2023), Ezenwafor and Ukata, (2022b) Ukata and Nmihelle, (2022) who claimed that teaching experience and age are among the factors that influence lecturers’ knowledge and skills on exploring the power of AI with related teaching experience because, younger and experienced lecturers are more

likely to possess them higher than older and less experienced ones in tertiary institutions in Rivers State. The fact that all the lecturers indicated that teaching experience and age are factors that influence exploring the power of AI for improving the teaching of business education shows that younger lecturers with best academic qualifications and experience should be employed to teach business education courses.

Conclusion

Based on the findings that emanated from the discussions of the study, it was concluded that if the various types of AI mentioned and discussed are included in the teaching of business education courses, it will transform business education programme positively, leading to AI skills development and enable the learners to acquire the needed employability skills for the global workplace. Additionally, it was concluded that educational attainment and years of teaching experience play vital roles in exploring the power of the types of AI with great benefits of improving the teaching of business education courses at tertiary institutions. Finally, it was concluded that because the needed AI employability skills will be acquired by learners if included and taught to learners, it will assist drastically to reduce the high rate of unemployment among business education graduates in Rivers state in particular and Nigeria in general.

Recommendations

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

1. AI should be included during the teaching of business education courses through yearly internal curriculum review by lecturers in collaboration with the authorities of their various institutions, and five years national review by the federal government for teaching business education curriculum, since all the types listed are highly needed to be explored for improving the teaching of business education courses. Federal, state and local governments should provide enough funding for the procurement of AI equipment to enable lecturers and students to have access to them for better teaching and learning experience. Heads of institutions running business education programmes should fund the procurement of AIs facilities via internally generated revenue.
2. Since whatever knowledge one acquires remains with the person, the business education lecturers should make personal sacrifices from their earnings and engage in AI training through online and offline short courses to enable them acquire a very high AI knowledge and skills to teach business education courses as well as sustain and remain relevant in their areas of operations. Tertiary institutions running business education should send lecturers on AI specialised training to aid them in gaining the needed skills since the training may be expensive for lecturers to bear.
3. Since the level of educational attainment and years of experience play vital roles in identifying the types and exploring the benefits of AIs needed in improving the teaching of business education, younger business educators with the required academic qualifications and years of experiences should be employed by institutions running the programme. These will assist in the implementation of AI curriculum and transferring AI skills to learners to acquire the needed employability skills.

References

- Amesi, J. & Peterside, T. R. (2024). Artificial intelligence tools in business and entrepreneurship education for improved learning outcomes. Presented at the 3rd International/36th Annual National Conference of

Association of Business Educators of Nigeria (ABEN) Held in Abuja at Chinua Achebe International Conference Centre, Mamman Vatsa Writers Village, Mpape, Abuja from 9th -11th October, 2024.

- Broderbund (2024). Mavis Beacon teaches typing anniversary edition. Retrieved from <https://www.broderbund.com/mavis-beacon-teaches-typing-anniversary-edition> on August 3rd, 2024.
- Chiu, T., Xia, Q., Zhou, X., Chai, C. S. & Cheng, M., (2023). Systematic literature review on opportunities, challenges, and future research recommendations of artificial intelligence in education. *Computers and Education: Artificial Intelligence*, 4 (1). <https://doi.org/10.1016/j.caeai.2022.100118>.
- Cope, B., Kalantzis, M. & Sears, D., (2021). Artificial intelligence for education: Knowledge and its assessment in AI-enabled learning ecologies. *Educational Philosophy and Theory*, 53(12), 1229-1245. <https://doi.org/10.1080/00131857.2020.1728732>.
- Ezenwafor, J. I. & Ukata, P. F. (2022a). ICTs instructional competencies possessed by lecturers for implementing OTM curriculum in public tertiary institutions in Rivers state. *NAU Journal of Technology & Vocational Education*, 7 (1), 73-81.
- Ezenwafor, J. I. & Ukata, P. F. (2022b). Level of lecturers' possessed leadership instructional competencies in implementing OTM curriculum in public tertiary institutions in Rivers state for acquisition of employability skills among students. *International Journal of Education and Evaluation*, 8 (8), 23-35
- Forero-Corba, W., & Negre Bennasar, F. (2024). Techniques and applications of machine learning and artificial intelligence in education: a systematic review. <https://doi.org/10.5944/ried.27.1.37491>
- Gentle, D. (2024). Mavis Beacon, 'the world's greatest typing teacher,' does not want to be found by Oakland filmmakers. Retrieved from <https://www.sfgate.com/sf-culture/article/mavisbeacon-teaches-typing-documentary-18635435.php> on August 3rd, 2024.
- Gupta, A. (2020). Artificial intelligence in education: A systematic literature review. *Education and Information Technologies*, 25(5), 4389-4418. doi: 10.1007/s10639-020-10287-3.
- Hopcan, S., Polat, E., Ozturk, M. E. & Ozturk, L. (2022). Artificial intelligence in special education: A systematic review. *Interactive Learning Environments*, 1 (1), 1-9. <https://doi.org/10.1080/10494820.2022.2067186>.
- Igbokwe, I. C. (2023). Application of artificial intelligence (AI) in educational management. *International Journal of Scientific and Research Publications*, 13 (3), 300-307.
- Khosravi, H., Shum, S. B., Chen, G., Conati, C., Tsai, Y. S., Kay, J., Knight, S., Martinez- Maldonado, R., Sadiq, S. & Gasevic, D. (2022). Explainable artificial intelligence in education. *Computers and Education: Artificial Intelligence*, 3(1) 1-22. <https://doi.org/10.1016/j.caeai.2022.100074>.
- Libraries Central Michigan University, (2024). Zotero and how it works: Zotero? What is it? Retrieved from [https://libguides.cmich.edu/Zotero#:~:text=Zotero%20\(pronounced%20%22zoh%2D%20TAIR,research%20databases%2C%20and%20the%20Web](https://libguides.cmich.edu/Zotero#:~:text=Zotero%20(pronounced%20%22zoh%2D%20TAIR,research%20databases%2C%20and%20the%20Web) on 3rd August, 2024.

- National Universities Commission (2022). Core curriculum and minimum academic standard for Nigerian university system (CCMAS). A publication of the National Universities Commission, Abuja, Nigeria.
- Nworgu, B. G. (2015). Educational research: Basic issues & methodology. Enugu: University Trust Publishers.
- Online Degrees, (2024). 43 examples of artificial intelligence in education. Retrieved from <https://onlinedegrees.sandiego.edu/artificial-intelligence-education/> on the August 25th, 2024.
- Ouyang, F. & Jiao, P., (2021). Artificial intelligence in education: The three paradigms. Computers and Education: Artificial Intelligence, 2 (1), 1-6. <https://doi.org/10.1016/j.caeai.2021.100020>.
- Pattam, A. (2021). Artificial intelligence, defined in simple terms. Retrieved from <https://www.hcltech.com/blogs/artificial-intelligence-defined-simpleterms#:~:text=Artificial%20intelligence%20is%20the%20science,decisions%2C%20and%20judge%20like%20humans> on July 20th, 2024.
- QuillBot, (2024). How does QuillBot work? Retrieved from <https://quillbot.com/blog/quillbottools/how-does-quillbot-work/> on August 3, 2024.
- Singh, V., & Singh, A. (2021). Role of artificial intelligence in educational management. Journal of Education and Practice, 12(12), 78- 85.
- Smith, J. (2021). Applications of AI in educational management. International Journal of Educational Technology in Higher Education, 18(1), 1-17. <https://doi.org/10.1186/s41239021-00279-9>.
- Smith, J. (2022). Applications of artificial intelligence in educational management. Educational Technology Research and Development, 70(2), 457-478. <https://doi.org/10.1007/s11423022-09981-1>.
- Southworth, J., Migliaccio, K., Glover, J., Glover, J., Reed, D., McCarty, C., Brendemuhl, J. & Thomas, A. (2023). Developing a model for AI Across the curriculum: Transforming the higher education landscape via innovation in AI literacy. Computers and Education: Artificial Intelligence, 4 (1), 1-10. <https://doi.org/10.1016/j.caeai.2023.100127>.
- Surugiu, C., Grădinaru, C. & Surugiu, M. R. (2024). Artificial intelligence in business education: Benefits and tools. Amfiteatru Economic, 26 (65), 241-258.
- Ukata P. F. Wechie, N. & Nmehielle, E. L. (2017). Instructional strategies and teaching of business education in Rivers state. International Journal of Education and Evaluation, 3 (9), 20-36.
- Ukata, P. F. & Amini, M. C. (2022). Digital entrepreneurial skills acquired by business education undergraduates for decent works in tertiary institutions in Rivers state. International Journal of Innovative Education Research, 10(2), 99-108.
- Ukata, P. F. & Nmehielle, E. L. (2020). Roles of direct and indirect instructional strategies in teaching and learning courses in Rivers state universities: The Conflict and Resolution. International Journal of Education and Evaluation (IJEE), 6 (4), 56 – 73.

- Ukata, P. F. & Udeh, C. P. (2022). Utilization of new technologies by business education lecturers for teaching accounting courses in tertiary institutions in Rivers state. *International Journal of Innovative Information Systems & Technology Research*, 10(2), 29-38.
- Ukata, P. F. Silas-Dikibo, I. D. (2020). Extent of students` satisfaction with business experiences acquired through business education programmes in Rivers state universities. *World Journal of Entrepreneurial Development Studies (WJEDS)*, 5 (2), 1 - 11.
- Ukata, P. F. & Agburuga, V. (2024a). 3rd International/36th Annual National Conference of Association of Business Educators of Nigeria (ABEN) Held at Abuja nat Chinua Achebe International Conference Centre, Mamman Vatsa Writers Village, Mpape, Abuja from 9th 11th October, 2024. Application Of Artificial Intelligence (AI) In Teaching Business Education Courses in Rivers State Tertiary Institutions.
- Ukata, P. F. & Agburuga, V. (2024b). 3rd International/36th Annual National Conference of Association of Business Educators of Nigeria (ABEN) Held in Abuja at Chinua Achebe International Conference Centre, Mamman Vatsa Writers Village, Mpape, Abuja from 9th 11th October, 2024. Challenges Lecturers Faced and Solutions to the Application of Artificial Intelligence (AI) in Teaching Business Education Courses in Rivers State Tertiary Institutions.
- Ukata, P. F. & Nmiehelle, E. L. (2022). Utilization of multimedia technologies by lecturers for instructional delivery of OTM courses in tertiary institutions in Rivers State. *Journal of Management & Environmental Studies*, 1 (2), 275-287.
- Ukata, P. F. & Okeke, V. N. (2023). Survey of corruption and falling standard of education in tertiary institutions in Rivers and Anambra states with impact on Nigeria. *International Journal of Current Educational Studies*, 2 (1), 62-76.
- Ukata, P. F. & Silas – Dikibo, I. D. (2019). Challenges of Teaching and Learning Business Education with New Technologies in Rivers State Universities. *Contemporary Research in Education and English Language Teaching*, (1), 7-18.
- Ukata, P. F. & Wechie, N. (2020). Students` Satisfaction and Technological Learning Experiences Acquired Through Business Education Programme in Rivers State Universities. *Kobia International Journal of Education Humanities and Social Science*, 1 (1), 80 - 99.
- Ukata, P. F. (2019). Business education students` learning experiences and programme satisfaction. Germany: Lap Lambert Academic Publishing.
- Ukata, P. F. (2019a). Practical Entrepreneurship Education as a Sustainable Economic Diversification and Development in Nigeria: A Case of Rivers State Tertiary Institutions. *International Journal of Development and Economic Sustainability (IJDES)*, 7 (7), 1 – 24.

- Ukata, P. F. (2019b). Challenges and Solutions of Acquiring Environmental Teaching and Learning Experiences of OTM Programme in Rivers State Polytechnics. *International Journal of Education, Learning and Development (IJELD)*, 7 (11), 22 – 40.
- Ukata, P. F., Adejola, B. C. & Okoye, A. J. C (2018). Business education students learning experience and programme satisfaction in Rivers state university. *World Journal of Innovation and Modern Technology*, 2 (1), 9-34.
- Veletsianos, G. (2019). A case study of machine learning in education: Shifting ontologies. *Educational Researcher*, 48(7), 397-405.
- Zafari, M., Sadeghi-Niaraki, A., Choi, S. M., & Esmaily, A. (2021). A practical model for the evaluation of high school student performance based on machine learning. *Applied Sciences (Switzerland)*, 11(23). <https://doi.org/10.3390/app112311534>.
- Zhang, K. & Aslan, A. B. (2021). AI technologies for education: Recent research and future directions. *Computers and Education: Artificial Intelligence*, 2 (1), 1-11. <https://doi.org/10.1016/j.caeai.2021.100025>.