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LEVERAGING EDUCATIONAL MANAGEMENT AND ARTIFICIAL INTELLIGENCE TO FOSTER SECURITY FOR SUSTAINABLE DEVELOPMENT IN PUBLIC UNIVERSITIES IN RIVERS STATE

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Abstract

The study investigated leveraging educational management and artificial intelligence to foster security for sustainable development in public universities in Rivers State. Three specific objectives and three research questions guided the study. The population of the study consisted of three thousand six hundred and twenty (3, 620) lecturers in the three public universities in Rivers State). Stratified random sampling technique was used to draw seven hundred and twenty-four (124) lecturers comprising of 68 male and 56 female lecturers. A structured questionnaire titled leveraging educational management and artificial intelligence to foster security for sustainable development questionnaire was used as instrument for data collection. 124 copies of the questionnaire were administered to the respondents, and all were retrieved and used for the study. Based on the results of question one of the study cyberattacks threats, examination malpractice, and academic fraud, lack of adequate security infrastructure some of the major security challenges faced by public universities in Rivers State in the digital age. Allocating sufficient budget for modern security infrastructure and personnel and enforcing strict disciplinary measures against criminal activities such as cultism, examination malpractice and harassment are some of the ways management contribute to improving security for sustainable development/ Also, Smart CCTV cameras, automated emergency alert systems and biometric access control systems are some of the key-driven technologies that can enhance security for sustainable development. Based on these findings the recommendations made include higher institutions should conduct regular security

risk assessments to identify and address emerging threats, including cyberattacks, physical security breaches, and unauthorized access; institutional management should prioritize security in policymaking by integrating security considerations into their strategic planning and institutions should adopt AI-powered security tools, including facial recognition, AI-driven surveillance cameras, and predictive analytics, to enhance real-time threat detection and response.

Keywords: Leveraging Educational Management, Artificial Intelligence, Foster Security, Sustainable Development

Introduction

The rapid advancement of technology, particularly artificial intelligence (AI), has significantly transformed various sectors, including education. In higher institutions, security remains a critical concern, as these institutions, manage large amounts of sensitive data, intellectual property, and physical assets while ensuring the safety of students, staff, and infrastructure. With the increasing sophistication of security threats, ranging from cyberattacks to campus-related crimes, there is an urgent need for an integrated approach that combines educational management and AI-driven solutions to enhance security measures (Educause, 2021 & Essien & Edun, 2024).

Educational management plays a pivotal role in structuring policies, resource allocation, and institutional governance to create a safe and conducive learning environment (AI-Kuwaiti & AI Muhairi, 2020). It ensures the proper implementation of security frameworks, regulatory compliance, and crisis management strategies (Ripki, 2023). Meanwhile, artificial intelligence introduces cutting-edge innovations such as predictive analytics, facial recognition, biometric access control, automated surveillance, and cybersecurity solutions that can significantly enhance the security of higher institutions (Unimke, Odey, & Odizie, 2024). Igbokwe (2024) opined that by leveraging AI in educational management, institutions can proactively identify threats, respond efficiently to emergencies, and maintain a secure academic ecosystem.

Furthermore, ensuring security in higher institutions is vital for sustainable development. A secure learning environment fosters academic excellence, research innovation, and entrepreneurship while attracting global talent and investments (Okpe & Igbokwe, 2022). Ekpo, Edet and Ukpong (2020) assert that without adequate security, institutions risk disruptions that can hinder educational progress, economic growth, and social stability. Therefore, Katsamakas, Pavlov & Saklad (2024) stated that integrating AI-powered solutions into educational management systems is not just a technological advancement but a strategic necessity for safeguarding institutions and promoting long-term sustainability.

Statement of Problem

Security challenges in higher institutions have become a growing concern worldwide, posing threats to students, staff, infrastructure, and academic integrity. Issues such as cyber threats, data breaches, physical violence, cultism, theft, and unauthorized access compromise the safety and stability of learning environments. As educational institutions embrace digital transformation, the risk of cyberattacks on institutional databases, financial records, and sensitive research materials has also increased, necessitating advanced security measures. Traditional security approaches, such as manual surveillance, security personnel, and conventional access control systems, have proven inadequate in addressing the complexity and scale of modern security threats (OECD, 2022). These limitations highlight the urgent need for innovative, technology-driven solutions to enhance security in higher institutions. Educational management plays a crucial role in developing and implementing security policies, but its effectiveness is often hindered by outdated systems, lack of real-time monitoring, and inefficient response mechanisms.

AI presents a transformative opportunity to strengthen security management in higher education. AI-driven technologies, including facial recognition, biometric authentication, predictive analytics, and automated surveillance, can enhance threat detection, prevent security breaches, and improve emergency response (Khan, McDaniel, & Khan, 2018). However, the integration of AI into educational management remains underutilized due to challenges such as lack of funding, inadequate technical expertise, resistance to change, and ethical concerns surrounding data privacy. Despite the potential benefits of AI in security management, there is limited research and practical implementation of AI-driven security strategies within educational management frameworks. This gap raises critical questions about how AI can be effectively leveraged to enhance security and ensure sustainable development in higher institutions.

This study seeks to explore the intersection of educational management and artificial intelligence in fostering security in higher institutions, examining the challenges, opportunities, and best practices for integrating AI-driven security solutions. By addressing this problem, institutions can develop a more resilient, technology-driven security framework that ensures a safe and sustainable academic environment.

Purpose of the Study

This study aimed at investigating leveraging educational management and artificial intelligence to foster security for sustainable development in public universities in Rivers State. Specifically, the study sought to:

1. Examine the major security challenges faced by public universities in Rivers State in the digital age.

2. Investigate how educational management can contribute to improving security for sustainable development in public universities in Rivers State.

3. Ascertain the key-driven technologies that can enhance security for sustainable development in public universities in Rivers State.

Research Questions

The following research questions provided direction for this study:

1. What are the major security challenges faced by public universities in Rivers State in the digital age?

2. How can educational management contribute to improving security for sustainable development in public universities in Rivers State?

3. What are the key-driven technologies that can enhance security for sustainable development in public universities in Rivers State?

Methodology

This study adopted descriptive survey research design. The population of the study consisted of all the three thousand six hundred and twenty (3, 620) lecturers in the three public universities in Rivers State. Source: Academic Planning Unit of the Universities (2025 Report). A sample of seven hundred and twenty-four (124) lecturers comprising of 68 male and 56 female lecturers of the population was selected. This sample was drawn through stratified random sampling technique. The instrument for data collection was a self-structured questionnaire entitled: "Leveraging Educational Management and Artificial Intelligence to Foster Security for Sustainable Development Questionnaire (LEMAIFSSDQ)". The instrument which had 15 items was structured with 4-point Likert rating scale of Strongly Agree (4 points), Agree (3 points), Disagree (2 points) and Strongly Disagree (1 point). The instrument was well validated and reliability index of 0.81 was obtained through Cronbach Alpha method. Mean, standard deviation and mean set were used to analyze the research questions while z-test was used to test the hypotheses at 0.05 level of significance.

Research Question 1: What are the major security challenges faced by public universities in Rivers State in the digital age?

Table 1: Mean and Standard Deviation on the Major Security Challenges Faced by Public Universities in Rivers State in the Digital Age

S/N	Items	RSU Lecturers		IAUoE Lecturers		Mean Set for RSU/IAUoE Lecturers	Decision
		$\overline{X}_1$	STD	$\overline{X}_2$	STD		
1	Cyberattacks threats	2.98	1.03	3.23	0.78	3.11	A
2	Examination Malpractice and academic fraud	3.84	0.83	2.74	1.00	3.29	A
3	Lack of adequate security infrastructure	2.54	0.95	3.77	0.88	3.16	A
4	Poor security policies and management	2.65	1.01	2.59	0.85	2.62	A
5	Physical security threat	3.26	0.89	2.56	1.00	2.91	A
	Grand Mean/SD	**3.05**	**0.94**	**2.98**	**0.90**	**3.02**	**A**

Table 1 presents a summary of mean scores and standard deviations (SD) on the major security challenges faced by public universities in Rivers State in the digital age. The overall mean set 3.02 for both respondents indicate agreement on the major security challenges faced by public universities in Rivers State in the digital age. The findings indicate that cyberattacks threats, examination malpractice and academic fraud, lack of adequate security infrastructure, poor security policies and management, and physical security threat major security challenges faced by public universities in Rivers State in the digital age.

Research Question 2: How can educational management contribute to improving security for sustainable development in public universities in Rivers State?

Table 2: Mean and Standard Deviation of how Educational Management Contribute to Improving Security for Sustainable Development in Public Universities in Rivers State

S/N	Items	RSU Lecturers		IAUoE Lecturers		Mean Set for RSU/IAUoE Lecturers	Decision
		$\overline{X}_1$	STD	$\overline{X}_2$	STD		
6	Allocating sufficient budget for modern security infrastructure and personnel	2.77	1.04	3.31	0.68	3.04	A
7	Enforcing strict disciplinary measures against criminal activities such as cultism, examination malpractice and harassment	3.60	0.73	2.78	1.02	3.19	A
8	Enforcing student participation in security initiatives, such as anti-cultism campaigns	2.49	0.85	3.66	0.68	3.08	A
9	Partnering with law enforcement agencies for crime prevention and response	2.85	1.02	2.47	0.90	2.66	A
10	Organizing security awareness workshops for students, faculty, and staff	3.16	0.94	2.56	1.01	2.86	A
	Grand Mean/SD	**2.97**	**0.92**	**2.96**	**0.86**	**2.97**	**A**

Table 2 presents a summary of mean scores and standard deviations (SD) on how educational management can contribute to improving security for sustainable development in public universities in Rivers State. The overall perception of both respondents indicates a general agreement on how educational management can contribute to improving security for sustainable development in public universities in Rivers State, as reflected by mean set of 2.97. The findings agreed that allocating sufficient budget for modern security infrastructure and personnel, enforcing strict disciplinary measures against criminal activities such as cultism, examination malpractice and harassment. enforcing student participation in security initiatives, such as anti-cultism campaigns, partnering with law enforcement agencies for crime prevention and response and organizing security awareness workshops for students, faculty, and staff can contribute to improving security for sustainable development in public universities.

Research Question 3: What are the key-driven technologies that can enhance security for sustainable development in public universities in Rivers State?

Table 3: Mean and Standard Deviation of the Key-Driven Technologies that can Enhance Security for Sustainable Development in Public Universities in Rivers State

S/N	Items	RSU Lecturers		IAUoE Lecturers		Mean Set for RSU/IAUoE Lecturers	Decision
		$\overline{X}_1$	STD	$\overline{X}_2$	STD		
11	Smart CCTV cameras	2.88	0.94	3.31	0.86	3.10	A
12	Automated emergency alert systems	3.34	0.93	2.81	1.00	3.08	A
13	Biometric access control systems	2.94	0.95	3.70	0.88	3.32	A
14	AI-Based cybersecurity systems	2.75	1.00	2.71	0.74	2.73	A
15	Predictive analytics for threat detection	3.33	0.94	2.86	1.03	3.10	A
	Grand Mean/SD	**3.05**	**0.90**	**3.08**	**0.83**	**3.07**	**A**

Table 3 presents a summary of mean scores and standard deviations (SD) on the key-driven technologies that can enhance security for sustainable development in public universities in Rivers State. The overall mean set 3.07 for both respondents indicate agreement on the key-driven technologies that can enhance security for sustainable development in public universities in Rivers State. The findings agreed that Smart CCTV cameras, automated emergency alert systems, biometric access control systems, AI-Based cybersecurity systems and predictive analytics for threat detention are key-driven technologies that can enhance security for sustainable development in public universities in Rivers State.

Discussion of findings

On the first research question which considered the major security challenges faced by public universities in Rivers State in the digital age. The researchers discovered that respondents affirmatively agreed that higher education institutions face a myriad of security challenges exacerbated by digital transformation. Cyberattacks, including data breaches and hacking, have become prevalent, threatening sensitive academic and personal data. Also, physical security issues, such as unauthorized access and theft, persist alongside emerging threats like the use of deepfake technology to manipulate online interviews. These challenges underscore the need for robust security measures that address both digital and physical vulnerabilities.

According to Educause (2021) higher education faces security challenges such as ransomware attacks, phishing, data breaches, and the need for improved cyber hygiene.

The second research question analysed how educational management can contribute to improving security for sustainable development in public universities in Rivers State. The respondents agreed that educational management plays a pivotal role in fortifying institutional security. By developing and enforcing comprehensive security policies, allocating resources for advanced security infrastructure, and fostering a culture of awareness through regular training, management can significantly mitigate security risks.

According to AI-Kuwaiti and AI Muhairi (2020) educational management plays a crucial role in enhancing cybersecurity and supporting sustainable development in universities by shaping policy, promoting awareness, and ensuring resource allocation.

The third research question determined the key-driven technologies that can enhance security for sustainable development in public universities in Rivers State. Based on the analysed result, it is apparent that all the key-driven technologies considered on research question three were all generally agreed upon as key-driven technologies that can enhance security for sustainable development in public universities. AI-driven technologies offer transformative potential for campus security. Facial recognition systems, predictive analytics for threat assessment, AI-

powered surveillance cameras, and automated cybersecurity solutions are among the tools that can detect and prevent security incidents in real-time. However, the adoption of such technologies must be balanced with considerations of privacy and ethical implications.

In support of this finding, Khan, McDaniel, and Khan (2018) stated that key technologies such as cloud computing, AI-driven threat detection, data encryption, and multi-factor authentication are tools that can enhance the security posture of higher education institutions. The researchers also highlight how these technologies contribute to long-term sustainability through efficiency, scalability, and resilience against evolving cyber threats.

Conclusion

The integration of educational management and artificial intelligence (AI) in fostering security within higher institutions is essential for sustainable development. Security challenges such as cyber threats, physical safety concerns, data breaches, and unauthorized access have become prevalent in the digital age, necessitating innovative solutions beyond traditional security measures. Educational management plays a pivotal role in developing security policies, allocating resources, and ensuring a secure learning environment. However, manual, and conventional security strategies have proven insufficient in addressing emerging threats. AI-driven technologies, including facial recognition, predictive analytics, AI-powered surveillance, and automated cybersecurity solutions, present transformative opportunities to enhance security in higher institutions.

In conclusion, leveraging educational management and AI for security can enhance institutional safety, protect academic integrity, and promote a conducive learning environment for sustainable development. For AI-driven security solutions to be effective, higher institutions must embrace a strategic, well-regulated, and ethically guided approach that aligns technology with their core educational mission.

Recommendations

1. Higher institutions should conduct regular security risk assessments to identify and address emerging threats, including cyberattacks, physical security breaches, and unauthorized access.

2. Institutional management should prioritize security in policymaking by integrating security considerations into their strategic planning.

3. Institutions should adopt AI-powered security tools, including facial recognition, AI-driven surveillance cameras, and predictive analytics, to enhance real-time threat detection and response.

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