Artificial Intelligence, School Administration and Teachers' Job Performance in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria

Esther Amina Akuh. PhD

Department of Educational Foundations, Federal University Lokoja, Nigeria

Abstract: This study invested the impact of AI on school administration and teachers' job performance in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria. This study adopted survey research design and correctional method. The target population for this study consisted of all Principals and all teachers in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria. The sample size consisted of 50 Principals and 150 teachers giving the total as 200 which were drawn from some selected the sample schools. The sample size was randomly selected. The instrument for this study was questionnaire titled 'AI, School administration and Teachers' job performance Questionnaire' (ASTQ). The questionnaire comprised Agree (SA) =4, Agree (A) =3, Disagree (D) =2 and strongly Disagree (SD) =1. The split-half reliability coefficient then is determined by correlating the scores. Based on the standard indices for reliability coefficient obtained for the instrument (0.94 and 0.94) are an indication of high reliability, pointing to the suitability of the instrument. The data collected were quantitatively analysed using tables, frequency distribution, percentage and Person Product Moment Correlation Coefficient (PPMCC). The study revealed that AI has significant relationship with school administration in Public Post-Basic Education and Career Development (PBECD), FCT, Nigeria. The study also disclosed that AI has significant relationship with teachers' job performance in Public Post-Basic Education and Career Development (PBECD), FCT, Nigeria. Based on this finding, the paper recommends that government should increase funding of Public Post-Basic Education and Career Development (PBECD) in FCT for the development of artificial intelligence in all Public Post-Basic Education and Career Development (PBECD) in FCT. Government should organize capacity building programme for school administrators and teachers to improve their digital capacity and digital knowledge.

Keywords: AI, Teachers' job performance, School administration.

1.0 Introduction

The Post-Basic Education and Career Development (PBECD) is the education children receive after a successful completion of nine years of Basic Education and passing the Basic Education Certificate Examination (BECE) and Junior Arabic and Islamic Studies Certificate Examination (JAISCE). It includes: (i) senior secondary education, (ii) higher school; and (iii) continuing education given in Vocational Enterprise Institutions (VEIs) to either Basic Education graduates who are not proceeding to Senior Secondary Schools, or Senior Secondary graduates that are not proceeding to the tertiary level, as a means of preparing them for the world of work, wealth creation and entrepreneurship (National policy on education 2014; Mohammed, Ogunode, & Yahaya 2021). The objectives of Post-Basic Education and Career Development (PBECD) according to (National policy on education 2014) are to: a. provide holders of the Basic

Education Certificate and Junior Arabic and Islamic Studies Certificate with opportunity for education of a higher level, irrespective of gender, social status, religious or ethnic background; b. offer diversified curriculum to cater for the differences in talents, disposition, opportunities and future roles; c. provide trained manpower in the applied sciences, technology and commerce at sub-professional grades; d. provide entrepreneurial, technical and vocational job-specific skills for self-reliance, and for agricultural, industrial, commercial and economic development; e. develop and promote Nigerian languages, art and culture in the context of world's cultural heritage; f. inspire students with a desire for self-improvement and achievement of excellence; g. foster patriotism, national unity and security education with emphasis on the common ties in spite of our diversity; and h. raise morally upright and well-adjusted individuals who can think in dependently and rationally, respect the views and feelings of others and appreciate the dignity of labour. (National policy on education 2014).

The realization of the above objectives depends on the availability of adequate human and materials resources such as artificial intelligence. Artificial intelligence has programs designed with human-like intelligence and structured in the forms of computers, robots, or other machines to aid in the provision of any kind of service or tasks to improve the social economic and political development of the society. Artificial Intelligence is an application or program constructed to carry out tasks with human-like intelligence (Ogunode & Ukozor 2023). Artificial intelligence is a specific branch of computer science. Through research and development, it can simulate, extend, and expand the theory, method, technology, and application system of human intelligence. The research scope of this field is wide, including language processing, language image recognition, and intelligent robot. Since the advent of artificial intelligence technology, it has been deeply studied by scholars all over the world. The theory and technology research are becoming more and more mature, and the application field is also expanding. In the future, the scientific and technological products brought by artificial intelligence will be the aggregation of human intelligence. To some extent, artificial intelligence can carry out digital simulation of the information process of human consciousness and thinking and even surpass human in thinking ability class. At the same time, artificial intelligence is a science with great development potential (Xia, & Li, 2022).

Artificial intelligence has the ability of a computer or machine to mimic the capabilities of the human mind – learning from examples and experience, recognizing objects, understanding and responding to language, making decisions, solving problems – and combining these and other capabilities to perform functions a human might perform, such as greeting a hotel guest or driving a car (Alagbe, Awodele, & Ayorinde, 2021). Artificial intelligence (AI), according to Copeland (2023) is 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. Frankenfield (2023) defined Artificial intelligence (AI) as a simulation of human intelligence by software-coded heuristics. Artificial Intelligence is a branch of science producing and studying the machines aimed at the stimulation of human intelligence processes.

1.1 Purpose of the study

The purpose of this study is to assess the impact of AI on school administration and teachers' job performance in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria. The specific objectives includes;

1. To find out the impact of AI on school administration in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria;

2. To find out the impact of AI on teachers' job performance in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria.

1.2 Research Questions

Based on the purpose of the study, the following research questions were generated for the study:

1. What is impact of AI on school administration in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria?;

2. What is the impact of AI on teachers' job performance in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria?.

1.3 Hypotheses

Based on the research questions of the study, the following research hypotheses were generated for the study:

$H0_1$: There is no significant relationship between AI and school administration in Post-Basic Education and Career Development (PBECD) in FCT.

$H0_2$: There is no significant relationship AI and school teachers' job performance in Post-Basic Education and Career Development (PBECD) in FCT

2.0 Literature Review

School administration is the process of arranging all educational resources, putting each resource where it ought to be used and coordinating both the human and materials resources for purpose of realizing the objectives of the school. School administration also deals with the effective and efficient utilization of school resources to actualizing the school programmes (Ogunode, Lawan, Gregory & Lawan 2020; Muhammad, 2020; Muhammad, 2020; Kalagbor, 2017; Ikgbusi &Iheanacho, 2016). Ogunode, et al (2020) opined that school administration look at the effective allocation, supervision and organization of school resources to realize the objectives of the educational institutions. The objectives of school administration include; to plan the educational programme, to design policies to direct the implementation of educational programme, to organize curriculum for the school, to eliminate educational waste, to ensure effective allocation of education resources, to ensure effective supervision of educational resources and to ensure deliver of quality education.

School administration covers the following; school planning, organizing, controlling, coordinating and evaluating performance, decision making, curriculum development and planning, school plant management, students activities, teachers' programme, human capacity development, school-community relationship, academic calendar planning, extra-curriculum programme, school discipline programme, school sport, school examination and school security. School administration involves practical organization and arrangement of school work schedules in effective ways using administrative structures to implement school programme and realize the school objectives whereby posts are created and assigned for the optimal performance of the school. School administration include; decisions making, forecasting, school objectives, programming school activities, budgeting, establishing and interpreting policies, examination, sporting activities, prize-giving/ graduation ceremony, maintenance of school plants, time-tabling, distribution of functions to teachers, disciplinary procedure for both teachers and students, acquisition and distribution of instructional materials for the school among others (Muhammad, 2021)

School administration operates in different forms of educational institutions. School administration occurs at the early child administration, primary school administration, secondary school administration and university administration etc. Secondary school administration is the internal organization of human and materials resources within in the school for the realization of school goals. Secondary school administration is the practical arrangement of school resources to the implementation of school programme for the achievement of school objectives. Secondary school administration is aimed at improving teachers' job performance and students' academic performance in the schools. Teachers job performance refer to the level of attainment of instructor' tasks and assignments in the school. Teachers' job performance is the extent to which

the instructor carry out the assigned responsibilities in the school. Teachers' job performance is the act or process by which the teachers execute the official responsibilities in the schools (Oyedemi, 2015; Nwiyi, 2018; Ogunode et al (2023).

Teachers' job performance includes writing of lesson note, lesson plan, organization of instrument materials, assigning of test and examination, marking, representing of school, extra–curriculum activities and motivation of students. The teachers' job performance are all activities and programme the teachers carry out in the school and the extent to which the activities are achieved. Teachers' job performance is the degree by which teachers executes their official responsibilities in the school. (Muhammad, 2021) Teachers' job performance is capacity to effectively inculcate the three domain such as concerned cognitive, psychomotor and affective on the learners. Teachers' job performance covers the roles of the teachers to substitute the parents roles in the schools. Teacher's job performance is the duties performed by a teacher in a particular period in the school system in achieving organizational goals (Obilade as cited in Selamat & Tautig, 2013). Teachers' job performance could be measured through teachers' job satisfaction and job attitudes such as job commitment, feelings of job challenge, job meaningfulness and job responsibility.

3.0 Method

This study adopted survey research design and correctional method. The target population for this study consisted of all principals and all teachers in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria. The sample size consisted of 50 principals and 150 teachers giving the total as 200 which were drawn from some selected principals and teachers. The principals and teachers were randomly selected. The instrument for this study was questionnaire titled 'AI, School administration and Teachers' job performance Questionnaire' (ASTQ). The questionnaire comprised Agree (SA) =4, Agree (A) =3, Disagree (D) =2 and strongly Disagree (SD) =1. The instrument was face validated by two experts in Educational Administration and Planning from the state university of Abuja. To determine the reliability of the instrument, the researcher tests its consistency through a pilot test using split-half method and each half administered separately to a group of respondents. The split-half reliability coefficient then is determined by correlating the scores. Based on the standard indices for reliability coefficient obtained for the instrument (0.94 and 0.94) are an indication of high reliability, pointing to the suitability of the instrument. The data collected were quantitatively analysed using tables, frequency distribution, percentage and Person Product Moment Correlation Coefficient (PPMCC).

4.0 Result and Discussion

H0₁: There is no significant relationship between AI and school administration in Post-Basic Education and Career Development (PBECD) in FCT.

Table 4.1: Significant relationship between AI and school administration in Post-Basic Education and Career Development (PBECD) in FCT.

Variable	N	X	SD	DF	A	t-cal	t-crit	P	Decision
AI	**82**	25.77	12.36	198	0.05	7.16	**1.96**	0.00	**Reject**
School Administration	**118**	22.66	**10.88**						

4.1 showed that there is a significant relationship between AI and school administration in Post-Basic Education and Career Development (PBECD) in FCT. The mean scores are 25.77 and 22.66, t-cal = 7.52 and t-crit = 1.96 which is less than the alpha (a) value of 0.05. Therefore, the hypothesis which states that there is no significant relationship between AI and school administration in Post-Basic Education and Career Development (PBECD) in FCT. This means that AI support school administration, implementation of teaching programmes, enhance effective learning in tertiary institution students, effective conduct of examination, support

virtual learning, improve the provision of community service programme, effective management of data, improve security in school and improve the attendance of teachers in classroom.

There is no significant relationship AI and school teachers' job performance in Post-Basic Education and Career Development (PBECD) in FCT.

Table 4.2: Significant relationship between AI and Teachers' Job performance in Post-Basic Education and Career Development (PBECD) in FCT.

Variable	N	X	SD	DF	A	t-cal	t-crit	P	Decision
AI	**85**	25.99	12.36	198	0.05	8.62	**1.93**	0.00	**Reject**
Teachers' Job performance	**115**	23.86	**10.88**						

Table 4.1 showed that there is a significant relationship AI and school teachers' job performance in Post-Basic Education and Career Development (PBECD) in FCT. The mean scores are 25.99 and 23.86, t-cal = 8.62 and t-crit = 1.93 which is less than the alpha (a) value of 0.05. Therefore, the hypothesis which states that there is no significant relationship AI and school teachers' job performance in Post-Basic Education and Career Development (PBECD) in FCT is rejected. This means that AI is support teachers to implement the school curriculum in FCT.

4.1 Discussion of Finding

The study revealed that AI has significant relationship with school administration in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria. Effective management is critical for smooth curriculum implementation. Ogunode and Olowonefa (2023) opined that AI has the capacity to improve data generation, distribution, storage and computation in school for effective decision and planning for effective school management. Westagilelabs (2022) noted that to eliminate manual administration work in n schools, colleges and universities such as scheduling, rescheduling classes, marking attendance, grading papers, finance, and accounting and record keeping. This streamlines the regular, mundane tasks that no longer need to be done by the staff. AI tools can perform various functions like ending truancy alerts, report cards and other correspondence to the parents automatically, Plan and schedule meetings, Automate routine, student forms, enrollments, and other paperwork to the correct department, Shorten the time spent on progress reports AI, Streamline any other record-keeping tasks.

The study also showed that AI has significant relationship with teachers' job performance in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria. AI can aid effective implementation of curriculum in the Post- Basic Education and Career Development (PBECD) schools (Ogunode, and Ukozor, 2023; Ogunode, and Gregory, 2023 & Igbokwe, 2023). Curriculum implementation deals with lesson planning and presentation. Lesson planning and lesson presentation is a major function of a teachers in the Post-Basic Education and Career Development (PBECD). The teachers is saddled with responsibilities of planning a simple and presentable lesson plan that will stimulate learning in the classroom. AI resources have been proved to have the capacity to aid the teachers to prepare bot lesson plan and aid the teachers to present the lesson perfectly. Ogunode et al (2023) asserted Al can be applied to aid delivery of lecture or implementation of teaching programme in educational institutions. Westagilelabs (2022) observed that tutoring programs or intelligent tutoring systems (ITS) based on artificial intelligence are equipped to handle personalized feedback and instructions for one-on-one teaching. They can help in scenarios where human tutors are not available for small lessons that can be taught and evaluated online. It can be an effective tool in e-learning platforms to teach languages, geography, circuits, medical diagnosis, computer programming, mathematics, physics, genetics, chemistry, etc. They are designed to factor in engagement, metrics for grading and comprehension.

4.2 Conclusion and Recommendations

The study assessed the impact of AI on school administration and teachers' job performance in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria. The specific objectives includes; to find out the impact of AI on school administration in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria and to find out the impact of AI on teachers' job performance in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria.

The study concluded that AI has significant relationship with school administration in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria. The study also disclosed that AI has significant relationship with teachers' job performance in Public Post-Basic Education and Career Development (PBECD) in FCT, Nigeria. Based on this findings, the study recommends the following:

1. Government should increase funding of Public Post-Basic Education and Career Development (PBECD) in FCT for the development of artificial intelligence in all Public Post-Basic Education and Career Development (PBECD) in FCT.

2. Government should organize capacity building programme for school administrators and teachers to improve their digital capacity and digital knowledge.

References

1. Adeyemi (2023) AI and educational problem of out of school children in nigeria

2. Balarabe, D. M & Muhammad, A. S. 2021 ''Necessity of Respecting the Name of Allah on the Circulation of the Tongue'' *Abuja Journal of Islamic Studies,* Department of Islamic Studies, Faculty Arts, University of Abuja, Abuja Nigeria. vol. 2, no. 2. December, 2021, PP: 22- 33.

3. Chiroma, (2024) Leveraging-on-ai-to-reduce-out-of-school-children-in-nigeria

4. Copeland, B.J (2022). Artificial Intelligence.

5. Economy in Nigeria. *Journal of Resourcefulness and Distinction*, *16*(1). 215-225

6. Federal Republic of Nigeria (2013). National Policy on Education. Yaba, Lagos. Nigeria: NERDC Press.

7. Frankenfield, J, (2023). Artificial Intelligence: What It Is and How It Is Used

8. Gift, U (2018) Administration of Private Secondary Education in a Dwindling Economy inHarcourt: Standout publishers.

9. http://doi.org/10.5281/zenodo.4648439 , Issue: 2, 2, Article: 1

10. https://dailytrust.com/leveraging-on-ai-to-reduce-out-of-school-children-in-nigeria/#:~:text=Providing%20smart%20devices%20with%20preinstalled,in%20the%20learning%20process%20ubiquitously.

11. https://www.britannica.com/technology/artificialintelligence

12. https://www.investopedia.com/terms/a/artificial-intelligence-ai.asp

13. https://www.toolbot.ai/apps/AI%20Abstracteer?desc=A%20tool%20that%20generates%20academic%20abstracts%20from%20user%20input&placeholder=Enter%20a%20topic%20for%20your%20abstract%20.

14. https://www.toolbot.ai/apps/AI%20Abstracteer?desc=A%20tool%20that%20generates%20acamic%20abstracts%20from%20user%20input&placeholder=Enter%20a%20topic%20for%20your%20abstract%20

15. Igbokwe, I,. C. (2023). Application Of Artificial Intelligence (AI) In Educational Management. International Journal of Scientific and Research Publications, 13(3).300-307

16. Ike, P. (2017) Problems and Prospects of Secondary Education in Nigeria. *International*

17. Ikgbusi, N, G &Iheanacho, R, C (2016) Factors Militating against Effective Administration of Secondary Schools in Anambra State. *World Journal of Educational Research*. 3, 1,*Journal of Education and Evaluation*. 3 (1) 44-51

18. Kalagbor, L. D. (2017). Educational administration: Principles and practices in schools. Port Klirs (2024) Artificial intelligence and out of school children in Nigeria.

19. Muhammad, A. S. 2020 ''Traces of Peaceful Coexistence in the Prophetic Tradition as a Panacea for National Cohesion.'' *Al-Nazzarah, Referred Journal of Arabic and Islamic Studies,* Department of Religion and Philosophy, Faculty of Arts, University of Jos. Vol 3, No. 5. December, 2020, PP: 12-27.

20. Muhammad, A. S. 2021 & Sunusi, S. A. ''The Role of Religion in Conscience Reawakening of the Youth'' Al-Nazzarah *Referred Journal of Arabic and Islamic Studies,* Department of Religion and Philosophy, Faculty of Arts, University of Jos. Vol. 4, No. 3. December, 2021, PP: 1-12.

21. Muhammad, A. S. 2021 '' The role of civil society organization in the face of contemporary security challenges in Nigeria'' *Abuja Journal of Islamic Studies,* Department of Islamic Studies, Faculty Arts, University of Abuja, Abuja Nigeria. vol. 2, no. 2. December, 2021, PP: 125-138. Nigeria. *Journal of Resourcefulness and Distinction, 16. 1,* 215

22. Nwiyi, G. U. (2018). Administration of Private Secondary Education in a Dwindling

23. Ogunode N,. J & Jegede, D. (2021). An investigation into the challenges militating against implementation of secondary school educational policies in Federal Capital Territory, Abuja, Nigeria*. Commonwealth Journal of AcademicResearch*, (CJAR.EU), 1- 12. DOI:

24. Ogunode N,. J. & Olowonefa J,. A. (2023). AI Education in Nigerian Schools. *International Journal of Human Computing Studies*, 5(10),47-55

25. Ogunode, N. J. & Gregory, D. M. (2023). Artificial Intelligence (AI) in educational administration. *International Journal on Orange Technologies*, *5*(10), 7-16.

26. Ogunode, N. J., & Ukozor, C. U. (2023). Curriculum revolution in higher education: the mighty role of artificial intelligence. Retrieved June 22, 2023, from https://ijins.umsida.ac.id/index.php/ijins/article/view/971/1183

27. Oyedemi, O. (2015). ICT and effective school management,administrators' perspective, *Proceedings of the World Congress on Engineering*, 249-253.

28. Singh, S., & Jain, P. (2022). Applications of Artificial Intelligence for the development of sustainable agriculture. In: Kumar, P., Tomar, R. S., Bhat, J. A., Dobriyal, M., Rani, M. (eds) *Agro- biodiversity and Agri-ecosystem Management*. Springer. https://doi.org/10.1007/978-981 19-0928-3_16

29. Westagilelabs (2022).How Artificial Intelligence (AI) is transforming education: 8 cutting-edge applications. https://www.westagilelabs.com/blog/8-applications-of-artificial-intelligence-ineducation/