EXCELLENCIA
INTERNATIONAL MULTI-DISCIPLINARY JOURNAL OF EDUCATION
Volume 1, Issue 6, 2023 ISSN (E): 2994-9521

Artificial Intelligence, Instructional Supervision and Curriculum Implementation in Post-Basic Education and Career Development (PBECD) Abuja, Nigeria

Dr. Bala A Shehu[1]

[1] Department of curriculum and instructional technology, college of education Minna, Niger State, Nigeria

E-mail: Okuroroabubakar@gmail.com

Abstract:

The aim of study is to assess the impact of artificial intelligence on instructional supervision and curriculum implementation in Post-Basic Education and Career Development (PBECD) in Abuja, Nigeria. Research design of this study was descriptive survey. The population of the study comprises all the principals and teaching staff in the one hundred nine (109) public Post-Basic Education and Career Development (PBECD) Abuja. The sample size for the study was three hundred and fifty (350) comprising the total population of 39 principals (Supervisors and 311 teachers selected from the secondary schools using a simple random sampling techniques. The instrument for data collection was the structured questionnaire developed by the researcher titled "AI and Instructional Supervision and Curriculum implementation Questionnaire (AIISCIQ). The questionnaire is developed on four (4) point rating scale provided for the respondents to choose from, they are: Strongly Agree (SA) – 4, Agree (A) - 3, Disagree (D) – 2, Strongly Disagree (SD)-1. The instrument was face validated by three experts, two from Educational Administration and Planning, in the Department of Educational Foundations and one expert from English education in University of Abuja. To ascertain the reliability of the instrument, the questionnaire was administered to ten (10), principals and ten (10) staff for trial-testing in some school which were not part of the study in Abuja. A reliability estimate was computed using Cronbach Alpha reliability

coefficient which gave the value of 0.95. The data obtained from this study were subjected to statistical analysis. Frequencies and simple percentages were used to analyze the total number of respondents who completed the questionnaires. Pearson Product Moment Correlation was used to test all the five hypotheses. The result showed that artificial intelligence aids effective instructional supervision in in Post-Basic Education and Career Development (PBECD) in Abuja. The study also established that artificial intelligence support effective curriculum implementation in in Post-Basic Education and Career Development (PBECD) in Abuja. Based on the findings, the study recommends that FCT secondary school board should provide artificial intelligences facilities in all Post-Basic Education and Career Development (PBECD) in Abuja, since AI influences instructional supervision and curriculum implementation. FCT secondary school board should constantly organize capacity building for Instructional Supervisors and teachers to improve their digital skills.

Keywords: Artificial intelligence, Instructional supervision, Curriculum implementation

Introduction

The Nigerian secondary school also known as 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).

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 school objectives depends on effective implementation of schools curriculum. Ejike, and Oke (2018), curriculum implementation fosters curriculum evaluation and this guides the learning outcomes. The major implementers of curriculum are the teachers. They set up learning opportunities aimed at enabling learners acquire the desired knowledge, skills, attitudes and values through adoption of appropriate teaching methods and materials to guide students' learning. The curriculum planned and developed is implemented through the medium of instruction. Curriculum implementation can be seen as execution of an organized curriculum programme in the educational institutions. Curriculum implementation is the conversion of theoretical curriculum programme to reality via teaching and learning in the educational institutions (Femi, 2020). Okebukola (2004), viewed curriculum implementation as the transition of the objectives of the curriculum from paper to practice. That is, only effective curriculum implementation ensures achievement of the objectives for which the curriculum was designed to attain. Effective curriculum implementation is attained by effective supervision (Ogunode & Ohiosumua 2023; Ogunode, Akin-Ibidiran & Ibidiran 2021).

The attainment of curriculum implementation in the schools depend largely on effective instructional supervision in the schools. Ogunode and Ibrahim (2023) conceptualized instructional supervision as the process of improving teaching and learning in educational institutions because of realizing the goals of education. Instructional supervision is critical to the development of education. Ezekwugo (2005) and Ogunode and Adanna (2022) instructional supervision is a planned programme required for the improvement of instruction. This implies that instructional supervision involves a set of activities, which are called to make the teaching-learning process better for the learner. Supervision is an organized programme meant to give direction, guidance and control of an individual or organization or an institutions with the aims of improving their performance and ensuring they are doing the right things. Supervision is carried out in all forms of educational institutions including higher institutions (Ogunode, 2023; Opeyemi,2018; Owoeye, 2002). Dare (2009) and Umar Hauwa"u and Nura (2017) reveals the following as rational for school supervision and inspection in Nigeria: (1) to improve teaching and learning activities in schools; (2) to assist teachers to develop the required teaching skills; (3) to equip teachers with the skills of curriculum development; (4) to evaluate the conditions of teaching and learning in the school; (5) to ensure and sustain the link between the school and the ministry of education; (6) to evaluate and approve schools for external examinations such as West Africa Examination Council Senior School Certificate Examination (WAECSSCE) and National Examination Council Senior School Certificate Examination (NECOSSCE); (7) to carry out investigation either in respect of a petition for school upgrading; (8) to ensure that schools use the curriculum developed by the ministry of education and (9) to assess the adequacy of staff and facilities in the schools.

Also, school curriculum implementation objectives can be achieved via deployment of technological facilities such as artificial intelligences. AI is 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 2023). Ogunode & Ukozor (2023) defined Al as 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 technologies encompass various techniques and approaches, such as machine learning, deep learning, natural language processing, computer vision and robotics. These technologies enable computers to analyze vast amounts of data, recognize patterns, make predictions and automate complex processes. Artificial Intelligence has applications across numerous fields, including health care, finance, transportation, customer service and education. It has the potential to transform industries, improve efficiency and create new opportunities (AFSA 2022). Frankenfield (2023) defined Artificial intelligence (AI) as 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. It is import to examine the impact of artificial intelligence on instructional supervision and curriculum implementation in Post-Basic Education and Career Development (PBECD) in Abuja, Nigeria.

Purpose of the Study

The aim of study is to assess the impact of artificial intelligence on instructional supervision and curriculum implementation in Post-Basic Education and Career Development (PBECD) in Abuja, Nigeria. The specific objectives include;

1 To find out the impact of artificial intelligence on instructional supervision in Post-Basic Education and Career Development (PBECD) in Abuja, Nigeria.

2 To find out the impact of artificial intelligence on curriculum implementation in Post-Basic Education and Career Development (PBECD) in Abuja, Nigeria.

Research Questions

This research question was raised to guide the study.

1 What is impact of artificial intelligence on instructional supervision in Post-Basic Education and Career Development (PBECD) in Abuja, Nigeria?.

2 What is impact of artificial intelligence on curriculum implementation in Post-Basic Education and Career Development (PBECD) in Abuja, Nigeria?

Research Hypothesis

The following were formulated to guide the study:

H_1: There is no significant relationship between artificial intelligence and instructional supervision in Post-Basic Education and Career Development (PBECD) in Abuja.

H_2: There is no significant relationship between artificial intelligence and curriculum implementation in Post-Basic Education and Career Development (PBECD) in Abuja.

Methods

Research design of this study was descriptive survey. The population of the study comprises all the principals and teaching staff in the one hundred nine (109) public Post-Basic Education and Career Development (PBECD) in Abuja. The sample size for the study was three hundred and fifty (350) comprising the total population of 39 principals (Supervisors and 311 teachers selected from the secondary schools using a simple random sampling techniques. The instrument for data collection was the structured questionnaire developed by the researcher titled "AI and Instructional Supervision and Curriculum implementation Questionnaire (AIISCIQ). It was arranged in three sections. Section one consists of an introductory letter to the respondents to complete the questionnaire. Section two, collected Bio-data information of respondents. While section three of the questionnaire contains twenty items (20) carefully arranged in clusters. A and B which seek to provide answers to the research questions. The questionnaire is developed on four (4) point rating scale provided for the respondents to choose from, they are: Strongly Agree (SA) – 4, Agree (A) - 3, Disagree (D) – 2, Strongly Disagree (SD)- 1. The instrument was face validated by three experts, two from Educational Administration and Planning, in the Department of Educational Foundations and one expert from English education in University of Abuja. The experts were requested to study the suitability and relevance of the instrument in line with the purpose of the study and the research questions as well as the appropriateness of the rating scale. To ascertain the reliability of the instrument, the questionnaire was administered to ten (10), principals and ten (10) staff for trial-testing in some school which were not part of the study in Abuja. A reliability estimate was computed using Cronbach Alpha reliability coefficient which gave the value of 0.95. This value indicates that the instrument was reliable. The data obtained from this study were subjected to statistical analysis. Frequencies and simple percentages were used to analyze the total number of respondents who completed the questionnaires. Pearson Product Moment Correlation was used to test all the five hypotheses. The 0.05 level of significance was used in rejecting or retaining the null hypotheses.

Data Analysis

H_1: There is no significant relationship between artificial intelligence and instructional supervision in Post-Basic Education and Career Development (PBECD) in Abuja.

Table 1. Pearson Product Moment Correlation statistics showing relationship between artificial intelligence and instructional supervision in Post-Basic Education and Career Development (PBECD) in Abuja.

N350

Variables	**M**	**SD**	**r**	**df**	p
Artificial intelligence	33.7372	4.91919	0.870	329	0.001
Teaching of inclusive Education	3.6750	.55884			

Correlation is significant at the 0.05 level (2-tailed) r=0.880 p=0.001

Table 1 shows the Pearson product moment correlations which revealed that significant relationship exist between artificial intelligence and instructional supervision in Post-Basic Education and Career Development (PBECD) in Abuja. This is because the calculated p value of 0.001 was found to be lower than the 0.05 alpha level of significance at a correlation index value of 0.870. This implies that the higher the artificial intelligence applied for instructional supervision in school, the more teachers carries out their responsibilities. Therefore, the null hypothesis which stated that, there is no significant relationship between artificial intelligence and instructional supervision in Post-Basic Education and Career Development (PBECD) in Abuja is therefore rejected

H_2: There is no significant relationship between artificial intelligence and curriculum implementation in Post-Basic Education and Career Development (PBECD) in Abuja.

Table 2. Pearson Product Moment Correlation statistics on relationship between artificial intelligence and curriculum implementation in Post-Basic Education and Career Development (PBECD) in Abuja.

N350

Variables	**M**	**SD**	**r**	**df**	**p**
Artificial intelligence	70.8066	12.60261	0.722	329	0.003
Instructional Supervision	31.7372	4.91718			

Correlation is significant at the 0.05 level (2-tailed) r=0.880 p=0.001

Table 2 is a Pearson product moment correlations analysis aimed at finding relationship between artificial intelligence and curriculum implementation in Post-Basic Education and Career Development (PBECD) in Abuja. The results revealed that significant relationship exist between artificial intelligence in Post-Basic Education and Career Development (PBECD) in Abuja. This is because the calculated p value of 0.003 was found to be lower than the 0.05 alpha level of significance at a correlation index value of 0.722. This implies that the Artificial intelligences aids curriculum implementation in schools. Therefore, the null hypothesis which stated that, there is no significant relationship between artificial intelligence and curriculum implementation research in in Post-Basic Education and Career Development (PBECD) in Abuja, is hereby rejected.

Results

The result revealed that artificial intelligence aids effective instructional supervision in in Post-Basic Education and Career Development (PBECD) in Abuja. The study also established that artificial intelligence support effective curriculum implementation in in Post-Basic Education and Career Development (PBECD) in Abuja.

Discussion

The result disclosed that artificial intelligence aids effective instructional supervision in in Post-Basic Education and Career Development (PBECD) in Abuja. This finding is in agreement with the submission of Ogunode Edinoh, and Chinedu, (2023), they maintained 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 Al to manage their course materials. AI can aid effective classroom management. AI can assist teachers to monitor student's attendance in classroom. AI can aid teachers to manage instruction in the classroom (Ogunode, et al 2023; Alagbe, et al 2021; Chen, Chen, & Lin,2020). Source security (2023) listed the following Al devices to solve security problems in tertiary institutions to include Video surveillance. Video surveillance is a technology that is unobtrusive and can promote security beginning at the outermost boundaries of the school environment – at the perimeter and as automobiles drive onto school grounds. Surveillance can keep a silent and constant watch as people come and go. Furthermore, incorporating new artificial intelligence (AI) and deep learning technologies is increasing the real-time capabilities of video surveillance to provide early warning of a possible security threat as it enters a campus. AI and deep learning analyse the content of video feeds and provide usable information to security personnel, including analysis of trends and realtime alarms when an event takes place. AI helped school administrators to monitor school and inspect teachers and students in the classroom through the deployment of CCTV cameras.

The study also established that artificial intelligence support effective curriculum implementation in in Post-Basic Education and Career Development (PBECD) in Abuja. This finding collaborates with the discovery of Musa (2019) that found out that AI supported implementation of school curriculum in North-central Nigeria.

Conclusion

The aim of study is to assess the impact of artificial intelligence on instructional supervision and curriculum implementation in Post-Basic Education and Career Development (PBECD) in Abuja, Nigeria. The result disclosed that artificial intelligence aids effective instructional supervision in in Post-Basic Education and Career Development (PBECD) in Abuja. The study also established that artificial intelligence support effective curriculum implementation in in Post-Basic Education and Career Development (PBECD) in Abuja.

Based on the findings, the study recommends that FCT secondary school board should provide artificial intelligences facilities in all Post-Basic Education and Career Development (PBECD) in Abuja, since AI influences instructional supervision and curriculum implementation. FCT secondary school board should constantly organize capacity building for Instructional Supervisors and teachers to improve their digital skills.

References

AFSA. (2022). Artificial intelligence and education. Retrieved June 22, 2023 from https://www.theschoolleader.org/news/artificial-intelligence-and-education

Alagbe, J., Awodele, O., & Ayorinde, I. (2021). Is Nigeria ready for artificial intelligence in schools? Retrieved June 22, 2023, from https://punchng.com/is-nigeria-ready-for-artificial-intelligence-in-schools/

Adiele, J. (1987). The effect of application of Cogan"s clinical supervision technique on teacher effectiveness and students performance in integrated science in secondary schools.Unpublished Doctoral Thesis University of Nigeria, Nsukka.

Dodd, W.A (1968). *Principal school inspection in New Countries.* London: Oxford University Press

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
Dodd, W.A (1968). *Principal school inspection in New Countries.* London: Oxford University Press
Femi, T. (2022). Artificial intelligence and Basic school management in Nigeria. *International Journal on Technologies, 5*(9), 7-14.
Ejike, C, N,. & Oke,. G,. E. (2018). Challenges of Curriculum Implementation and the Realization of National Philosophy of Education in Nigeria. *International Journal of Management, Social Sciences, Peace and Conflict Studies (IJMSSPCS), Vol.1 No.1, p.g. 62 – 67*
Frankenfield, J, (2023). Artificial Intelligence: What It Is and How It Is Used https://www.investopedia.com/terms/a/artificial-intelligence-ai.asp
Igbokwe, I,. C. (2023). Application of artificial intelligence (AI) in educational management. *International Journal of Scientific and Research Publications,* 13(3).300-307
National Open University of Nigeria (NOUN, 2006) Supervision of instruction in Education: Lagos: Press craft,
production Company.
Nwaogu, J.I. (1980). *A Guide to Effective Supervision of Instruction in Nigeria Schools.* Enugu; Fourth Dimension Publishing Co. Ltd
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
Ogunode1, N,. J. Idoko, G. & ThankGod, P. (2022). Artificial Intelligence and Implementation of Educational Administration and Planning Programme in Nigerian Tertiary Institutions. *International Journal of Academic Integrity and Curriculum Development,* 1(1), 41-47
Ogunode, N. J., Okolie, K. E., & Chinedu, R. (2023). Artificial intelligence and tertiary education management. *Electronic Research Journal of Social Sciences and Humanities,* 5(4), 18-31.
Ogunode, N, J, & Ajape T, S (2021). Supervision of Secondary School Education in Nigeria: Problems and Suggestions. (EJHEA) 2 (6), 71-76 16.
Ogunode, N. J. & Richard, U. N (2021).Supervision of Secondary School Education in Federal Capital Territory, Abuja: Problems and the Way Forward. *International Journal on Orange Technology, 3(8),47-56* 17.
Ogunode N, J, Akin-Ibidiran T. Y, & Ibidiran J, A (2021) Implementation of Early Childhood Curriculum in Nigeria: Problems and Way Forward. *International Journal of Development and Public Policy* 1(5), 210-216.
Ogunode, N. J., & Adanna, C. M. (2022). Supervision of Higher Institutions in Nigeria: Challenges and Way Forward. *Pioneer: Journal of Advanced Research and Scientific Progress, 1*(1), 26-37.
Okebukola, P. A. (2004). Science laboratory behaviour strategies of students relative to performance and attitude towards Science. *Journal of Research in Science Teaching, 2I2*(3), 78-85.
Opeyemi, T. (2018). Roles of supervision in curriculum development in Nigeria. Lagos.
Owoeye, J. S. (2002). *Educational supervision in primary and secondary schools*. Ibadan. Longman Publishers.
Source security. (2023). Enhancing the security of educational institutes with AI-enabled video security systems. Retrieved June 22, 2023, from https://www.sourcesecurity.com/news/securityeducational-institutes-video-security- systems- co-3425-ga-co-12558-ga.1557484245.html#:~:text=AI%20and%20deep%20learning%20technologies,from%20entering%20the%20learning%20environment.

Umar A; Hauwa‟u A &Nura D (2017) Constraints on Effective Educational Supervision of Instruction in Secondary Schools in Nigeria. *International Journal of Topical Education,* 1 (2),61 – 69

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