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Influences of Artificial Intelligence Among School Managers of Secondary Schools in Port Harcourt of Rivers State

Isioro, Izie Best
Department of Educational Management, Rivers State University, Nigeria.
Corresponding Authors' Email: izieladyus@gmail.com

Abstract

The study examined the influences of Artificial Intelligence (AI) among school managers in secondary schools in Port Harcourt Rivers State. The study adopts a descriptive survey design. The population of study comprised population of 125 of school managers. A sample of 115 respondents using stratified random technique. The instrument used for data collection was a questionnaire tilted (QIAIASMSSPH) structured on a four-point rating scale. The instrument was validated by three experts and it had a reliability cumulative coefficient of 0.75 obtained using the Cronbach Alpha method. Data collected were analysed using Means and standard deviations and z-tests, was used to test the hypotheses at 0.05 level of significance. The validity and reliability cumulative coefficient of 0.75. A criterion means of 2.50 was set, which means any item that is below the criterion mean is seen as Disagree while the items above the criterion means are seen as Agree. The result showed the different perception held by school managers about the influence of AI in secondary schools in Port-Harcourt Rivers State. The study concludes with recommendations for capacity building and policy formulation to support the effective adoption of AI in secondary education.

Keywords: Artificial Intelligence, School Managers, Influence of Artificial Intelligence

Introduction

The integration of Artificial Intelligence (AI) in education has emerged as a significant development in recent years, offering innovative solutions to traditional challenges in educational management. AI technologies have the potential to transform various aspects of education, from personalized learning experiences to efficient administrative processes. In the context of secondary schools, school managers are increasingly recognizing the potential of AI to assists in (Igbokwe, 2023), developing and updating curricula by analysing educational trends, student performance data, and learning gaps. It provides real-time insights and recommendations for curriculum updates and adjustments, keeping educational content aligned with current standards. Thereby enhance decision-making, optimize resource allocation, and improve overall school management (UNESCO, 2021).

Despite the growing interest in AI, the perceptions of its influence among school managers remain varied factors such as technological readiness, access to resources, and the specific needs of educational institutions influence how these technologies are adopted and utilized (UNESCO, 2021). Understanding these perceptions is critical, as school managers play a pivotal role in implementing and sustaining AI initiatives within their institutions. The study aims to explore the influences of AI among school managers of secondary schools in Port Harcourt Rivers State as they play a key role in ensuring a conducive environment to enhance learning and resources management amongst others which tends to providing insights into their attitudes, concerns, and expectations regarding AI's role in education.

Despite the promise of AI, its adoption and influences among school managers remain underexplored. Understanding the perceptions of those who lead and manage schools is crucial, as their attitudes and acceptance of AI will significantly influence its successful implementation. The study aims to investigate the influences of AI among school managers of secondary schools in the Port Harcourt Rivers State by exploring how these influences will shapen the integration of AI into educational management by identifying the factors that facilitate or hinder its adoption. Through this exploration, the research seeks to provide insights that can guide policy makers, educators, and technologists in optimizing AI role in education.

AI's application in education spans across various functions, including data management, predictive analytics for student performance, personalized learning, and administrative decision-making (Popenici & Kerr, 2017). These technologies have the potential to streamline operations, improve decision-making efficiency, and enhance student outcomes by providing school managers with actionable insights (Popenici & Kerr, 2017).

Conceptual Review

The integration of Artificial Intelligence (AI) in educational management has garnered significant attention in recent years. AI's capabilities in enhancing administrative efficiency, personalizing learning experiences, and improving decision-making processes have been extensively explored in educational settings. Research highlights the growing adoption of AI tools by educational institutions globally, including secondary schools, where the technology is influences as instrumental in transforming traditional administrative practices (Wardat, *et-al* (2024). Several studies have explored the influences of AI among school managers. According to a review by Djokic, *et-al* (2023). AI applications in education have been found to offer various advantages, including improved resource allocation, enhanced data management, and

better student performance tracking. These benefits have led to a positive perception of AI's role in educational management.

Further research has shown that school managers' attitudes towards AI are influenced by their understanding of the technology and its potential benefits. A study conducted by Liberty University (2021) suggested that school managers who are well-informed about AI are more likely to perceive it as a valuable tool for improving educational outcomes. The study also notes that challenges such as lack of training and technological infrastructure can hinder the effective adoption of AI in schools. The role of AI in supporting educational decision-making is a critical area of interest. The literature indicates that AI can aid school managers in making data-driven decisions, thereby enhancing the overall quality of education. However, the extent to which AI is influences as useful varies depending on factors such as the level of technological advancement in schools and the availability of resources Seo, *et-al* (2021).

AI's application in education spans across various functions, including data management, predictive analytics for student performance, personalized learning, and administrative decision-making (Popenici & Kerr, 2017). These technologies have the potential to streamline operations, improve decision-making efficiency, and enhance student outcomes by providing school managers with actionable insights (Popenici & Kerr, 2017). Research by Popenici and Kerr (2017) highlights the transformative potential of AI in educational settings, emphasizing its capacity to enhance both administrative and instructional efficiency. School managers who perceive AI as useful are more likely to adopt and integrate these technologies into their schools' daily operations, thus driving innovation in educational management (Popenici & Kerr, 2017).

Furthermore, while AI holds significant potential for educational management, its influences among school managers is contingent on several factors, including knowledge, infrastructure, and training. Continued research is necessary to explore these dynamics further and to develop strategies that can facilitate the effective integration of AI in educational settings. However, the influences of AI among school managers in secondary schools across Nigeria remains an area requiring further exploration. Understanding their perceptions is essential for successful AI integration, as their attitudes towards these technologies can influence the extent to which AI is adopted and utilized.

School managers often view AI as a tool that can enhance operational efficiency, improve decision-making, and support personalized learning environments.

1. Administrative Efficiency: AI is influences to streamline various administrative tasks such as scheduling, record-keeping, and data analysis, which can lead to significant time savings and operational efficiency
2. Decision-Making Support: AI systems can provide data-driven insights that aid in more informed decision-making. This includes analysing student performance, predicting academic outcomes, and optimizing resource allocation
3. Personalized Learning: AI technologies enable personalized learning experiences by adapting educational content to individual student needs, which can enhance student
4. Challenges and Barriers: Despite the influence's benefits, there are challenges such as the need for adequate training, resistance to change, and concerns about data privacy and ethical implications

Statement of the Problem

Educational institutions face unique challenges such as limited resources and varying levels of technological infrastructure, the adoption of AI has the potential to significantly transform the management of secondary schools (Abdullahi, 2023). School managers, as key decision-makers, play a crucial role in determining how these technologies are implemented and leveraged to improve educational outcomes. Its adoption and influences among school managers remain underexplored. Understanding the perceptions of those who lead and manage schools is crucial, as their attitudes and acceptance of AI will significantly influence its successful implementation. The study aims to investigate the influences of AI among school managers of secondary schools in Port Harcourt Rivers State, exploring how these perceptions shape the integration of AI in educational management and identifying the factors that facilitate or hinder its adoption. Through this exploration, the research seeks to provide insights that can guide policymakers, educators, and technologists in optimizing AI's role in education.

Purpose of the Study

The purpose of the study was to examine the influence of AI among managers of secondary schools in Port Harcourt of Rivers State. Specifically, the study sought to achieve the following:

1. Find out the influences of artificial intelligence (AI) in teaching and learning among school managers of secondary school in Port Harcourt, Rivers State.
2. Ascertain the usefulness of artificial intelligence (AI) in school planning among school managers of secondary school in Port Harcourt, Rivers State.

3. Determine the influences of artificial intelligence (AI) on student assessment among school managers of secondary school in Port Harcourt metropolis, Rivers State.

Research Questions

The following research questions guided the study:

1. What are the influences of artificial intelligence (AI) in teaching and learning among school managers of secondary school in Port Harcourt metropolis, Rivers State?
2. What are the influences of artificial intelligence (AI) in school planning among school managers of secondary school in Port Harcourt metropolis, Rivers State?
3. What are the influences of artificial intelligence (AI) in student assessment among school managers of secondary school in Port Harcourt metropolis, Rivers State?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

H01: There is no significant difference between the mean scores of male and female principals on the influence artificial intelligence (AI) in teaching and learning among school managers of secondary school in Port Harcourt Rivers State.

H02: There is no significant difference between the mean scores of male and female principals on the influence artificial intelligence (AI) in school planning among school managers of secondary school in Port Harcourt, Rivers State.

H03: There is no significant difference between the mean scores of male and female principals on the influence artificial intelligence (AI) in student assessment among school managers of secondary school in Port Harcourt, Rivers State.

Methodology

The study used a descriptive survey, the method to comprehensively assess the influences of AI among secondary school managers in Port Harcourt. The design allows for the collection of both numerical data and detailed insights into managers' experiences and perceptions. The study was carried out in Obio-Akpor and Port Harcourt City Local Government Areas of Rivers State. The population of the study comprises 125 school managers from secondary schools in Port Harcourt. A stratified random sampling technique was employed to select school managers from different types of secondary schools (public and private) to ensure diversity. The sample size of the study was 115 respondents which consisted of 60 female and 50 male of school

managers of senior secondary schools in Port Harcourt of Rivers State statistical achieved from surveyed using Cronbach's formula. The instrument for data collection was structured a questionnaire titled "Questionnaires Influences of Artificial Intelligence among School Managers of Secondary Schools in Port Harcourt (QIAIASMSSPH)". The questionnaire included Likert-scale items made of 5 clusters A, B, C, D and E each cluster of the instrument structured on a 4-point modified type rating scale optioned: Strongly Agree, (SA= 4 Points), Agree (A= 3 Points), Disagree (D= 2 Points), Strongly Disagree (SD -1 point) to measure influences , challenges, and benefits of AI tools, Means and standard deviations were used to analyse the data and z-tests, was used to test the hypotheses at 0.05 level of significance. The validity and reliability cumulative coefficient of 0.75. A criterion means of 2.50 was set, which means any item that is below the criterion mean are seen as Disagree while the items above the criterion means are seen as Agree.

Results

Research Question 1: What are the influences of artificial intelligence (AI) in teaching and learning among school managers of secondary school in Port Harcourt metropolis, Rivers State?

Table 1: **Influences of artificial intelligence (AI) in teaching and learning among school managers of secondary school in Port Harcourt metropolis, Rivers State**

S/N	School Managers adopts AI in teaching and learning to:	Female (n = 60)			Male (n =45)			$\frac{(x_1 + x_2)}{2}$
		x_1	S.D	RMK	x_2	S.D	RMK	
1	Improve on efficient data management.	3.35	0.92	Agree	3.09	0.79	Agree	3.13
2	Improve accessibility to school documents.	3.25	0.88	Agree	3.42	0.58	Agree	3.34
3	Assess teacher performance, identifying areas for professional development.	3.33	0.60	Agree	3.29	0.79	Agree	3.31
4	Disabilities student accessibility to education, by offering adaptive learning technologies and support systems.	3.32	0.81	Agree	3.29	0.76	Agree	3.31
5	Enhance better communication with students and management team	3.37	0.66	Agree	3.27	0.75	Agree	3.32
6	Provide data analysis to school management team for decision making	2.87	1.08	Disagree	3.29	0.79	Agree	3.08
	Average	3.24	0.82		3.27	0.74		

Analysis:
Refer to the table 1 above, shown the mean scores of female and male principals 3.24 and 3.27 receptivity which are above average minimum mean criterion 2.50 i.e. It was agreed that artificial intelligence (AI) has influence in teaching and learning among school managers of secondary school in Port Harcourt Rivers State.

Research Question 2: What are the influences of artificial intelligence (AI) in school planning among school managers of secondary school in Port Harcourt, Rivers State?

Table 2: **Influences of artificial intelligence (AI) in school planning among school managers of secondary school in Port Harcourt Rivers State?**

S/N	School Managers adopts AI in School planning to:	Female (n = 60)			Male (n =45)			Mean Set $\frac{(x_1+x_2)}{2}$
		x_1	S.D	RMK	x_2	S.D	RMK	
7	Classification of academic curriculum.	2.98	1.10	Disagree	3.33	0.90	Agree	3.16
8	helps streamline administrative tasks, such as resource allocation and scheduling,	3.18	0.95	Agree	3.29	0.94	Agree	3.24
9	Reduces the chances of misplacement of records	3.30	0.81	Agree	3.20	0.81	Agree	3.25
10	Ensure that accurate information is readily available.	3.35	0.94	Agree	3.22	0.79	Agree	3.29
11	Allows administrators to assign roles with specific permission bases on job responsibilities	3.22	0.85	Agree	3.42	0.69	Agree	3.32
12	AI enables school managers to make data-driven decisions, improving the accuracy and effectiveness of educational strategies	3.05	0.95	Agree	3.31	0.79	Agree	3.08
	Average	**3.18**	**0.93**		**3.30**	**0.82**		

Analysis:
Refer to the table 2 above, shown the mean scores of female and male principals 3.18 and 3.30 receptivity which are above average minimum mean criterion 2.50 i.e. It was agreed that artificial intelligence (AI) has influence in school planning among school managers of secondary school in Port Harcourt Rivers State.

Research Question 3: What are the influences of artificial intelligence (AI) in student assessment among school managers of secondary school in Port Harcourt, Rivers State?

Table 3: **Influences of artificial intelligence (AI) in student assessment among school managers of secondary school in Port Harcourt metropolis, Rivers State?**

S/N	School Managers adopts AI in student assessment to:	Female (n = 60)			Male (n =45)			Mean Set $\frac{(x_1+x_2)}{2}$
		x_1	S.D	RMK	x_2	S.D	RMK	
13	Make available sensitive records of student to authorized personnel	3.13	0.89	Agree	3.49	0.69	Agree	3.31
14	identify students' strengths and weaknesses, allowing school managers to implement personalized learning strategies that improve overall educational outcomes	3.17	0.74	Agree	3.40	0.81	Agree	3.29
15	Reduce risk of student data manipulation	3.06	0.96	Agree	3.24	0.77	Agree	3.15
16	Improve accountability of academic record data/information been archived	3.17	0.91	Agree	3.24	0.77	Agree	3.21
17	Track students' progress, over time.	3.27	0.82	Agree	3.31	0.82	Agree	3.29

18	helps to reduce biases in grading by providing consistent evaluations based on predefined criteria, which enhances fairness	3.32	0.75	Agree	3.16	0.77	Agree	3.24
19	Assessment tools can automate the grading process, reducing the time required for marking and providing immediate feedback to students.	3.22	0.80	Agree	3.42	0.72	Agree	3.32
20	tailor assessments to individual students' learning needs, providing more accurate evaluations of their abilities and progress	3.28	0.76	Agree	3.36	0.71	Agree	3.32
	Average	**3.20**	**0.82**		**3.32**	**0.75**		

Analysis:
Refer to the table 3 above, shown the mean scores of female and male principals 3.20 and 3.32 receptivity which are above average minimum mean criterion 2.50 i.e. It was agreed that artificial intelligence (AI) has influence in student assessment among school managers of secondary school in Port Harcourt Rivers State

Test of Hypothesis

H01: There is no significant difference between the mean scores of the male and female principals on the influences of artificial intelligence (AI) in teaching and learning among school managers of secondary school in Port Harcourt, Rivers State.

Table 4: Z-Test Analysis on significant in the mean response manager influences of artificial intelligence (AI) in teaching and learning in secondary school in Port Harcourt, Rivers State.

Groups	N	x	S.D.	Z-cal	Z-crit	Decision
Female	60	3.24	0.82	-0.17	1.96	Accepted
Male	45	3.27	0.74			

The result in Table 4 shows the test of hypotheses one. As shown, calculated value of z (z-cal) = 0.17 while the critical value of z (z-crit) = 1.96. Since z-cal is less than z-crit, the hypothesis was accepted at 0.05.

H02: There is no significant difference between the mean scores of the male and female principals on the influences of artificial intelligence (AI) in school planning among school managers of secondary school in Port Harcourt, Rivers State

Table 5: Z-Test Analysis on significant difference influences of artificial intelligence (AI) in school planning among school managers of secondary school in Port Harcourt metropolis, Rivers State.

Groups	N	x	S.D.	Z-cal	Z-crit	Decision
Female	60	3.18	0.93	-0.67	1.96	Accepted
Male	45	3.30	0.82			

The result in Table 5 shows the test of hypotheses. As shown, calculated value of z (z-cal) = 0.67 while the critical value of z (z-crit) = 1.96. Since z-cal is less than z-crit, the hypothesis was accepted at 0.05.

H03: There is no significant difference between the mean scores of the male and female principals on the influences of artificial intelligence (AI) in student assessment among school managers of secondary school in Port Harcourt, Rivers State

Table 6: **Z-Test Analysis on significant influences of artificial intelligence (AI) in student assessment among school managers of secondary school in Port Harcourt metropolis, Rivers State.**

Groups	N	x	S.D.	Z-cal	Z-crit	Decision
Female	60	3.20	0.82	-0.45	1.96	Accepted
Male	45	3.32	0.75			

The result in Table 6 shows the test of hypotheses. As shown, calculated value of z (z-cal) = 0.45 while the critical value of z (z-crit) = 1.96. Since z-cal is less than z-crit, the hypothesis was accepted at 0.05.

Discussion

The major finding in the study was Firstly, the influences of artificial intelligence (AI) in teaching and learning among school managers of secondary school in Port Harcourt, Rivers State, it was positive agree that the significant difference between the mean scores of male and female principals on the influence artificial intelligence (AI) in teaching and learning among school managers of secondary school in Port Harcourt Rivers State. The tested hypothesis is accepted at 0.05, show a significant difference of z-cal (-0.17 less than z-crit (1.96). This result is in agreement with the findings of Igbokwe, (2023), that AI technologies have the potential to transform various aspects of education, from personalized learning experiences to efficient administrative processes. In the context of secondary schools, school managers are increasingly recognizing the potential of AI to assists in developing and updating curricula by analysing educational trends, student performance data, and learning gaps.

Another major finding is the usefulness of artificial intelligence (AI) in school planning among school managers of secondary school in Port Harcourt. The study found a significant positive acceptance of artificial intelligence (AI) in school planning among school managers of secondary school in Port Harcourt, Rivers State. The tested hypothesis is accepted at 0.05, show

a significant difference of z-cal (-0.67) than z-crit (1.96). This confirmed UNESCO (2021) that AL provides real-time insights and recommendations for curriculum updates and adjustments, keeping educational content aligned with current standards. Thereby enhance decision-making, optimize resource allocation, and improve overall school management.

The third finding showed artificial intelligence (AI) on student assessment among school managers of secondary school in Port Harcourt metropolis, Rivers State. , it was positive agree that the significant difference between the mean scores of male and female principals on student assessment and also The tested the hypothesis show an accepted result among school managers of secondary school in Port Harcourt Rivers State. This result is in agreement with the findings of (Popenici & Kerr, 2017) that AL have the potential to streamline operations, improve decision-making efficiency, and enhance student outcomes by providing school managers with actionable insights

Conclusion

The study concludes that Artificial Intelligence (AI) is seen as highly beneficial to school managers of secondary schools in Port Harcourt. AI tools are valued for their potential to enhance administrative efficiency, streamline decision-making, and support personalized student management. However, challenges such as high implementation costs, technical limitations, and resistance to change are significant barriers to widespread adoption. These findings underscore the importance of addressing these obstacles to fully leverage AI's benefits in educational management.

Recommendations

Based on the finding of the study the following recommendations were made that Ministry of education should encourage professional development by to build technical skills among school managers and staff, ensuring they are well-equipped to utilize AI tools effectively.

The study recommends that school managers should be encouraged to explore and integrate AI technology in school’s management to enable them to discover new ideas and perspectives with effective teaching and brainstorming

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