



ARTIFICIAL INTELLIGENCE AS MODERN TECHNOLOGIES FOR TEACHING AND LEARNING OF BUSINESS EDUCATION PROGRAMME IN TERTIARY INSTITUTIONS

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Abstract

The study examined Artificial Intelligence as a modern instructional technology for teaching and learning of business education programme in tertiary institutions. A descriptive survey research design was adopted. The population of the study was four hundred and twenty-five business educators in North Central Nigeria. Due to the small size of the population, the entire population was studied; therefore, there was no sampling. The instrument for data collection was a structured questionnaire. The instrument was validated by three experts. Based on their comments, some corrections were made on the questionnaire to enhance the validity of the research instrument. The Cronbach Alpha reliability method was used and an overall reliability coefficient of 0.97 was established. Data for the study were collected with the help of four research assistants. Data collected were analyzed using mean and standard deviation to answer research questions, while t-test was used to test the hypotheses. The study found that Intelligent Tutoring System (ITS), Expert System (ES), Machine-assisted classroom, Deep Learning (DL), Voice assistants' technologies, Robotics, Machine Vision (MV) and Automated Facial Recognition (FR) are Artificial Intelligence tools for teaching and learning of business education programme. The study also found that AI supports lecturers in research activities by automating data analysis and expediting the research process, thereby aiding decision-making and generating valuable insights. In conclusion, the paper shows that the impact of AI on the teaching and research experience of university lecturers is substantial. The integration of AI technologies offers benefits such as enhanced personalized learning.

Keywords: *Artificial Intelligence, modern instructional technologies, business education, Business Educators*

Introduction

The implementation of an education programme which business education in Nigerian tertiary institutions requires both human and material resources such as ICT and the application of Artificial Intelligence. In the education sector, currently, Artificial Intelligence (AI) is finding relevance as one of the emerging technologies which bring about effectiveness in the teaching and learning process. In other countries, AI has been integrated into the educational sector, especially in the tertiary institutions, to aid implementation of the curriculum. Ogunode, Agbade & Bassey (2023)



viewed AI as programs designed with human-like intelligence and structured in forms of computers, robot, or other machines to aid in the provision of any kind of service or tasks to improve social, economic and political development of the society. Frankenfield (2023) defined Artificial Intelligence (AI) as a simulation of human intelligence by software-coded heuristics. Artificial Intelligence is a branch of business that produce and studies the machines aimed at the stimulation of human intelligence processes. For Copeland (2023), Artificial intelligence (AI) can be defined as the ability of a digital computer or computer controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from experience. Artificial intelligence (AI), according to Ogunode& Ejike (2023) is a machine programme forms with capacities and abilities to execute tasks and responsibilities that human beings perform with the assistance of human-like intelligence

AI in tertiary institutions has aided many tertiary institutions to move from the traditional method of teaching to online platforms. Westagilelabs (2022) maintained that using VR technologies, students can directly connect to their mobile devices or laptops and access content interactively. Virtual learning environments can offer group educational experiences, provide student counselling services, and facilitate an immersive learning experience. VR headsets can help students with ADD/ADHD by blocking out distractions and increasing attention spans. Additionally, learners can also aid learners in soft skill coaching, life skills, and self-development with interactive virtual simulations. Also, Bordia (2023) asserted that with the help of AI, students can learn from anywhere at their own pace without having to attend physical classes. They can connect with learners from all over the world and participate in similar courses. AI is modifying education models and teaching learning techniques around the globe. As learners can quickly access information, they can resolve their doubts in a short time. This powerful technology is also promoting the culture of lifelong learning by empowering students with the required information in a span of a few seconds. Deployment of AI in tertiary institutions can assist lecturers to use a variety of teaching methods to teach science education in the tertiary institutions. Borbajo et al (2023a) ascertained that AI integration in the classroom offered support for diverse learning styles and individual needs. Through the use of natural language processing and machine learning algorithms, AI tools could accommodate various learning preferences, such as visual, auditory, or kinesthetic. Students with learning difficulties or special needs also benefited from AI-powered assistive technologies, which provided tailored interventions and accommodations, enabling them to access and engage with the curriculum more effectively. Ogunode, Edinoh and Chinedu (2023) opined that AI systems can “gauge a student’s learning style and pre-existing knowledge to deliver customized support and instruction.” According to an article in the Atlantic, Artificial intelligence promises personalized education for all, artificial intelligence holds the potential to “enhance human teachers’ abilities to tailor lessons to each student without knocking their class schedule off track,” eliminating the need for educators to “teach to the middle,” as often happens when their students have a range of skill levels and learning abilities. Ogunode, Edinoh and Chinedu (2023) opined that Artificial intelligence can be deployed to solve various problems hindering the effective implementation of teaching programmes in tertiary institutions across the country. The teaching programme is a core programme of tertiary institutions and is very critical to the attainment of tertiary education. Tertiary education is the third tier of education that is designed to produce skilled and professionals for socio-economic and technological advancement. Ogunode, Edinoh and Okolie (2023f) conceptualized tertiary education as a planned and organized educational system designed for the total development of man/woman and for the total transformation of society through the utilization of teaching, research and provision of community service.



The Business Educators have the responsibility of classroom instruction in a tertiary institution. Deployment of AI in tertiary institutions can aid effective delivery of lectures of business education. The business educator is one who is well-trained and well groomed in principle and in practice in the broad field of Business Education. Business Education is a programme of instruction which consists of two parts (a) Office Education: being a vocational education programme for office careers through initial, refresher and upgrading education leading to employability and advancement in office occupation and (b) general business: being a programme of instruction to provide students with information and competencies which are needed by all in managing personal business affairs and in using the services of the business world. Business Educators hold the key in all Business Education or Business Studies instruction, both in tertiary institutions and in secondary schools. Business educators are saddled with the responsibilities of lecture planning and delivering to the students. AI has many facilities aiding the effective presentation of lectures in tertiary institutions. Bordia (2023) concluded that lecturers in tertiary institutions can use AI-powered chatbots to provide uninterrupted learning to students. As chatbots are available, students can use them to resolve doubts in real time. Moreover, chatbots can also be used by school authorities to provide information to parents and students. For example, details on fees, new admissions, classes, etc., can be passed on to parents and students through AI-powered chatbots. Tasks such as grading assignments, generating reports, and managing administrative paperwork can be automated, leading to increased efficiency and improved teacher-student interactions (Chen et al., 2020; Borbajo et al., 2023). AI integration empowers teachers to use AI as a tool to enhance instruction (Singh & Jain 2022; Ogunode, Agbade& Basse 2023b). The teaching programme covers the preparation of lecture notes, presentation of lectures, assessment of students' academic programmes via tests and examinations, marking of students' scripts, preparation of students' results, integration of resources into lecture presentations and classroom management. These entire things that constitute teaching programmes can be easily done by the deployment of Artificial Intelligence by Business educators who teach business education programmes.

Business educators are also responsible for setting exam questions for their respective courses during the semesters, while tertiary institutions' management handles examinations. Deployment of AI in tertiary institutions can aid effective learning engagement and collaboration among learners. Westagilelabs (2022) asserted that voice assistant are engaging and convenient ways to bring learning at home while also helping users schedule study calendars, listen to coaching instructions while on the go, and give instant answers to students' basic questions in class. The benefits of voice assistants in education include: efficient saving of time for students and teachers, providing community learning opportunities, and providing personalized education within seconds. AI technologies have proven to be useful in assisting lecturers to set examination questions and also aid institutions to conduct effective examinations. AI can help grade exams using an answer key; but it can also "compile data about how students performed and even grade more abstract assessments such as essays. Ogunode and Gregory (2023) asserted that AI can assist teachers and lecturers, especially exam officers, prepare students results very fast and reliable. Also, Ogunode, Edinoh& Chinedu (2023) submitted that AI can help conduct fair exams with the use of AI-powered remote proctoring. With its help, school authorities can easily conduct exams for remote learners. The authorities can prevent cheating during exams by analyzing the images/video streams produced by AI proctors. These proctors keep an eye on the candidate by detecting voices or the presence of another person apart from the examinee. Lecturers can also use AI to manage their course materials. Bordia (2023) asserted that one of how this technology can be used is to improve the quality of courses offered online and offline. Research has shown that the dropout rates in online courses are relatively high. Also, the dropout rate in schools is on



the higher side. It can happen due to multiple reasons like lack of clarity in understanding different concepts or the inability of teachers to identify the gaps in learning materials/lectures. AI can fill these gaps by analyzing how students interact with different course materials. Using this data, the course quality can be improved.

Business educators are also saddled with the responsibilities of compiling and compute students' data to prepare students results. Bordia (2023) concluded that Business educators in tertiary institutions can use AI-powered chatbots to provide uninterrupted learning to students. As chatbots are available, students can use them to resolve doubts in real time. Moreover, chatbots can also be used by school authorities to provide information to parents and students. For example, details on fees, new admissions, classes, etc., can be passed on to parents and students through AI-powered chatbots. Tasks such as grading assignments, generating reports, and managing administrative paperwork can be automated, leading to increased efficiency and improved teacher-student interactions (Chen et al., 2020; Borbajo et al., 2023). AI integration empowers Business educators to use AI as a tool to enhance instruction (Singh & Jain 2022; Ogunode, Agbade & Bassey 2023b). Ogunode, Edinoh and Chinedu (2023) opined that Artificial intelligence can be deployed to solve various problems hindering the effective implementation of teaching programmes in tertiary institutions across the country. Tertiary education is an advanced educational system meant for human capital development through teaching, research and provision of community service. The teaching programme is a core programme of tertiary institutions and is very critical to the attainment of tertiary education. The teaching programme covers the preparation of lecture notes, presentation of lectures, assessment of students academic programmes via tests and examinations, marking of students scripts, preparation of students' results, integration of resources into lecture presentations and classroom management. These entire things that constitute teaching programmes can be easily done by the deployment of Artificial intelligence. AI could assist business educators to compile and compute students' data to prepare students results. AI technologies can be use it to process vast amounts of data about learners, about teachers, about teaching and learning interactions. AI can "help teachers understand their students more accurately, more effectively. AI helps assistant business teachers and lecturers, especially exam officers, prepare students' result very fast and reliable. Westagilelabs (2022) observed that AI-powered grading software combines Machines Learning to create calculating systems after it collects important data on metrics for grading assignments from papers that have been graded by teachers/professors. The tools are designed to understand and replicate the teachers' human grading process earlier. Teachers' inputs + AI combination can grade essays, papers and tests in seconds. Ogunode and Olowonefa (2023) focused on AI Education in Nigerian Schools. Also, Igbokwe(2023) looked at the application of artificial intelligence (AI) in educational management. Chen, Chen, and Lin(2020) focusedon Artificial intelligence in education. For Borbajo, Malbas, &Dacanay (2023), their study focuses on reforming education: the global impact of integrating artificial intelligence in the classroom environment. Bordia (2023) did a study on how is AI used in education and educators. Femi (2022) focused on Artificial Intelligence and Basic school management in Nigeria. At the tertiary institutions, Ocana, Valenzuela-Fernandez, and Garro-Aburto (2019) critically looked at Artificial Intelligence and its implications in higher education while Xiaolin and Xiaojun (2022) investigated Artificial Intelligenc for higher education development and teaching skills. Ogunode, Agbade, & Bassey (2023) looked at barriers to effective usage of artificial intelligence in tertiary institutions in north-central Nigeria. Also, Ogunode, Edinoh, and Chinedu (2023) Artificial intelligence and tertiary education management. It also important to investigate the deployment of Artificial Intelligence and teaching and learning of business education in Nigerian tertiary institutions. It is based on this that this study is aimed at assessing the Artificial Intelligence as a



modern instructional technologies in teaching and learning of business education programmes in tertiary institutions in Nigeria

Research Questions

The following research questions guided the study:

1. What are the artificial intelligence tools for teaching and learning of business education programmes in tertiary institutions in Nigeria
2. What ways artificial intelligence influence teaching and learning of business education programmes in tertiary institutions in Nigeria?

Hypotheses

H0₁: There is no significant difference in the mean ratings of responses of male and female respondents on artificial intelligence tools for teaching and learning of business education programmes in tertiary institutions

H0₂: There is no significant difference in the mean ratings of respondents on the influence of artificial intelligence on teaching and learning of business education programmes in tertiary institutions based on school ownership (Federal/State).

Methodology

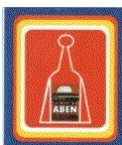
The descriptive survey research design was used for this study. The area covered in this study was the North Central geopolitical zone of Nigeria. The population of the study consisted of four hundred and twenty-five (425) Business Educators identified during a preliminary visit by the researcher to each of the public tertiary institutions in North Central, Nigeria. Since the population was handy and manageable, the researcher used the entire population of four hundred and twenty-five (425) Business Educators. There was no sampling. The instrument for data collection was a structured questionnaire designed by the researcher. The instrument was validated by three experts; two were selected from the Department of Business Education and one from the Measurement and Evaluation option in Science Education, all in Ebonyi State University, Abakaliki. The instrument was administered to thirty (30) Business Educators in tertiary institutions in the South East geopolitical zone of Nigeria. Data collected from the respondents were analyzed using the Cronbach Alpha approach to determine the reliability coefficient. The reliability coefficient of 0.97 indicated for the entire items showed a very high internal consistency for the instrument. Four hundred and twenty copies five (425) copies of the questionnaire were distributed to the respondents in their respective public tertiary institutions in North Central Zone by five research assistants while the researcher supervised the exercise. The mean and standard deviation were used to answer the research questions, while the t-test was used to test the hypothesis at a 0.05 level of significance.

Results

The findings of the study are presented below:

Research Question One: What are the Artificial Intelligence instructional tools for teaching and learning of business education programmes in tertiary institutions in Nigeria?

Data collected with items 1 to 11 of the instrument were used to answer this research question. A summary of results is presented on Table 1.

**Table1: Mean Ratings on the Readiness of Business Educators on Artificial Intelligence instructional tools for teaching and learning of business education programme**

S/ N		\bar{x}	S.D	Remarks
1	AI-powered educational games	3.27	0.71	Agreed
2	Adaptive learning platforms	3.37	0.76	Agreed
3	Intelligent Tutoring System (ITS)	3.32	0.67	Agreed
5	Expert System (ES)	3.51	0.74	Agreed
6	Machine-assisted classroom	3.42	0.71	Agreed
7	Deep Learning (DL)	3.40	0.74	Agreed
8	Voice assistant technologies	3.31	0.79	Agreed
9	Robotics	3.15	0.89	Agreed
10	Machine Vision (MV)	3.53	0.64	Agreed
11	Automated Facial Recognition (FR)	3.24	0.84	Agreed
	Grand Mean	3.04	0.68	Agreed

Results in Table 1 showed that questionnaire items 1-11 are all accepted or agreed upon as positive responses because they have mean values above the decision mean value of 2.50. This means that the respondents (Business Educators) agreed that they are all Artificial Intelligence instructional tools for teaching and learning of the business education programme

Research question Two: What is the influence of artificial intelligence on teaching and learning of business education programmes in tertiary institutions in Nigeria?

Data collected with items 12 to 23 of the instrument were used to answer this research question. Summary of results is presented on Table 2.

Table2: Mean Ratings on the Readiness of Business Educators on Influence of Artificial Intelligence on Teaching and Learning of Business Education Programme

S/N		\bar{x}	S.D	Remarks
12	AI support the presentation of a lecture on business education	2.95	1.02	Agreed
13	AI assists lecturers to carry out research in business education	3.17	1.01	Agreed
14	AI helps the lecturer to provide community services	3.27	0.93	Agreed
15	AI assists lecturers to develop their course note	3.11	1.03	Agreed
16	AI aid effective classroom management	3.04	1.04	Agreed
17	AI aid lecturers to assign assignment and projects to students	3.06	1.09	Agreed
18	AI distance learning education	2.59	1.15	Agreed
19	AI support individual learning and collaborate learning	2.97	1.09	Agreed
20	AI assists students in writing their research work in business	2.55	1.19	Agreed
21	AI assists effective examinations in business	3.40	0.73	Agreed
22	AI support presentation of lecture on business education	3.27	0.71	Agreed
23	AI assists lecturers to carry out researches in business education	3.37	0.76	Agreed
	Grand Mean	3.06	0.97	Agreed

Results in Table 2 showed that questionnaire items 12-23 are all accepted or agreed upon as positive responses because they have mean values above the decision mean value of 2.50. This



means that the respondents (Business Educators) agreed that they are all influence of artificial intelligence on teaching and learning of business education programmes in tertiary institutions

Hypotheses

H0₁: There is no significant difference in the mean ratings of responses of male and female respondents on artificial intelligence tools for teaching and learning of business education programmes in tertiary institutions

Data collected were separated across gender and subjected to a t-test of the difference between means of independent samples. A summary of the data analysis is presented on Table 3.

Table 3: Independent t-test of Mean Ratings of Responses of male and female business educators on the Artificial Intelligence tools for teaching and learning of business education programme in tertiary institutions.

Variable	N	(X)	S.D	D.f	Alpha	t-cal	P-Value	Difference
Male	148	2.22	0.90	399	0.05	1.96	.169	Not Significant
Female	253	2.16	0.99					

Summary of result on Table 3 shows that the total of P-value is .169, which is greater than 0.05, improving that there is no significant difference in the mean ratings of responses of male and female respondents on artificial intelligence tools for teaching and learning of business education programme in tertiary institutions.

H0₂: There is no significant difference in the mean ratings of respondents on the influence of artificial intelligence on teaching and learning of business education programmes in tertiary institutions based on school ownership (Federal/State).

Table 4: Independent t-test of Mean Ratings of Responses of Respondents on the influence of artificial intelligence on teaching and learning of business education programme in tertiary institutions based on school ownership.

Gender	N	Mean	SD	DF	Alpha	t-cal	P-Value	Decision
Federal	178	3.63	0.78	223	0.05	1.38	.243	Not Significant
State	223	3.77	0.72					

The results as presented in Table 9 show that the P-value is .243 which is greater than 0.05, implies that there is no significant difference on the mean ratings of responses of the influence of artificial intelligence on teaching and learning of business education programme in tertiary institutions based on school ownership (Federal/State).

Discussion

From the findings of research question one, it was discovered that the influence of artificial intelligence on teaching and learning of business education programme includes support presentation of lecture on business education, assists business educators to carry out researches in business education, helps business educators to provide community services, AI assists lecturers to develop their course note, aid effective classroom management, aid lecturers to assign assignment and projects to students, promote distance learning education, support individual learning and collaborate learning, assists students in writing their research work in business, assists effective examinations in business, support presentation of lecture on business education and AI assists lecturers to carry out researches in business education. These are in agreement with



Ogunode, Edinoh and Chinedu (2023) who opined that Artificial intelligence can be deployed to solve various problems hindering the effective implementation of teaching programmes in tertiary institutions across the country. Tertiary education is an advanced educational system meant for human capital development through teaching, research and provision of community services. Also, it concurs with the observations of Ogunode, Edinoh & Chinedu (2023) who submitted that AI can help conduct fair exams with the use of AI-powered remote proctoring. With its help, school authorities can easily conduct exams for remote learners. The authorities can prevent cheating during exams by analyzing the images/video streams produced by AI proctors. These proctors keep an eye on the candidate by detecting voices or the presence of another person apart from the examinee. Lecturers can also use AI to manage their course materials. Similarly, the findings are in agreement with Bordia (2023), who asserted that one of how this technology can be used is to improve the quality of courses offered online and offline. The teaching programme is a core programme of tertiary institutions and is very critical to the attainment of tertiary education. The teaching programme covers the preparation of lecture notes, presentation of lectures, assessment of students' academic programmes via tests and examinations, marking of students' scripts, preparation of students' results, integration of resources into lecture presentations and classroom management.

Findings of the study in research question two revealed that Artificial Intelligence instructional tools for teaching and learning of business education includes powered educational games, Adaptive learning platforms, Intelligent Tutoring System (ITS), Expert System (ES), Machine-assisted classroom, Deep Learning (DL), Voice assistants' technologies, Robotics, Machine Vision (MV) and Automated Facial Recognition (FR). The findings are in line with Bordia (2023), who concluded that lecturers in tertiary institutions can use AI-powered chatbots to provide uninterrupted learning to students. As chatbots are available, students can use them to resolve doubts in real time. Moreover, chatbots can also be used by school authorities to provide information to parents and students. For example, details on fees, new admissions, classes etc., can be passed on to parents and students through AI-powered chatbots. The findings agrees with the study of Chen et al. (2020); and Borbajo et al., (2023), who noted that tasks such as grading assignments, generating reports, and managing administrative paperwork can be automated, leading to increased efficiency and improved teacher-student interactions. The findings are in line with Singh and Jain (2022); Ogunode, Agbade and Bassey (2023b), who found that the integration of Artificial Intelligence (AI) empower teachers to use AI as a tool to enhance instruction. The teaching programme covers the preparation of lecture notes, presentation of lectures, assessment of students' academic programmes via tests and examinations, marking of students' scripts, preparation of students' results, integration of resources into lecture presentations and classroom management. These entire things that constitute teaching programmes can be easily done by the deployment of Artificial Intelligence by Business educators that teach business education programmes.

Conclusion

The study concludes that the application of AI in the teaching and learning of business education in tertiary institutions by business educators is substantial. The integration of AI technologies offers benefits such as enhanced personalized learning, streamlined administrative tasks, improved research support, facilitated collaboration, and the need to address ethical considerations. Since the area of artificial intelligence is changing, lecturers should pursue ongoing education to keep up to date on the latest advancements. This entails comprehending newly developed AI technologies, investigating possible uses for them, and assessing their influence on research and education critically.



Recommendations

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

1. The Federal and State government should increase the funding of tertiary institutions for the development of Artificial Intelligence in all tertiary institutions across the country.
2. Universities should provide opportunities for business educators to develop AI-related skills and knowledge through professional development programs. This includes training in data literacy, AI literacy, and understanding the ethical implications of AI in education. business educators should be equipped with the necessary skills to effectively leverage AI tools and technologies
3. Management of tertiary institutions should support evidence-based practices in integrating AI in the teaching and learning of business education programmes.

References

- Borbajo, N. M., Malbas, M. H., & Dacanay, L. R. (2023a). Reforming education: the global impact of integrating artificial intelligence in the classroom environment. *American Journal of Language, Literacy and Learning in STEM Education*, 1 (05), 16-27. 7.
- Borbajo, N. M., Malbas, M. H., & Dacanay, L. R. (2023). Reforming education: the global impact of integrating artificial intelligence in the classroom environment. *American Journal of Language, Literacy and Learning in STEM Education*, 1 (05), 16-27
- Bordia, D. (2023). How is AI used in education and academics? Retrieved June 22, 2023, from <https://blog.teachmint.com/how-is-ai-used-in-education-academics>
- Chen, L., Chen, P., & Lin, Z. (2020). Artificial intelligence in education: A review. *IEEE Access*, 8, 75264-75278
- Copeland, B.J (2023). Artificial Intelligence. <https://www.britannica.com/technology/artificial-intelligence>
- Femi, J. L. (2022). Success factors impacting Artificial Intelligence adoption perspective from the telecom industry in China, Doctor of Philosophy Dissertation , submitted to Old Dominion University. DOI : 10 . 2 5 7 7 7 / a 8 q 8 - g m 1 3. https://digitalcommons.odu.edu/businessadministration_etds/102
- Frankenfield, R. C. (2023). Ethical challenges of machine learning in education. In Proceedings of the 9th International Conference on Learning Analytics & Knowledge (pp. 481–485). ACM
- Igbokwe., I. C. (2023). "Application of Artificial Intelligence (AI) in Educational Management," *International Journal of Scientific and Research Publications*, 13(3,300-307,
- Ocana, G. Valenzuela-Fernandez, F. & Garro-Aburto, H. (2019). Inadequacy of Information Communication Technology (S) in Public Universities in Nigeria: Causes, Effects and Way Forward. *Middle European Scientific Bulletin*, 1(17) 334-354.
- OgunodeN., J. & Olowonefa J., A. (2023). AI Education in Nigerian Schools. *International Journal of Human Computing Studies*, 5(10),47-55
- Ogunode, N.J ,Edinoh, T. B. & Okolie, K. L. (2023f). School Administration and effective teaching methods in Science Education in Nigeria. *International Journal on Integrated Education*, 4 (2), 145- 161. 10.13140/RG.2.2.11502.54080
- Ogunode, N.,J.,Edinoh, K. & Chinedu, O., R (2023). Artificial intelligence and Tertiary Education Management. *Electronic Research Journal of Social Sciences and Humanities*, 5, (IV), 18-31
- Ogunode, N., J. & Ejike, C. N. (2023). Artificial Intelligence and Curriculum Implementation of Post-Basic Education and Career Development (PBECD) in Nigeria. *Journal of Innovation in Education and Social Research*, 1 (4),50-56



- Ogunode, N. J. & Gregory, D. M. (2023). Artificial Intelligence (AI) in educational administration. *International Journal on Orange Technologies*, 5(10), 7-16.
- Ogunode, N. J., Agbade, O. P., & Bassey, U. O. (2023b). Barriers to effective usage of artificial intelligence in tertiary institutions in north-central Nigeria. *Web of Semantics: Journal of Interdisciplinary Science*, 1(1), 38-43
- Singh, L. J. & Jain, Y. O. (2022). Artificial intelligence for higher education development and teaching skills. *Wireless Communications and Mobile Computing*, pp. 1-10.
- Westagilelabs (2022). How Artificial Intelligence (AI) is transforming education: 8 cutting-edge applications. <https://www.westagilelabs.com/blog/8-applications-of-artificial-intelligence-in-education>
- Xiaolin X., 7 L. Xiaojun, (2022). "Artificial Intelligence for Higher Education Development and Teaching Skills," *Wireless Communications and Mobile Computing*, pp. 1-10