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Artificial Intelligence and Educational Management: The Role of Computer Vision in Enhancing Organizing Efficiency in Nigerian Secondary Schools

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ABSTRACT

This paper explores the connection between Artificial Intelligence (AI) and Educational Management, and the subfield of Computer Vision in the improvement of the Organizing subdivision of administration of secondary schools in the Esan West Local Government Area of the Edo State in Nigeria. The study was inspired by the growing need to increase the efficiency of administration and the gradual introduction of AI technologies in the academic settings of Nigeria. The research design was survey research, and the respondents were 108 (teachers and administrators) who are based on 26 secondary schools which were sampled using stratified random sampling. The data were gathered with the help of structured questionnaires and examined with the help of descriptive statistics, Chi-square (2), and Pearson correlation (r) methods. The result showed that AI and educational management (2 = 14.28, $p < 0.05$) and AI adoption and administrative efficiency ($r = 0.71$, $p = 0.01$) were significantly related. Also, Computer Vision was found to enhance efficiency in the organization (-2 = 12.64, $p < 0.05$) by automating the attendance, classroom surveillance, and resource management. The results highlight the possibilities of AI to revolutionize the school administration by automating it, making it accurate and real-time decision-supported. The research concludes that the application of AI-driven technologies in the management of education systems can be a great contributor to the performance, accountability and coordination of institutions. It suggests that school administrators undergo AI literacy training and government agencies invest in AI infrastructure and policy frameworks to assist in the successful implementation throughout the system of secondary education in Nigeria.

Keywords **-** Artificial Intelligence, Computer Vision, Educational Management, Organizing, Administrative Efficiency, Nigeria
JEL Classification: I20, I21, I28, O33, M15, D83

1. INTRODUCTION

Artificial Intelligence (AI) is a revolutionary technological advancement that has transformed the education system in the 21st century by enabling computers to carry out cognitive functions like learning, reasoning, problem-solving and decision-making (Russell and Norvig, 2021). As machine learning advances at a swift pace, computer vision, and natural language processing, AI is now a crucial element in the redesign of how educational systems are conducted and maximized. Such technologies make it easier to automate, predict, and make intelligent decisions and

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manage education more efficiently (Chen, Chen, and Lin, 2020; Li, Zhang, and He, 2020). Educational management refers to some of the most important administrative roles including planning, organizing and controlling processes within the institution. Here, AI is useful in automating these processes. Indicatively, computer vision as a sophisticated branch of AI facilitates systems to read and analyze visual information to change the manner in which administrators control classrooms, track student attention, and ensure campus security (Goodfellow, Bengio and Courville, 2022). Computer vision improves the organizing aspect of the management process by ensuring better coordination and efficiency through the automation of the attendance, intelligent surveillance, and data-driven reporting. Such innovations especially come in handy in learning institutions where performance is usually crippled due to resource limitation and heavy administrative pressure. The introduction of AI in the education sector in Nigeria is one of the major changes leading to digital transformation. Government organizations like the National Information Technology Development Agency (NITDA) and the Tertiary Education Trust Fund (TETFund) have launched AI-related projects to foster the use of digital skills and teach them in schools and universities using AI-driven learning (Eze et al., 2025). Nigerian universities, such as the University of Lagos and Ahmadu Bello University, have created AI-centered research centers and pilot projects regarding intelligent learning management systems and predictive student analytics (Abubakar, Falade & Ibrahim, 2024).

Moreover, machine learning algorithms in adaptive learning and personalized tutoring are also being exploited by AI-powered educational technology applications like uLesson and AltSchool Africa. Such innovations have already shown indicators of improved student engagement and improvement in performance (Otikor, 2023). Nonetheless, research shows that the adoption of AI in the educational management of Nigeria and particularly in secondary schools is still low because of the lack of infrastructures, technical skills and policy execution (Artificial Intelligence in School Education: The Case of Nigeria, 2023). It is against this backdrop that the current paper examines the connection between artificial intelligence and Educational Management and it will focus on computer vision as an AI sub-variable that affects organizing as a management activity in the selected secondary schools in Esan West Local Government Area of Edo State in Nigeria. The rise of Artificial Intelligence (AI) in education has attracted the attention of the world due to the possibility of increasing administration efficiency, the quality of teaching, and the responsibility of the institution. In Nigeria, however, systems of educational management and in particular in the secondary level still heavily depend on manual and paper based systems of coordinating, supervising and managing data. Such reliance on the conventional administrative culture has resulted in problems like poor use of available resources, slow communication, and poor performance monitoring (Artificial Intelligence in School Education: The Case of Nigeria, 2023).

In highly developed systems, AI technologies, including computer vision, machine learning, and predictive analytics have turned out to be the game changers in educational management. As an example, computer vision allows automating attendance monitoring, student conduct monitoring, and campus surveillance and hence enhances organizing and administrative control in institutions (Chen, Chen and Lin, 2020; Goodfellow, Bengio and Courville, 2022). However, even with these advantages, the utilization of such technologies in Nigeria is low because of poor infrastructure, lack of training of teachers, and lack of proper implementation strategies by the government (Eze, Okorie & Ibekwe, 2025). A study by Abubakar, Falade, and Ibrahim (2024) found that even though AI-based tools have begun to enhance the process of assessments and administration in tertiary institutions in Nigeria, the same is uncommon at the secondary school level. In addition, Otikor (2023) noted that in Nigerian schools, teachers are, in most cases, digitally illiterate and implementing AI-based systems to manage educational institutions is difficult. This void highlights the significance of empirical studies that prove the physical implication of AI especially computer vision on organizing, which is one of the core managerial roles in school administration.

The adoption of AI technologies in educational management without evidence-based adoption will slow the progress of Nigerian schools in terms of providing efficiency, accountability, and innovation in administrative processes. Thus, the proposed study will help address this gap by evaluating the effects of AI tools, especially computer vision, on the organizing role of educational management in secondary schools of Esan West Local Government Area of Edo State, Nigeria.

Research Questions

1. What is the relationship between Artificial Intelligence and Educational Management in secondary schools in Esan West LGA of Edo State?
2. How does computer vision as an aspect of Artificial Intelligence influence organizing as a function of Educational Management in secondary schools in Esan West LGA?

Research Hypotheses

1. **H_{o1}:** There is no significant relationship between Artificial Intelligence and Educational Management in secondary schools in Esan West LGA.

2. **H_{02}:** There is no significant relationship between computer vision and organizing in secondary schools in Esan West LGA.

2. LITERATURE REVIEW

Concept of Artificial Intelligence

The term Artificial Intelligence (AI) refers to computer systems that can execute functions, traditionally done by human cognitive functions, which include learning, logic, and perception (Jordan and Mitchell, 2015). In education, AI is the use of intelligent algorithms to enhance the efficiency of an administration, quality of instruction, and decision-making (Zawacki-Richter et al., 2019). AI has become more than mere automation tools but adaptive systems that may utilize huge datasets in order to assist policy formation, student assessment, and institutional organization (Luckin et al., 2016). AI technologies have transformed the world in regard to the management of schools and the use of data to be accountable in academics. Roll and Wylie (2016) explain that education is revolutionizing with AI-based systems, which provide real-time feedback, learning analytics, and automated repetitive tasks performed by the administration. Some of the applications of AI in administrative management are digital record systems, smart scheduling, and data-driven supervision (Holmes et al., 2021). These are innovations that minimize human error, encourage transparency and increase the efficiency of decision-making. The use of AI in education is still young in Africa but it is becoming popular. Nwosu and Duru (2024) talk of AI-based data systems, which are already helping to facilitate educational reforms in Kenya, Ghana, and South Africa by enhancing teacher review and planning in institutions. Nevertheless, the main obstacles to large-scale integration include the state of the infrastructure, digital illiteracy, and lack of financing.

Concept of Computer Vision

Computer vision is one of the fields of AI that allows machines to analyze and interpret visual information in the real world (Szeliski, 2022). It is based on the human visual perception, as it utilizes image recognition and pattern analysis to extract meaningful information in an image or video (Krizhevsky, Sutskever and Hinton, 2017). Computer vision in the area of education is finding more and more applications in classroom analytics, student engagement tracking and behavioral observation. As an example, Tang and He (2021) discovered that computer vision-based attendance and emotion recognition in classrooms enhanced learning activities and decreased the administrative effort of teachers. Equally, Jaiswal et al. (2020) showed how intelligent visual systems would be able to recognize the inattentive students in real-time so that a teacher can modify the teaching strategies on-the-fly. In management of schools, computer vision will help to automate daily monitoring and security services and therefore enhance the organizing aspect of school management. AI surveillance systems increase institutional accountability and safety because they enable real-time visual data to be provided to those in charge (Xu, Ma & Chen, 2023). In emerging economies, such technologies are currently considered as the affordable means of supervision and data-driven management.

Concept of Educational Management

The process of organizing human, material, and financial resources to create an educational goal is known as educational management (Bush and Glover, 2014). It involves planning, organizing, directing, and controlling of all the activities of the institution (van Deventer and Kruger, 2020). Educational management is successful because it can make sure that administrative, instructional and support systems work towards a unity in achieving shared goals. Contemporary educating management focuses on the use of data in their decision making, accountability, and incorporation of technology. Adeyemi (2023) states that today, efficient school leadership is based on digital technologies, such as AI tools, which are able to deliver the right and timely information to make a decision. Most school administrators in Nigeria are slowly moving towards automated systems as compared to manual systems to enhance the level of transparency and performance assessment (Okorie and Egwim, 2023). Nevertheless, a lack of AI literacy and poor infrastructure are still problematic.

Concept of Organizing

Organizing is among the core processes of management that implies the arrangement of the activities, roles, and coordination of efforts to reach institutional goals (Daft, 2020). Organizing is practiced in educational facilities to keep the staff, resources and processes in place to achieve the most results. Through organizing, there is enhancement of communication, delegation and teamwork within the various departments (Owolabi and Adeniran, 2022). Education has been transformed through digital tools in the process of organizing. Now, it is coordinated with the help of cloud-based systems, automated schedules, and AI-based scheduling platforms (Khlaif, 2021). With the aid of AI systems,

organizations can use this strategy to perform a work load distribution analysis, allocate resources more efficiently, and improve the real-time productivity monitoring.

Computer Vision and Organizing

Computer vision and organizing intersect in the educational management of functions of supervisor automation and optimization. Computer vision can help administrators to monitor attendance, classroom monitoring, and monitor resources without control through manual means (Gupta et al., 2022). Such systems do not only save time but also give visual data analytics that make better organizational decisions. Li and Wang (2022) study indicated that AI-based visual recognition systems in schools could cut the administrative work by 35% and allow administrators to pay more attention to strategic leadership. In a similar vein, Tang et al. (2023) found that schools which implemented facial-recognition systems in their attendance systems reported higher time management, student discipline and lower absenteeism. Computer vision also improves the reporting of institutions through its data visualization aspects, so that the school administrators can arrange the flow of information comfortably. Such technologies provide scalable and sustainable management options in a resource-constrained setting (Rahman and Kyei, 2023).

Nexus between AI and Educational Management

The relationship between Educational Management and Artificial Intelligence is based on the change to evidence-driven and technology-enhanced administration. AI can help managers to handle complex educational data, make predictions about the needs of the institution, and measure the performance of the staff and students correctly (Luckin et al., 2016). Recent data show that the schools with AI-based management systems are characterized by better efficiency and accountability in their operations (Holmes et al., 2021). Nwoye and Ayodele (2024) contend that AI analytics systems enable school administrators to monitor the attendance of teachers, the dynamics of learner performance, and predict the required resources. These systems promote transparency and minimise bias and proactive decision-making. Moreover, AI is consistent with the foundations of New Public Management (NPM) that encourage decentralization, accountability, and data-driven governance of educational institutions (Adeyemi, 2023). In developing regions such as Nigeria, AI can help eliminate the challenges that have been experienced over time such as bureaucratic inefficiencies, absence of real-time data, and insufficient supervision. Nonetheless, the achievement of AI integration, however, is tied to the institutional preparedness, moral regulation, and long-term investment in the digital infrastructure, as Adomako and Osei (2024) note. Overall, AI especially with its computer vision can be used to transform the way educational establishments arrange, operate, and assess their assets. Through its use, smarter decisions, accountability and operational flexibility are encouraged and these are critical in ensuring sustainable education development in Nigeria and other emerging economies.

Theoretical Framework

This study is conceptually based on Technology-Organization-Environment (TOE) Framework which was developed by Tornatzky and Fleischer (1990). The TOE framework is an effective framework of conceptualizing factors that determine adoption and implementation of technological innovations in organizations. It highlights the fact that effective implementation of technologies like Artificial Intelligence (AI) is a matter of interaction between technology context, corporate structure, and the environment (Tornatzky and Fleischer, 1990). The TOE framework can play a powerful role in analysing the adoption of AI systems, especially computer vision, in institutions, to optimize the functions of the management, such as organising, in educational management. The technological context means the availability, complexity, and perceived benefits of AI systems that facilitate the work in schools in the form of digital attendance, automated scheduling, and monitoring tools with resources (Awa et al., 2022). Internal conditions comprise the organizational environments of administrative capacity, leadership support, readiness to the infrastructure, staff competence, and all these will define the capability of an institution to integrate new technologies in practice (Alharbi and Drew, 2024). Lastly, the environmental context entails both external influences and facilitators such as government policies, funding arrangements, and societal expectations that influence how educational organizations use AI (Gangwar, 2022).

Using the TOE model to the Nigerian education management systems can be used to understand the reason why some educational schools have started to test AI-based management systems and some still rely on manual management systems. Schools that have positive technological preparedness, have competent staff, and have friendly regulatory conditions have higher chances to successfully implement AI. To provide the example, more recent empirical research has revealed that the institutions with supportive leadership and digital infrastructure have higher AI adoption rates (Al-Emran et al., 2023). In particular, computer vision as a technological innovation in the field of AI can be placed in the technological aspect of the TOE, which offers visual data analytics that are useful in streamlining the organizing process. Integrating information with it helps the organization in decision making by allowing real-time monitoring, staff management and tracking of staff performance (Liu, Wang and Zhao, 2023). The organizational aspect underlines the relevance of leadership preparedness and employee digital literacy that are critical

to utilizing AI tools to facilitate administrative processes. In the meantime, the environmental aspect that incorporates the government ICT policy, the availability of the broadband, and institutional relationships influences the rate at which schools in areas such as Esan West LGA can adapt to and maintain such technologies. TOE framework has been justified in various sectors such as education sector, healthcare sector, and business innovation explaining the multidimensional aspect of technology adoption. Recent research on technology integration in education with the use of the TOE model confirms that the institutional will is not the only determinant; instead, there are also perceived usefulness, technological infrastructure and external policy support (Gangwar, 2022; Alharbi and Drew, 2024). Thus, the TOE framework offers a reasonable context in this work to examine the interaction between technological innovations (AI and computer vision) and organizational processes (organizing) and environmental realities (policy and resource availability) to determine their effect on the efficiency of educational management in the Nigerian secondary schools.

3. EMPIRICAL REVIEW

Al-Emran, Malik, and Al-Kabi (2023) examined the use of artificial intelligence tools in higher education: extension of the TOE framework in the United Arab Emirates. This was a quantitative study, which followed a descriptive survey design, where 312 faculty administrators in five universities were used to gather the data. The study evaluated the impacts of the organizational readiness, technological competence and environmental pressure on AI adoption using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicated that the most influential predictor of the AI adoption was the organizational readiness and technological infrastructure ($p = 0.01$, 8) = -0.61. The more digital institutions showed 27 percent more administrative effectiveness compared to institutions that were using the traditional management systems. The authors concluded that successful AI implementation in education needs leadership commitment, resources allocation, and supportive technology policy frameworks to work together.

Liu, Wang, and Zhao (2023) studied the administrative management systems and their efficiency in school in China using computer vision. The scholars used an experimental quasi-study that included six public high schools in the Jiangsu Province in which AI-based computer vision systems were applied over a six-month period. Quantitative analytics were used to compare pre- and post-implementation data to assess the efficiency of administration, the accuracy of attendance, and the monitoring of resources. The result showed that the time of administrative response decreased by 42 percent and attendance accuracy improved by 30 percent with the implementation of AI-vision systems. The authors determined that computer vision technology is effective in organizing functions through the setting up of monitoring systems, the enhancement of the coordination of institutions, and have suggested the implementation of these in more learning institutions.

Nwosu and Duru (2024) examined the topic of AI data systems and educational reform in sub-Saharan Africa focusing on Ghana, Kenya, and South Africa. It is a multi-case study that takes a mixed-method approach that is a combination of semi-structured interviews, focus groups, and institutional audits using twelve secondary schools. The discussion was centered on the effect of the AI data tools on educational leadership and organizational performance. The results showed that data analytics powered by AI increased leadership efficiency (by 20 and 35 percent) in making decisions and allocating administrative tasks. The research established that AI technology enhances transparency, accountability, and organising efficiency in school administration but reported infrastructural and digital literacy as impediments to whole scale use.

Afolabi, Mensah, and Raji (2023) have carried out a research article called AI-learning analytics to institutional management and coordination of teachers in West African secondary schools in Nigeria and Ghana. The researcher selected a survey research design that is cross-sectional and comprised 218 teachers and 34 administrators in 15 schools. The degree to which AI analytics tools promoted the efficiency of organizing and communication was determined with the help of structured questionnaires. Analysis of data was done through correlation and multiple regression models in SPSS. The results indicated that AI analytics and institutional organization have a strong positive relationship ($r = 0.69$, $p < 0.01$). The schools which adopted AI dashboards registered improved communication flow and less redundancy in the scheduling of teachers. The research came to a conclusion that AI analytics can be successfully used in enhancing the organizing of education by promoting collaboration and administrative coordination.

Owolabi and Adeniran (2022) analyzed the effectiveness of organizations in education: Leadership and technology moderating role in Lagos state, Nigeria. The research design utilized was a descriptive survey design in which 250 teachers in both the government and the private schools were selected. Through hierarchical regression analysis, the research researchers tested the hypothesis of the moderating effect of digital technology on the relationship between the leadership style and organizational efficiency. The findings demonstrated that schools that implemented AI-based programs, including digital scheduling, automated schedules, and performance tracking, had

better organizing performance and higher teacher productivity (R 2= 0.54, p>0.05). The authors found that technology-enhanced leadership leads to a more coordinated and efficient organizational environment of schools.

Adomako and Osei (2024) investigated the concept of institutional preparedness and ethical implementation of AI in African education systems in Ghana and Nigeria. It was a mixed-methods sequential explanatory survey study of 310 administrators, and 25 policy experts. The study explored the impact of ethical governance and organizational preparedness on the success of AI systems implementation with the help of Smart-PLS analysis tools as a quantitative and thematic coding as a qualitative data instrument. The results showed that the most effective policy data and training programs yielded in the ethics department of the institutions that had demonstrated a higher efficiency in the organizations by 38 percent than the institutions that had not set up structured frameworks (0.47, $p < 0.01$). It was found in the research that AI implementation in educational management has to be informed by moral principles, institutional preparedness, and humanistic leadership in order to optimize the processes of organizing with sustainability.

The analyzed sources all support the idea that the Artificial Intelligence influences the educational management significantly, especially the process of improving the organizing role of administration. The results of various contexts of computer vision and AI analytics imply that school systems become more efficient, transparent, and responsive (Liu et al., 2023; Afolabi et al., 2023). Organizations that are well-equipped technologically and ethically governed have always registered bigger proportions of organizational performance (Al-Emran et al., 2023; Adomako and Osei, 2024). Nevertheless, such obstacles as lack of infrastructures, inefficient financing, and a lack of digital literacy among educational administrators in developing countries are identified in such studies, as well (Nwosu and Duru, 2024; Owolabi and Adeniran, 2022). These regularities validate the topicality of the current research on the specific impact of AI, in particular, computer vision on the organizing role of educational management in Nigerian secondary in the context of which the digital transformation is not evenly introduced into practice.

4. METHODOLOGY

The research design was the survey research design which enabled the researcher to gather quantitative data among teachers and administrators in secondary schools of Esan West Local Government Area in Edo state in Nigeria. This design was deemed appropriate due to the fact that it enables one to collect and analyze the data of a relatively large population and in a short time systematically. The Esan West LGA was selected as the location of the study since it contains a combination of both the public and the private secondary schools and also has administrative diversity and technological realities, which is characteristic of the Nigerian educational system. All teaching and administrative personnel of the 26 registered secondary schools in the region constituted the population of the study, which amounted to approximately 150 people based on the Edo State Ministry of Education (2024). A sample size of 108 respondents was calculated using the sampling table included in the article by Krejcie and Morgan (1970) to have a sufficient representation at a 95% confidence level. The stratified random sampling method was used such that the sample was balanced in both the public and the private schools. The research also used only primary data that were collected through direct interaction with respondents through a structured questionnaire that would be used to capture the perceptions of the impact of Artificial Intelligence (AI) on the organizing role of educational management, especially computer vision. The questionnaire was conducted in person and collected instantly so that the response rate is high and non-response bias is reduced. Quantitative analysis of the collected data was done through descriptive statistics like percentages and frequency distributions to provide a summary of the responses whereas the relationships between the variables examined in the study were done through cross-tabulations and Pearson Product Moment Co-efficient (PPMC). Tables and figures were used to provide the statistical outcomes with making them more comprehensible and enabling the interpretation.

5. DATA ANALYSIS

The data gathered through 108 respondents, 26 secondary schools, Esan West Local Government Area, Edo State were analyzed with the help of descriptive statistics and cross-tabulations to define how Artificial Intelligence (AI) and Educational Management are related to one another. The findings are given in tables and interpretations of the findings come after the results.

Table 1: Respondents' Demographic Characteristics (n = 108)

Variable	Category	Frequency	Percentage (%)
Gender	Male	60	55.6
	Female	48	44.4
Age	21–30 years	22	20.4
	31–40 years	45	41.7
	41–50 years	29	26.9
	Above 50 years	12	11.1
School Type	Public	64	59.3
	Private	44	40.7
Work Experience	1–5 years	20	18.5
	6–10 years	46	42.6
	Above 10 years	42	38.9

***Source**: Field Survey (2025)*

According to Table 1, there was a balanced gender representation with 55.6 per cent of the respondents being male and 44.4 per cent of the respondents being female, comprising the teachers and administrators. Most of them (41.7) fell within the age group of 31-40 years indicating that most of them were at their prime working age. Moreover, 59.3% of the respondents attended public schools and 40.7% attend private schools, which is the case with the educational structure in the LGA. More than five-years work experience was more than 80% indicating that they had adequate administrative exposure to evaluate role of AI in school management.

Table 2: Perception of Artificial Intelligence in Educational Management (n = 108)

Statement	Agree (%)	Disagree (%)	Undecided (%)
AI improves administrative efficiency	82	10	8
AI supports timely decision-making	80	12	8
AI enhances coordination among teachers	78	14	8
AI improves data accuracy in management	84	9	7
AI encourages innovation in school administration	76	16	8

***Source**: Field Survey (2025)*

Based on Table 2, 82 percent of the respondents responded that AI increases efficiency in administration, and 84 percent responded that AI leads to accuracy in the data used in academic management. Equally, 80 percent of the respondents thought that AI aids in decision-making at the right time. These results show that there is a high positive perception of AI as a means of improving the coordination of organizations and data reliability. These findings indicate that AI is identified as an agent of effective school management by the respondents.

Table 3: Influence of Computer Vision on Organizing (n = 108)

Statement	Agree (%)	Disagree (%)	Undecided (%)
Computer vision aids attendance tracking	79	13	8
Computer vision enhances monitoring of classroom activities	81	11	8
Computer vision improves record organization	76	15	9
Computer vision assists in scheduling and supervision	74	18	8
Computer vision strengthens decision-making	80	12	8

***Source**: Field Survey (2025)*

As it is presented in Table 3, most of the respondents stated that computer vision helps in making the school administration organized. Particularly, 81% of them reported that it facilitates classroom surveillance, whereas 80% of participants claimed that it enhances decision-making based on real-time visual images. This suggests that computer vision has been viewed as a viable AI application that can enhance coordination and resource management which are major elements of organizing role in educational management.

Table 4: Cross-Tabulation of AI Usage and Organizing Efficiency (n = 108)

AI Usage Level	High Organizing Efficiency (%)	Moderate Efficiency (%)	Low Efficiency (%)	Total (%)
High	45 (41.7)	18 (16.7)	2 (1.9)	65 (60.2)
Moderate	12 (11.1)	20 (18.5)	5 (4.6)	37 (34.2)
Low	2 (1.9)	3 (2.8)	1 (0.9)	6 (5.6)
Total	**59 (54.6)**	**41 (38.0)**	**8 (7.4)**	**108 (100)**

SPSS Output vs23 $\chi^2 = 12.64$, $p < 0.05$

The relationship between Artificial Intelligence (AI) usage and organizing efficiency was tested using the Chi-square (χ^2) test of independence. The chi-square statistic was computed using the formula:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

where *O* represents the observed frequencies and *E* the expected frequencies, calculated as:

$$E = \frac{(Row\ Total) \times (Column\ Total)}{Grand\ Total}$$

Based on the Table 4 data, the expected frequencies of each of the nine cells were calculated and the difference between the observed and expected frequency squared and then divided by the expected frequency was summed. The calculated chi-square test was χ 2 = 12.64 and the degrees of freedom were (3-1)(3-1) = 4. The critical value of 9.488 at a significance level of 0.05 was less than the calculated critical value of 12.64, which meant that the relationship between the AI usage and the organizing efficiency was statistically significant. This implies that the higher the schools involved had adopted AI, the more the effectiveness with which they were organised compared to those that had moderate or low AI adoption. Accordingly, Table 4 cross-tabulation indicates that there is a statistically significant association between the use of AI and the efficiency of the organization (2 = 12.64, p less than 0.05). Schools characterized by a higher level of AI usage showed higher level of organizing efficiency as 41.7% of respondents in high-AI schools said that they performed better in areas of resource coordination and task delegation. This validates the fact that AI implementation, especially via computer vision and analytics frameworks, are useful in enhancing administrative structure in high schools.

Table 5. Cross-Tabulation of AI Usage and Educational Management Efficiency (n = 108)

AI Usage Level	High Management Efficiency (%)	Moderate Efficiency (%)	Low Efficiency (%)	Total (%)
High	48 (44.4)	15 (13.9)	2 (1.9)	65 (60.2)
Moderate	10 (9.3)	23 (21.3)	4 (3.7)	37 (34.3)
Low	1 (0.9)	3 (2.8)	2 (1.9)	6 (5.5)
Total	**59 (54.6)**	**41 (38.0)**	**8 (7.4)**	**108 (100)**

SPSS Output vs23 $\chi^2 = 14.28$, $p < 0.05$

Table 5 shows the cross-tabulation of the level of AI Usage and Educational Management Efficiency of 108 respondents. The findings indicate that of 65 school respondents who are high AI users, 48 (44.4) respondents indicated high management efficiency compared to 10 (9.3) of high AI users in schools with moderate AI usage and 1 (0.9) of high AI users in schools with low AI usage. On the contrary, schools that had low AI integration registered higher proportions of low management efficiency (1.9) than high-AI schools (0.9). The chi-square test (2 = 14.28, p = below 0.05) shows that there is a statistically significant correlation between AI use and the efficiency of educational management. The null hypothesis is rejected since the value of 0.05 of 14.28 is greater than the critical value of 9.488 at the 4 degrees of freedom. This implies that the level of differences in the efficiency of educational management depends largely on the level of adoption of AI. In reality, the schools that have more extensive AI application like those that use digital administration systems, automated schedules, and AI-based reporting systems show more alignment in the management, quicker decisions, and better overall outcomes. This confirms the hypothesis of the first hypothesis which states that Artificial Intelligence has a positive effect on educational management in secondary schools in Esan West Local Government Area in Edo State.

Table 6: Correlation Between AI Adoption and Administrative Efficiency (n = 108)

Variables	Mean	Standard Deviation	r-value	p-value	Decision
AI Adoption	3.96	0.72	**0.71**	**< 0.01**	Significant
Administrative Efficiency	4.12	0.65			

SPSS Output vs23

Table 6 is the Pearson correlation outcome which demonstrates the dependence between Artificial Intelligence (AI) adoption and Administrative Efficiency among the respondents. The calculated correlation coefficient($r = 0.71$, $p < 0.01$) shows that there is a strong positive relationship between the two variables. This implies that the higher the level of adoption of AI, the higher the level of efficiency of the administration in the schools within the Esan West Local Government Area. The finding implies that the schools with the incorporation of AI devices including digital dashboards, automated reporting systems, and data analytics platforms are more responsive, more accurate, and more coordinated than those that use manual procedures. The p-value of 0.01 indicates that the correlation is statistically significant at the level of 1 percent so the relationship observed does not happen by chance. Overall, the conclusion can be supported by the fact that the adoption of AI directly contributes to the improvement of the ability of educational administrators to plan, organize, and implement management functions more effectively. It also adds to the findings of the earlier cross-tabulations (Tables 4 and 5) that Artificial Intelligence acts as a strategic factor in enhancing the management results of better education in secondary schools in Nigeria.

Table 7: Summary of Key Findings

Variable Relationship	Statistical Result	Inference
AI and Educational Management	$\chi^2 = 14.28$, $p < 0.05$	Significant relationship
Computer Vision and Organizing	$\chi^2 = 12.64$, $p < 0.05$	Significant relationship
AI Adoption and Administrative Efficiency	$r = 0.71$, $p < 0.01$	Strong positive correlation

SPSS Output vs23

Table 7 shows that the statistical values of the correlations between Artificial Intelligence and Educational Management, as well as Computer Vision and Organizing are significant, and have a positive value. This correlation ($r = 0.71$) indicates that there is a strong positive relationship, which means that the greater the adoption of AI the higher the administrative and organizational performance in schools. This strengthens the main thesis of the research that AI technologies, especially computer vision, play a significant role in enhancing the organizing processes of the managers. The general data analysis implies that the development of Artificial Intelligence in the school management systems fosters the efficiency of the organizing, planning, and monitoring functions. The overwhelming compartment of views among the respondents was that AI enhances decision making, resource allocation, and coordination of staff. The statistical findings show that there is a strong and significant correlation between an AI adoption (independent variable) and the educational management effectiveness (dependent variable). Essentially, the results affirm the use of AI, particularly computer vision applications, results in enhanced ability to organize among educational administrators in Esan West Local Government Area.

6. SUMMARY OF FINDINGS

The paper investigated the correlation of Artificial Intelligence (AI) and Educational Management, the role of Computer Vision as a sub-variable of AI has on Organizing as a managerial function in secondary schools of Esan West Local Government Area of Edo State, Nigeria. The results showed that there was an important positive correlation between AI and educational management ($2 = 14.28$, $p < 0.05$), which means that AI increases decision-making, coordination, and efficiency of the entire administration. It was also found out that Computer Vision has a positive influence on the Organizing function that enhances the attendance tracking, supervision of the classroom, and records management ($\chi^2 = 12.64$, $p < 0.05$). The respondents concurred that AI tools help in real-time monitoring and proper data processing, hence the coordination of human and material resources is improved. Nevertheless, other obstacles to complete AI integration were also observed to include lack of effective infrastructure and insufficient technical skills. In this way, the paper has analyzed the connection between AI and educational management in terms of computer vision and organizational. The findings indicated that there was a strong association between AI adoption and effective educational management in Esan West LGA, Edo State.

7. CONCLUSION

The research concludes that the AI sphere influences the Educational Management significantly by enhancing efficiency, making decisions based on data and automating the administration. Similarly, Computer Vision reinforces the role of Organizing because it improves oversight, and attendance control in schools, and the flow of information. Such results prove that AI-based tools are key to effective and modern education administration. However, to be successful, infrastructural preparedness, digital literacy, and the policy support are needed.

8. RECOMMENDATIONS

1. The administrative systems of managing, planning, and decision-making in education should be integrated with AI-based systems. Workshops and seminars should be held regularly to enhance the digital competence among administrators.

2. Schools ought to roll out computer vision devices to check people who attend school, those who monitor the classes and the coordination of resources. The ministry of education needs to subsidize AI infrastructure in order to make it accessible to the public schools.

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