BUSINESS EDUCATION LECTURERS AWARENESS AND UTILIZATION OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES FOR TEACHING BUSINESS EDUCATION COURSES IN FEDERAL COLLEGE OF EDUCATION, OBUDU, CROSS RIVER STATE. NIGERIA

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Abstract
The study empirically investigated the extent of business education lecturers' awareness and utilization of Artificial Intelligence (AI) technologies for teaching business education courses in Federal College of Education, Obudu, Cross River State. To achieve the objective two research questions and two hypotheses were formulated to guide the study. A descriptive survey research was adopted for the study. The population consist of 24 business education lecturers. A validated researcher made four point rating scale questionnaire titled: Awareness and Utilization of Artificial Intelligence for Teaching Questionnaire (AUAITQ) was used for data collection. The reliability was checked by Cronbach alpha procedure. The procedure yielded an overall index of 0.83. The reliability index for awareness of AI technologies by business education lecturers' data was 0.70 and that of utilization of AI technologies by business education lecturers was 0.81.twenty four copies were distributed and collected on a face- to-face basis. Data were analyzed using mean, standard deviation and t- test of independent samples. Mean and standard deviation were used to describe the data on awareness and utilization of AI. t-test was used to check if any differences existed in the mean ratings of awareness and utilization by the respondents. The hypotheses were tested at $p< 0.05$ level of significance. The findings revealed very high extent level of awareness of AI technologies among lecturers, but a very low in utilization. The t- test results showed no significant difference in awareness levels amongst lecturers. The study recommended that Federal College of Education Management should regularly organize hands on and professional training programmes and retreat for lecturers to teach and effectively use AI.

Keywords: Awareness, Utilization, Artificial Intelligence and Business education

Introduction

With the advancement of new technologies in the world, it is imperative that business education lecturers in Cross River State should be interested in how to utilize these technologies in teaching students in the classroom. Many digital tools have emerged to aid literature search, research authoring, reference tracking, journal choice, teamwork, networking and information sharing (Alordiah, Osagiede, Omumu, Okokoyo, Emiko- Agbajor, Chenuve & Orji, 2023). There are many instructional digital materials and activities that are available, altering how lecturers are conducted. Among these new technologies is the emerging artificial intelligence. The integration of artificial intelligence into business education depends on the lecturers' level of awareness and ability to effectively utilize it. The integration of technology into the teaching and learning process has brought about significant changes in education, including the modernization of conventional teaching methods and the creation of new opportunities for both teachers and students. Tan (2020) underlies that the lecturer exerts a triple role, being a content expert and creator, a knowledge spreader and "an ethical spiritual guide" with wisdom. The students should be able to chase trends and not just stay current with the events and environment (Elhajjar, Karam and

Borna, 2021). Hence the demand for innovative lecturers embracing change, integrating new materials, and enabling student- AI interactions in education is increasing.

Awareness is a crucial factor to effective utilization. Utilization refers to the effective and efficient use of artificial intelligence technologies in supporting teaching, learning and educational decision making (Rutherford et al, 2020). Awareness of Artificial Intelligence (AI) in education involves teachers' ability to recognize the capabilities and limitation of AI- powered tools as well as their potential impact on student learning outcomes, data privacy and the teaching profession as a whole (Wong et al, 2021). Adebayo et al (2021) submitted that through the awareness and utilization of AI in education, the teacher can be freed from certain routine tasks and can concentrate on establishing links with students getting to know them and mastering skills that will accompany them on their journey towards their human development. The use of AI in teaching and learning takes the form of personalized learning, tutoring, testing and automated task (Srugu, Gradinaru & Surugiu in Ikechukwu, Okafor & Auzu, 2024). Business educators cannot utilize AI except they are aware of the different applications in education. However, the integration of AI into business education requires the cooperation and acceptance of business education lecturers.

Artificial Intelligence (AI) is a term coined by Mccarthy in 1955, which he regarded as the science and engineering of making intelligent machines. AI can be defined according to IBM Cloud Education (2020) as a technology that uses computer programs to perform human intelligent tasks, such as image recognition, speech understanding and decision making. According to Ukeh and Anih (2024), AI has emerged as a transformative force across various sectors offering innovative solutions to complex problems.

According to OECD in Olaniyi and Ajoke (2025) an artificial intelligence (AI) system is a machine based system that may influence the environment by producing an output (judgments, suggestions, of forecasts) for a given sets of goals. It uses machine or human based data and inputs to perceive the real and/ or virtual world; it analyses these perceptions manually or automatically (e.g. through machine learning): it then uses model inference to provide alternative outcomes. Different levels of autonomy are built into AI systems. Artificial Intelligence typically consists of four fundamental ideas. (1) Behaving humanoid: this refers to computers behaving humanoid, (2) thinking humanely: this refers to carrying out intellectually demanding tasks that necessitate self- reflection, psychological evaluations and brain imaging, (3) reasonable thinking refers to how people think according to a set of standards, and (4) reasonable behaviour refers to how people behave within predetermined parameters in particular circumstances. AI has the potential to fundamentally alter higher education and improve student learning across a wide range of subjects, particularly business education at all levels (Schroeder, 2019). Furthermore, Kanade (2022) defined AI as the intelligence of a machine or computer that enables it to imitate or mimic human capabilities. Artificial Intelligence in education is expected to grow significantly in the coming decades, presenting new opportunities and challenges (Zhang and Aslan, 2021; Khosravi et al, 2022). Researchers, policy makers and practitioners are integrating AIED to enhance teaching, personalized learning, assessments and administrative services (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 ChatGPT, Natural Language Processing (NLP), Robotics, Chatbots, Artificial General Intelligence (AGI), AI Resources etc. (Chiu et al, 2023). The application of AI in instructional delivery may also benefit lecturers by providing them with insights into how their students are learning and where they may be struggling. This may help the lecturers to identify areas where they need to provide additional support and adjust their teaching strategies to better meet the needs of their students.

AI promotes personalized productive learning behavior, such as self- regulation, self- monitoring, and self- explanation as it provides learning activities at the learners' pace and with the most appropriate content, timely guidance, feedback and explanations (Fernandez et al, 2019). Intelligent Tutoring Systems provide personalized learning to learners, automatic correction of

certain kinds of school work, which enables lecturers to have time for other tasks help lecturers adjust their courses to some extent, provide ongoing feedback on students' assessment. For example, courser and MOOC platforms are using AI technology to inform teachers when too many students answer a question incorrectly (Karsenti, 2019).

Business education lecturers are also referred to as business educators. They are professionals, trained and qualified to teach business education courses or subjects at different levels with the aim of shaping the minds of future business teachers and business leaders. According to Oluchi and Pyiki (2019) considered business educators as facilitators through which the students can acquire the right skill, knowledge, ability and competency to excel in the high tech office of today. Also, Igwe et al (2023) defined business lecturers as individuals who are well trained and groomed in principle and in practice in the broad field of business education. They are responsible for imparting knowledge and skills in broad areas of business, such as accounting, marketing, management and entrepreneurship. Business educators perform their task by preparing and delivering effective instructions. They are also concerned with preparing students to succeed in their businesses and teaching fields. They help to empower students to become ethical decision makers, effective communicators and innovative thinkers in their lives.

Business education as a component of vocational education, according to Alabi (2021) is a part of the total educational programme. Business education is a course offered in universities, colleges of education and polytechnics. It is a programme designed to equip learners with both academic and vocational skills needed for both salaried jobs and self – employment as entrepreneurs (Odike & Nnaekwe, 2019). According to Amah and Moore (2022), through business education, the behaviour patterns of citizens could be trained in the desired direction. It can develop the learners' intellectual, moral, emotional and physical power to enable them contribute in human capital development (Odike & Nnaekwe, 2019). The integration of technology in business education offers numerous advantages. Firstly, technology enhances interactivity and engagement through simulations, digital tools and online platforms leading to improved learning outcomes and better preparedness for the workplace.

Business education stands to benefit from AI integration. Business education programs often require the development of critical thinking, problem solving, and decision making skills which can be effectively supported by AI tools. AI can facilitate experiential learning through simulations and virtual environments, enabling students to apply theoretical knowledge in practical scenarios (Alamro & Schofield, 2020). Business education lecturers in federal colleges of education can leverage artificial intelligence to: automate administrative tasks, provide feedback, enhance content delivery, and facilitate collaboration. That is, AI can help lecturers monitor students' progress, identify learning gaps, grade assignments and customize curriculum. Research on the impact of artificial intelligence utilization in the classroom indicates that when teachers effectively integrate artificial intelligence tools, they can improve students' engagement, provide personalized learning experiences, and optimize administrative tasks (Liao, et al., 2020). However, Molnar (2019) in a study revealed that majority of teachers lack knowledge on the use of artificial intelligence in classroom delivery. The author further stresses the importance of teachers' readiness and competence in utilizing artificial in telligence tools effectively. Studies show that the extent to which teachers' adoption of Artificial intelligence tools varies across educational contexts. Factors influencing adoption include teachers' familiarity with technology, training opportunities and the availability of AI resources (Hew, 2019). Teachers' need to be well prepared and confident in their ability to use AI- based applications to support their teaching methods. Researches carried out indicates that for AI to be effectively integrated into educational systems there must be a concerted efforts to build capacity among educators and students. This includes providing access to AI tools, offering training programs to develop digital literacy and technical skills and fostering awareness, culture, of innovation and experimentation (Alamro & Schofield, 2020). AI tools can stimulate real world business scenarios, provide instant feedback,

and adapt instructional materials to meet the specific needs of each student, enhancing understanding and retention (Johnson, 2018). AI signifies educational progress, providing countless advantages and driving the transformation of teaching and learning through artificial intelligent tools. Despite all the advantages attributed in using AI, it is important that lecturers and students in business education become familiar with the different types of AI technologies to effectively utilize them; also, they should be aware of the AI tools available for use in teaching and learning in business education. Lecturers who are competent in using artificial intelligence technologies can experience improved job performance in various aspects. These improvements may include enhanced instructional delivery, better student engagement, more personalized learning experiences, and increased efficiency in administrative task.

Despite, the benefits of utilizing AI to improve the quality and effectiveness of teaching and learning process, assessment and professional development of lecturers. Research evidence has shown a low degree of modern technologies for education usage among lecturers (Nannim et al., 2018; Amuchie, 2015; Onah et al., 2020). It is on this background that this study aim to investigate business education lecturers' awareness and utilization of artificial technology for teaching business education courses in Federal College of education, Obudu. Cross River State.

Statement of the Problem

There is an urgent need to emphasize on the use of AI technologies as instructional method of teaching and learning in business education programmes in tertiary institutions and incorperated into business education curriculum in line with what is obtainable in other parts of the world. Adapting to new technologies in teaching comes with barriers that lecturers require enough time to understand and use them. Business education lecturers to come to terms with adapting and acquiring the necessary skills to utilize these modern technologies or face distinction.

Currently, some business education lecturers in Federal college of education in Cross River State appear not to be conversant with the utilization of AI in teaching. Some who claim to be aware of these technologies are struggling on how to utilize them in teaching maximally in the classroom operations, while some lecturers also lack the technical know- how as well as awareness of AI technologies and its application in the classroom. As a result of these some lecturers still depend on using textbooks notebooks to teach in the classroom hindering teaching effectiveness. Based on these premise the study is carried out to determine the extent business education lecturers awareness and utilization of AI technologies in teaching business education courses in federal college of education, Obudu.

Research Questions

The following questions guided the study:

1) What is the extent of awareness among lecturers on AI technologies for teaching business education courses in federal college of education, Obudu, Cross River State?
2) To what extent do lecturers use AI technologies in teaching business education courses in federal colleges of education, Obudu, Cross River State?

Hypotheses

The following null hypotheses guided the study and was tested at 0.05 alpha level of Significance:

$H0_1$- There is no significant difference in male and female lecturers' awareness of AI technologies.

$H0_2$- There is no significant difference in the mean rating of male and female respondents on the extent of utilization of AI technologies.

Method

The study adopted a descriptive research. The total population used for the study comprised 24 business education lecturers in Federal college of education, Obudu. The entire population was

used for the study because of it manageable size, therefore, census sampling techniques was adopted for the study. The instrument for data collection was a researcher constructed questionnaire titled: Awareness and Utilization of Artificial Intelligence for Teaching Questionnaire (AUAITQ). The questionnaire contained 17 items and was assigned a scale of 4- points rating of Very High Extent (VHE), High Extent (HE), Low Extent (LE), and Very Low Extent (VLE). The instrument was validated by three experts, one from Measurement and Evaluation, Department of Science Education, Faculty of Education, Ebonyi State University, Abakaliki and the other two from Department of Business Education, Ebonyi State University, Abakaliki. The instrument was scrutinized in terms of their relevance, suitability, and clarity of items to the objective of the study, the instrument was subjected to test of reliability by administering 15 copies of the instrument on corresponding number of lecturers in Benue State College of Education, Katsina- Ala. The reliability was checked with Cronbach alpha procedure. The procedure yielded an overall index of 0.83. The reliability index for awareness of Artificial Intelligence by business education lecturers' data yielded 0.70 and that of utilization of Artificial intelligence by business education lecturers yielded 0.81. The reliability indexes were considered good based on Cohen, Manion and Morrison (2018) criterion of 0.70 for good instruments. Twenty four copies were distributed and collected on a face-to-face basis. Data were analyzed using Mean and Standard deviation and t-test of independent samples. Mean and Standard deviation were used to describe the data on awareness and utilization of AI. T-test was used to check if any differences existed in the mean rating of awareness and utilization by the respondents. The hypotheses were tested at $p<0.05$ level of significance. All data analysis was run using IBM Statistical Package for Social Sciences (SPSS) software version 26.

Results

Research Question One

Table 1: Mean and Standard deviation of the respondents rating of lecturers' awareness of AI technologies in teaching business education courses

S/N	Awareness Statement	Mean	SD	Dec
1.	Business lecturer is aware artificial intelligence is used to prepare teaching materials	3.08	1.06	Very High Extent
2.	Awareness that artificial is used to programme customized lectures.	2.25	0.94	High Extent
3.	Business lecturer is aware that AI can be used to moderate examination questions	2.92	0.83	High Extent
4.	Business lecturer is aware that AI can be used to prepare course module	2.88	1.29	High Extent
5.	Awareness that AI can be used to detect plagiarism	3.25	0.74	Very High Extent
6.	Awareness that AI can be used to write codes.	2.71	0.95	High Extent
7.	Awareness that AI provides range of resources and tools for study	3.00	0.93	Very High Extent
	Grand Mean	**2.87**	**0.62**	**High Extent**

Source: Field Survey, 2025

VHE =Very High Extent

HE = High Extent

Results in Table 1 show that business lecturers are aware (2.92±0.83) that AI can be used to moderate examination questions, aware (2.88±1.29) that AI can be used to prepare course module and also aware (2.71±0.95) that AI can be used to write codes to a high extent. On the other hand they are aware (3.08±1.06) that AI is used to prepare teaching materials, aware (3.25±0.74) that AI can be used to detect plagiarism and aware (3.00±0.93) that AI provides range of resources and tools for study to a very high extent. Conversely the results show that

business lecturers are aware (2.25±0.94) that AI is used to programme customized lectures to a low extent. Overall, the results show that the lecturers are aware (2.87±0.62) of AI to a high extent. A look at the results could reveal that the standard deviation do not deviate so widely from the central mean.

Table 2: Mean and Standard deviation of the respondents rating of lecturers' utilization of AI technologies in teaching business education courses.

	AI technologies in teaching	Mean	SD	Dec
8.	ChatGPT	2.38	0.97	High Extent
9.	PowerPoint Speaker Coach	3.17	1.01	Very High Extent
10.	Ask Ai	3.00	0.93	Very High Extent
11.	Education Copilot	1.88	0.79	Low Extent
12.	Chatbots	2.00	0.88	Low Extent
13.	Lesson planning	2.71	0.99	High Extent
14.	Robotics	2.46	1.02	Low Extent
15.	Natural Language Processing (NLP)	2.71	1.12	High Extent
16.	Image Generation	2.33	1.09	Low extent
17.	Machine Learning	2.25	1.33	Low Extent
	TOTAL	**2.49**	**0.63**	**Low Extent**

Source: Field Survey, 2025
LE-Low Extent

Result in Table 2 show that the respondents utilized Power Point Speaker Coach (3.17±1.01) and ask AI (3.00±0.93) to a very high extent. However, they utilized Lesson Planning and Natural Language Processing (NLP) to a high extent. On the other hand, the lecturers utilized other technologies, including ChatGPT, Education Copilot, Chatbots, Robotics and Machine Learning, among others to a low extent. Overall, the results show that the respondents utilize (2.49± 0.063) AI technologies to a low extent. The standard deviation show that the responses do not vary so widely.

Table 3: Summary of t- test analysis on the mean ratings of male and female business education lecturers' awareness in the use of AI technologies in teaching business education courses in Federal College of Education, Obudu

S/N	Variables	Gender M(n=16) Mean	SD	F(n=8) Mean	SD	t	P
1.	Business lecturer is aware artificial intelligence is used to prepare teaching materials	2.88	1.20	3.50	0.53	1.389	0.179
2.	Awareness that artificial is used to programme customized lectures.	2.13	1.09	2.50	0.53	0.914	0.371
3.	Business lecturer is aware that AI can be used to moderate examination questions	2.88	0.81	3.00	0.93	0.341	0.736
4.	Business lecturer is aware that AI can be used to prepare course module	3.00	1.32	2.63	1.30	0.660	0.516
5.	Awareness that AI can be used to detect plagiarism	3.31	0.70	3.13	0.83	0.579	0.569
6.	Awareness that AI can be used to write codes.	2.81	0.83	2.50	1.19	0.749	0.462
7.	Awareness that AI provides range of resources and tools for study	3.00	1.09	3.00	0.53	0.001	0.998
	TOTAL	**2.86**	**0.63**	**2.89**	**0.63**	**0.130**	**0.897**

Source: Field Survey, 2025

Table 3 shows the summary of t-test analysis of awareness of AI in relation to gender of respondents. The data show that there are no significant differences in the awareness of AI in all the variables and overall (t= 0.130, p> 0.05) in relation to gender.

Table 4: Summary of t- test analyzing showing the mean rating of male and female business education lecturers on the utilization of AI technologies in teaching business education courses in Federal college of Education, Obudu.

S/N	Variables	Gender M (n-16) Mean	SD	F (n=8) Mean	SD	t	P
8.	ChatGPT	2.19	0.98	2.75	0.87	1.365	0.186
9.	PowerPoint Speaker Coach	3.31	1.01	2.88	0.99	1.003	0.327
10.	Ask Ai	2.88	1.07	3.25	0.46	0.926	0.365
11.	Education Copilot	1.75	0.68	2.13	0.99	1.090	0.287
12.	Chatbots	1.88	0.72	2.25	1.16	0.978	0.339
13.	Lesson planning	2.38	0.96	3.38	0.74	2.580	0.017
14.	Robotics	2.38	1.15	2.63	0.74	0.557	0.583
15.	Natural Language Processing	2.75	1.06	2.63		0.252	0.803

	Language			1.30		
16.	Image Generation	2.31	1.19	2.38	0.130	0.898
				0.92		
17.	Machine Learning	2.06	1.34	2.63	0.978	0.339
				1.30		
	Overall	**2.39**	**0.65**	**2.69**	**1.101**	**0.619**
				0.59		

Source: Field Survey
***Significant at p< 0.05**

Table 4 shows the summary of t- test analysis of the utilization of AI technologies in relation to gender of respondents. The data show that there are no significant differences in the utilization of most AI technologies and overall (t= 1/1.01, p> 0.05) in relation to gender. However, there is a significant difference in the utilization of lesson planning (t= 2.580, p< 0.05) in relation to gender of the respondents.

Discussion

The analysis reveals that there is very high awareness of AI technologies among lecturers in business courses at Federal College of Education, Obudu. While, certain technologies like PowerPoint Speaker Coach and Ask Ai are highly utilized. The high level of awareness suggests that there is increased integration of AI technologies to enhance teaching and learning in the school. Alamro and Schofield (2020), supported this by stating that awareness is a major factor in effective utilization. The study also revealed that lecturers rarely used AI technology for education in Federal College of Education. Onah et al (2020) discovered that lecturers of College of Education did not use educational resources. Also the Author revealed that lecturers' use of technology for instructional delivery was low. This align with Molnar (2019) who revealed that majority of teachers lack knowledge on the use of artificial intelligence technology in classroom delivery.

From the study also revealed that male and female lecturers rarely used artificial intelligence for teaching in Federal College of Education which agrees with the finding of who Alba and Ttrani (2018) revealed no significant difference in the awareness of male and female lecturers on instructional media in the state owned college of education. Amuchie, (2015) study also revealed no significant difference in the extent of ICT usage by male and female.

Recommendations

Based on the findings of this study, the following recommendations were proposed:

1) College of Education management should regularly organize hands on and professional training programs and retreat for lecturers to teach and effectively use AI.
2) College of education management should collaborate with ICT consultant to develop learners centered course materials with interactive elements and immediate feedback that can further help them utilize AI for educational purposes.
3) Since there is high level of awareness on the use of artificial intelligence in the instructional delivery of business education courses, there should be proper implementation of artificial technologies in instructional delivery of business education courses.
4) There is tendency that both male and female can equally do well if there is conducive environment with adequate infrastructure provided. Therefore, management of Federal College of Education, Obudu, should provide conducive and enabling environment to both male and female lecturers to enable them effectively utilize AI technologies in business education

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