



Artificial Intelligence as a Predictor of Effective Student Personnel Management in Secondary Schools: Evidence from Abia State, Nigeria

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Abstract

The integration of Artificial Intelligence (AI) tools offers innovative approaches to addressing challenges in education, particularly in enhancing student personnel management for improved achievement of educational goals. This study explored AI as a predictor of effective student personnel management in secondary schools in Abia State, Nigeria. Employing a survey research design, the study covered the three education zones in the state: Aba, Ohafia, and Umuahia. The target population consisted of 253 public secondary schools and their principals. Through stratified and purposive sampling techniques, 124 schools and principals were selected. Data were gathered using a researcher-designed instrument titled *Artificial Intelligence and Student's Personnel Management Questionnaire (AISPMQ)*, based on a modified 4-point Likert scale (Strongly Agree to Strongly Disagree). To ensure the instrument's validity, it was reviewed by three experts—one in Educational Management and two in Measurement and Evaluation at Nnamdi Azikiwe University, Awka. The reliability coefficient ranged from 0.89 to 0.91. Data analysis involved testing null hypotheses using Simple Linear Regression at a 0.05 significance level. Findings showed that AI significantly influences student personnel management, improving resource allocation, data handling, and decision-making processes. This enables school principals to make informed, data-driven decisions, thereby enhancing administrative responsiveness and effectiveness. The study concludes that AI is a strong predictor of effective student personnel management and highlights the need for its adoption in school administration. It recommends that the Abia State Ministry of Education should promote AI integration through leadership training and infrastructure support. Future research should focus on comparative studies across public and private schools in multiple states to examine variations in AI adoption and effectiveness in student personnel management.

Keywords: Artificial Intelligence (AI), Student Personnel Management, Public Secondary Schools

1. Introduction

Globally, the advancement of a nation's advancement is closely tied to its educational system, as no country can progress without it. Thus, education is seen as a vital tool for human capital development and national progress (Ayang et al., 2025) ^[2]. In Nigeria, the Federal Government has identified education as a crucial tool for achieving its national objectives, as stated in the National Policy on Education (Federal Republic of Nigeria, 2014). According to Madukwe et al. (2024) cited in Ngene and Obona (2024) ^[17], no modern society can achieve significant growth and development without effective and quality education. Thus, education has been recognized as a vital tool for socioeconomic, human, and political development (Difoni et al., 2025) ^[4]. Obona (2024) ^[20] mention that beyond academics, educational institutions are also responsible for nurturing innovation, intellectual development, and promoting social responsibility geared toward national development.

Teachers and students can use tools in the form of mobile phones to be able to make observations. Applications that can The Nigerian educational system is organized into several distinct levels, namely: early childhood or pre-primary education, primary education, junior and senior secondary education, tertiary education, as well as adult and non-formal education. Each of these levels plays a critical role in the holistic development of learners, contributing to the nation's human capital development. Secondary education, which constitutes the focus of this study are institutions that deliver education at the secondary level and are supported, administered, and run by government bodies, including federal, state, or local authorities (Egbo et al., 2025) ^[7]. Secondary education can be acquired either in a private or public system is the form of education that students acquire after primary education and before tertiary education is intended for people between the ages of 12-17 years (Obona et al., 2025) ^[21].

Specifically, this tier of education is established to among others, empower students with essential knowledge, prepare students cognitively, affectively and psychomotively so that, according to Etor et al. (2019; Edim et al., 2024) ^[6], by the time students complete secondary education, they are expected to possess the competencies needed for further education or employment. Secondary school principals play a key role in achieving these goals by managing both human, financial and material resources effectively. As Obona et al. (2023) ^[19] notes, the success of educational institutions is largely dependent on the efficient management of resources. One of these resources is the student personnel.

Students are the central stakeholders in every education system, as they are the primary recipients of educational services and the ultimate beneficiaries of teaching, learning, and administrative efforts. They represent the future workforce, leaders, and citizens, making their development critical to national growth and societal progress. The entire structure of the education system—from curriculum design and instructional delivery to assessment and support services—is built around meeting the academic, social, and emotional needs of students. Without students, the purpose of schools, teachers, and educational policies would be defeated. Indeed, it can be confidently stated that without students, a school cannot exist. Therefore, investing in students' holistic development ensures not only personal success but also the advancement of communities and the nation at large.

Student personnel management in the context of this study can be defined as the systematic planning, organization, coordination, and supervision of services and activities that support students' academic, emotional, social, and moral development within an educational institution. Obona et al. (2024) ^[20] refers to it as a range of activities aimed at promoting students' overall wellbeing and development within the school environment. Achieving the goals of the school system is impossible without the vital resource known as personnel (Difoni et al., 2024) ^[4]. Some indicators of effective student personnel management encompass effective admission and enrollment processes, provision of guidance and counseling services, enforcement of discipline and proper student conduct, and ensuring students' health and welfare. It also involves maintaining accurate student records, organizing cocurricular and extracurricular activities, and, where applicable, managing housing and accommodation, supporting students through financial aid

services, and encouraging student participation in leadership roles. Collectively, these aimed at enhancing student success and well-being.

Principals are central to ensuring students' personal and academic development by managing counseling services, extracurricular activities, and welfare programs that promote holistic growth (Hirt & Amey, 2020) ^[10]. Programs that build leadership and social skills, combined with strong welfare structures and effective disciplinary measures, help create a safe, supportive school environment (Nwakpa, 2015; Ugomma et al., 2014; Obona, 2023) ^[19, 26]. Effective student personnel management, supported by sound financial practices, is therefore crucial for preparing students to succeed both in school and in society. However, secondary schools in Nigeria often struggle with significant challenges in this area (Obona et al., 2024) ^[20]. According to Ugwoke and Ugwoke (2021) ^[27], many public schools face persistent issues such as deteriorating infrastructure, lack of teaching materials, and weak extracurricular offerings, resulting in poor learning conditions. Nwakpa (2015) further notes that inadequate support services and undisciplined environments hinder student development and academic performance. These persistent problems underscore the urgent need for innovative and improved management approaches to enhance the effectiveness of student personnel management in Nigeria's public secondary schools.

The situation in public secondary schools across Abia State, Nigeria, mirrors the broader national challenges in student personnel management. Many schools are unable to meet the objectives of the National Policy on Education, which emphasizes equipping students with skills for self-reliance post-graduation. The evidence of poor student personnel management is both clear and alarming. Guidance and counseling services are grossly inadequate, leaving students without essential academic or emotional support. Discipline is inconsistently applied, resulting in rising cases of misconduct, cultism, and classroom unrest. Basic welfare services are neglected, with some schools lacking even fundamental health facilities like first aid kits or access to clean water. Record-keeping systems are inefficient, making it difficult to monitor students' academic and behavioral progress. Furthermore, extracurricular programs are underfunded or non-existent, denying students avenues for holistic development. Students also have little or no say in school governance, and safety protocols are weak, placing them at risk of harm. This state of affairs underscores a pressing need for urgent, strategic reforms to revitalize student personnel management and restore quality education in the state.

The adoption of Artificial Intelligence (AI) tools presents innovative solutions to various challenges in education, especially in improving the management of student personnel. The use of digital, web-based, and media tools, which can enhance teaching delivery, simplify communication, support collaborative research, and streamline academic operations (Odoh et al., 2025) ^[24]. In modern educational administration, technology has become vital for boosting efficiency, promoting transparency, and enabling data-informed decision-making (Iwogbe et al., 2025) ^[12]. One of the most transformative developments in this area is the emergence of AI. As noted by Igbokwe (2023) ^[11], AI is reshaping diverse industries including healthcare, finance, and manufacturing—and its influence is now increasingly evident in the education sector, particularly in

administrative functions. AI holds the potential to enrich learning experiences, raise student achievement, and optimize administrative operations through automation. Furthermore, AI-powered learning platforms can personalize instruction, provide instant feedback, and detect learning difficulties early. It also supports teachers by identifying students' strengths and weaknesses, enabling more tailored instructional approaches. This study aims to explore the role of Artificial Intelligence (AI) in enhancing student personnel management.

Artificial Intelligence (AI) can improve the quality and efficiency of teaching, research, and community engagement by academic staff (Obona et al., 2024) ^[20]. It has undeniably become an essential tool across multiple sectors, including educational management. Several scholars have emphasized the broad applications of AI within this domain. According to Igbokwe (2023) ^[11], AI is capable of automating routine administrative functions such as scheduling, grading, and record-keeping, which allows educators to concentrate on more strategic responsibilities. Similarly, Teixeira et al. (2021) ^[25] observe that AI-driven administrative systems enhance operational efficiency and minimize human error, thereby supporting the development of more efficient educational structures. In some institutions, AI-powered intelligent tutoring systems have already been adopted (Igbokwe, 2023) ^[11], offering personalized learning by adapting to each student's unique learning preferences, as affirmed by Zhang and Li (2021) ^[28].

In addition, AI technologies facilitate automated grading processes, providing consistent results while saving educators considerable time. Ecker et al. (2018) ^[8] demonstrated that automated grading systems can deliver accuracy levels comparable to human assessors. AI also plays a critical role in analyzing student data to detect learners at risk of poor performance, which enables timely interventions. For instance, Wang et al. (2020) assert that predictive analytics can help educators identify students likely to drop out or fail, allowing for early and targeted support. Chen et al. (2021) ^[3] further highlight that personalized learning through AI increases student engagement and enhances academic outcomes by tailoring educational content to individual needs. AI-powered chatbots have also been employed to respond to students' queries outside classroom hours, thereby improving student retention and satisfaction (Liu et al., 2020) ^[15].

In an empirical study, Obona et al. (2024) ^[20] examined the role of Artificial Intelligence (AI) in managing financial resources and student personnel in public secondary schools across Cross River State, Nigeria. The study was guided by two research questions and the testing of two null hypotheses. A correlational research design was adopted to explore the relationships among the variables. The target population comprised principals from all 303 public secondary schools within the state's three Education Zones. Using a combination of stratified and purposive sampling techniques, a sample of 124 principals was selected. Data were collected through a structured instrument titled Artificial Intelligence (AI), Financial Resources, and Student Personnel Management Questionnaire (AIFRSPMQ). Pearson's correlation was employed to analyze the research questions, while Simple Linear Regression was used to test the hypotheses at the 0.05 level of significance. Findings indicated that AI made a statistically significant contribution to the effective management of both financial resources and student personnel in the public secondary schools studied.

Ahmed and Sulaiman (2020) ^[11] examined the effectiveness of

AI tools in improving student data management within secondary schools. Using a mixed-methods design involving surveys from 150 school principals and interviews with 20 administrators, their findings revealed that AI tools significantly reduced the time spent on data entry and retrieval while also increasing accuracy. The reduction in errors helped school leaders monitor student performance and disciplinary issues more effectively. The study concluded that AI contributes meaningfully to student data management and administrative efficiency. Furthermore, Johnson and Pereira (2021) conducted an experimental study in public secondary schools in California to investigate the use of AI in tracking student behavior and attendance. The use of facial recognition and tracking systems for 500 students led to a 20% rise in attendance and a 15% decline in classroom disruptions compared to conventional methods. Principals involved in the study reported that the real-time data provided by AI supported early and effective intervention strategies, showcasing its potential in behavioral management.

In a related development, Nakamura et al. (2022) ^[16] explored the application of AI in promoting student welfare and mental health through an AI-based counseling assistant implemented across 25 schools over a six-month period. The system identified 35 students at risk of dropping out, all of whom received referrals for professional counseling. School administrators noted that the AI tool helped them prioritize resource allocation toward students requiring immediate attention. The study concluded that AI enhances student welfare programs. Moreover, AI is steadily reshaping teaching, learning, and general school operations, with far-reaching implications for leadership and administrative practices. Karakose and Tülübaş (2024) ^[14] examined how AI innovations are transforming school leadership by improving data processing, simulating cognitive decision-making, and encouraging transparent, inclusive management. Their findings suggest that AI tools can foster collaborative engagement among teachers, students, and parents; manage operational tasks like transport and staffing; and use learning analytics to personalize education and initiate early interventions based on student data trends.

While these studies establish significant statistical relationships between AI applications and educational outcomes, there is currently a gap in the literature regarding the specific impact of AI on student personnel management in public secondary schools in Abia State. Most existing research adopts a broader or international perspective. Therefore, this study seeks to address this gap by focusing exclusively on public secondary schools in Abia State, Nigeria, thus contributing novel insights to the body of knowledge.

Statement of the problem

Effective management of student personnel is a fundamental aspect of secondary school administration, as it significantly impacts students' academic achievement, discipline, and overall well-being. In public secondary schools across Abia State, Nigeria, numerous challenges continue to hinder the effective administration of student personnel services. Despite the provisions of the National Policy on Education, which advocates for equipping students with skills necessary for self-reliance upon graduation, many schools struggle to achieve these objectives. There is substantial evidence pointing to deficiencies in student personnel management. Guidance and counseling services remain largely inadequate, depriving students of vital academic, emotional, and

psychological support. Disciplinary measures are inconsistently enforced, contributing to an increase in student misconduct, cult-related activities, and classroom disruptions. Additionally, basic welfare services are often neglected; some schools lack essential health facilities such as first aid kits or access to clean water. Inefficient record-keeping systems hinder the effective tracking of students' academic performance and behavioral development. Extracurricular programs, which are essential for fostering holistic growth, are either poorly funded or entirely absent. Students also have minimal involvement in school governance, while the absence of comprehensive safety protocols exposes them to various risks.

These systemic issues highlight the urgent need for strategic reforms aimed at revitalizing student personnel management and improving educational quality in Abia State. This situation raises important questions regarding the strategies currently employed by school principals to address these challenges. Consequently, this study seeks to investigate the contribution of Artificial Intelligence (AI) to student personnel management in public secondary schools in Abia State, Nigeria—a focus that aims to uncover innovative solutions to these persistent administrative problems.

Purpose of the study

This study examined Artificial Intelligence as a predictor of effective student personnel management in secondary schools in Abia State, Nigeria. Specifically, the study sought to find out the extent to which Artificial Intelligence (AI) predict student's personnel management.

Research hypotheses

The study is guided by the following hypothesis:

Artificial Intelligence (AI) does not significantly predict student's personnel management in public secondary school in Abia State.

Methodology

The study adopted survey research design. The choice was to enable an investigation of the degree of the relationship between the variables. Three education zones in Abia State, namely Aba, Ohafia and Umuahia were covered. The population comprised 253 public secondary schools and 253 principals in Abia State. Stratified and sampling technique was adopted in the study. Stratified sampling helped the researcher to group the schools according to the three zones. Purposive sampling was adopted in selecting the sample for the study. The sample of study comprised 124 schools and

124 principals purposively selected for the study. The study used a self-constructed questionnaire instrument, titled "Artificial Intelligence (AI), and Student's Personnel Management Questionnaire (AISPMQ)" for data collection. The instrument was structured in line with the modified 4-points Likert response scale which provided four levels of options namely: Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD). To ensure face and content validity of the instrument, copies of the instrument were presented to three experts. One in Educational Management and two in Measurement and Evaluation all in Nnamdi Azikiwe University, Awka, Anambra State. The reliability coefficient ranged from .89 to .91. The research instrument was administered with the support of 5 trained research assistants. The retrieved instrument was sorted, coded and used for data analysis. The research hypotheses were tested using Simple Linear Regression, with the help of Statistical Package for Social Sciences (SPSS) at .05 alpha level of significance.

Result

Test of hypothesis

Artificial Intelligence (AI) does not significantly predict student personnel management in public secondary school in Abia State. Simple Linear Regression analysis was used to test the hypothesis and the result of the analysis is presented in Table 1. Table 1 showed that Artificial Intelligence (AI) have a significant contribution to student's personnel management as shown by the simple linear regression coefficient (R) of .709 and a coefficient of determination (R^2) of .502 obtained. The R^2 ($R^2=.502$) meant that the variable of Artificial Intelligence (AI) contributed 50.2% of the total variance in student personnel management while the remaining percentage score 49.8% was predicted by other external factors not accounted for by student personnel management. This showed that the independent variable (Artificial Intelligence) has significant contribution to the dependent variable (student personnel management), $F_{123.180}$, $p(.000) < .05$. Referring to the coefficients in table 1, the unstandardized coefficient for Artificial Intelligence (AI) is .652. This meant that for every point increase in student personnel management, there is .652 increase in Artificial Intelligence (AI) scores from the questionnaire instrument used. Based on this result, the null hypothesis which stated that Artificial Intelligence (AI) does not significantly predict student's personnel management in public secondary school in Abia State is rejected.

Table 1: Simple linear regression analysis showing the contribution of Artificial Intelligence (AI) to student personnel management in public secondary school in Abia State. (N=124)

Anova ^a							
Model	Sum of Squares	Df	Mean Square	F	Sig.	Decision	
1	Regression	578.011	1	578.011	123.180	.000 ^b	Rejected
	Residual	572.473	122	4.692			
	Total	1150.484	123				
*Significant p<.05; R=.709; R ² =.502; Adj. R ² =.498							
Coefficients ^a							
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
		B	Std. Error	Beta			
1	(Constant)		6.668	1.167		5.715	.000
	Artificial Intelligence		.652	.059	.709	11.099	.000

a. Dependent Variable: Student Personnel management

b. Predictors: (Constant), Artificial Intelligence

Discussion

The findings of the hypothesis indicated that Artificial Intelligence (AI) significantly influences student personnel management in public secondary schools in Abia State. This outcome is expected, considering AI's capability to streamline and automate processes such as student data collection, attendance tracking, and monitoring academic performance. AI tools likely aided school principals in making informed decisions concerning student welfare, discipline, and academic development. By reducing the burden of routine administrative duties, AI enables principals to concentrate more on student growth and individualized support strategies. This suggests that integrating AI into student personnel management could enhance support systems for students, thereby boosting overall school effectiveness and student achievement.

This result aligns with the research of Ahmed and Sulaiman (2020)^[1], who found that AI improves student data handling and administrative efficiency. Similarly, Johnson and Pereira (2021) emphasized AI's role in enhancing behavioral management. Nakamura et al. (2022)^[16] examined the use of an AI-driven counseling assistant in managing student welfare and mental health, finding it effective in helping principals allocate resources to students needing urgent assistance. Their study confirmed AI's contribution to student welfare enhancement. Igboke (2023)^[11] also reported that AI can handle routine administrative duties such as scheduling, grading, and maintaining records, thus allowing educators to focus on strategic responsibilities. Teixeira et al. (2021)^[25] agreed that AI-based tools improve efficiency and minimize errors, leading to more organized educational management. In addition, Zhang and Li (2021)^[28] observed that AI-powered intelligent tutoring systems can adapt to individual learning styles. Ecker et al. (2018)^[8] noted that automated grading systems can achieve accuracy levels comparable to human graders. AI also supports data analysis to identify students at risk of underachievement, enabling timely interventions. Wang et al. (2020) highlighted that predictive analytics can help identify students likely to fail or drop out, making it possible to offer prompt support.

Conclusion

The study investigated the role of Artificial Intelligence (AI) as a predictor of effective student personnel management in secondary schools in Abia State, Nigeria. The findings revealed that AI has a significant positive impact on student personnel management in public secondary schools within the state. The study concludes that AI is a strong predictor of effective student personnel management, as it enhances resource allocation, streamlines data management, and supports more efficient decision-making processes related to students. These innovations enable principals to make informed, data-driven decisions, thereby fostering a more responsive and effective educational administration. The study underscores the importance of adopting AI-driven solutions to improve overall school management and enhance student outcomes.

Recommendation

Based on the study's finding, it is recommended that the Ministry of Education in Abia State actively promote and support the integration of Artificial Intelligence tools in secondary schools to enhance student personnel management. This can be achieved through targeted training

programs for principals and school administrators, as well as the provision of necessary infrastructure to ensure effective implementation and utilization of AI technologies for data management, decision-making, and student support services.

Study Limitation

One major limitation of this study is that it focused solely on public secondary schools in Abia State, which may limit the generalizability of the findings to private schools or schools in other states with different administrative structures and technological resources.

Suggestion for Future Study

Future research should consider a comparative study involving both public and private secondary schools across multiple states to explore variations in the adoption and effectiveness of Artificial Intelligence in student personnel management across diverse educational settings.

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Declaration of conflicting interests

No potential conflict of interest was reported by the authors.

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