



## PROSPECTS AND CHALLENGES OF INTEGRATING ARTIFICIAL INTELLIGENCE INTO OFFICE TECHNOLOGY AND MANAGEMENT PEDAGOGY

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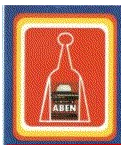
### Abstract

Integration of artificial intelligence in the education field has brought tremendous development to teaching and learning processes. *The study examined prospects and challenges of integrating artificial intelligence into Office Technology and Management pedagogy. A descriptive survey design was used for the study. Two research questions guided the study. The population of the study comprised 31 academic members of staff of Office Technology and Management Department in three public tertiary institutions in Osun State offering OTM programme. A census survey was employed for the study. A structured questionnaire with 25 items was used to collect data from the respondents. The instrument was validated by two experts in the Department of Business and Entrepreneurship Education, Kwara State University, Malete, Kwara State. Mean and standard deviation were used to analyse the data collected to answer the research questions. Based on the findings of the study, it was concluded that integration of artificial intelligence into Office Technology and Management pedagogy has potential prospects, thereby enhancing students' engagement and academic outcomes. The integration of artificial intelligence also faces significant challenges that hinder the effective integration of artificial intelligence-driven educational initiatives. It was recommended among others that NBTE should ensure regular review and update of OTM curriculum to reflect artificial intelligence instructions for effective integration in schools while management of tertiary institutions should provide adequate artificial intelligence tools with enabling environment that will enhance acquisition of artificial intelligence skills for job effectiveness in a technology-driven world.*

**Keywords:** Artificial intelligence, Prospects, Challenges, OTM & Pedagogy

### Introduction

Education plays a vital role in an individual's and a society's development. Education has remained the most indispensable tool for personal and national transformation. This is because education has been the major instrument for national development for many countries of the world. Agi and Yellowe (2013) posit that education is important for the development of human resources, imparting appropriate skills, knowledge and attitude. It is the basis for transformation, industrialization and a highway to global knowledge economy. Artificial intelligence has been introduced in education worldwide, particularly in developing countries, as part of the multiple ways to accomplish Sustainable Development Goal 4, which targets education. Artificial intelligence is a booming technological domain capable of altering every aspect of our social interactions. Discovering and developing the use of artificial intelligence in educational field explores the new possibilities of innovation in educational technology. In education, artificial intelligence has begun producing new teaching and learning solutions that are now undergoing testing in different contexts. Today, artificial intelligence has become the core element of the modern education system and a



basic tool for the development of educational field. Artificial intelligence requires advanced infrastructures which can be used to improve learning outcomes, ensure educational equity and quality, promote personalization, collaborative environments and intelligent tutoring systems to support teachers. Therefore, integration of artificial intelligence has tremendous potential to revolutionize education and usher in new era of technological advancement in the field.

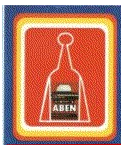
Artificial intelligence is a set of technologies that enables computers to perform a variety of advanced functions which could be performed by human beings. It is the ability of computer or computer-controlled robots to perform tasks commonly associated with intelligent beings. It also refers to the ability of computer systems to perform tasks which normally require human intelligence (Ferrell, 2017). Therefore, it is a broad field that encompasses theories and developments in computer, science, philosophy, linguistics and mathematics among others.

The integration of artificial intelligence into the educational space holds a plethora of potential for improving learning outcomes by offering carefully tailored tutoring solutions, streamlining continuous assessment processes, and fostering interactive learning experiences between virtual assistants and students (Partridge & Piccoli, 2018). Artificial intelligence can also assist teachers in the assessment of students' progress in more efficient ways. Through the analysis of large amounts of continuous assessment data from quizzes, take-home assignments, and tests. In addition, artificial intelligence algorithms also assist in the discovery of patterns that suggest areas where students may be having challenges or excelling. This information allows educators to better focus their teaching efforts on those specific areas requiring attention or offer additional tests for strengthening advanced learners.

Artificial intelligence plays a significant role in education such as personalized learning, automating tasks, customized feedback, facilitating remote learning, digital lessons, automated grading system, better teacher-student communication, creation of smart contents, tutoring, predictive analytics, improved education, enhanced accessibility, virtual assistance via chatbots, better engagement, learning gap analysis and customized feedback. It improves learning outcomes, enhances teaching practices and optimizes educational processes among others. Although, artificial intelligence can never replace human teachers; it can play a great role in teaching and learning processes (Crompton, Jones & Burke, 2022).

Artificial Intelligence is becoming an increasingly important part of our daily lives, and it has the potential to revolutionize the way we work, communicate, and learn. In education, artificial intelligence has the potential benefits to provide students with a more personalized and engaging learning experience and help teachers more effectively meet the needs of each student. Asakura (2020) emphasizes that artificial intelligence ensures universal access to education, cost-effective learning, increases efficiency, enhances students' performance, closes the skill gap, provides opportunity to deepen students' understanding of this rapidly-evolving technology, help students develop a critical perspective on this technology and prepare them for the challenges and opportunities of the digital age. Furthermore, integrating artificial intelligence into education can also help students develop important 21st-century skills, such as problem-solving, critical thinking and collaboration (Elhajjar, Karam & Borna, 2021). These skills are essential for success in the digital age, and they can be developed with artificial intelligence tools and applications. Despite these potential benefits, there are also several challenges associated with integrating artificial intelligence into education. These includes lack of technical expertise, limited resources, threat to teacher's job security, dehumanized learning experience, expensive to implement, dependence on technology and ethical concerns among others (Ninlawan, 2015).

There are numerous types of artificial intelligence tools in education. These include machine learning, deep learning frameworks, natural language processing (NLP), computer vision



libraries, Gamification, adaptive learning, ChatGPT, Squirrel, Curipod, Chatbot, Knewton, Adaptive learning, Carnegie learning, AudioPen, Quillbot, Grading, Thinkster Math and Automated Machine Learning (AML) platforms (Yang & Chen, 2020). These tools are indispensable for educational development.

Elhajjar, Karam and Borna (2021) advocate integrating AI into education to equip students with skills essential for future jobs and digital society's demands, such as creativity, innovation and design thinking. Artificial Intelligence Education employs diverse tools, techniques, and systems in educational activities (Wu & Liang, 2022). Artificial Intelligence education tools are vital for societal development, despite widespread distrust and misconceptions about their roles in human activities, especially in education. Artificial intelligence technology deployment in education is expected to grow significantly in the coming decades (Antonenko & Abramowitz, 2023). Therefore, lecturers must equip students with a proficiency that makes them adaptable to challenges.

Office Technology and Management (OTM) is a recent nomenclature for Secretarial Studies programme in Nigeria. As the name implies, emphasis has shifted from the use of traditional tools to the use of new technologies in the workplace. The programme is a comprehensive activity-based educational programme that is concerned with the acquisition of information technology skills, understanding, attitudes, and competencies that are requisite to success in secretarial and office management occupations (Ojohwoh, 2014). The Office Technology and Management programme is designed to enhance acquisition of knowledge, skills, office ethics, work habits and competencies needed to prepare the individual to enter gainful employment in specific business and office occupations. Therefore, maximum acquisition of skills by OTM students tend to promote individual and economic developments.

Pedagogy refers to the way of teaching students. It is a relationship between the culture and techniques of learning. It is the approach to teaching, the theory and practice of learning and how this process influences the social, political, and psychological development of learners. It involves the combination of teaching methods, learning activities and learning assessments, projects or tasks that measure student learning (Collins, 2014). The main aim of pedagogy is to build on previous learning of the students and work on the development of skills and attitudes of the learners.

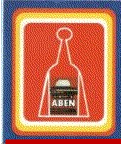
### **Statement of the Problem**

Observations have shown that educational programme in Nigeria are yet to fully adopt artificial intelligence tools in teaching and learning processes of which Office Technology and Management programme is not exempted. Kong (2020) opined that if lecturers of Office Technology and Management are to enhance students' skills in the courses, they must utilize artificial intelligence tools in the delivery method. Nigerian universities and other tertiary institutions do not appear to be prepared to provide the necessary facilities and resources for meaningful deployment of artificial intelligence for Office Technology and Management pedagogy. Since Office Technology and Management is a technology intensive programme, failure to deploy artificial intelligence technology on time may injure not only Office Technology and Management teaching and learning but may ultimately affect management activities and national economy. Therefore, the concern of this study is to investigate the prospects and challenges of integrating artificial intelligence into Office Technology and Management Pedagogy.

### **Research Questions**

The following research questions guided the study:

1. What are the prospects of integrating artificial intelligence into Office Technology and management pedagogy?



2. What are the challenges of integrating artificial intelligence into Office Technology and management pedagogy?

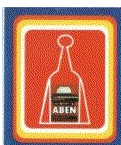
### **Methods**

A descriptive survey research design was adopted because the study sought the opinions of respondents on the prospects and challenges of integrating artificial intelligence into Office Technology and management pedagogy. The study was conducted in the two public polytechnics and one College of Technology in Osun State offering the Office Technology and Management programme: Osun State Polytechnic, Iree, Federal Polytechnic, Ede and Osun State College of Technology, Esa-Oke. The population comprised 31 academic members of staff of the Office Technology and Management Departments of the three institutions. Osun State Polytechnic, Iree had 09, Federal Polytechnic, Ede had 12, while the College of Technology, Esa-Oke had 10. A census survey was employed for the study. Two research questions guided the study. The instrument used for data collection was a 25-item structured questionnaire titled: Prospects and Challenges of Artificial Intelligence in OTM Pedagogy Questionnaire (PCAIOPQ) generated from the research questions and reviewed related literature. The questionnaire was divided into two sections. Section A sought the demographic data of the respondents, while Section B consisted of questions designed to extract information needed on the research questions. The questionnaire was face and content validated by two experts in the Department of Business and Entrepreneurship Education, Kwara State University, Malete, Kwara State. The instrument was designed to elicit the ratings of respondents on a 4-point modified Likert-rating scale of: Strongly Agree (SA) - 4 points, Agree (A) 3 points, Disagree (D) 2 points and Strongly Disagree (SD) 1 point.

A total of 31 copies of the questionnaire were distributed by the researchers, out of which 27 were returned, representing 88% return rate. Mean and standard deviation were used to analyze the data collected. The decision rule for the research question was that any item with a mean score of 2.50 and above was regarded as agreed (A) while below 2.50 was regarded as disagreed (D).

### **Results**

Research Question 1: What are the prospects of integrating artificial intelligence into Office Technology and management pedagogy?



**Table 1: Mean and standard deviation of responses on prospects of integrating artificial intelligence**

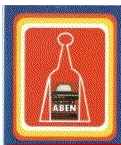
S/N	Items	$\bar{X}$	SD	Remark
1.	AI can assist in OTM curriculum administration.	3.04	0.73	Agreed
2.	AI can be helpful in OTM curriculum implementation.	2.98	0.64	Agreed
3.	AI can be used to illustrate minutes of meetings.	3.16	0.87	Agreed
4.	AI can be used in teaching Keyboarding.	3.04	0.68	Agreed
5.	AI can be used in assessing report writing.	3.01	0.65	Agreed
6.	AI can be used for teaching ICT courses.	3.14	0.71	Agreed
7.	AI can be used for teaching filing and indexing.	3.43	0.89	Agreed
8.	AI can enable OTM students to learn outside the classroom.	3.31	0.82	Agreed
9.	AI can generate ideas for OTM curriculum and extracurricular activities.	3.37	0.84	Agreed
10.	AI can discover learning gaps in OTM students.	2.95	0.63	Agreed
11.	AI can be used to dictate Shorthand.	3.48	0.91	Agreed
12.	AI can assist in teaching Webpage Design.	2.91	0.62	Agreed
13.	AI can develop personalized learning tools for OTM students.	3.46	0.88	Agreed
14.	AI can stimulate the desire of OTM students to acquire knowledge in modern technological devices.	2.78	0.71	Agreed
15.	AI can assist OTM lecturers in the assessment of OTM Students' progress.	2.86	0.77	Agreed
<b>Grand Mean</b>		<b>3.34</b>	<b>0.86</b>	<b>Agreed</b>

Source: Field Survey, 2024

Table 1 analysis shows that all the items were agreed. The standard deviation ranges from 0.63 to 0.91, which suggests that respondents were close to one another in their mean responses. The Grand mean was 3.34, which indicates that respondents agreed that there are numerous prospects in integrating artificial intelligence into Office Technology and Management pedagogy.

### Research Question 2

Research Question 2: What are the challenges of integrating artificial intelligence into Office Technology and management pedagogy?



**Table 2: Mean and standard deviation of responses on challenges of integrating artificial intelligence**

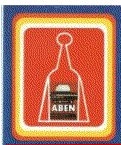
S/N	Items	$\bar{X}$	SD	Remark
16.	Challenge of funding to implement AI in OTM pedagogy.	3.25	0.92	
Agreed				
17.	AI can dehumanize OTM students' learning experiences.	3.18	0.87	
Agreed				
18.	Challenge of cultural adjustment to OTM pedagogy.	2.99	0.72	
Agreed				
19.	AI can lead to job insecurity for OTM lecturers.	3.02	0.74	
Agreed				
20.	AI pedagogy faces the challenge of legal framework.	2.87	0.71	
Agreed				
21.	AI can affect the originality of OTM practical work.	3.54	0.95	
Strongly Agreed				
22.	AI can compromise the integrity of OTM project.	3.35	0.89	
Agreed				
23.	Psychological challenge of OTM students to adjust to AI instructions.	2.97	0.73	
Agreed				
24.	AI can diminish OTM students' critical thinking skills.	3.12	0.82	
Agreed				
25.	Psychological challenge of OTM lecturers to use AI in OTM pedagogy.	3.08	0.79	
Agreed				
<b>Grand Mean</b>		<b>3.18</b>	<b>0.83</b>	
<b>Agreed</b>				

Source: Field Survey, 2024

Table 2 shows that only one of the items was rated strongly while all the other items were rated agreed. The standard deviation ranges from 0.71 to 0.95 which suggests that respondents were close to one another in their mean responses. The Grand mean was 3.18, which indicates that respondents agreed that there are a lot of challenges affecting the integration of artificial intelligence into Office Technology and Management pedagogy.

### Discussion of Findings

The study examined the prospects and challenges of integrating artificial intelligence into Office Technology and Management pedagogy. Findings on Research Question 1 revealed that respondents agreed that there are numerous potential prospects in integrating artificial intelligence into Office Technology and Management pedagogy. This agrees with the position of Partridge and Piccoli (2018) that integration of artificial intelligence into the educational space holds a plethora of potential for improving learning outcomes by offering carefully tailored tutoring solutions, streamlining continuous assessment processes, and fostering interactive learning experiences between virtual assistants and students. The finding also corroborates the view of Elhajjar, Karam and Borna (2021) that artificial intelligence can equip students with skills essential for future jobs and digital society's demands, which indicates that artificial intelligence is vital for societal



development. The authors further explained that artificial intelligence plays a significant role in education by enabling students develop a critical thinking perspective on this rapidly evolving technology and prepare them for the challenges and opportunities of the digital age.

Results of Research Question 2 revealed that respondents agreed that there are numerous challenges in integrating artificial intelligence into office Technology and Management pedagogy. The finding is in line with the view expressed by Antonenko and Abramowitz (2023) that despite widespread distrust and misconceptions about artificial intelligence's role in human activities, especially in education, artificial intelligence education tools are vital for societal development. Artificial intelligence technology in education is also expected to grow significantly in the coming decades. Therefore, lecturers must equip students with proficiency that makes them adaptable to challenges.

### **Conclusion**

The study concluded that artificial intelligence tools are indispensable in today's technology-driven world of work and business. It was also discovered that integrating artificial intelligence into OTM pedagogy presents a unique opportunity for teachers and students alike. Artificial intelligence has the potential to provide OTM students with personalized and engaging learning experiences, as well as help them develop important 21st-century skills. However, integration of artificial intelligence technology into OTM pedagogy also presents a range of challenges which may hinder the effective integration of artificial intelligence-driven educational initiatives. These challenges include limited funding, lack of adequate infrastructure, poor internet connectivity and resistance to change among educators, students and policy makers. Unless these challenges are identified and addressed ahead of deployment, the use of artificial intelligence for Office Technology and Management pedagogy may either remain unrealized or stillborn.

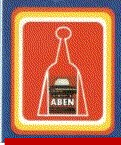
### **Recommendations**

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

1. The National Universities Commission (NUC), National Board for Technical Education (NBTE) and National Commission for Colleges of Education (NCCE) should ensure regular review and update of Office Technology and Management curriculum to provide for artificial intelligence instructions for effective integration in Office Technology and Management programme.
2. Management of tertiary institutions should provide adequate artificial intelligence tools with enabling environment that will enhance acquisition of artificial intelligence skills for job effectiveness in a technology-driven world.

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