

INTEGRATION OF ARTIFICIAL INTELLIGENCE IN TEACHING AND LEARNING OF OFFICE TECHNOLOGY AND MANAGEMENT (OTM) PROGRAMME IN POLYTECHNICS IN SOUTH EAST, NIGERIA

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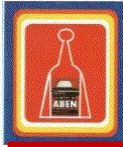
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Abstract

The study assessed the integration of Artificial Intelligence in teaching and learning of Office Technology and Management (OTM) programme in polytechnics in South East, Nigeria. It adopts the descriptive survey design. Two research questions and two hypotheses guided the study. Population consisted of 89 Office Technology and Management (OTM) lecturers in public polytechnics in South-East, Nigeria. No sample was used because the population is manageable. The instrument was validated by experts in Office Technology and Management, measurement and evaluation from Akanulbiam Federal Polytechnic, Unwana and Michael Okpara University of Agriculture, Umudike. Cronbach alpha was used to ascertain the reliability of the instrument with coefficient of 0.75. Mean was used to answer the research questions and standard deviation to ascertain the closeness and homogeneity of the responses while t-test was used to test the hypotheses. Findings of the study revealed that there is a positive influence of chatbots and simulations in teaching and learning of Office Technology and Management (OTM) programme in Polytechnics in South East, Nigeria. The findings further showed no significant difference in the mean ratings of male and female Office Technology and Management (OTM) lecturers on the integration of Artificial Intelligence in teaching and learning of Office Technology and Management in public polytechnics in South-East, Nigeria. It was concluded that Office Technology and Management lecturers agreed that Artificial Intelligence chatbots and simulation have positive influence on teaching and learning of OTM programme in polytechnics in South East, Nigeria. Artificial Intelligence fosters critical thinking, problem solving skills and deeper understanding of complex business system which cater for individual learning styles and needs, optimizing learning outcomes and maximizing students' potentials. It was recommended among others that polytechnic stakeholders should train and support programmes that will equip Office Technology and Management (OTM) lecturers with the skills to effectively design, integrate and utilize various AI tools in their instructional delivery. Government should provide adequate technological infrastructure and technical support to facilitate integration and utilization of Artificial Intelligent tools in Nigerian polytechnics.

Keywords: Integration, Artificial Intelligence, Teaching and Learning, Office Technology and Management, Polytechnics.

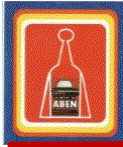


Introduction

The use of technology, particularly Artificial Intelligence, significantly impacts the global economy, business and society. Artificial Intelligence (AI) has resulted to a transformation force of advancements and innovations that have impacted many facets of human life including education. AI has the potential to revolutionize conventional methods of teaching and learning, streamline administrative tasks and enhance the quality of student experiences in higher education (Smith et al, 2020). Its integration in education systems is changing the instructional delivery in many institutions. Artificial Intelligence is revolutionizing the educational landscape, bridging gaps and encouraging a more inclusive and effective learning environment. Aina et al (2023) explained that Artificial Intelligence is an innovative technical framework that encompasses the creation of computer systems with the ability to execute activities that usually need human intellect. These activities involve problem-solving, acquiring knowledge, comprehending language and seeing visual information. AI has become increasingly prominent in recent years, brought about a revolutionary transformation in the methods through which jobs are completed in numerous businesses. Within the realm of education, artificial intelligence (AI) offers a multitude of possibilities to augment the learning process. Intelligent systems provide the ability to adjust to the specific requirements of each learning, deliver tailored learning experiences and provide immediate feedback (Aina et al., 2023). AI applications in education encompass adaptive learning platforms, intelligent tutoring systems, and virtual simulations. Through the use of artificial intelligence, educators have the ability to construct dynamic and interactive learning environments that accommodate the various learning styles and capabilities of students.

Similarly, Verma (2018) Artificial intelligence is the combination of two words artificial + intelligence. Where artificial means 'not real' or 'natural' and by intelligence means 'the ability to reason, to trigger new thoughts, to perceive and learn'. Artificial intelligence is that area of computer science that mainly focus in the making of intelligent machines that work and give reactions same like human beings. It is a combination of many activities which includes for designing the artificial in computers that are like-recognizing the speech, learning, planning and solving the problem. When any system adapts itself according to situation in any environment is called intelligent. In other words, it is a programming such machines which can think and act with some level of human intelligence is known as artificial intelligence. It is also divided into two parts one is to solving complex problems by the machine and second is same like human beings. Vanichvasin (2022) noted that AI involves creating algorithms that can process data, make decisions often without explicit human intervention. Artificial Intelligence seeks to mimic the cognitive functions of the human brain, enable machines to perceive their environment, reason about the information they receive and take appropriate actions to achieve specific goals. Furthermore, Artificial Intelligence is the development of computer systems capable of performing tasks that typically require human intelligence, such as visual perception, speech recognition, decision-making and language translation. It is designed to learn from data, recognize patterns and make decisions with minimal human intervention (Ufondu & Obi, 2023).

In the same vein, Brynjolfsson and McAfee (2014) noted that the educational landscape in Nigeria is always changing, so it is important to understand how integrating AI into tertiary institutions would influence things, with its creative solutions that meet the many needs of both educators and students. In envisioning future jobs and human resources specialists' requirements, teachers must equip students with a proficiency that makes them adaptable to challenges. Teachers contribute to the society by educating generations of upcoming students that will become future entrepreneurs. The students should be able to move on with trends and not just stay current with events and environment (Elhajjar, Karam & Borna, 2021). Hence, the demand

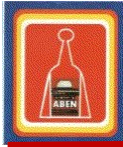


for innovative teachers embracing change, integrating new materials and enable student-artificial intelligence interactions in education. In the context of teaching and learning, Shabna (2024) noted that Artificial Intelligence is the application of advanced computation algorithms and technologies to stimulate human like intelligence, learning, decision making within educational systems, addressing cognitive, physical, academic, social and emotional factors that impacts learning. It encompasses a wide range of applications, including intelligent tutoring systems, adaptive learning platforms, virtual reality simulations, and data analytical tools to enhance accessibility, effectiveness and efficiency in teaching and learning. To effectively integrate AI in teaching, teachers should update their educational practices and embrace the challenges of technology in teaching. Teachers can integrate into their pedagogical approach aspects related to learners' behavior, such as emotions, attention, gestures and movement with the support of AI technologies (Crescenzi-Lanna, 2023).

Furthermore, Brynjolfsson and McAfee (2014) averred that the use of chatbots, simulations and adaptive learning are just a few AI applications that have become popular in universities which have changed the way classrooms are set up, improved accessibility, fostered student engagement and accommodate different learning preferences. A chatbot is defined as 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, understand human languages and reply to a conversation automatically (Benotti et al, 2014). The requirements of chatbot design include accurate knowledge representation, strategy for answering and predefined responses to reply when user input is not understood or not in a system (Augello, Gentile & Dignum, 2018). Two types of chatbots are mostly used in education. Firstly, a chatbot with pre-programmed answers is called a rule-based chatbot as it is responsible for matching pre-programmed answers with text messages or speeches inputted. It chooses the system response from pre-programmed answers, based on the input text without creating new texts. The responses from the chatbot are coded, organized and presented in the format of conversational patterns. Secondly, a chatbot generating suitable responses drawn from user input via natural language processing and deep machine learning. Therefore, it can generate answers better than the first type, based on user messages because it acts like human by using algorithms of machine learning and techniques of deep learning (Hien et al, 2018). Chatbots in education has the ability to provide personalized recommendation for learning, suggest areas for improvement, handle routine tasks such as scheduling, grading and answering frequently asked questions, saving teachers time and enabling them to focus on more high-value tasks of teaching and monitoring.

In educational settings, chatbots can be categorized into those with educational intentionality and those without. Chatbots without educational intentionality are used in administrative tasks such as student guidance and assistance (Fernoagă, 2018). Chatbots with educational intentionality are used in fostering teaching and learning. Within this category, there are chatbots, which provide the framework of the learning process, that is, select and arrange contents to fit the students' needs and speed, and help in reflection and learning motivation. These bots act as a learning companion which provides dialogue, collaboration and reflection (Molnár & Szűts, 2018).

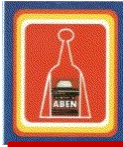
Artificial intelligence (AI) simulations are computer-generated environments that mimic real-world scenarios or processes (Liu, Cheng & Huang, 2019). They allow learners to interact with these simulated environments, gaining knowledge and developing skills in a safe, controlled setting. It involves creating computer-based models that mimic real-world scenarios and interactions to analyze, predict or optimize outcomes. The concept of AI simulation is based on the idea of using computational models to simulate the behavior of systems or phenomena that



may be too costly, dangerous or impractical to study in the real world. The integration of computer simulations and artificial intelligence has significant potential for enhancing the learning process and improving educational outcomes (Wang et al, 2020). Simulations enable students to participate in educational activities that are challenging to organize or ethically complicated by replicating real-life scenarios. Platforms such as Labster and PhET interactive simulations provide students with virtual laboratories, enable them to perform experiments, manipulate variable and observe outcomes in a secure and controlled setting. This approach enhances traditional laboratory work and promotes equal access to high – quality educational resources, enabling all students to engage in experiential learning regardless of their geographical or institutional limitations (Murshidi, 2019). AI technology can make education system smarter in Nigeria. This can be done by introducing self-teaching classrooms at every level of the education institution. In this classroom, machines can be used to properly teach and answer on the spot questions in a universally accepted manner. Indeed, the 21st century classrooms can be equipped with emerging technological solutions to deliver the best learning environment to students. It can also collaborate with virtual networks to make a perfect learning environment for students as well as teachers (Robinson, 2018). It is the act of stimulating the behavior of a situation or a process using a suitably analogous phenomenon. Simulation is a teaching technique in which the behavior is not controlled and participants can bring their own experience, knowledge, and skills to the situation and consequently enrich the learning process, change the academic setting to a real life situation, and provide an effective and efficient language learning experience. Simulation can also be considered as a problem-solving activity to which learners bring their own distinct opinions, feelings, and personalities. Simulation gives educators the opportunity to create controlled circumstances that imitate life without some of the real penalties to create more tangible learning experience for young students (Spurgeon in Jones & Barrett, 2017).

According to Oyinloye and Oluwalola (2014), Office Technology and Management (OTM) is an aspect of educational programme offered in the Polytechnics meant for acquisition of knowledge, skill, office ethics, work habits and competencies needed to prepare the individual to have employment after graduation, open a business and also have a good office occupation. Office technology and management according to Okoro and Amagoh in Eze and Ononye (2021) is an efficient, effective, productive and functional educational programme which leads itself to self-employment, self-reliance and consequently self-actualization. It is expected that OTM students upon graduation have acquired relevant skills that could enable them employable in various small-scale enterprises that operates in the country. The graduates are trained properly to fit into the office of any organization, attending meetings and providing information as may be required, make accurate records of proceedings, filling and retrieving information, taking appropriate action independently when faced with challenging secretarial office problems, showing personal qualities and attributes conducive to tolerance and co-existence with the work group (Eze and Ononye, 2021).

Polytechnic education, which is part of technical education programme in tertiary education level leads to the acquisition of practical and applied skills as well as fundamental scientific knowledge. It is a type of education resulting in the acquisition of practical and useful skills. This type of education, according to the Federal Republic of Nigeria (FRN), is given after the second six years of formal schooling, (it is the education at the tertiary level represented by 4 in the 6:3:3:4 system of education as stated in the National Policy on Education (NPE). In Nigeria, there are Federal, State and Private polytechnics. Federal Polytechnics are owned and sponsored by Federal Government, State polytechnics are owned and sponsored by State Government while private polytechnics are owned and sponsored by faith-based organisations or



individuals. Adamma (2016) identifies the objective of OTM programme as follows: equipping the students with knowledge, skill, attitude and competencies needed to prepare the students for employment after graduation; develop in the students an occupational intelligence that will make them versatile and adaptable to the changing situation in the world of work; prepare students to be self – employed after graduation; develop the students potentials for further academic and professional pursuit; to equip the students with skills and knowledge to meet the manpower needs of the society; to give the students background of training that would contribute to rapid advancement on job; to make students to develop good working habit and attitude needed in the development of personality traits such as punctuality, responsibility that helps in efficient work; to help develop the high attitude towards work and prepare students for entrepreneurship competencies. The integration of Artificial Intelligence in teaching and learning of OTM programme will go a long way in developing the students' technological application skills for entrepreneurship development. There is no gender bias in the teaching and learning of the course in the polytechnics in south east. The researchers are limiting the research work to public polytechnics in south eastern region of Nigeria. There is need for OTM programmes to sustain its relevance in providing the needs of its recipients and the society at large. In order to achieve this, it must embrace current trends of AI integration in the teaching and learning of OTM in polytechnics. Educators need to be trained and retrained to be competent, knowledgeable and skillful in the use of AI tools for instructional delivery. The learning environment needs to be conducive for the integration of AI in instructional delivery. The curriculum of OTM programme needs to be tailored towards this innovation. In the light of this, the researchers seek to investigate how AI should be integrated in teaching and learning of OTM in polytechnics in south east Nigeria.

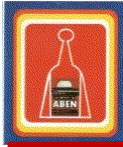
Statement of the Problem

Artificial Intelligence (AI) is the ability of a digital computer, computer-controlled machine or robot to perform tasks commonly associated with intelligent beings like humans. Artificial intelligence (AI) makes it possible for machines to learn from experience, adjust to new inputs and perform human-like tasks. Office Technology and Management (OTM) on the other hand is designed to equip its graduates with the skills and knowledge needed to succeed in the digital economy. They should be knowledgeable with emerging technologies and its usage and application in the world of work. However, despite the emergence of digitalized technology, most students graduate without having the knowledge of artificial intelligence tools, benefits and challenges associated with it. It is unclear if students exposed to AI based learning demonstrates improved knowledge, skills and critical thinking abilities compared to traditional teaching methods. It is imperative to bring innovations in the teaching and learning of Office Technology and Management (OTM) by integrating artificial intelligence in its programme due to constant advancement in technologies. Hence the study on the influence of integration of Artificial Intelligence in the teaching and learning of Office Technology and Management programme in Polytechnics in southeast, Nigeria.

Research Questions

The following research questions guided the study:

1. What is the influence of chatbots integration in teaching and learning of Office Technology and Management (OTM) in polytechnics in South East, Nigeria?
2. What is the influence of Artificial Intelligence simulation integration in teaching and learning of Office Technology and Management (OTM) in polytechnics in South East, Nigeria?



Hypotheses

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

- Ho₁ A significant difference does not exist between the mean ratings of male and female lecturers on the influence of chatbots integration in teaching and learning of Office Technology and Management (OTM) in polytechnics in South East, Nigeria
- Ho₂ There is no significant difference between the mean ratings of male and female lecturers on the influence of Artificial Intelligence simulation integration in teaching and learning of Office Technology and Management (OTM) in polytechnics in South East, Nigeria

Method

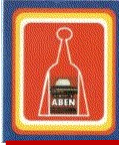
Descriptive survey research design was used for the study. The population for the study consisted of 85 Office Technology and Management (OTM) lecturers in polytechnics in South East Nigeria. The entire population of 85 OT lecturers (27 males and 58 females) in polytechnics in South East Nigeria will be used as sample for this study. Therefore, there is no sampling for the study since the population is of a manageable number. A validated structured questionnaire titled "Questionnaire on Integration of Artificial Intelligence in teaching and learning of OTM programme" (QIAITLOTMP) was developed by the researcher with insight for the literature will be used for the study. The instrument contains 20 items according to the research questions.; 10 items on AI chatbots Integration and 10 items on AI simulation integration The instrument is a four-point rating scale of: Strongly Agree (SA); Agree (A); Disagree (D); Strongly Disagree (SD) with values of 4,3, 2 and 1 respectively. Cronbach Alpha Coefficient was used to measure the internal consistency of the instrument and co-efficient of 0.81 and 0.79 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 0.05 alpha level. 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 agreed while the one with mean score less than 2.50 was disagreed. The null hypothesis was not rejected where the calculated value is less than the significant level of 0.05 and rejected if the calculated value is equal to or greater than the significant level of 0.05.

Results

Research Question 1: What is the influence of Artificial Intelligence chatbots integration in teaching and learning of Office Technology and Management (OTM) lecturers in Polytechnics in South East, Nigeria?

Table 1: Respondents' Mean and Standard Deviation Scores on AI chatbots integration in teaching and learning of Office Technology and Management

S/N	The following are the influence of AI chatbots integration in teaching and learning of OTM programme are as follows:	X ₁	SD ₁	Rmks	X ₂	SD ₂	Rmks
1	AI chatbots in OTM courses provide a helpful and engaging way to learn key concepts.	3.68	0.81	SA	3.75	0.89	SA
2	Enables interaction lecturers-students interaction through text or voice interface.	2.75	0.88	A	3.07	0.68	SA
3	Chatbots handles routine tasks such as scheduling, grading, saving time and answering frequently asked questions.	3.11	0.75	A	2.84	0.50	A
4	Chatbots provide immediate feedback and support to students during their learning process in OTM.	2.80	0.69	A	2.57	0.55	A



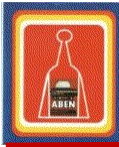
5	AI chatbot contribute in improving students' understanding of complex concepts and topics in OTM programme.	2.75	0.66	A	2.83	0.55	A
6	Using AI chatbots in OTM programme allows students to learn at their own pace and revisit topics as needed.	2.75	0.68	A	2.80	0.80	A
7	The integration of AI chatbots in OTM programme has made learning more interactive and enjoyable.	2.80	0.75	A	2.82	0.67	A
8	Students feel comfortable asking questions and seeking clarification from AI chatbots in OTM.	3.36	0.95	SA	3.83	0.65	SA
9	Chatbots are good learning resource for best practices in OTM programme.	2.75	0.88	A	3.07	0.68	SA
10	Chatbots provides responses without wasting time.	3.11	0.75	SA	2.84	0.50	A
	Cluster mean	3.00	0.77	A	3.06	0.66	A

Data in Table 1 reveal the item by item analysis on AI chatbots integration in teaching and learning of OTM programme in polytechnics in South East. The analysis revealed that items 1, and 8 with mean scores 3.72 and 3.60 were rated strongly agreed while items 2, 3, 4, 5, 6, 7, 9 and 10 were rated agreed. However, the cluster mean of 3.03 summarized that OTM lecturers agreed that chatbots integration influences the teaching and learning of OTM programme in polytechnics in South East, Nigeria. The standard deviation scores ranging from 0.50 – 0.89 show that OTM lecturers do not vary too much in their ratings on AI chatbots integration in teaching and learning of OTM programme in polytechnics in South East, Nigeria.

Research Question 2: What is the influence of Artificial Intelligence simulation integration in teaching and learning of Office Technology and Management (OTM) in polytechnics in South East, Nigeria?

Table 1: Respondents' Mean and Standard Deviation Scores on AI simulations integration in teaching and learning of OTM Programme

S/N	The following are the influence of AI simulation integration in teaching and learning of OTM programme are as follows:	X ₁	SD ₁	Rmks	X ₂	SD ₂	Rmks
1	AI simulations in OTM programme allow students to apply concepts in a more realistic and engaging way	2.58	0.81	A	2.68	0.89	A
2	AI simulations in OTM programme improve critical thinking and decision making skills in business scenarios	2.85	0.88	A	2.68	0.68	A
3	Feedback provided by AI simulations help OTM students to identify and address their weaknesses in understanding key concepts.	2.80	0.75	A	2.84	0.50	A
4	AI simulation makes learning more interactive and stimulating	2.80	0.69	A	2.57	0.55	A
5	The integration of AI simulations increases overall satisfaction with the teaching and learning experience in OTM.	3.45	0.66	SA	3.83	0.55	SA



6	AI simulations are valuable tool for improving the effectiveness of teaching and learning of OTM.	2.55	0.68	A	2.60	0.80	A
7	Simulations make it possible to explore real-life learning that is occurring in online environments.	2.55	0.68	A	2.60	0.80	A
8	Simulation uses multimedia and virtual reality software which allows teachers to create (or select) cases that have the feel of reality.	2.55	0.88	A	2.96	0.68	A
9	Simulation gives educators the opportunity to create controlled circumstances that imitate life.	3.45	0.66	SA	3.83	0.55	SA
10	Simulation can also be considered as a problem-solving activity to which learners bring their own distinct opinions, feelings, and personalities.	2.80	0.75	A	2.84	0.50	A
		2.75	0.76		2.88	0.66	

Data in Table 2 reveal the item by item analysis on AI simulation integration in teaching and learning of OTM programme in polytechnics in South East. The analysis revealed that items 5, and 9 with mean scores 3.72 and 3.60 were rated strongly agreed while items 2, 3, 4, 6, 7, 8 and 10 were rated agreed. However, the cluster mean of 2.82 summarized that OTM lecturers agreed that simulation integration influences the teaching and learning of OTM programme in polytechnics in South East, Nigeria. The standard deviation scores ranging from 0.50 – 0.89 show that OTM lecturers do not vary too much in their ratings on AI simulation integration in teaching and learning of OTM programme in polytechnics in South East, Nigeria.

Hypotheses 1: A significant difference does not exist between the mean ratings of male and female OTM lecturers on the influence of Artificial Intelligence chatbots integration in teaching and learning of OTM courses in polytechnics in South East, Nigeria

Table 3: t-test analysis of significant difference in the mean ratings of male and female OTM lecturers on the influence of Artificial Intelligence chatbots integration in teaching and learning of OTM lecturers in polytechnics in South East, Nigeria.

Groups	Number	Mean	S.D	D.F	T.Cal	T.tab	Level of Sig.	Decision
Male	28	3.00	0.77	83	1.22	2.000	0.05	Not significant
Female	57	3.06	0.66					

The t-test analysis presented in Table 3 revealed that the t-calculated (t-cal) value of 1.22 is less than the t-table (t-tab) value of 2.000 at $P \leq 0.05$ levels of significance and at 83 degree of freedom (df). This showed that, there is no significant difference between the mean ratings of male and female OTM lecturers on the influence of Artificial Intelligence chatbots integration in teaching and learning of OTM lecturers in polytechnics in South East, Nigeria. Therefore, the null hypothesis of no significant difference is accepted.

Hypotheses 2: There is no significant difference between the mean ratings of male and female OTM lecturers on the influence of Artificial Intelligence simulation integration in teaching and learning of OTM courses in polytechnics in South East, Nigeria

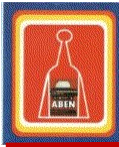


Table 4: t-test analysis of significant difference in the mean ratings of male and female OTM lecturers on the influence of Artificial Intelligence simulation integration in teaching and learning of OTM courses in polytechnics in South East, Nigeria

Groups	Number	Mean	S.D	D.F	T.Cal	T.tab	Level of Sig.	Decision
Male	28	2.75	0.76	83	0.62	2.000	0.05	Not Significant
Female	57	2.88	0.66					

The t-test analysis presented in Table 4 revealed that the t-calculated (t-cal) value of 0.62 is less than the t-table (t-tab) value of 2.000 at $P \leq 0.05$ levels of significance and at 83 degree of freedom (df). This showed that, there is no significant difference between the mean ratings of male and female OTM lecturers on the influence of Artificial Intelligence simulation integration in teaching and learning of OTM lecturers in polytechnics in South East, Nigeria. Therefore, the null hypothesis of no significant difference is accepted.

Discussion of Findings

The findings in research question one revealed that Office Technology and Management lecturers agreed that chatbots influence the teaching and learning of OTM programme of polytechnics in South East, Nigeria. This means that AI chatbots provide a helpful and engaging way to learn key concepts, enables interaction between lecturers and students through text or voice interface, handles routine tasks effectively, provides immediate feedback and support students learning process in OTM, contribute in improving students understanding of complex concepts and topics, allows students to learn at their own pace and revisit topics, makes learning more interactive and enjoyable, act as good learning resource for best practices and provide response without wasting time. The result is in line with the findings of Vanichavasin (2021) which stated that the application of chatbots technology in education context promote student knowledge of research yielded positive views of the chatbots as it created positive learning outcomes and provided better individualized learning experience. In the same vein, Winkler and Sollner (2018) reported that chatbots in education promised to have a significant good impact on learning success and satisfaction of students. The result revealed in hypothesis one showed that there is no significant difference in the mean ratings of male and female OTM lecturers on the influence of Artificial Intelligence chatbots integration in teaching and learning of OTM lecturers in polytechnics in South East, Nigeria. This finding agreed with the finding of Ufodu and Obi (2023) that there was no significant difference between teachers on the extent artificial intelligence is integrated on Business Education curriculum.

The findings in research question two revealed that Office Technology and Management (OTM) lecturers agreed that AI simulation influence the teaching and learning of OTM programme of polytechnics in South East, Nigeria. This means that AI simulation allow students to apply concepts in a more realistic and engaging way, improve critical thinking and decision makings skills in business scenarios, feedback helps students to identify and address their weaknesses in understanding key concepts, makes learning more interactive and stimulating, increases overall satisfaction, a valuable tool for improving the effectiveness of teaching and learning of Office Technology and Management. The result is in line with the findings of Jones and Barret (2017) which stated that simulation holds extraordinary potential for a fresh approach to teaching and learning and has the potential to provide deeper, more meaningful learning experiences that inspire, motivate, and prepare students for life. Similarly, Vanlehn (2018) noted that interactive



and dynamic AI simulations can make learning more engaging and motivating for students, lead to deeper participation higher levels of interest and improved knowledge retention. The result revealed in hypothesis two showed that there is no significant difference in the mean ratings of male and female OTM lecturers on the influence of Artificial Intelligence simulation integration in teaching and learning of OTM courses in polytechnics in South East, Nigeria.

Conclusion

Based on the findings of this study, the study concluded that OTM lecturers agreed Artificial Intelligence chatbots and simulation have positive influence on teaching and learning of Office Technology and Management courses in polytechnics in South East, Nigeria. They foster critical thinking, problem solving skills and deeper understanding of complex business system which caters for individual learning styles and needs, optimizing learning outcomes and maximizing students' potential.

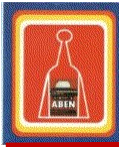
Recommendations

The following recommendations are made for the study.

1. Polytechnics stakeholders should train and support programmes that will equip OTM lecturers with the skills to effectively design, integrate and utilize various AI tools in their instructional delivery.
2. Government should encourage the creation of high quality engaging content for chatbots and simulations that are specific to the Nigerian business context and address local entrepreneurial challenges.
3. Government should provide adequate technological infrastructure and technical support to facilitate integration and utilization of AI tools in Nigerian universities.

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