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Application of Artificial Intelligence (AI) in Business Education Programme for Academic Achievements in Public Universities in Delta State, Nigeria.

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Abstract

This study investigated the adoption of Artificial Intelligence (AI) in Business Education Programme for academic achievement in government owned universities in Delta State, Nigeria. In order to attain the objectives of the study, two research questions and two null hypotheses were raised to guide the study. Descriptive survey research design was adopted to guide the study. The population of the study comprised of eighty-one (81) Business Education lecturers in government owned universities in Delta State, Nigeria. There was no sample as the population size is small and manageable. A structured questionnaire titled: Application of Artificial Intelligence in Business Education Programme for Academic Achievement in Public Universities Questionnaire (PUBIEEAUQ) was used for data collection. The research instrument was validated by two experts – one each from the Department of Business Education and Measurement and Evaluation in Delta State University, Abraka. The Cronbach Alpha reliability method was adopted by the study to ascertain the consistency of the research instrument which yielded a co-efficient of 0.81. Mean and Standard Deviation were used to answer the research question while t-test was used to test the null hypotheses at 0.05 level of significance. The study found that lecturers' related and students' related techniques are techniques for adoption of AI in Business Education initiatives for academic achievement in government owned universities in Delta State, Nigeria. There was no significant difference between the mean scores of federal and state owned universities in relation to lecturers' and students' related techniques for adoption of AI for academic achievements in Business Education programme. Based on the findings of the study, it was recommended amongst others that government should adopt

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techniques, increase her annual budgetary allocation to foster the procurement of resources and infrastructures for sound adoption of AI in government owned universities and other tertiary institutions.

Key words: Artificial Intelligence, Business Education, Academic Achievements

Introduction

Business Education is a novel programme that is designed for the purpose of equipping skills to the students for access and progress inside the business. It is an initiative for job occupations and self-sufficiency. Ezeabii (2017), described Business Education as a component of Vocational and Technical Education which impart students with the requisite skills and theoretical knowledge required to fit into the labour market either for self-dependency and job occupations. Ezeabii, Ekoh-Nweke and Okwor (2020), asserted that Business Education initiative is a sound and reputable initiative for skills acquisition needed by graduates in the modern era that is extremely competitive and digitally inspired. In this sense, administrators, lecturers and students should be compliant with modern techniques and move with the trend of activities in this digital era.

Business Education in universities are delivered and dispensed by business education lecturers. These are individuals who studied Business Education in higher institutions up to Bachelor, Masters and doctoral degrees' level. They need to be abreast with the adoption of emerging technologies, particularly the adoption of AI for pedagogical activities. Business Education programme is offered in both private and government owned universities in Nigeria. The private universities are established, managed and regulated by private individuals while the public universities are established, managed and regulated by the state (Federal and State). However, it is still vague and unclear whether the reputation of university imparts the techniques for the adoption of AI by educators and students for academic attainments. Both federal and state universities are in Delta State, Nigeria. Delta State is one of the six states in South-South geo-political zone and it is made up of six states, namely; Edo, Delta, Rivers, Cross-River, Akwa-Ibom and Bayelsa states. These states are reputed for their commercial enterprises coupled with academic activities. Hence, numerous citadel of learning including universities administering Business Education abound in the state. The adoption of digital inspired structural techniques in Business Education is essential for academic achievements.

Academic achievement can be described as the results of academic enterprises (activities). Academic achievement also could be synonymous with the evaluation of academic goals through continuous assessment test or internal and external examinations. Onyeso and Nnokam (2024) defined academic achievement as the end product of education, in essence, the level to which a student, lecturer or citadel of learning has attained their academic objectives. This entails that the academic achievement of Business Education students in Delta State, Nigeria relied heavily on the level to which the students attain the academic goals laid out or stipulated for them by teachers and the citadel of learning. However, the attainment of the above relies on the abilities of the students, pedagogical techniques adopted by the faculties and the resources deployed for that purpose by the school. Little wonder, Aribisala and Igweh (2024), observed that students' learning outcomes require sufficient transformative modern techniques with more sound assessments. Hence, innovative approaches as opposed to the traditional pedagogical approaches that are teacher-structured and uninspiring are required for attainment of education objectives in Business Education in

this digital era. Ezeabii, Ekoh-Nweke and Okwor (2020) observed that for Business Education to maintain high quality in meeting the needs and aspirations of students and that of the nation, it must accept present trends in the educational and economic demands of the nation.

One of the present trends is the adoption of AI in academic discourses. AI is the application of computer systems that could execute numerous tasks like humans. Alabi (2022) asserted that AI entails the agglomeration of technologies that inspires machines to function with a very high degree of intelligence similar to humans. Oluyemisi (2023) described AI as an advanced contemporary digital frontier, accelerating human intelligence via machine learning algorithms, neutral networks and natural language processing (NLP). AI could be appropriated in numerous sectors of the economy which encompasses agriculture, energy, healthcare, transportation, education to mention but a few.

AI has transformed the entire system of education. It contributes to improving the instructional process, enhances students' academic attainment and eases managerial tasks. AI could be appropriated in individualized learning, dispatching homework to students, marking of scripts and grading. Feedbacks could be transmitted to students with the application of AI. In furtherance of the above, AI imparts critical and analytical thinking in students, facilitating inspired and aroused learning resulting in sound comprehension of the topic of discourse in the instructional process. Ogunode and Adamu (2021) opined that AI has the capacity to automate routine tasks like lesson-planning, scheduling, attendance marking, grading and record-keeping.

AI functions such as text-to-speech, visual recognition, speech recognition and more could be structured to strengthen students with special needs for more inclusivity in education. Awofiranye (2024) outlined the benefits of AI in education which includes: establishment of feedback for both lecturers and students, evaluation of first hand facts anywhere in the globe with just a mobile phones and internet connection, time management for academic and research discourse adopting creative instruments, fostering of instructional process and development of AI-driven braille tutor tools to foster instructional process for special students. In essence, AI energizes lecturers with the capabilities to establish sound and interactive learning settings that foster numerous learning styles and numerous students' abilities and potentials. Nevertheless, the attainment of these benefits of AI in education requires the commitment of the stakeholders particularly the lecturers and students specifically.

The government in Nigeria is supposed to enunciate policies in relation to the adoption of AI, creating regulatory institutions to act as surveillance and regulate adoption of AI, offer the required money and resources, equip and impart lecturers to upgrade their level of knowledge in the application of AI and facilitate institution industrial partnership to promote utilizations of AI. Okunade (2024) asserted that state enunciation and formulation of policies for integration of AI in citadel of learning, financial aid mechanisms, alliances with non-state actors and democratic decision making mechanism can foster a more comprehensive and incisive and significant application. Furthermore, educators should map out techniques to ensure that the adoption of AI is realizable and effective. They are expected to act as surveillance and supervise students, use AI driven tools for individualized teaching, application AI driven tools for assessing students and receiving feedback, partner with AI professionals for guiding on AI usage and upgrade their proficiency in AI application through conferences, workshops and seminars.

In furtherance of the above, Adeyemi (2020) asserted that it is expedient to perform rigorous and extensive training initiatives, align with citadel of learning, for present professional development, and establish internship initiatives to foster the transmission of facts among lecturers. Okunade (2024) stated categorically that there are numerous opportunities available for lecturers' professional development, such as workshops, seminars, and online learning platforms that specifically emphasize on AI education. Additionally, Alabi (2022) asserted that AI may be applied by educators to individualize tutoring, receiving feedback, assess students and grade them. Honestly AI could be appropriated by educators to arouse the interest of students, inspire them to overcome learning blockades and record their progress. In addition to that, students as stakeholders to education should also map out techniques in appropriating AI for academic achievements. They are expected to participate in AI literacy class, receive supervision on AI-driven career, acquire first hands experience with AI-driven tools, receive guidance from AI experts, align with AI-driven enterprises for enhanced knowledge and involved in AI-driven project for knowledge acquisition. Corroborating these assertions, Nicholas (2023) asserted that there is an urgency for students to comprehend and apply AI-driven tools comprehensively and efficiently. It should serve as a guide to students in researching, writing papers and developing marketing plans. Sequel to this fact, Okunade (2024) advised that students should align and intern with enterprises, listen to Guest educators on AI and engage in joint research for practical real world and AI-driven tools. This alliance will ensure that skills and proficiency are taught in accordance with the demands of employers and for academic attainment.

However, despite the benefits of AI in education, it has been alleged that citadel of learning still use conventional techniques to the instructional processes. These could be as a result of some indices which could include non-possession of needed skills by educators and students for adoption of AI in education. Aina, Gbenga-Epebinu, Olofinbiyi, Ogidan and Ayedun (2023) revealed the major challenge to the adoption of AI in numerous citadel of learning is infrastructural restriction. Ezeabii, Ekoh-Nweke and Okwor (2020) observed that paucity of funds and resources, and lack of proficiency and interest on the side of educators negate the application of transformative techniques in the instructional process. The above scenario should not be left unattended hence, this research work was poised to determine the strategies for application of Artificial Intelligence in Business Education programme for academic achievements in public universities in Delta State Nigeria.

Statement of the Problem

Business Education is skills acquisition programme and needs to be taught in universities in Delta State Nigeria with innovative skills especially AI to remain competitive in the global world. Artificial Intelligence (AI) has revolutionalized teaching and learning making teaching personalized, students engaged and motivated. It is used in developing instructional content, receiving feedback from students, overcome learning challenges, give students assignment, mark scripts and grade students. AI can also be used to support learners with special needs. It is an innovative approach in teaching and learning making the educational process enthusiastic.

However, it has come to limelight that some of the academia including Business Education lecturers are still making use of the conventional approaches that does not make for enthusiasm in learning thereby negating academic achievements. This may be as a result of some factors that may not be unrelated to provision of funds and infrastructure by the government, non-possession of innovative skills and tools by Business Educators and students among others for application of AI in education especially Business Education

programme of universities in Delta State Nigeria. There is need to avert this negative scenario hence, determination of strategies for application of Artificial Intelligence in Business Education programme for academic achievements in public universities in Delta State Nigeria.

Purpose of the Study

The main purpose of the study was to determine strategies for application of Artificial Intelligence in Business Education programme for academic achievements in public universities in Delta State Nigeria. Specifically, the study sought to determine the:

1. Lecturers-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria.
2. Students-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria.

Research Questions

The following research questions guided the study:

1. What are the lecturers'-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria?
2. What are the students-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria?

Hypotheses

The following null hypotheses tested at .05 level of significance guided the study.

1. There is no significant difference between the mean scores of federal and state universities Business Educators on lecturers-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria.
2. There is no significant difference between the mean scores of federal and state universities Business Educators on students'-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria

Method

The study adopted a survey research design. The area of the study was public universities in Delta State Nigeria. The population for the study was 81 Business Educators. The number was manageable, hence there was no sampling.

Data was collected using structured questionnaire. Four-point rating scale of strongly agree (4), agree (3), disagree (2) and strongly disagree (1) was used. The instrument was validated by two experts. The instrument was trial tested using twenty Business Educators from University of Benin, Benin-City. The reliability of the instrument was determined using Crombach Alpha formula and a coefficient of 0.81 was realized. 76 copies out of 81 copies distributed were filled correctly and returned representing 93.83% return rate.

Two research questions and two null hypotheses guided the study. The research questions were answered using weighted means and standard deviations while t-test was used to test the null hypotheses at 0.05 level of significance.

Decisions were made using the upper and lower limits of the mean. Thus: Strongly Agree = 3.50-4.00, Agree = 2.50-3.49, Disagree 1.50-2.49, and Strongly Disagree = 0.50-1.49. For

the test of hypothesis, the null hypothesis was not significant where the calculated p value was greater than 0.05 level of significance otherwise, it was significant.

Results

Research Question 1

What are the lecturers'-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria?

The data for answering the research question one is presented in Table 1 below.

Table 1: Mean scores and standard deviation of Business Educators on lecturers'-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria

S/N	Item Statements	$\overline{X}$	SD	Remarks
1	Attending conferences on AI for knowledge update.	3.11	0.93	**Agree**
2	Embarking on in-service training on AI for professional development	3.22	0.86	**Agree**
3	Collaboration with AI experts for coaching on AI utilization in teaching .	3.34	0.83	**Agree**
4	Utilizing AI tools for personalized teaching.	3.07	0.91	**Agree**
5	Liaising with industries on AI-related projects for expertise.	3.21	0.85	**Agree**
6	Mentoring students on AI-related projects	3.21	0.87	**Agree**
7	Incorporating AI-related topics in existing curricula.	3.29	0.85	**Agree**
8	Utilizing AI tools for grading students and receiving feedback	2.91	0.94	**Agree**
9	Partnering with students on the application of AI tools	3.07	0.90	**Agree**
	Grand Mean	**3.38**	**0.82**	**Agree**

Note: $\overline{X}$ = Mean.

SD = Standard Deviation.

N = Number of Respondents.

The data presented in Table 1 shows that the mean scores for items 9 to 16 ranges from 3.00 to 3.38 depicting agree. The cluster mean of 3.19 concurs to that. This means that the items are lecturers-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria. The low overall standard deviation of 0.60 shows that the respondents' opinions do not differ remarkably to the items.

Research Question 2

What are the students'-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria?

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

Table 2: Mean scores and standard deviation of Business Educators on students'-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria

SN	Item Statements	$\overline{X}$	SD	Remarks
1	Engaging in AI literacy class for application of AI in academic studies	2.68	0.83	**Agree**
2	Receiving guidance on AI-related career	3.53	0.58	**Agree**
3	Acquiring hands-on experience with AI tools.	3.09	0.88	**Agree**
4	Engaging in AI-related projects for knowledge acquisition	3.50	0.64	**Agree**
5	Carrying out case studies on AI-related issues for practical experiences.	3.25	0.75	**Agree**
6	Receiving mentorship from AI experts.	3.30	0.69	**Agree**
7	Exploring AI applications across various business disciplines	3.21	0.66	**Agree**
8	Interning with AI-related companies for improved knowledge	3.18	0.90	**Agree**
9	Engaging students with their peers in a group platform.	3.25	0.61	**Agree**
10	Stimulating interest, awareness, understanding and acceptance of artificial intelligence	3.38	0.65	**Agree**
11	Conducting online examination by lecturers on the required skills and competence.	3.08	0.73	**Agree**
12	lecturers to use artificial intelligence equipment costs and access costs for personal development of students	3.33	0.84	**Agree**
13	Knowledge of pertinent and interesting content of Business education that could be taught with artificial intelligence	3.57	0.57	**SA**
	Grand Mean	**3.19**	**0.64**	**Agree**

Note: $\overline{X}$ = Mean.

SD = Standard Deviation.

N = Number of Respondents.

The data presented in Table 2 above shows that the mean scores of items 13 is 3.57 revealing strongly agree. The remaining items have means ranging from 2.76 to 3.33 indicating agree. Also, the cluster mean of 3.19 further indicates agree. This means that the respondents view the items as students'-related strategies for application of AI in Business Education

programme for academic achievements in public universities in Delta State Nigeria. The low standard deviation of 0.64 showed that the respondents' do not differ remarkably in their opinions to the items.

Test of Hypotheses

Null Hypothesis 1:

A significant difference does not exist between the mean scores of federal and state universities Business Educators on lecturers'-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria

The data for testing hypothesis one were presented in Table 3 below.

Table 3: The Analysis of Variance (ANOVA) of the Mean Ratings of federal and state universities Business Educators on lecturers'-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria.

Sources of Variance	Sum of Squares	DF	Mean Square	F-Cal	F-Tab	Level of Sig	Rmks
Between Groups	0.258	2	0.129	0.222	3.00	0.05	**NS**
Within Groups	42.502	73	0.582				
Total	**42.760**	**75**					

The data presented on analysis of variance (ANOVA) in Table 3 above showed that the F-calculated (F-cal) value of 0.222 is less than the F-critical (F-tab) value of 3.00 at $P \leq 0.05$ level of significance. The indication of this finding is that, there is no significant difference in the mean ratings of the responses of the three groups of respondent (Federal and state Business lecturers in Universities) on the strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria. Therefore, the null hypothesis of no significant difference for Hypothesis one is accepted.

Null Hypothesis 2:

There is no significant difference between the mean scores of federal and state universities Business Educators on students'-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria

The data for testing hypothesis two were presented in Table 4 below.

Table 4: The t – test Analysis of the Mean Ratings of the Responses of male and female Business lecturers on the students'-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria

SN	Groups	$\overline{X}$	SD	N	DF	Std. Error	t- Cal	t-Tab	Level of Sig.	Rmks
1.	Male	2.98	0.907	55						
					74	0.122	2.120	2.00	0.05	**S***
2.	Female	3.44	0.614	21						

The data presented on the t-test statistics in Table 4 above revealed that the t-calculated (t-cal) value of 2.120 is greater than the t-table (t-tab) value of 2.00 at P≤0.05 level of significance and at 74 degree of freedom (df). This indicated that, there is significant difference between the mean ratings of the responses of male and female Business lecturers on students'-related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria.

Therefore, the null hypothesis of no significant difference for hypothesis two is rejected.

Discussion of Findings

From the findings of research question one, it was revealed that for application of AI in Business Education programme, lecturers, should attend conferences and embark on in-service training for professional development, collaborate with AI experts for coaching, utilize AI tools for personalized teaching, mentor students on AI, utilize AI tools for grading students and receiving feedback among others. This is in line with the submissions of Adeyemi (2020) who noted that it is necessary to execute extensive training programme, cooperate with educational institutions for ongoing professional growth, and create mentoring programmes to allow the exchange of information among educators. It is also in agreement with Okunade (2024) who stressed that several opportunities are available for teacher training and professional development, such as workshops, seminars and online learning platforms that specifically focus on AI education.

The findings of research question two revealed that for application of AI in Business Education programme for academic achievements, students should engage in AI literacy class, receive guidance in AI-related career, acquire hand-on experience with AI tools, engage in AI-related projects, receive mentorship from AI experts, intern with AI-related companies among others. This is in agreement with observations of Nicholas (2023). that there is a pressing need for students to understand and use AI tools efficiently and effectively, it should be a guide to students in researching, writing papers and developing marketing plans. The findings also agreed with the opinions of Okunade (2024) who advised that students should intern and partner with industries, listen to guest lecturers on AI and participate in joint research for practical real-world and AI applications.

Subsequently, the null hypotheses results indicated no significant difference between the mean scores of federal and state universities Business Education on lecturers' and students-

related strategies for application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria. This implies that university status is not a determinant factor in employing strategies for application of AI in Business Education programme for academic achievements in universities.

Conclusion

Lecturers' and students'-related strategies can be used in application of AI in Business Education programme for academic achievements in public universities in Delta State Nigeria. University status is not a determinant factor for the strategies to be applied, hence, the strategies identified, when applied will help in personalizing learning, support special students, make for easy knowledge acquisition and overall academic achievements.

Recommendations

The following recommendations are hereby made:

1. Lecturers should avail themselves of the opportunities for further training on AI for professional growth.
2. Students should try and acquire hands-on experience with AI tools and receive mentorship with practical experiences from AI experts.

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