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ASSESSMENT OF THE RELATIONSHIP BETWEEN APPLICATION OF ARTIFICIAL INTELLIGENCE (AI) AND STUDENT PERSONNEL SERVICES MANAGEMENT

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Abstract

The effective integration of Artificial Intelligence (AI) has the potential to enhance the quality, efficiency, and responsiveness of student personnel services. Assessing this relationship is therefore crucial for strengthening administrative decision-making, student support structures, and overall school management practices. This study assessed the relationship between application of artificial intelligence (ai) and student personnel services management. Two research questions and two null hypotheses guided the study. The population comprised all 278 students across the four public secondary schools in the area, and due to the manageable size, the census method was adopted. A correlational research design was employed, and data were collected using a structured questionnaire titled Application of Artificial Intelligence and Management of Student Personnel Services Questionnaire (AAIMSPSQ). The instrument, organized into two clusters, was validated by experts in Educational Management and in Test and Measurement at the University of Calabar. It utilized a 4-point Likert scale and was pilot-tested, yielding Cronbach Alpha reliability coefficient index of 0.83. Data were analyzed using scatter plots to answer the research questions and the Pearson Product Moment Correlation (PPMC) to test the hypotheses at the 0.05 significance level. Findings indicated significant relationships between application of AI in students' library services and security services management. The study concluded that AI plays a vital role in improving the effectiveness of

student personnel services. It recommended that educational administrators should be adequately equipped to integrate AI tools for enhanced student personnel administration.

Keywords: Application, Artificial Intelligence, Student's Library Services, Student's Security Services, Educational Administration.

Introduction

Secondary schools in Nigeria are formal educational institutions set up for students who have successfully completed primary education and are desirous of tertiary or higher education. These schools are legally mandated to provide learners with a broad-based education that develops their knowledge, skills, abilities, and values, promoting personal growth and preparing them for higher education while supporting the creation of an equitable and inclusive society (Obona et al., 2020; Difoni et al., 2024; Madukwe et al., 2024). Students are the primary focus of every school system. Therefore, it can be convincingly said that the school is establish for the student. On this note, the efficient management of student personnel services is significant in ensuring that the social, personal and educational needs of the students are adequately met. This will ensure according to Akpan et al. (2025) equitable access to quality education for every learner, irrespective of individual challenges, thereby promoting both personal and academic growth. Madukwe et al. (2025) adds that no school can achieve set targets without the effective mobilization, utilization, and management of human and materials resources.

The management of student personnel services involves the deliberate planning, coordination, and supervision of programmes that support students' academic, social, emotional, and personal development. According to Ezeh et al. (2025), this process requires organizing and directing activities to ensure that staff contribute meaningfully to institutional goals. Effective management enhances the learning environment, promotes positive academic experiences, and improves student success (Difoni et al., 2024; Nwosu, 2024). It also fosters innovation and equips learners with skills needed for career readiness and the achievement of educational objectives (Onyema & Chidobi, 2018; Ngene et al., 2025). Furthermore, Osegbue (2018) emphasized that administrators can only achieve school goals when activities and resources are properly coordinated, while Akpa, as cited in Osegbue (2021), noted that the benefits of education cannot be fully realized without appropriate management strategies.

Student personnel services consist of various non-academic activities designed to complement classroom instruction and promote students' overall development. Abama, as cited in Osegbue (2021), explains that these services include functions such as health care, orientation, sanitation, accommodation, transportation, guidance and counseling, and school meal programmes. Jumare (2016) views student services as resources and support systems that enhance teaching and learning both within and beyond the classroom. Similarly, Nwosu (2024) describes them as all non-instructional services offered to students outside formal academic activities, including counseling, health and wellness initiatives, extracurricular programmes,

library services, career guidance, and discipline management. These services are vital for ensuring student welfare, supporting personal and academic development, and creating a conducive learning environment. According to Osegbue (2021), when these services are effectively delivered, students tend to develop positive attitudes toward schooling, participate actively, and maintain good attendance. However, even with a strong curriculum and qualified staff, poor management of these services can hinder meaningful educational outcomes.

Students are among the most critical human resources in any educational institution, making the effective management of their services vital for achieving quality education. When student services are well managed, learners receive the support needed to handle personal and academic challenges, build essential life skills, and actualize their potential, thereby enhancing the institution's overall image. However, studies reveal that many secondary schools do not provide adequate student services (Adu et al., 2023; Adeola, as cited in Adu et al., 2023; Akpan, 2016). Adeola, as cited in Adu et al. (2023), observes that Nigerian students are often exposed to numerous risks within the school environment, which disrupts meaningful learning. In the same vein, Essien et al. (2025) report that deficiencies such as poor recreational facilities impede students' well-rounded development. Oju et al. (2025) also notes that today's students face diverse challenges—including academic stress and mental health issues—yet available support systems remain inadequate. According to Osegbue (2021), many principals in public secondary schools find it difficult to manage student personnel effectively due to the limited quality and availability of essential student services.

In secondary schools within Bakassi Local Government Area of Cross River State, ineffective management of student services has significantly undermined the overall learning experience. Critical components such as guidance and counseling, health and wellness initiatives, extracurricular activities, library and information services, career guidance, and discipline management are poorly implemented, thereby restricting students' academic, social, and personal development. Growing cases of armed bullying, cultism, violence, fighting, and vandalism have further infiltrated school environments, mirroring broader security challenges in the area. These shortcomings hinder the realization of key educational objectives and highlight the urgent need for strategic intervention. The integration of Artificial Intelligence (AI) presents a viable solution for addressing these issues and fostering a more structured, safe, and supportive learning environment in the region.

Artificial Intelligence (AI) refers to computer-driven systems capable of performing tasks that ordinarily require human intelligence, such as perception, reasoning, problem-solving, decision-making, speech recognition, and language processing. Scholars commonly define AI as the development of intelligent machines that simulate human cognitive processes (Lin, 2024; Russell & Norvig, 2016; Chukwuma et al., 2021). With ongoing technological progress, AI continues to reshape the education sector by driving innovation in both academic activities and administrative operations. Technologies such as machine learning, neural networks, and natural language processing enable AI to replicate aspects of human thinking and support a wide range of educational functions (Halaweh, 2023; Igbokwe, in Iyaji et al., 2024). School administration

involves the strategic utilization of available human, material, financial, and time resources to efficiently attain established school goals and objectives (Obona et al., 2024). For school administrators, AI improves operational efficiency by strengthening resource management, supervision, and staff performance assessment (Ibrahim et al., 2021; Nwuke & Yellowe, 2025).

In the classroom, AI-powered tools facilitate personalized learning by diagnosing student needs, tracking progress, and suggesting appropriate instructional interventions (Adeoye, 2022). Ogunleye and Olanrewaju (2022) further assert that AI adoption in education offers significant benefits, including enhanced efficiency, learner-centred instruction, and improved outcomes in contemporary schools. According to Obona et al. (2024) AI enables school administrators to operate more efficiently, with improve outcomes. Therefore, by leveraging advanced capabilities such as predictive analytics and adaptive technologies, AI can assist school leaders in strengthening teaching, learning, and the management of essential student services. This study specifically examines AI's role in improving the management of students' library and security services in secondary schools.

Application of Artificial Intelligence in the management of students' library services

The management of students' library services involves the organized provision, coordination, and supervision of library resources and activities that support students' learning, research, and academic development. Traditionally, secondary school libraries relied on manual cataloguing, limited physical collections, and extensive human supervision—approaches that often slowed research, restricted access to information, and produced errors due to inconsistent manual processes. With the emergence of Artificial Intelligence (AI), school libraries are increasingly transforming into modern knowledge centres that deliver more efficient and personalized services. Islam et al. (2025) report that AI adoption in libraries has expanded rapidly since the mid-2010s, supported by advances in machine learning, natural language processing, and large language models. AI-powered cataloguing systems, for example, now automate metadata extraction—capturing details such as author, title, subject, and publication date (Palve & Arora, 2025).

Several scholars highlight the benefits of AI in library environments. Adetayo (2023) notes that AI tools provide quick, accurate responses to users' queries, extending access beyond physical library spaces, while Johnson (2018) confirms that AI significantly reduces the time needed to obtain research information. Adetoun (2021) observes that AI can summarize lengthy academic texts to support comprehension, and Ex (2019) emphasizes its role in improving information discoverability and research productivity. AI-driven chatbots and virtual assistants now offer round-the-clock support, ensuring uninterrupted access to library guidance. Empirical evidence reinforces these insights. In a study of secondary schools in Nigeria's South East Zone, Nwosu (2024) found that many libraries still rely on manual operations with minimal AI integration. In contrast, Islam et al. (2025) show a surge in AI-related library research globally, with increasing adoption of AI tools to enhance service delivery. Palve and Arora (2025) report that AI-based Library Management Systems improve efficiency, reduce staff workload, and

increase user satisfaction, while Steiger (2024) notes that AI assists students with academic writing and overall library usage.

AI also improves accessibility and user engagement. Yusuf et al. (2022) found that AI-enabled search systems motivate both staff and patrons. However, Abba (2024) observed that only a few African university libraries currently employ AI applications such as Chatbots, ChatGPT, LibKey, RFID technology, and Grammarly. Studies by Fabunmi and Akinyemi (2024) confirm that AI positively shapes users' experiences, and Arlitsch and Newell (2017) describe AI as a transformative innovation that helps academic libraries meet changing user demands. Supporting this, Harisanty et al. (2023) reveal that AI enhances administrative tasks, technical operations like cataloguing, and user-centered services such as circulation and reference management. Chandwani (2018) further notes that AI enables 24-hour interaction with library systems, allowing global access without physical presence.

Application of Artificial Intelligence in the management of students' security services

Security management plays a crucial role in achieving educational objectives, as it ensures a safe and conducive environment for effective teaching and learning. The management of students' security services involves the systematic planning, coordination, and execution of measures that safeguard students within and around the school premises. According to Nwosu (2024), student security management entails protecting learners from violence, bullying, drugs, gang influence, and other harmful exposures. School administrators therefore bear the primary responsibility for securing lives and property in the school environment. Security challenges within any organization have the potential to disrupt operations and hinder effective service delivery (Madukwe et al., 2024), and the school system is no exception. Such issues can influence both staff and students either positively or negatively. When students feel safe within the school environment, they are more confident and able to concentrate on learning, research, and other academic activities. However, inadequate security measures can create stress, reduce focus, and negatively impact overall performance. In such situations, teachers and students may become distracted by concerns about their personal safety or the protection of academic resources.

Effective security management integrates physical, technological, and collaborative strategies, including perimeter fencing, guarded gates, surveillance systems, alarm devices, trained security personnel, patrol vans, routine inspections, safety drills, access control mechanisms, communication channels for threat reporting, motion detectors, and CCTV cameras. Scholars such as Xaba (2014) and Ozmen et al. (2010) underscore the value of patrol vans and close collaboration with security agencies, while Adieme and Oliobi (2024) highlight the importance of electronic monitoring tools like digital surveillance systems and access-control devices. Collectively, these measures help prevent, detect, and respond to threats, thereby strengthening school safety and creating an environment that supports learning and protects institutional stability.

Earlier surveillance practices relied heavily on basic equipment and human monitoring, which limited their effectiveness (Chime et al., 2025). However, with advancements in Artificial Intelligence (AI) and machine learning, surveillance systems have become more sophisticated, using real-time data analysis for proactive and predictive security management. Binns (2023) acknowledges the benefits of AI-powered surveillance while also noting associated challenges. In school settings, AI can analyze live video feeds to detect suspicious behavior—such as unauthorized access, loitering, or violent conduct—and generate immediate alerts for intervention. AI algorithms can also identify dangerous objects, including weapons, which allows for quicker responses and enhanced protection (Kepeghom, 2024).

Empirical studies demonstrate increasing interest in leveraging technology to strengthen school security. Kingsley (2025) showed that predictive analytics could identify at-risk students through patterns such as chronic absenteeism or frequent disciplinary issues, enabling timely interventions. Ubakanma et al. (2025), using a quantitative survey and regression analysis, found a significant predictive relationship between digital surveillance and the quality of senior secondary schools in Rivers State. Similarly, Mahmud and Okpe (2025) reported that biometric technologies improved school management by reducing unauthorized entry and aiding intruder detection. Chime et al. (2025) further revealed that AI-enabled surveillance and predictive analytics enhanced monitoring and accelerated incident detection in public secondary schools in Anambra State.

Overall, the literature shows substantial research on AI applications in managing school security and library services from different perspectives. However, a significant gap remains in studies focusing on the specific context of public secondary schools in Cross River State. To the best of the researchers' knowledge, no study has examined the exact sub-variables addressed in this research within the environment of Bakassi Local Government Area. This study therefore aims to bridge this gap by investigating AI application in managing students' library and security services in public secondary schools in Bakassi LGA, Cross River State.

Students are central to the functioning of any educational system, and their personnel services in secondary schools span multiple areas, including library resources, guidance and counseling, security, health care, recreation, and welfare support. When these services are effectively managed, they help create a safe, supportive, and resource-rich environment that enables learners to maximize their potential and prepares them to become responsible and productive citizens. Thus, the effective management of student services is essential to achieving educational objectives.

However, observations by the researcher, along with complaints from parents and students in Bakassi Local Government Area, indicate that student services in public secondary schools are largely ineffective. Many school libraries are outdated or underutilized, limiting students' access to relevant learning materials. Guidance and counseling units are either absent or poorly functioning, leaving learners without adequate support in making academic and career decisions. School security also remains a major concern, with students sometimes exposed to unsafe conditions both within and outside the school environment. These deficiencies have

contributed to declining academic performance, poor moral development, increased truancy, and school dropouts. The consequences extend beyond the school system, as inadequately supported students may become vulnerable to social vices and restiveness.

Although government interventions—such as deploying security personnel, establishing counseling units, and providing instructional materials—have attempted to address these challenges, they have often been insufficient and unsustainable. Previous research has also proposed various strategies, yet the problems persist in the area. This disturbing situation suggests that traditional approaches alone may not adequately address the complexity of the issues. The researchers therefore consider application of Artificial Intelligence (AI) as a promising alternative. Against this background, the present study seeks to investigate how the application of AI can enhance the management of student personnel services in public secondary schools in Bakassi Local Government Area, Cross River State.

The purpose of this study is to assess the relationship between application of Artificial Intelligence (AI) and student personnel services management in public secondary schools in Bakassi Local Government Area, Cross River State. Specifically, the study examined the relationship between:

i. Application of Artificial Intelligence and management of students' library services.

ii. Application of Artificial Intelligence and management of students' security services.

The study is guided by the following research questions:

1. What is the relationship between application of Artificial Intelligence and management of students' library services?

2. What is the relationship between application of Artificial Intelligence and management of students' security services?

The following null hypotheses are postulated for the study

i. There is no significant relationship between application of Artificial Intelligence and management of students' library services.

ii. There is no significant relationship between application of Artificial Intelligence and management of students' security services.

Methodology

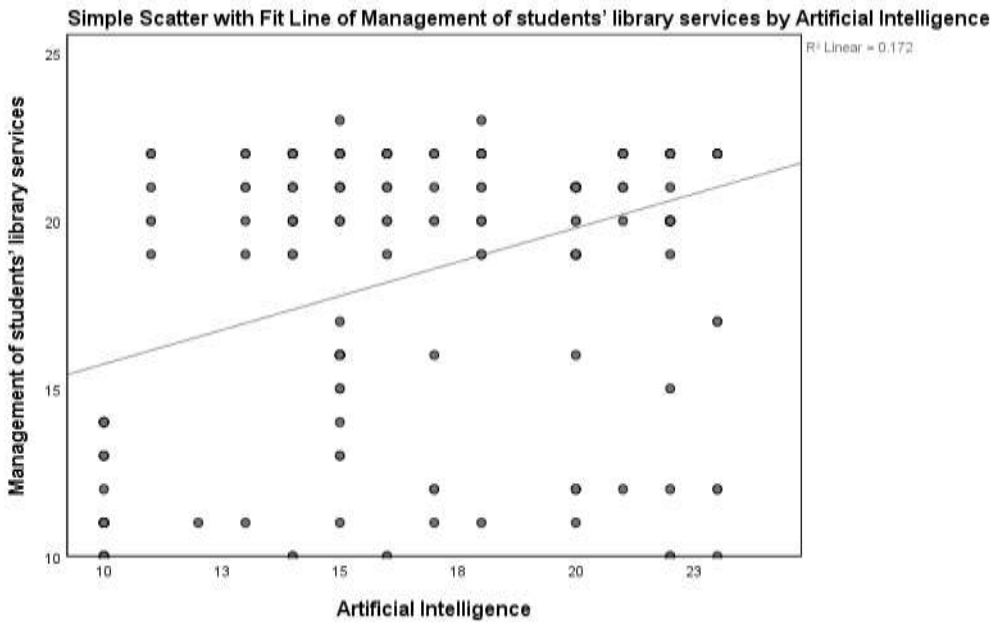
The study adopted a correlational survey research design. The population consisted of all 278 students in the four public secondary schools in Bakassi Local Government Area. Since the number was manageable, the census method was adopted. Data was collected using a structured questionnaire titled Application of Artificial Intelligence and Management of Student Personnel Services Questionnaire (AAIMSPSQ). The instrument was organized into two clusters and validated by experts in Educational Management as well as Test and Measurement, University of Calabar. It was structured on a 4-point Likert scale of Strongly Agree (SA), Agree

(A), Disagree (D), and Strongly Disagree (SD) to capture respondents' perceptions. To ensure content validity, the questionnaire was reviewed by three experts in Educational Management and Test and Measurement at the University of Calabar. Their input guided revisions for clarity, relevance, and comprehensiveness. Following this, a pilot test was conducted using a population outside the study and the reliability of the instrument was determined using Cronbach's Alpha. The analysis produced coefficients of 0.81 and 0.83, indicating high internal consistency. The questionnaire was administered to the respondents with the assistance of 10 trained and properly motivated assistants, and all 278 copies were returned in good condition for analysis. Data analysis was carried out using inferential statistics. The scatter plot was used to answer the research questions. To test the null hypotheses, the Pearson Product Moment Correlation (PPMC) statistic was employed at a 0.05 level of significance. The decision rule was that if the calculated *p-value* was less than 0.05, the null hypothesis was rejected, signifying a statistically significant relationship between the variables. Conversely, if the *p-value* was greater than or equal to 0.05, the null hypothesis was not rejected, indicating no significant relationship.

Results

Research questions one

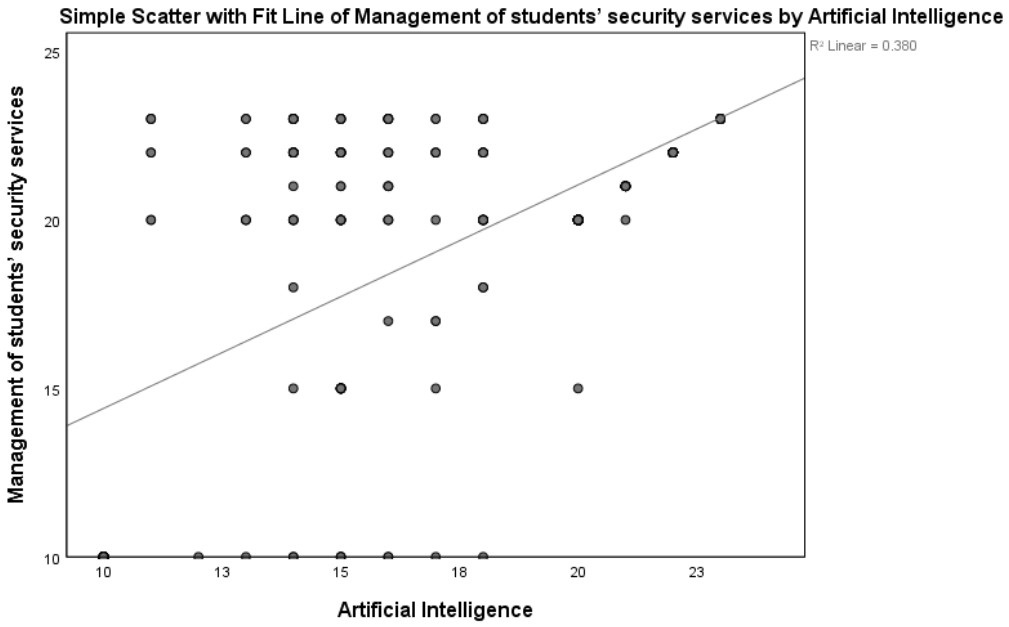
What is the relationship between application of Artificial Intelligence and management of students' library services? This question was answered using scatter plot and the answer is in figure 1. Figure 1: A Scatter Plot of the relationship between application of Artificial Intelligence and management of students' library services.



The scatter plot in figure one shows a positive relationship between application of Artificial Intelligence (AI) and the management of students' library services. The upward-sloping regression line indicates that as the level of application of AI increases, the management of students' library services also tends to improve. However, the data points are widely spread around the line, suggesting that the relationship is weak but positive. The coefficient of determination ($R^2 = 0.172$) further confirms that AI explains only about 17.2% of the variation in the management of students' library services. This means that while application of AI contributes to better management of students' library services, other factors not captured in this model also play substantial roles. Overall, the analysis reveals that application of AI is associated with management of students' library services.

Research question two

What is the relationship between application of Artificial Intelligence and management of students' security services? This question was answered using scatter plot and the answer is in figure 2. Figure 2: Scatter Plot of the relationship between application of Artificial Intelligence and management of students' security services.



The scatter plot in figure two indicates a positive relationship between application of Artificial Intelligence (AI) and the management of students' security services in secondary schools. The upward-sloping regression line indicates that as the level of application of AI increases, the management of students' security service also improves. However, the data points are widely spread around the line, suggesting that the relationship is weak but with moderate impact. The coefficient of determination ($R^2 = 0.380$) suggests that application of AI accounts for approximately 38% of the variation in the management students' security services. This means

that while application of AI contributes to management of students' security services, other factors not captured in the model also play substantial roles. The analysis reveals that application of AI is associated with management of students' security services.

Hypothesis one

There is no significant relationship between application of Artificial Intelligence and the management of students' library services in public secondary schools in Bakassi Local Government Area, Cross River State. The two variables in this hypothesis are application of Artificial Intelligence and the management of students' library services. Pearson Product Moment Correlation was used to test the hypothesis and the result of the analysis is presented in Table 1. Table 1 showed the correlation coefficient between application of Artificial Intelligence and the management of students' library services. The correlation coefficient is statistically significant for management of library security services ($r = .80$, $p<.05$). Since $p(.000)$ is less than $p(.05)$, hypothesis one is rejected. The result of the analysis implied that there is a statistically positive significant relationship between application of Artificial Intelligence and the management of students' library services in public secondary schools in Bakassi Local Government Area, Cross River State.

Table 1: Summary of correlation between application of Artificial Intelligence and the management of students' library services in public secondary schools in Bakassi Local Government Area, Cross River State (n=278)

Variables	$\bar{X}$	S.D	r	Sig.
Application of Artificial Intelligence	18.15	4.29		
Management of students' library services	19.18	4.38	.80*	.000

*Significant at p<.05 df=276

Hypothesis two

There is no significant relationship between application of Artificial Intelligence and the management of students' security services in public secondary schools in Bakassi Local Government Area, Cross River State. The two variables in this hypothesis are application of Artificial Intelligence and the management of students' security services. Pearson Product Moment Correlation was used to test the hypothesis and the result of the analysis is presented in Table 2. Table 2 showed the correlation coefficient between application of Artificial Intelligence and the management of students' security services. The correlation coefficient is statistically significant for management of students' security services ($r = .55$, $p<.05$). Since $p(.000)$ is less than $p(.05)$, hypothesis two is rejected. The result of the analysis implied that there is a statistically positive significant relationship between application of Artificial Intelligence and the management of students' security services in public secondary schools in Bakassi Local Government Area, Cross River State.

Table 2: Summary of correlation between application of of Artificial Intelligence and the management of students' security services in public secondary schools in Bakassi Local Government Area, Cross River State. (n=278)

Variables	$\bar{X}$	S.D	r	Sig.
Application of Artificial Intelligence	18.15	4.29		
Management of students' security services	18.64	3.98	.55*	.000

*Significant at p<.05 df=276

Discussion of findings

The first hypothesis revealed a significant relationship between application of Artificial Intelligence (AI) and the management of students' library services in public secondary schools in Bakassi Local Government Area, Cross River State. This indicates that AI tools—such as automated cataloguing systems, digital resource management platforms, and remote access applications—positively influence the organization, accessibility, and efficiency of library operations. By facilitating easier location, borrowing, and return of learning materials, as well as providing access to resources without the need for physical presence, AI enhances the overall functionality and effectiveness of school libraries. Consequently, integrating AI into library management not only improves students' access to educational materials but also contributes to a more streamlined, responsive, and productive learning environment.

These findings align with previous studies showing that application of AI reshapes library operations by automating cataloguing, improving resource discoverability, and enabling easier user access (Islam et al., 2025; Palve & Arora, 2025). AI-driven tools, including chatbots, virtual assistants, and large language model applications, offer rapid, accurate responses to user inquiries, provide round-the-clock access, and summarize complex academic materials, enhancing research efficiency and user satisfaction (Adetayo, 2023; Johnson, 2018; Adetoun, 2021; Ex, 2019). Studies within Nigerian secondary schools further confirm that while many libraries still rely on manual systems, AI-based management markedly improves efficiency, reduces workload, and broadens resource accessibility (Nwosu, 2024; Steiger, 2024; Fabunmi & Akinyemi, 2024). Applications such as ChatGPT, LibKey, RFID technology, and Grammarly have been demonstrated to modernize library services, engage both staff and students, and meet evolving academic demands (Yusuf et al., 2022; Abba, 2024; Arlitsch & Newell, 2017; Harisanty et al., 2023; Chandwani, 2018). Collectively, these studies affirm AI as a vital tool in enhancing library management, accessibility, and overall effectiveness.

The second hypothesis indicated a significant relationship between application of AI and the management of students' security services in the same schools. This suggests that application of AI such as surveillance systems, automated monitoring, and predictive security tools, positively impact student safety and school security. Schools integrating AI into security management are likely to experience reductions in theft, vandalism, bullying, and other security

breaches, thereby fostering a safer learning environment that supports students' well-being and academic focus.

These findings corroborate research showing that application of AI-powered surveillance and predictive analytics significantly enhance monitoring and rapid incident detection in Nigerian secondary schools (Chime et al., 2025; Kingsley, 2025; Ubakanma et al., 2025). Studies also demonstrate that AI systems can detect dangerous behaviors or objects and trigger timely interventions, enabling proactive security management (Adieme & Oliobi, 2024; Kepeghom, 2024). Overall, the results confirm that AI integration strengthens student and property protection, fostering a conducive atmosphere for teaching and learning.

Conclusion

The study examined the relationship between application of Artificial Intelligence (AI) and the management of student personnel services in public secondary schools in Bakassi Local Government Area, Cross River State. Findings indicated a significant relationship between application of AI and the management of both students' security and library services. The study concluded that application of AI plays a crucial role in improving the efficiency and effectiveness of student services, thereby enhancing the overall school environment.

Recommendations

Based on the study's findings, the following recommendations are made:

1. Educational administrators should be adequately trained to integrate AI tools for more effective student personnel management.
2. Schools should adopt AI technologies, including surveillance and predictive monitoring systems, to strengthen the management of students' security services.
3. School libraries should implement AI-powered solutions, such as automated cataloguing, chatbots, and remote access platforms, to enhance resource accessibility and operational efficiency.

Contribution to knowledge

This study adds to the knowledge base by providing empirical evidence on the significant role of Artificial Intelligence (AI) in improving student personnel services in public secondary schools. It shows that AI adoption enhances the management of library and security services, fostering a safer, more efficient, and resource-rich learning environment. The study provides valuable guidance for educational administrators, policymakers, and school managers aiming to modernize school operations. Additionally, the findings highlight AI's transformative potential in optimizing student support systems, advancing research on technology-driven school administration, and offering a foundation for future investigations on AI integration in education.

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