

INFLUENCE OF ARTIFICIAL INTELLIGENCE ON STAFF AND STUDENTS PERSONNEL MANAGEMENT FOR EFFECTIVE PUBLIC SECONDARY SCHOOLS ADMINISTRATION IN ABUJA MUNICIPAL AREA COUNCIL (AMAC), NIGERIA

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Abstract

The study investigated the influence of artificial intelligence on staff and students personnel management for effective public secondary schools administration in Abuja Municipal Area Council (AMAC), Abuja, Nigeria. The study was guided by two objectives, two research questions and two null hypotheses. The descriptive survey design was used and the population comprised 262 principals and vice principals in AMAC. The instrument for data collection was a researcher- designed questionnaire titled "Artificial Intelligence and Effective Secondary School Administration (AIESSAQ)". Two experts from educational administration and planning, and educational evaluation validated the instrument. A pilot study conducted yielded a reliability coefficient of 0.94 using the Cronbach Alpha. The research questions were answered using mean and standard deviation, while the null hypotheses were tested using t-test at 0.05 level of significance. The findings of the study revealed that artificial intelligence has significant influence on decision-making and to a considerable extent improves instructional supervision for effective public secondary schools administration in AMAC. It was recommended that the Post Primary School Management Board (PPSMB) should develop clear policies and frameworks guiding the integration of Artificial Intelligence into decision-making for effective public secondary school administration

Keywords: Artificial Intelligence, Staff and Students Personnel, Effective Administration.

Introduction

Administration is the task of overseeing an organization with the optimum use of all the available resources (human and nonhuman) for achieving its goals and objectives. Administration involves processes such as planning, organizing, directing, coordinating, controlling and evaluating performance against the stated objectives of the organization. In secondary school education, effective administration involves planning, organizing, coordinating, and supervising all school activities to achieve educational goals. In most secondary schools in Nigeria, administrators are faced with the challenges of managing large student populations, maintaining accurate staff records, improving communication, and ensuring accountability.

The increasing complexity of educational administration in the 21st century necessitates innovative approaches to enhance administrative efficiency, transparency, and responsiveness, highlighted (Ibaba, 2025). The rapid growth of technology in the 21st century has transformed almost every sector of human endeavor, including education. Among the most significant advancements in recent years is Artificial Intelligence (AI). The adoption of AI in educational administration is transforming how institutions manage processes, engage with stakeholders, and deliver educational content (Ajuwon et al., 2024). Also, as noted by Akpan and Essien (2025), Artificial intelligence offers automated solutions for scheduling, record-keeping, and performance assessment, thereby reducing the workload on school administrators and enabling them to focus on more strategic decision-making processes. The implication is that most of the administrative processes can be automated through the use of digital technologies with artificial intelligence as the latest advancement in technology. This shifts the focus from the traditional methods of school administration that often rely on manual processes that are time consuming and may be prone to errors to automation using artificial intelligence. Supporting this approach to solving the challenges of effective secondary school administration, Uzoigwe et al (2024) asserted that, the incorporation of AI tools in school management can bring significant benefits to educational planning, administration, and supervision by improving efficiency, enabling data-driven decision-making, and providing personalized support to administrators, teachers and students alike. Therefore, Artificial Intelligence (AI) offers a strategic opportunity to improve school administration and service delivery especially in the areas of staff and students personnel management.

Objectives of the Study

The study was guided by the objectives:

1. To determine the influence of artificial intelligence on staff personnel management in public secondary school administration in Abuja municipal area council.
2. To investigate the influence of artificial intelligence on students personnel management in public secondary school administration in Abuja municipal area council.

Research Questions

The study was guided by the following research questions:

1. What is the influence of artificial intelligence on staff personnel management for effective public secondary school administration in Abuja municipal area council?
2. What is the influence of artificial intelligence on students' personnel management for effective public secondary school administration in Abuja municipal area council?

Hypotheses

H₀₁. There is no significant difference in the mean ratings of staff personnel management on the influence of Artificial Intelligence for effective public secondary school administration in Abuja municipal area council.

H02. There is no significant difference in the mean ratings of students' personnel management on the influence of Artificial Intelligence for effective public secondary school administration in Abuja municipal area council.

Methodology

The study employed a descriptive survey research design. The population comprised 262 principals and vice principals in public secondary schools in Abuja municipal area council. There was no sampling as the population was manageable. The instrument used for data collection was a researcher developed questionnaire titled, 'Artificial Intelligence and Effective Secondary school Administration (AIESSAQ).' The questionnaire was divided into two sections, A and B. Section A was designed to collect demographic information from the respondents, while Section B contains 12 items grouped into two (2) clusters and using a four Likert scale for rating. The response format for Section B was "Strongly Agree = 4 points", "Agree = 3 points", "Disagree = 2 points", "Strongly Disagree = 1 point." The instrument was validated by two experts from educational administration and planning and educational evaluation. The instrument was also tested for reliability using Cronbach Alpha with a reliability coefficient of 0.94. Mean and standard deviation were used to answer the research questions, while t-test was used for hypothesis testing at a 0.05 level of significance.

Results

Research Question One: What is the influence of artificial intelligence on staff personnel management for effective public secondary school administration in Abuja municipal area council?

Table 1: Mean and standard deviation on influence of AI on staff personnel management.

S/N	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	Std. Deviation
1.	AI systems improve the accuracy of staff records (attendance, qualifications).	87(33.2 %)	145(55.3%)	26(9.9%)	4(1.5%)	3.20	.673
2.	AI tools facilitate transparent teacher appraisal.	37 (14.1%)	176 (67.2%)	45(17.2 %)	4(1.5%)	2.94	.610
3.	AI-based scheduling systems help distribute teaching loads fairly.	77 (29.4%)	177(67.6%)	8(3.1%)	0 (0.0)	3.26	.506

4. AI analytics help identify staff professional development needs.	86(32.8 %)	146(55.7%)	29(11.1 %)	1(.4%)	3.21	.642
5. AI reduces administrative delays in HR processes (e.g., leave, payroll).	92(35.1 %)	160 (61.1%)	10 (3.8%)	0 (0.0)	3.31	.541
6. AI improves fairness in staff promotion decisions.	98(37.4 %)	149 (56.9%)	15 (5.7%)	0 (0.0)	3.32	.576

Table 1 showed the influence of artificial intelligence on staff personnel management for effective public secondary school administration in AMAC. More than half of the respondents accepted all six items as true. Those who agreed and strongly agreed with each of the six items are above 50%. The mean ratings of each of the six items are above the 2.50 benchmark for the acceptance of a statement in a four-point Likert scale. This is a confirmation of the result found from the frequency and percentage analyses. Conclusively, majority of the respondents, agreed that AI systems improve the accuracy of staff records (attendance, qualifications), AI tools facilitate transparent teacher appraisal, AI-based scheduling systems help distribute teaching loads fairly, AI analytics help identify staff professional development needs, AI reduces administrative delays in HR processes (e.g., leave, payroll) and AI improves fairness in staff promotion decision.

Research Question Two: What is the influence of artificial intelligence on students' personnel management for effective public secondary school administration in Abuja municipal area council?

Table 2: Mean and standard deviation on influence of AI on students' personnel management.

S/N	Statement	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean	Std. Deviation
1	AI applications improve the accuracy of student attendance records.	97 (37.0%)	150 (57.3%)	15 (5.7%)	0 (0.0)	3.31	.575
2	AI tools enable early identification of students at academic risk.	61 (23.3%)	179 (68.3%)	22 (8.4%)	0 (0.0)	3.15	.544

3	AI supports secure management of student records.	68 (26.0%)	176(67.2 %)	15(5.7 %)	3(711%)	3.18	.576
4	AI facilitates better communication with parents about students' progress.	105 (40.1%)	147(56.1 %)	9(3.4%)	1(.4%)	3.36	.568
5	AI supports personalized learning recommendations.	82 31.3%)	147(56.1 %)	33(12.6 %)	0 (0.0)	3.19	.637
6	AI provides useful data for counseling interventions.	54 (20.6%)	174(66.4 %)	34(13.0 %)	0 (0.0)	3.08	.576

Table 2 above showed the influence of artificial intelligence on students' personnel management for effective public secondary school administration in AMAC. More than half of the respondents accepted all six items as true. Those who agreed and strongly agreed with each of the six items are above 50%. The mean ratings of each of the six items are above the 2.50 benchmark for the acceptance of a statement in a four-point Likert scale. This is a confirmation of the result found from the frequency and percentage analyses. Conclusively, majority of the respondents, agreed that AI applications improve the accuracy of student attendance records, AI tools enable early identification of students at academic risk, AI supports secure management of student records, AI facilitates better communication with parents about students' progress, AI supports personalized learning recommendations and AI provides useful data for counseling interventions.

Hypothesis One: There is no significant difference in the mean ratings of staff personnel management on the influence of Artificial Intelligence for effective public secondary school administration in Abuja municipal area council.

Table 3: T-test analysis of influence of AI on staff personnel management.

Gender	N	Mean	Std. Deviation	Df	T	Sig	F	Remark
Principals	118	19.3136	1.87516	260	.530	.913	.012	NS
Vice Principals	144	19.1875	1.94673					

Table 3 presents the t-test comparison of mean ratings of principals and vice principals on the influence of Artificial Intelligence on staff personnel management for effective public secondary school administration in Abuja Municipal Area Council. The t-test comparison showed that the difference in principals and vice principals on the influence of Artificial Intelligence on staff personnel management for effective public secondary school administration in Abuja Municipal Area Council was not statistically significant. This is evident from the sig-2-tailed values that are greater than the 0.05 benchmark. Since any t-test comparison of means of two groups, which is greater than the 0.05 benchmark, signifies an insignificant difference in ratings of the two groups (principals and vice principals), it follows that the difference is not statistically significant. Therefore, the null hypothesis, which states that there is no significant difference between the ratings of principals and vice principals on the influence of Artificial Intelligence on staff personnel management for effective public secondary school administration in Abuja Municipal Area Council, was accepted. The values of the mean ratings of principals and vice principals, however, showed that the ratings of principals were higher than those of the vice principals. Since the difference is not statistically significant, it cannot be generalized; it must have occurred due to sampling error.

Hypothesis Two: There is no significant difference in the mean ratings of students' personnel management on the influence of Artificial Intelligence for effective public secondary school administration in Abuja municipal area council.

Table 4: T-test analysis of influence of AI on students' personnel management.

Gender	N	Mean	Std. Deviation	Df	T	Sig	F	Remark
Male	118	19.2797	2.44909	260	.099	.488	.482	NS
Female	144	19.2500	2.37852					

Table 4 presents the t-test comparison of mean ratings of principals and vice principals on the influence of Artificial Intelligence on students' personnel management for effective public secondary school administration in Abuja municipal area council. The t-test comparison showed that the difference in principals and vice principals on the influence of Artificial Intelligence on students' personnel management for effective public secondary school administration in Abuja municipal area council was not statistically significant. This is evident from the sig-2-tailed values that are greater than the 0.05 benchmark. Since any t-test comparison of means of two groups, which is greater than the 0.05 benchmark, signifies an insignificant difference in ratings of the two groups (principals and vice principals), it follows that the difference is not statistically significant. Therefore, the null hypothesis, which states that there is no significant difference between the ratings of principals and vice principals on the influence of Artificial Intelligence on students' personnel management for effective public secondary school administration in Abuja municipal area council, was accepted. The values of

the mean ratings of principals and vice principals, however, showed that the ratings of principals were higher than those of the vice principals. Since the difference is not statistically significant, it cannot be generalized; it must have occurred due to sampling error.

Discussion of Findings

The finding portrays that artificial intelligence has a remarkable influence on staff personnel management for effective public secondary school administration. This finding resulted from the fact that AI improves the accuracy of staff records, facilitates transparent teacher appraisal, ensures fair distribution of teaching loads, helps identify professional development needs, reduces administrative delays in human resource processes, and enhances fairness in promotion decisions. The finding is in agreement with Aleru et al. (2025) who revealed that artificial intelligence influences human resource practices of recruitment, selection and appraisal to a high extent. This is support by Eneje and Chukwu (2025) whose findings showed that though artificial intelligence has been integrated in human resource, it is to a low extent.

In addition, the finding on the influence of artificial intelligence on students' personnel management for effective public secondary school administration in AMAC clearly revealed that implementing artificial intelligence integration will surely improve students' personnel management greatly. The finding is as a result of AI improving the accuracy of student attendance records, enabling early identification of students at academic risk, supporting secure management of student records, facilitating better communication with parents about students' progress, supporting personalized learning recommendations and providing useful data for counseling interventions. This is in agreement with Obona et al. (2024) whose work revealed that artificial intelligence significantly contributes to students' personnel management in secondary schools. It is also in agreement with Ubabuike and Nweke (2024) who found that artificial intelligence positively affects students' personnel though its application is to a very low extent. The finding is also in consonance with Isong et al. (2025) who found that artificial intelligence significantly influences students' personnel management, improving resource allocation and data handling.

Conclusion

Based on the findings of the study, it can be concluded that Artificial Intelligence has a positive and significant influence on effective public secondary school administration in Abuja municipal area council (AMAC). Artificial intelligence enhances staff and students personnel management through improved record accuracy, fairness, transparency, and early intervention systems. The study also established that both principals and vice principals share similar positive perceptions of artificial intelligence across all administrative domains, indicating a unified understanding of its importance and relevance. Overall, Artificial Intelligence is perceived as a transformative administrative tool capable of enhancing efficiency, transparency, accountability, objectivity, and effectiveness in public secondary school administration in AMAC. If properly implemented, AI can significantly modernize school management practices and improve institutional performance.

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