

THE USE OF ARTIFICIAL INTELLIGENCE IN ENHANCING TEACHER JOB PERFORMANCE IN SECONDARY SCHOOLS IN IMO STATE

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Abstract

This study explores how Artificial Intelligence (AI) is used to enhance teacher job performance in secondary schools within Imo State, Nigeria. It examines the practical applications of AI in lesson delivery, administrative duties, and student evaluation, as well as the challenges faced by educators in integrating these technologies. Two research questions were posed. The survey research design was adopted. A population of 11,175 was used while sample of 138 was drawn. Rating scales were used for data collection. The mean and standard deviation were used for data analyses. Findings revealed among others that AI tools are not highly used by teachers in the secondary schools to impact on teacher job performance.

Keywords: The Use, Artificial Intelligence, Teacher Job Performance, Secondary Schools, Enhancing.

Introduction

Artificial Intelligence (AI) is the branch of computer science focused on creating systems or machines that can perform tasks typically requiring human intelligence. According to Wang, (2024), Artificial Intelligence (AI) has become increasingly prevalent in various sectors including education. He maintained that in recent years, AI has been utilized in secondary schools to enhance teacher job performance and improve student learning outcomes. Tanvir, Bashir and Shahzadi (2024) are of the opinion that one of the primary ways in which AI can enhance teacher job performance is through automating administrative tasks. They equally stressed that teachers spend a significant amount of time on administrative work such as grading papers, creating lesson plans and managing student records. In this sense, they opined that AI could be used to streamline these processes by automatically grading assignments, generating personalized lesson plans based on student performance data, and organizing student information in a centralized database. By implication, reducing the time spent on administrative tasks, teachers can

focus more on teaching and providing individualized support to students.

In the views of Rusmaniar, Widiyatsih and Setiyo (2023) AI can as well assist teachers in delivering personalized learning experiences to students. the scholars maintained that through the use of algorithms and machine learning, AI can analyze student data and identify learning gaps, preferences and strengths. These information can therefore be used to create tailored learning pathways for each student, ensuring that they receive the support and resources needed to succeed. According to Nikitina and Ishchenko (2024), AI systems can range from simple rule-based programs (like a spam filter) to advanced models like ChatGPT that can engage in conversation, generate text, or analyze complex data. The advancement of Artificial Intelligence (AI) in education seems to have sparked a global transformation in teaching methodologies and administrative processes. In Nigeria, and specifically in Imo State, AI integration into secondary education seems to be something that can offer potential solutions to long-standing challenges related to teacher workload, instructional effectiveness, and student engagement. This study therefore aims to investigate the role of AI in improving the job performance of secondary school teachers in Imo State.

Statement of Problem

The researcher speculates a dearth in the use of Artificial Intelligence (AI) in secondary schools in Imo State. Despite growing global interest in the use of AI in education, many secondary schools in Imo State seem to continue to rely on traditional teaching and administrative methods, which may limit the effectiveness and efficiency of teachers. As educational demands increase and technological innovations evolve, there is a pressing need to explore how AI tools—such as intelligent tutoring systems, automated grading, lesson planning support, and data-driven student performance analytics—can support teachers in improving instructional delivery, classroom management, and administrative duties. However, there is limited empirical evidence on the extent to which AI is currently being adopted in Imo State's secondary schools, and how its use may be enhancing or hindering teacher job performance. This gap presents a challenge for educational stakeholders seeking to integrate AI in ways that genuinely support educators. Therefore, this study seeks to investigate the use of AI in enhancing teacher job performance in secondary schools in Imo State, with the aim of identifying current practices, perceived benefits, challenges, and potential for broader adoption.

Scope of the Study

This study is delimited in public secondary schools in Imo State. It focuses on investigating use of artificial intelligence in enhancing teacher job performance in secondary schools in Imo State. The content scope is on ascertaining the AI tools currently being used in secondary schools in Imo State, impact of AI on teacher productivity and instructional quality and challenges and limitations faced by educators in adopting AI.

Purpose of the Study

This study focuses on investigating the use of artificial intelligence in enhancing teacher job performance in secondary schools in Imo State. Specifically, it seeks to:

1. examine the ways AI tools are used to improve teacher job performance in secondary

schools.

2. assess the challenges faced by teachers in the use of AI in the secondary schools.

Significance of the Study

When published, this study may benefit the following stakeholders: teachers, students and researchers.

Teachers may gain insights into how AI tools can support teaching, grading, lesson planning, and classroom management. They may receive recommendations on practical and user-friendly AI applications to improve job performance.

Students may indirectly benefit from improved teaching quality, personalized learning experiences, and timely feedback. They may also interact with AI-based learning tools that enhance engagement and understanding.

Researchers may use the study as a foundation for further research on AI in education, especially in similar socio-educational contexts.

Research questions

The following research questions guided the study:

1. in what ways are AI tools used to improve teacher job performance?

2. what challenges are faced by teachers in the use of AI in the secondary schools?

Review of Literature

The researchers reviewed the literature under the following sub-headings: major concepts of the study, theoretical framework, review of empirical studies and summary of literature review.

Major Concepts of the Study

Teacher Job Performance

Teacher job performance entails the work output, efficiency, effectiveness, and overall contributions of teachers in the school. It entails the assessment and measurement of the work-related activities and outcomes of teachers within school. Evaluating teacher job performance involves considering several factors in the context of their specific roles, responsibilities, and the overall objectives of the school. Titi and Agus (2017) avow that teacher job performance refers to the work output, efficiency, and overall contributions of teachers within a school, the impact of their teaching on the students' performance, their teaching engagement, the students satisfaction, derived from the teachers' teaching and competence level of the teachers. Teacher job performance is often evaluated through performance reviews, feedback, key performance indicators (KPIs), and other assessment tools. Pooja and Shailaja (2022) maintain that it is crucial to recognize that performance is influenced by various factors, including school institutional culture, classroom environment and potential biases. According to the scholars, teacher job performance entails the evaluation of school-related activities and general teaching assessment, especially in the era of artificial intelligence (AI).

Artificial Intelligence (AI)

Artificial intelligence (AI) can be explained as the ability of machines to perform

intelligent works, meant for human beings. This machine operation can therefore, successfully perform the tasks requiring human intelligence (Mulyani, Azim, Shauki, Kurniati & Arlinda, 2025). AI is now becoming prevalent in various sectors, including education, health and banking sectors. In education, this machine operation is becoming rampant in areas of evaluation of academic performance, such as grading students' results as well as administrative tasks such as sorting and screening (Meylani, 2024).

Theoretical Framework

This study is anchored on the Technological Pedagogical Content Knowledge (TPACK) theoretical framework.

The Technological Pedagogical Content Knowledge (TPACK) Framework

The Technological Pedagogical Content Knowledge (TPACK) Framework was developed by Punya Mishra and Matthew Koehler in the year, 2006. TPACK expands on Lee Shulman's Pedagogical Content Knowledge (PCK) by incorporating technology as a major component in teaching and learning. It highlights the knowledge teachers need to have in order to effectively integrate technology into their instruction.

This theory is relevant in this study in the sense that it emphasizes on the need for teachers to have the knowledge to effectively integrate technology into their instruction.

Review of Empirical Studies

Astuti, Hidayatulloh and Nisak (2024) investigated Transformation of teacher educational supervision with digital technology: implementation, opportunities and challenges. The aim of the study was to examine the teacher implementation of the use of digital technology in education supervision as well as identify opportunities and challenges. Two research questions were posed. The study used the Systematic Literature Review (SLR) to examine the implementation of digital technology in the supervision of education. 12 articles published between 2020-2023 were examined. The results show that digital supervisors can facilitate supervisory implementation and effectively improve teacher competence. In addition, the result revealed that the challenges faced by teachers in their involvement of digital tools are high, including: limited internet access, minimal technology mastery by senior teachers, and the need for adequate support. It was equally shown that implementation of digital involvement in teaching is an important step towards improving the professionalism of teachers and the quality of education as a whole, on the condition of adequate training, improved access to technology, and support from all stakeholders.

This study investigated the transformation of educational supervision with digital technology while the present is on use of AI on the enhancement of teacher job performance in secondary schools in Imo State.

Rusmaniar, Widiyatsih, and Setiyo, (2023) investigated Individual Technical Academic Supervision Using Digital Technology. The aim of the research was to examine the implementation of individual technical academic supervision based on digitalization in junior high schools. Five research questions were posed. The qualitative method was used in this study. Data collection methods included questionnaires, observation, interviews, and a review of the literature. The descriptive qualitative analysis was used to analyze the data. Findings showed that the principal used digital-based instruments to

carry out several individual supervision activities such as class visits, class observations, individual meetings, inter-class visits, and self-assessment. Digital-based academic supervision activities are more focused on a comprehensive assessment of the quality of teacher assignment implementation rather than just administrative completeness. The use of digital instruments in the delivery of individual technical academic supervision has a positive impact on learning quality.

This study was focused on Individual Technical Academic Supervision Using Digital Technology while the present is using Use of AI on enhancement of teacher job performance in Imo State. They are similar because it made use of two research questions while the present is equally using two. They also differ in the sense that it made use of the qualitative method while the present is using quantitative method. In addition, they are similar in the sense that the study used the descriptive qualitative analysis while the present is equally using same.

Summary of Review of Literature

This study was hinged on investigating the use AI in enhancing teacher job performance. The review was made under the following sub-headings: Major Concepts of the Study, Theoretical Framework, Review of Empirical Studies and Summary of Review of Literature. Under the major concepts, concepts like Teacher Job Performance and Artificial Intelligence (AI) were reviewed. Under the Theoretical Framework, the Technological Pedagogical Content Knowledge by Punya Mishra and Matthew J. Koehler in the year, 2006 of was used. Some related empirical studies were equally reviewed. Among all reviewed empirical studies, none focused on Use of AI on .enhancement of Teacher Job performance in Imo State. This was therefore, the gap which this study sought to fill

Research Design and Procedure

The researchers in this chapter included: the research design, area of the study, population of the study, sample and sampling techniques, instruments for data collection, validation of the instrument, reliability of the instrument, method of data collection and method of data analysis.

Research Design

The research design adopted in this study was survey. The study adopted survey research design because, according to Prahlada (2024), a survey research describes the existing characteristics of variables.

Area of the Study

The area of study used in this study was Imo State, which is one of the 36 states in Nigeria. The State is in the South-Eastern part of Nigeria. It lies within latitudes $4^{\circ} 45'N$ and $7^{\circ} 15'N$ and longitude $6^{\circ}50'E$ and $7^{\circ}25'E$ with the area mass of about 5100 sqkm. Imo State is bordered by Abia State on the East, Delta State on the West, Anambra State on the North and Rivers State on the South.

Population of the Study

The population of this study is made up of 11,175 SS 2 students in the secondary schools of Owerri Education Zone I and Okigwe Education Zone I of Imo State. (Source: SEMB

2024)

Sample and Sampling Technique

The sample size for this study is 138 teachers, representing 1.231% of the population.. Other sampling techniques employed were multi-stage: purposive and clustered sampling techniques.

Instruments for Data Collection

Two instruments were used for data collection in this study. These included a rating scale which was used to collect information on the use of AI to improve teacher job performance, and another on the challenges facing use of AI tools by teachers.

Validation of the Instrument

The instruments were presented to three specialists, two from the department of social science education (Management and Planning) and one from the Life Science Department (Educational Measurement and Evaluation) all from Faculty of Education of Imo State University.

Reliability of the Instrument

The researchers conducted a reliability test on 20 other teachers from other secondary schools outside the sampled ones using Chronbach Alpha Statistics. A reliability coefficient of 0.88 was realized which signified that the instruments were reliable.

Method of Data Collection

The researchers administered the instruments to the teachers by themselves. They however solicited the assistance of some teachers in the selected schools in the collection of the data. The processes of administration and retrieval of the instruments lasted for two weeks.

Method of Data Analysis

In order to analyze the data that was collected after the administration of the instrument, the researchers used mean and standard deviation to answer the research questions.

Discussion of Results

In this chapter, the researchers presented the summaries of results of the data collected based on the various research questions and hypotheses.

Research Question One

1. In what ways are AI tools used to improve teacher job performance

Table 1: Summaries of Analyses on AI tools are used to improve job performance.

S/N	ITEM STATEMENT	ME	VG (4)	GE (3)	LE (2)	VL (1)	Total	Std. Dev	MEAN	DECISION
1.	AI tool is used to improve practical applications lessons	3	6	118	11	138	0.88	2.03		DISAGREEMENT
2.	AI tool is used to assist in the execution of administrative duties	7	4	123	4	138	0.91	2.37		DISAGREEMENT
3.	AI tool is used to assist teacher in student evaluation	4	122	4	8	138	0.90	2.58		AGREED
4.	AI tool is used to assist teacher in sorting students' examination papers	4	4	122	8	138	0.86	2.11		DISAGREEMENT
5.	Teachers adopt the use of AI in advancing their teaching knowledge for improving their job performance.	18	122	4	4	138	0.86	2.89		AGREED
OVERALL MEAN									2.40	OVERALL DISAGREEMENT

Table 1 shows the mean response scores of the respondents on the items used to improve teacher job performance. Items 1, 2 and 4 had mean response scores below mean of 2.50, while items 3 and 5 had mean response scores above it. An overall mean of 2.40 was raised which shows an overall disagreement of the respondents on the use of AI to improve teacher job performance. It is therefore concluded that AI tools are not highly used to improve teacher job performance.

Research Question Two

What challenges are faced by teachers in the use of AI in the secondary schools?

Table 3: Summaries of Challenges faced by teachers in the use of AI

S/N	ITEM STATEMENT	ME	VG (4)	GE (3)	LE (2)	VL (1)	Total	Std. Dev	MEAN	DECISION
1.	teachers face challenge of inadequate training in the use of AI	2	7	18	11	38	0.83	2.00		DISAGREEMENT
2.	Teachers face challenge of high cost of procurement of electronic machine in operation of AI	4	4	120	10	38	0.90	2.05		DISAGREEMENT
3.	Teachers face challenge of lack of Government support for their use of AI	4	122	4	8	38	0.95	2.58		AGREED
4.	Teachers face challenge of inadequate skills needed to use the AI tools.	4	4	122	8	38	0.86	2.11		DISAGREEMENT
5.	Teachers face challenge of lack of network for the operation of AI	8	122	4	4	38	0.86	2.89		AGREED
OVERALL MEAN									2.33	OVERALL DISAGREEMENT

Table 3 shows the mean response scores of the respondents on the challenges faced by them in the use of AI. Items 1, 2 and 4 had mean response scores below the criterion of 2.50, while items 3 and 5 had mean response scores above it. An overall mean of 2.33 shows an overall disagreement of the respondents on the challenges faced by teachers in the use of AI. It is therefore concluded that the use of AI for the improvement of the job performance is still facing several challenges.

Summary of Findings

1. AI tools are not highly used to improve teacher job performance in the secondary schools.
2. There is low level of challenges faced by teachers in the use of AI for the improvement of their job performance in the secondary schools.

Discussion Of Results

The researchers in this chapter, presented: discussion of findings, educational implications, limitation of the study, recommendations, suggestions for further studies and summary of the study and conclusion.

Discussion of Findings

Ways AI tools are used to improve teacher job performance in the secondary schools

The first finding revealed that AI tools are not highly used to improve teacher job performance. The fact that this finding revealed that AI tools are not highly used by teachers shows that the teachers in the secondary schools are yet to fully embrace the use of AI in their teaching. This finding does not support that of Ruli, Satiah, Hidayatulloh and Nur (2024) which revealed among others that implementation of digital involvement in teaching is important step towards improving the professionalism of teachers and the quality of education as a whole. Based on the finding of this study, it can be concluded that AI tools are not highly used to improve teacher job performance.

Challenges faced by teachers in the use of AI.

The other finding of this study revealed that there is low level of challenges faced by teachers in the use of AI. This shows that teachers are not really hindered in the use of AI by major factors. They can do it if they really want to. This finding disagrees with that of Ruli, Satiah, Hidayatulloh, and Nur (2024) which revealed that the challenges faced by teachers in their involvement of digitl tools are high. Therefore, it can be concluded based on the finding of this study that there is low level of challenges faced by teachers in the use of AI.

Educational Implications

The implication of this study calls for the frequent use of AI by teachers. For instance, the first finding which showed that teachers are not highly using AI implies that their job performance will be suffering as they are not employing the use of AI to assist themselves in their job performance.

The second finding which showed that the level of challenges faced by teachers in their use of AI is low implies that teachers are the ones holding themselves. If they actually want to adopt adequate use of AI in their job performance, they can achieve that and use it to improve their job performance..

Limitations of the Study

One of the limitations of this study was that it concentrated on only secondary schools in Imo State without including the higher institutions.

The study equally made use of only the survey research design which only seeks to determine characteristics of the variables without considering the direction of relationships between the variables.

Recommendations

Based on the findings of this study, the following recommendations are made:

Secondary school teachers should endeavour to upgrade their use of AI in order to use it to improve their teacher job performance.

The secondary school teachers should not feel that there are high challenges facing them in the use of AI, but, they should go ahead and make appropriate use of it in their discharge of duties.

Suggestions for Further Studies

Based on the limitations of this study, the following suggestions for further studies have been made:

The study should be replicated and expanded to include the high institutions in the state
The research should be done to include the correlational research design which will consider investigating the direction of the relationships between variables.

Summary of the Study and Conclusion

This study investigated the use of AI in enhancing teacher job performance in secondary schools in Imo State. Two research questions guided the study. The study adopted the survey research design which made use of rating scales to elicit information about the use of AI in enhancing teacher job performance. A sample of one hundred and thirty-eight (138) teachers was used by the researcher for this study. The instrument for data collection in this study was rating scales. The instrument was validated and the reliability ascertained with the use of Chronbach Alpha. A reliability co-efficient of 0.88 was realized which signified that the instrument was reliable. Mean and standard deviation were used to answer the research questions. Findings revealed among others that there is low level of use of AI by the teachers for their improvement of job performance. Based on the findings, it was recommended among others that teachers should endeavour to upgrade their level of use of AI for the enhancement of their job performance.

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