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Application of Artificial Intelligence (AI) in Office Management and its Challenges in Public Universities in Delta State

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Abstract

The study examined the use of Artificial Intelligence (AI) in Office management and its challenges in public universities in Delta State. In order to attain the objectives of the study, two research questions and two hypotheses were raised to guide the study. The study adopted the descriptive survey research design to guide the study. The population of the study comprised of all 156 secretaries in public universities in Delta State. There was no sampling technique as the population size was small. A structured questionnaire titled: Application of Artificial Intelligence in Office Management and its Challenges in Public Universities Questionnaire (AAIOMIPUQ) was used for data collection. The research instrument was validated by two experts in the Department of Business Education and Measurement and Evaluation in the Delta State University, Abraka. The Cronbach Alpha reliability technique was adopted by the study to ascertain the reliability of the research instrument which yielded a reliability co-efficient of 0.82 proving that the research instrument was reliable. Mean and standard deviation were used to answer the research questions while t-test statistic was used to test the hypotheses at 0.05 level of significance. The findings of the study revealed that majority of the secretaries were not proficient with AI. Additionally, AI had the capacity to enhance the job performance among secretaries. Based on the findings of the study, it was recommended amongst others that public universities and other citadel of learning should regularly and periodically organize seminars/ conference for secretaries on the application of AI in OTM practices in the public universities in Delta State.

Keywords: Application, Artificial Intelligence. Office Management, Challenges, Public Universities.

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Introduction

Artificial Intelligence (AI) is the agglomeration of computers systems and machines that are equipped in executing tasks that traditionally entails human intelligence. These tasks encompass learning, reasoning, problem-solving, perception and natural language understanding. AI driven tools includes numerous methodologies and techniques like machine learning, deep learning, natural language processing, computer vision and robotics. These tools energize computers to dissect large chunk of data, identify patterns, makes predictions and automate difficult processes. It has tools across variety of sectors, including health care, finance, transportation, customer service and education. It has the capacity to transform enterprises, enhance efficiency and establish new opportunities particularly in higher institutions (Odede, 2024).

The objectives of higher institutions in line with Federal Republic of Nigeria National Policy on Education (FRN, 2014), is to contribute socio-economic development through skilled and proficient personnel training, offer accessible and cheap quality learning opportunities in both formal and informal education in response to the needs and aspirations of citizens, offer high quality career counseling and lifelong learning programme that equip students with the knowledge and competencies for self-dependence and the labour market, eliminate skills shortages through the production of proficient personnel relevant to the needs of the labour market, accelerate and inspire scholarship, entrepreneurship and community service; forge and cement national unity; and promote national and international understanding and interaction. The adoption and attainment of the objectives of higher institutions rely heavily on the availability of human and material resources.

AI is one of the tangible resources that could be appropriated for sound administration of universities. A person could argue that robotics and artificial intelligence (AI) is symbolic of the prospects of technology and could pave the way for a new phase of digital living because of the rapid advancement. Numerous individuals believe that robots and mechanics would only have an effect on their day to day life through computer generated home appliances and independent automobiles, but this could not be the case since AI and robotic technology would eventually show up in numerous businesses. Thus, AI could be described as the theory and agglomeration of computer systems that have the potentials of executing tasks that traditionally entails human intelligence, such as speech recognition, visual perception, decision-making, and language translation (Awodele, 2020).

In computer science, AI deals with making machines that could execute tasks that traditionally call for human intelligence. These tasks encompass speech recognition, problem solving, learning, planning and decision-making. AI has generated a lot of interest and is now generally accepted as a number of sectors like entertainment, finance, healthcare, and transportation. AI is the intelligence demonstrated by computers as opposed to that of individuals. Intelligence encompasses the potentials for learning reasoning, generalization and meaning-inference. Advanced web search engines like Google Search, recommendation systems like those used by YouTube, Amazon and Netflix, speech recognition software like Siri and Alexa, self-driving cars like Waymo, generative or creative tools like ChatGPT and AI art, automated decision-making, and competitive play at the top levels of strategic game systems like a Go and Chess are just few innovations of AI-driven tools (Morozov, 2023). Simply put, AI is the agglomeration of computer systems that could execute task that needs the expertise of individuals. It is a difficult and multi-dimensional course that requires the creation and appropriation of algorithms and tools that inspire machines to learn from data and execute tasks that entails human expertise. The concept of AI has transited enormously

since the start of the course in the mid-20th century, with distinct authors giving their own views and conceptions (Ogunode and Ade (2023)

Since their transition in the 1940s, digital computers have been structured and programmed to execute out very difficult tasks such as discovering proofs for mathematical theorems or playing chess with enormous skills. AI is presently going through a critical examination. The incorporation of technology into day to day life has had enormous effect and controversy. Alagbe (2023) posited that AI has the capacity of computer systems or machines to mimic the abilities of the human reasoning and learning from examples and experience, extracting and sourcing objects, comprehending and reacting to language, making decisions, solving problems. Synthesizing these and other abilities to execute tasks human could execute, like greeting a hotel guest or driving a car. AI is the capacity of machines to appropriate human type intelligence by executing mental tasks like thinking, perceiving, learning, problem solving and decision making. The digitalized AI tools have transited to major advances executed in the agglomeration of data, low cost of data storage and improved powers of information processing and calculations. It is perceived that AI-driven tools could just be the biggest digital revolution of our day to day life with the capacity to transform all facts of human existence.

Ogunode and Ukozor (2023) described AI as programs orchestrated with human like intelligence and designed in the shape of computers, robots, or other machines to help in the disbursement of any function to enhance the social economic and political development of the nation. It is a tool or programme orchestrated to execute tasks with human like intelligence. Ogunode and Ukozor (2023) also posited that AI is an agglomeration of systems, tools and packages orchestrated in digital computers or computer-driven robots to execute tasks with human like intelligence.

AI plays an effective role in higher institutions administration by assisting sound university management, effective application of pedagogical initiatives, enhanced students learning outcomes in higher institutions and helping efficient execution of test and examinations in higher institutions. It could strengthen virtual learning, enhance research development initiatives, enhance the provision of community service initiatives, strengthen data management, enhanced security, and enhance attendance of experts. Developments in AI are rapidly emerging and a new digital way of living could just be in the offing. Numerous individuals seem to think that robots and mechanics would only impart their day to day lives on driverless cars and computer-generated home devices. However, this is not the scenario and AI would be making its debut in every spheres of contact (sectors of the economy) sooner rather than later. The questions that stems from this discourse is how can an individual successfully appropriate this transition in a manner that would ensure that he/she is gainfully employed and strengthen relationship with robotics as opposed to posing a risk to an individual's existence. The fear of job cut was an essential attribute of the industrial revolution and digital revolution. However, these phases of history were characterized by numerous opportunities for economic development and job creation in new opportunities. This is because there seem to be rarity of sound instances of how a robot could impart the secretarial job (Alagbe, 2023).

The secretarial field requires offering managerial support and help to persons, businesses, industries or governmental parastatals. Secretaries are charged with the responsibility for large chunk of clerical activities like scheduling appointments, correspondence management, preparing reports, answering call to mention but a few. The secretary is charged with the task of advising managers of all laws, policies and regulations and stipulated governance practices linked to the organization. The totality of the task of checkmating and regulating adherence

inside organizations, including adherence with the Memorandum of Incorporation (MOI) lies with the office administrators who provide guidance to directors in ensuring the attainment of their roles. The totality of management and regulating of meetings is carried out by office administrators.

Ayorinde (2022), stated that the publicity surrounding AI has attained its highest level with numerous important personalities who are "techno-savvy" billionaires airing their opinions on the possible effect of AI in the nearest future. It is imperative to keep track of these trends and developments so that individuals could upgrade their skills themselves and reduce any prospective negative effects on them in the future. One of the prominent developments which has happened in between Elon Musk and Mark Zuckerberg, who air contradicting opinions on the discourse of AI. Musk, who is the Chief Executive Officer (CEO of Tesla and SpaceX and Zuckerberg, who is the CEO of Facebook, expressed diverse opinions. Their perceptions could be enunciated as follows: Musk perceived AI from "doom and gloom" perspective whereas Zuckerberg is of the view that AI is phenomenon to live by. Asserting his opinion on the subject of AI would accelerate job disruption and that robots "would be equipped to execute task efficiently than humans". Additionally, Musk asserted that "AI is an irrefutable risk to the daily living of man's civilization" (Lobo, et al, 2020). Zuckerberg reacting to Musk's opinion by stating "AI is going to improve the standard of living of individuals better in the future" and doomsday scenarios are "pretty irresponsible". Zuckerberg is hopeful and that "in the next five to 10 years", AI is going to accelerate numerous transformation in their standard of living". However, Zuckerberg cautioned on the right application of AI and that "technology could universally be appropriated for good and bad. Thus, an individual need ought to be strategically structured about (Morozoy, 2023).

Thus one needs to be careful about how one builds it and how it is going to be used." Musk advocates that the implementation of AI regulations is of paramount importance and should be one of the focal points of governments. Bill Gates, co-founder of Microsoft, echoes Musk's sentiments about AI and states that "first the machines will do a lot of jobs for humans but will not be super intelligent. The Secretary (office manager) in universities is responsible for the timeous lodgement of documents with the relevant regulatory bodies. According to James (2022), the impact of artificial intelligence on office secretaries has been significant in recent years. Artificial Intelligence tools and technologies have transformed the way administrative tasks are performed, enabling office secretaries to work more efficiently and effectively. It has enhanced automated scheduling, improved communication, increased productivity, job displacement and enhanced data management.

Statement of the Problem

Due to the growth and evolution of the secretarial profession, administrative professional roles and responsibilities have gained prominence. Thus, the need for highly trained personnel is only going to increase. As a result of technological advancements, complex ICT devices and machinery demanding skilled workers with necessary technical understanding to maintain and operate them are today found in offices. The secretarial profession is therefore challenged by a mismatch in talent and skill sets.

In this context, the advancement of artificial intelligence and robotic technology comes to mind and it is perceived to have the potential to significantly impact the role of secretaries (office managers) in Nigerian universities. However, there seems to be paucity of understanding about the potential benefits and challenges that these technologies may bring to the secretarial profession. Therefore, a need to investigate the application of AI in office

technology and management and its challenges in public universities, in order to understand their readiness for the potential changes that these technologies may bring to their profession.

Objectives of the Study:
The major objective of the study is to examine the Application of Artificial Intelligence (AI) in Office Management and its Challenges in Public Universities in Delta State. Specifically, the study sought to examine:

1. the ways AI technology is used in the administration of public universities in Delta State and
2. the challenges of artificial intelligence in the management of office tasks in public universities in Delta State?

Research Questions

The following research questions guided the study:

1. What are the ways AI technology is used in the administration of public universities in Delta State?

2. What are the challenges of artificial intelligence in the management of office tasks in public universities in Delta State?

Hypotheses

Ho1: There is no significant difference in the mean ratings of male and female business education lecturers on the ways AI technology is used in the administration of universities
Ho2: There is no significant difference in the mean ratings of male and female business education lecturers on the challenges of artificial intelligence in the management of office tasks universities

Method

This research examined the application of AI in office management and its challenges in public universities in Delta State. Descriptive survey research design was adopted for the study. The population of the study consisted of 156 Secretaries from two public universities in Delta State. No sampling was done because the population was manageable.

Data were collected using a structured questionnaire titled: Application of AI in Office Management and its Challenges in Public Universities (AAIOMIPU). The content and face validity of the research instrument were ensured by two experts in Delta State University, Abraka. The instrument was subjected to reliability test through Cronbach Alpha statistical method by administering twenty copies of the instrument on secretaries (office managers) at Niger Delta University, Amassoma, Bayelsa State and yielded reliability coefficient of 0.82. In analyzing and interpreting data generated from the study, descriptive statistics of mean and standard deviation were used to answer the research questions while t-test was used to test the hypotheses at 0.05 level of significance. The null hypothesis was not rejected where the t-calculated value is less than the t-table value at the significant level of 0.05 and rejected if the t-calculated value is equal to or greater than the t-table value at the significant level of 0.05.

Results

3. **Research Question 1:** What are the ways Secretaries apply AI technology in the administration of public universities in Delta State?

Table 1: Mean ratings of the ways the secretaries in universities apply AI technology in their daily office tasks in Public Universities in Delta State.

S/N	Item Statements	Mean	SD	Remarks
1.	AI technology is used for arranging meetings, sending reminders, creation of agenda and minutes. .	1.54	0.60	Disagree
2.	AI technology is used in legislation and regulations in real time and aligning them with university policies.	1.43	0.75	Disagree
3.	AI technology is used in reducing risks of regulatory breaches among university secretaries.	1.30	0.84	Disagree
4.	AI technology is used to key information from Documents and easily locate vital data.	1.38	0.78	Disagree
5.	AI technology is used for prediction based on previous data.	1.49	0.64	Disagree
6.	AI technology is used for students' correspondence	1.39	0.73	Disagree
7.	AI technology is used to respond directly to staff on public fora.	1.53	0.62	Disagree
8.	AI technology assists job interview Preparation.	1.47	0.70	Disagree
9.	AI technology provides feedback on resume or cover letter.	1.49	0.59	Disagree
10.	AI technology provides support for students with special needs.	1.37	0.71	Disagree
	Grand Mean	**3.29**	**0.69**	**Disagree**

The data presented in Table 1 above showed that, the mean ratings of the responses of the respondents on all the ten (10) items relating to the ways is AI technology used in the administration of universities had mean values ranging from 1.29 to 1.54 which are all greater than the cut-off point value of 2.50 on a 4-point rating scale. The above findings revealed that the business lecturers agreed that all the identified 10 items are ways which AI technology is used in the administration of universities. The values of the standard deviation for all the 11 items in the table ranged between 0.59 to 0.85; this implied that the responses of the respondents are close to one another and to the mean.

Research Question 2: What are the challenges of artificial intelligence in the management of office tasks in public universities in Delta State?

The data for answering the research question two is presented in Table 2 below.

Table 2: Mean Ratings of the Challenges of Artificial Intelligence in the management of office tasks in public universities in Delta State?

S/N	Item Statements	Mean	SD	Remarks
1.	AI technology has intricate complexities, making it difficult to understand.	3.11	0.93	Agree
2.	AI technology increases university biases.	3.22	0.86	Agree
3.	AI technology does not safeguard privacy and data security.	3.34	0.83	Agree
4.	AI technology does not ensure ethical decision-making.	3.07	0.91	Agree
5.	AI technology does not address security risks.	3.21	0.85	Agree
6.	AI does not create room for lecturers to sharpen their pedagogical skills.	3.21	0.87	Agree
7.	AI increase lecturers' tendency to skip their course content.	3.29	0,85	Agree
8.	AI does not comprehensively resolve the issue of intellectual dishonesty among lecturers.	2.91	0.94	Agree
9.	AI makes students to attentively address their academic lapses in the classroom.	3.07	0.90	Agree
10.	AI makes lecturers lazy to implement the content of the business education curriculum.	3.38	0.82	Agree
	Cluster Mean	**3.31**	**0.71**	**Agree**

Data presented in Table 2 above revealed that the mean ratings of the responses of the respondents on all the ten (10) items relating to Challenges of Artificial Intelligence in Universities' Office Tasks had mean values that ranged between 2.91 to 3.38 which are all greater than the cut-off point value of 2.50 on a 4-point rating scale. The above findings revealed that the business lecturers agreed that all the identified 10 items are challenges of Artificial Intelligence in Universities' office tasks. The values of the standard deviation for all the 10 items as revealed in the table ranged between 0.82 to 0.94; this showed that the responses of the respondents are close to one another and to the mean.

Hypothesis 1: There is no significant difference in the mean ratings of male and female business education lecturers on the ways AI technology is used in the administration of universities

Table 3: t-test Showing Mean and Standard Deviation Ratings of male and female business education lecturers on the ways AI technology is used in the administration of universities in Delta State.

	Grouping	N	Mean	Std Deviation	t	df	Sig. (2-tailed)	Decision
Overall	Female	300	3.32	0.47	-.444	877	.657	NS
	Male	579	3.33	0.46				

Table 3 above showed t-score (-0.444) with associate probability of 0.657 being greater than the level of significance of 0.05. Therefore, the null hypothesis was upheld. Hence, there is no significant difference in the mean ratings of male and female business education lecturers on the male and female business education lecturers on the ways AI technology is used on the ways AI technology is used in the administration of public universities in Delta State.

Hypothesis 2: There will be no significant difference in the mean ratings of male and female business education lecturers on the challenges of artificial intelligence in the management of office tasks universities in Delta State.

Table 4: t-test showing Mean and Standard Deviation Ratings of male and female business education lecturers on the challenges of artificial intelligence in the management of office tasks in public universities in Delta State.

	Grouping	N	Mean	Std Deviation	t	df	Sig. (2-tailed)	Decision
Overall	Female	300	3.24	0.46	-0.326	877	.745	NS
	Male	579	3.25	0.44				

Table 4 above showed t-score (-0.326) with associate probability of 0.745 being greater than the level of significance of 0.05. Therefore, the null hypothesis was upheld. Hence, there is no significant difference in the mean ratings of male and female business education lecturers on the challenges of artificial intelligence in the management of office tasks in public universities in Delta State.

Discussion

The findings of this study agreed with that of Havan and Care (2024) that revealed that public universities secretaries did not apply AI technologies as administrative support feedback for data security and projection.

Results from the tables showed that all secretaries agreed that all the items are challenges faced by public university secretaries in the management of their office task as indicated by the grand mean of 3.23. The findings of this study is in consonance with Ephraim (2022), who stated that the complexity of AI algorithms, bias and discrimination, inability to safeguard privacy and non-assurance of ethical decision are making are challenges of artificial intelligence.

Conclusion

From the findings in the study, it was concluded that secretaries in universities did not apply a technology in their daily office tasks. Also, intricacies as regards AI security risk among others were challenges of AI.

Recommendations: Arising from the findings extracted from this study, the following recommendations are hereby made:

1. Government at both state and federal levels should make sufficient budgetary provisions to procure AI and ICT tools to aid the administration of public universities in Delta State.
2. The National Universities Commission (NUC) should as a matter of urgency review the curriculum of Business Education to accommodate the Artificial Intelligence contents.

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