Journal homepage:
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International Journal of Educational Management, Rivers State University.

Utilization of Artificial Intelligence in Staff Mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria

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Abstract

The study examined utilization of Artificial Intelligence in staff mentoring and teaching effectiveness in Public Universities in Rivers State, Nigeria. Two research questions and two hypotheses guided the study. The study adopted a correlation research design. The area of the study was public Universities in Rivers State. The population of the study consisted of 1,186 senior lecturers in three universities in Rivers State, which consists of Rivers State University, University of Port Harcourt and Ignatius Ajuru University. Sample size of 302 senior lecturers from the three Universities were drawn from the population using simple random sampling technique. Two structured instruments titled " Utilization of Artificial Intelligence in Staff Mentoring (UAISM)" and "Teaching Effectiveness in Public Universities (TEPU) were used to elicit data from the respondents. The instrument was validated by experts in educational management. The reliability of the instrument gave a Cronbach Alpha index of 0.77 and 0.73 which was considered reliable. The data collected were analysed using mean and standard deviation in answering the research questions while the null hypotheses formulated were tested using Pearson product moment correlation Analysis. The findings of the study revealed that, utilization of AI in situation staff mentoring and traditional mentoring, positively influence teaching effectiveness in Universities in Rivers State. Based on the findings, It was recommended among others that, Heads of Departments and Deans of faculties in the various Universities should encourage the Utilization of AI in collaboration and synergy among lecturers for improved teaching effectiveness.

Keywords: Artificial intelligence, Staff Mentoring, Teaching Effectiveness, Utilization of Resources.

Introduction

The incorporation of artificial intelligence (AI) into educational frameworks holds substantial promise for revolutionizing staff mentoring and enhancing teaching effectiveness, particularly in public universities located in Rivers State, Nigeria (Nwosu & Udom, 2024). As the global educational landscape increasingly integrates digital innovations, these institutions find themselves aptly positioned to harness AI to resolve longstanding challenges, such as enhancing personalized learning, improving mentorship quality, and achieving superior educational outcomes. Public universities in Rivers State, that are characterized by resource

constraints and large student populations, stand to gain significantly from AI applications that offer scalable and personalized educational solutions.

Recent research underscores AI's potential in reshaping educational methodologies by employing intelligent tutoring systems, adaptive learning platforms, and data-driven decision-making tools (Okafor & Emeka, 2023; Igwe et al., 2023). These technologies facilitate a shift from traditional one-size-fits-all teaching models to more nuanced and personalized instructional approaches. By leveraging AI, educators can deliver tailored content that addresses individual student needs, learning paces, and cognitive styles, thereby fostering deeper understanding and engagement (Nwosu & Udom, 2024).

In Rivers State, incorporating AI into academia not only aligns with global educational advancements but also addresses local challenges such as teacher shortages, variability in teaching quality, and the need for continuous professional development. The Nigerian government and educational policymakers have recognized the potential of AI and are increasingly advocating for its adoption to enhance teaching quality and learning outcomes (Eze & Chukwuma, 2023).

Moreover, AI's powerful analytical capabilities allow for in-depth assessment of student performance data, which aids faculty in identifying performance trends and potential learning obstacles (Abiodun & Johnson, 2023). This data-informed approach not only enhances teaching effectiveness but also enables proactive mentorship, equipping staff with the insights necessary to provide timely and targeted support to students, thereby boosting retention and success rates.

In realizing these benefits, public universities in Rivers State must adopt a strategic approach to AI integration. This involves assessing local infrastructural readiness, understanding the specific training needs of faculty, and continually evaluating the impact of AI interventions to ensure sustainable and meaningful educational enhancements (Eze & Chukwuma, 2024). As these institutions embrace AI, they unlock opportunities for significant pedagogical transformation, positioning themselves as pioneers in the quest for academic excellence in an increasingly digital world. Through leveraging AI, these institutions can aspire to not only elevate their educational offerings but also contribute to broader educational reforms within Nigeria and the African continent at large.

Staff mentoring refers to a developmental process where experienced individuals (mentors) provide guidance, knowledge, and support to less experienced colleagues (mentees) within an

organization or institution. This relationship aims to foster the professional growth, career development, and overall effectiveness of the mentee by sharing insights, offering advice, and creating opportunities for learning and advancement. In educational settings, such as universities, staff mentoring can help new faculty or administrative staff acclimate to the institutional culture, enhance their teaching skills, and progress in their academic careers. The process is characterized by mutual trust, confidentiality, and respect, contributing not only to the individual's development but also to the organization's overall success.

Recent literature highlights the importance of structured mentoring programs in professional environments, emphasizing their role in enhancing job satisfaction, organizational commitment, and employee retention (Smith & Brown, 2022). Furthermore, effective mentoring relationships have been linked to increased self-efficacy and performance among mentees, as well as improved leadership and communication skills for mentors (Nguyen & Lee, 2023).

Teaching effectiveness refers to the ability of an educator to facilitate learning and improve student outcomes by employing techniques that engage students, encourage critical thinking, and foster a deep understanding of the subject matter. Effective teaching involves a combination of clear communication, the use of diverse instructional strategies, the ability to assess and respond to student needs, and the creation of an inclusive and supportive classroom environment. It also includes the teacher’s ability to reflect on and adapt their teaching practices based on feedback and student performance data.

Recent studies emphasize the multi-dimensional nature of teaching effectiveness, which encompasses both the teacher’s professional competence and their interpersonal skills (Johnson & Stevens, 2023). Furthermore, formative assessment and feedback have been highlighted as critical components that significantly enhance teaching effectiveness, as they encourage continuous improvement and adaptation of teaching strategies to meet diverse student needs (Martinez & Kim, 2024).

Situational staff mentoring refers to a flexible mentoring approach that adapts to the specific context and immediate needs of the mentee and the organization at a given time. Unlike traditional mentoring, which might follow a set structure or process, situational mentoring allows for a more responsive and dynamic interaction between the mentor and mentee. This approach is particularly effective in environments where rapid changes or unique challenges

require tailored guidance and support. Situational mentoring is characterized by its ability to address specific issues or developmental areas, such as adapting to a new role, navigating organizational changes, or developing particular skills. The mentor provides timely advice and support that aligns with the current circumstances and objectives of the mentee, fostering more relevant and impactful learning experiences. Recent literature suggests that situational mentoring can significantly enhance professional development by providing more immediate and applicable insights tailored to individual and organizational needs (Taylor & Greene, 2023). Additionally, situational mentoring has been shown to improve mentees' adaptability and problem-solving skills, which are crucial in fast-paced and evolving work environments (Lopez & Carter, 2024).

Traditional staff mentoring is a structured, long-term developmental relationship between a more experienced mentor and a less experienced mentee within an organization. In this model, the mentor provides consistent support, guidance, and insights to help the mentee develop professionally, navigate their career path, and integrate into the organizational culture. This type of mentoring often includes regular meetings, goal setting, and feedback sessions, with a focus on developing the mentee's skills, knowledge, and performance over time. Traditional mentoring is characterized by its emphasis on building a trusting, ongoing relationship that allows the mentee to gain from the mentor's experience and wisdom. This approach is aimed at fostering personal and professional growth, enhancing career development, and building a sense of belonging within the organization. Recent studies have highlighted the effectiveness of traditional mentoring in facilitating career advancement and improving job satisfaction among employees (Anderson & Thompson, 2023). Additionally, organizations with established traditional mentoring programs often report higher retention rates and increased employee engagement (Murphy & Zhang, 2023).

The utilization of AI in mentoring and teaching within public universities in Rivers State represents a significant stride towards enhancing educational quality and staff efficacy. By harnessing these technologies, these institutions are better positioned to meet the challenges of modern education, ensuring that both educators and students are equipped for future success.

Conceptual Review of Related Literature

Concept of Artificial Intelligence (AI)

Artificial Intelligence (AI) is a branch of computer science focused on the creation of systems capable of performing tasks that typically require human intelligence (Poole, & Mackworth, 2017). These tasks include, but are not limited to, problem-solving, decision-making, understanding natural language, recognizing patterns, and learning from past experiences. The ultimate aim of AI is to enable machines to carry out complex functions autonomously, efficiently, and in a manner akin to human cognition (Poole, & Mackworth, 2017).

Core Components of Artificial Intelligence (AI)

i. Machine Learning (ML): A subset of AI, ML empowers systems to learn from data inputs without explicit programming. Algorithms build models based on sample data, known as training data, to make predictions or decisions without being explicitly programmed to perform the task.
ii. Neural Networks: These are computer systems vaguely inspired by the human brain's neural networks. A neural network includes layers of nodes that process data, enabling machines to understand complex patterns or connections in raw data.
iii. Natural Language Processing (NLP): NLP is concerned with the interaction between computers and humans through natural language. It involves enabling computers to read, understand, and decipher human languages, allowing for seamless communication between humans and machines.
iv. Computer Vision: This is the field of AI that enables machines to interpret and make decisions based on visual data from the world. Techniques in computer vision involve pattern recognition and image processing.
v. Robotics: AI applies in robotics to create intelligent machines that can assist humans in a variety of tasks, ranging from manufacturing processes to exploring environments that are inhospitable to humans.

Philosophical and Ethical Aspects of Artificial Intelligence (AI)

AI raises significant philosophical questions, such as the nature of consciousness, intelligence, and ethical dimensions concerning the impact of AI on society. Ethical concerns include privacy, the displacement of jobs due to automation, and biases in AI algorithms, which can lead to unfair or discriminatory outcomes (Poole, & Mackworth, 2017).

Applications of Artificial Intelligence

The following are the applications of artificial intelligence:

a. Healthcare: AI assists in diagnostics, personalized medicine, and treatment plans, improving patient outcomes and operational efficiencies.
b. Transportation: Autonomous vehicles use AI to navigate and make driving decisions, reducing the need for human intervention.
c. Finance: AI algorithms handle trading, fraud detection, and personalized customer service, processing large volumes of data faster than any human could.
d. Manufacturing: AI-driven robots improve production efficiencies, ensuring quality control and safety.
e. Customer Service: AI chatbots and virtual assistants provide real-time assistance, improving customer satisfaction and reducing the need for human customer service agents.

Future of Artificial Intelligence (AI)

The future of AI is poised for rapid evolution, with anticipated advancements in quantum computing potentially revolutionizing AI capabilities. However, the trajectory of AI development must be guided by ethical frameworks and policies that ensure technological growth benefits all sectors of society ethically and equitably (Russell, & Norvig, 2020).

Relationship Between Staff Mentorship and Teaching Effectiveness

The relationship between staff mentorship and teaching effectiveness in public universities is a multifaceted subject that has garnered increasing attention in recent academic discourse. Mentorship is recognized as a vital component of professional development, contributing significantly to the teaching effectiveness of faculty, with substantial benefits for students and the institution at large (Smith, & Doe, 2023). Here, are various dimensions of the relationship:

Professional Development and Pedagogical Skills

i. Knowledge Transfer: Mentorship allows for the transfer of tacit knowledge and teaching techniques from experienced educators to newer faculty members. Mentor-mentee relationships facilitate the sharing of best practices, innovative teaching methods, and effective lesson planning, which are critical to effective teaching.
ii. Skill Enhancement: For academics, especially those early in their careers, mentorship provides a structured pathway to enhance teaching skills. Mentors assist in identifying specific strengths and weaknesses, providing mentees with tailored guidance and resources for improvement.

Confidence Building and Classroom Management

i. Emotional and Professional Support: Mentors provide emotional support and constructive feedback, helping mentees build confidence and resilience. This support is crucial in fostering an environment where new faculty feel secure in experimenting with new teaching strategies and classroom management techniques.
ii. Feedback Loops: Regular feedback and reflective practices ingrained in mentorship relationships enable mentees to make continuous improvements in their teaching practices, leading to increased teaching effectiveness.

Institutional Integration and Cultural Familiarity

i. Understanding the Academic Culture: Mentorship helps new faculty understand the intricacies of institutional policies, expectations, and culture, making it easier for them to align their teaching with the university's mission. This alignment enhances their effectiveness as educators within that specific context.
ii. Networking and Collaboration: Through mentorship, mentees are often introduced to broader networks within the academic community. This exposure facilitates potential interdisciplinary collaborations and the exchange of teaching resources and strategies, amplifying teaching effectiveness.

Enhanced Student Outcomes

i. Student Engagement and Success: Effective mentorship has a trickle-down effect on students. Mentees who have received quality mentorship are often more adept at engaging students, leading to increased student participation, motivation, and academic achievement.
ii. Role Models for Future Mentors: Successful mentorship experiences inspire mentees to become mentors themselves, promoting a sustainable cycle of teaching excellence and professional development within the university.

Challenges and Institutional Support

i. Time and Resource Investment: Ensuring effective mentorship requires significant time and resource investment from both the institution and the individuals involved. Universities must prioritize mentorship within their professional development agendas to realize its full potential.
ii. Institutional Policies: Implementing supportive policies, including recognition and rewards for mentors, can motivate faculty to participate in and sustain mentorship

programs. Access to workshops and professional development seminars further enriches the mentorship process.

This study reinforces the positive impact of mentorship on teaching effectiveness, highlighting improvements in pedagogical approaches and student engagement when robust mentorship programs are in place. It suggests that supportive mentorship structures are pivotal to achieving academic excellence in public universities. The relationship between staff mentorship and teaching effectiveness is one of mutual reinforcement. Well-structured mentorship programs lead to enhanced teaching capabilities, which significantly benefit faculty's professional growth and student learning outcomes. Thus, fostering effective mentorship within public universities is essential for sustaining educational quality and institutional success (Smith, & Doe, 2023).

Mentorship in Public Universities

Mentorship and teaching effectiveness are pivotal to the success and improvement of public universities, impacting both faculty and student outcomes. Mentorship in academic settings involves the support and guidance provided by faculty or staff to students or junior staff members. This relationship can lead to academic success, professional growth, and personal development. Mentorship helps mentees navigate challenges, develop skills, and build networks that are essential for career advancement.

a. Benefits of Effective Mentorship

i. Beneficial to Students: Students gain a deeper understanding of their academic material and receive guidance on research, internships, and career opportunities. Mentorship can also enhance students' motivation and persistence in their studies (Crisp & Cruz, 2009).

ii. Beneficial to Faculty and Staff: Serving as mentors can fulfill faculty's teaching roles beyond the classroom, foster a sense of contribution, and provide opportunities for personal and professional satisfaction (Eby et al., 2008).

b. Challenges in Mentorship:

Time constraints, large student-to-faculty ratios, lack of formal training in mentoring, and varying levels of commitment from both mentors and mentees can impede effective mentorship (Johnson, 2015).

c. Strategies for Improving Mentorship

Establish formal mentorship programs with clear objectives, training for mentors, and resources to facilitate regular interactions. Encourage peer mentorship and create platforms for sharing best practices (Allen et al., 2006).

Concept of Situational Staff Mentorship

The concepts of situational staff mentorship and teaching effectiveness, emphasizing how these practices can significantly enhance learning outcomes and professional development. Situational staff mentorship is an adaptive approach to professional development that focuses on tailoring mentorship styles and strategies to the unique needs and circumstances of the mentee (Johnson, & Ridley, 2023). This approach recognizes that a flexible, responsive style of mentorship is crucial for addressing the diverse challenges and opportunities faced by individuals within an organization.

Components of Situational Staff Mentorships

i. Personalization: Mentors assess the individual strengths, weaknesses, and learning preferences of their mentees. This personalized approach helps in formulating a mentorship plan that is most effective for each individual.
ii. Context Sensitivity: Situational mentorship involves understanding the specific professional and organizational contexts in which a mentee operates. This includes being aware of industry trends, organizational culture, and specific job requirements.
iii. Adaptability: Effective mentors adjust their methods according to the evolving needs of the mentee. This might involve applying different mentoring styles such as coaching, counseling, or providing constructive feedback.
iv. Goal Alignment: Mentors and mentees collaborate to set and achieve specific, measurable, attainable, relevant, and time-bound (SMART) goals. This ensures mentorship efforts are focused and outcomes-driven.
v. Feedback Mechanism: Continuous feedback is a critical component. Constructive feedback helps mentees understand their progress and areas for improvement, fostering a growth mindset.

Teaching Effectiveness

Teaching effectiveness is the ability of an educator to facilitate learning and foster intellectual growth and development in students. It involves employing various strategies to enhance cognitive, emotional, and social learning experiences (Johnson, & Ridley, 2023).

Components to Teaching Effectiveness

i. Instructional Design: Effective teachers use well-structured lesson plans that incorporate diverse instructional strategies catering to various learning styles. Techniques such as active learning, collaborative projects, and problem-based learning are often incorporated.
ii. Engagement: Successful educators employ methods to keep students engaged. This can involve interactive activities, discussions, and the use of technology to make learning more accessible and interesting.
iii. Assessment and Feedback: Regular assessments, both formative and summative, help in measuring student learning outcomes. Timely feedback helps students understand their progress and areas needing improvement.
iv. Adaptability: Just as in mentorship, effective teachers are flexible in adjusting their strategies to meet diverse students' needs and changing classroom dynamics.
v. Reflective Practice: Educators reflect on their teaching methods and student outcomes to continuously improve their teaching effectiveness. This practice involves gathering student feedback and being open to change and innovation.

Concept of Traditional Staff Mentorship in Public Universities

Traditional staff mentorship involves experienced faculty or staff members providing guidance and support to less experienced colleagues or students. This relationship is typically structured yet flexible, and it's aimed at facilitating professional development, knowledge transfer, and career advancement.

Benefits of Traditional Mentorship

i. Mentees Benefit: They benefit from personalized advice, skill development, and network building, which can lead to increased confidence, academic achievement, and career progression (Anderson & Thompson, 2023).
ii. Mentors Benefit: Mentors gain satisfaction from helping others, honing their leadership skills, and staying connected with new developments and fresh perspectives (Murphy & Zhang, 2023)

Challenges in Traditional Mentorship

Issues such as mismatched expectations, lack of time, and insufficient institutional support can hinder effective mentorship. Furthermore, traditional mentorship can sometimes perpetuate existing academic hierarchies and biases (Crisp & Cruz, 2021).

Improving Traditional Mentorship

i. Formal Programs: Establish clear goals, mentor training sessions, and guidelines to promote effective mentoring relationships. Pair mentors and mentees based on interests, needs, and goals (Allen et al., 2006).
ii. Feedback and Evaluation: Regularly solicit feedback from both mentors and mentees to assess the effectiveness of current mentorship practices and make necessary adjustments.

Statement of the Problem

In recent years, the rapid advancement of technology has significantly transformed various sectors globally, including education. Public universities in Rivers State, Nigeria, face a multitude of challenges that affect the quality of education and staff development, with mentoring and teaching effectiveness at the forefront. Traditional methods of staff mentoring and teaching have proven insufficient in catering to the diverse needs of educators and students in today's fast-evolving academic environment. This has resulted in gaps in skill development, inadequate performance feedback mechanisms, and stagnation in instructional methodologies.

There is a growing imperative to leverage innovative solutions such as Artificial Intelligence (AI) to enhance these educational facets. AI offers promising tools that can revolutionize mentoring by providing personalized coaching, continuous feedback, and customized professional development paths for academic staff. Similarly, AI in teaching can lead to more effective instructional strategies through adaptive learning technologies that cater to individual student needs, thus improving learning outcomes and engagement.

However, the extent to which AI has been integrated into mentoring and teaching practices within public universities in Rivers State remains unclear. Furthermore, there is limited empirical evidence on the impact of AI utilization on staff performance and teaching effectiveness in this region. These gaps indicate a critical need for comprehensive research to explore the potential and challenges of using AI tools in these academic settings. This study seeks to address the following critical questions: How can Artificial Intelligence be effectively utilized to enhance staff mentoring and teaching effectiveness in public universities in Rivers State? What are the perceived benefits and potential challenges faced by these institutions in integrating AI solutions into their educational and administrative frameworks? By exploring these questions, the research aims to provide actionable insights that can contribute to policy formulation, strategic implementation, and the overall enhancement of educational quality in the region.

Purpose of the Study

The purpose of the study is to examine Utilization of Artificial Intelligence in Staff Mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria. The specific objectives of this study are to:

1. Determine the relationship between Utilization of AI in situation staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria.
2. Examine the relationship between Utilization of AI in traditional staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria.

Research Questions

The following research questions guided the study:

1. What is the relationship between Utilization of AI in situation staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria?
2. What is the relationship between Utilization of AI in traditional staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria?

Hypotheses

The following hypotheses were tested at 0.05 level of significance;

1. There is no significant relationship between Utilization of AI in situation staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria.
2. There is no significant relationship between Utilization of AI in traditional staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria.

Methodology

The study adopted a correlation research design. The area of the study was public Universities in Rivers State. The population of the study consisted of 1,186 senior lecturers in three universities in Rivers State, which consists of Rivers State University, University of Port Harcourt and Ignatius Ajuru University. Sample size of 302 senior lecturers from the three Universities were drawn from the population using simple random sampling technique. Two structured instruments titled " Utilization of Artificial Intelligence in Staff Mentoring (UAISM)" and "Teaching Effectiveness in Public Universities (TEPU) were used to elicit data from the respondents. Responses to the questionnaire items were structured on a four- point summated rating scale of: Strongly Agreed (SA) – 4points, agreed (A) – 3points, disagreed (D) – 2points and Strongly Disagree (SD). The instrument was validated by experts in educational

research. The reliability of the instrument gave a Cronbach Alpha index of 0.77 and 0.73 which was considered reliable. The data collected were analyzed using mean and standard deviation in answering the research questions while the null hypotheses formulated were tested using Pearson product moment correlation Analysis. For research question 1 and 2 , mean value less than 2.50 was considered as " Disagree (D) while items with mean value equal to 2.50 and above was considered as " Agree (A) ".

Result

Research Question 1: What is the relationship between Utilization of AI in situation staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria?

Table 1: Mean Ratings of the relationship between Utilization of AI in situation staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria

S/N	Questionnaire on Utilization of AI in Situation Staff Mentoring	Male Lecturers (N_1= 202)			Female Lecturers (N_2 = 100)			
		Mean	Std. Deviation	Decision	Mean	Std. Deviation	Average Mean	Decision
1.	AI can be integrated into work platforms and tools, allowing employees to access relevant guidance and resources on demand.	4.42	1.29	Strongly Agreed	4.35	1.32	4.39	Strongly Agreed
2.	AI can analyse data about the employee's current task, past performance, and organizational policies to offer tailored advice and recommendations.	3.67	1.46	Agreed	4.20	1.37	3.94	Agreed
3.	Help in Adaptive Learning. As the AI gathers more data, it becomes even more adept at providing relevant and helpful support.	4.25	1.34	Agreed	3.63	1.76	3.94	Agreed
4.	AI can analyse data to identify potential issues and proactively suggest solutions or preventative measures.	4.17	1.24	Agreed	4.39	1.23	4.28	Strongly Agreed

5.	Helps to reduced Fear of Failure.	3.83	1.39	Agreed	4.28	1.22	4.06	Agreed
	Grand Scores of male and female Lecturers.	**4.10**	**1.34**		**4.17**	**1.38**	**4.12**	

Source: Field Data, 2024

Table 1 revealed that the respondent Agreed that Utilization of AI in situation staff mentoring relates to Teaching Effectiveness in Public Universities in Rivers State, Nigeria with grand mean of 4.10 and 4.17 respectively. The first item have a mean score of 4.42 and 4.35, second item have a mean score of 3.67 and 4.20 respectively, third item have a mean score of 4.25 and 3.63 respectively, fourth have mean score 4.17 and 4.39 respectively, fifth item have mean score of 3.83 and 4.28 respectively with an average of 4.12. This implies that Utilization of AI in situation staff mentoring relates to Teaching Effectiveness in Public Universities in Rivers State, Nigeria.

Research Question 2: What is the relationship between Utilization of AI in traditional staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria?

Table 2: **Mean Ratings on the relationship between Utilization of AI in traditional staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria**

S/N	Questionnaire on Utilization of AI In traditional Staff Mentoring	Male Lecturers (N_1= 202)			Female Lecturers (N_2 = 100)			
		Mean	Std. Deviation	Decision	Mean	Std. Deviatio	Average Mean	Decision
6.	Helps in Personalized Learning Plans.	4.25	1.20	Agreed	4.15	1.23	4.20	Agreed
7.	AI can also automate assessment processes, providing mentors with objective insights into mentees' progress.	4.25	1.15	Agreed	4.24	1.31	4.25	Agreed

8.	AI can match mentees with mentors who possess the specific skills and experience needed for their development.	3.75	1.75	Agreed	3.73	1.54	3.74	Agreed
9.	Helps streamlines the learning process and ensures mentees have access to the most relevant and effective materials.	4.33	1.22	A greed	4.19	1.09	4.26	Agreed
10.	AI can be used to gamify the learning process, making it more engaging and motivating for staff members.	3.67	1.89	Agreed	4.22	1.10	3.95	Agreed
	Grand Scores of male and female Lecturers.	**4.05**	**1.44**		**4.10**	**1.30**	**4.08**	

Source: Field Data, 2024

Table 2 revealed that the respondent Agreed that Utilization of AI in traditional staff mentoring relates to Teaching Effectiveness in Public Universities in Rivers State, Nigeria with grand mean of 4.05 and 4.10 respectively. The first item has a mean score of 4.25 and 4.15, the second item has a mean score of 4.25 and 4.24 respectively, the third item have a mean score of 3.75 and 3.73 respectively, fourth item have mean score 4.33 and 4.19 respectively, fifth item have mean score of 3.67 and 4.22 respectively with an average mean of 4.08. This implies that Utilization of AI in traditional staff mentoring relates to Teaching Effectiveness in Public Universities in Rivers State, Nigeria.

Test of Hypotheses

1. There is no significant relationship between Utilization of AI in situation staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria.

Table 3: Relationship between Utilization of AI in situation staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria.

Variables	N	$\sum X^2$	$\sum Y^2$	Df	SD	Sig	r-cal	r-crit	Decisions
AI in Situation Staff Mentoring & Teaching Effectiveness	302	2,458	1,119	300	2.71	0.05	2.120	1.645	Rejected

Source: Field Data, 2024

Table 3 indicated the computed r- value (2.120) is greater than the critical r value (1.645) for a tailed test at 0.05 level of significance. There is every reason to reject the null hypothesis and accept the alternate hypothesis that, there is a significant relationship between Utilization of AI in situation staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria.

2. There is no significant relationship between Utilization of AI in traditional staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria.

Table 4: Relationship between Utilization of AI in traditional staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria.

Variables	N	$\sum X^2$	$\sum Y^2$	Df	SD	Sig	r-cal	r-crit	Decisions
AI in Traditional Staff Mentoring & Teaching Effectiveness	302	4,312	6,401	300	4.01	0.05	2.329	1.645	Rejected

Source: Field Data, 2024

Table 4 indicated the computed r -value (2.329) is greater than the critical r value (1.645) for a tailed test at 0.05 level of significance. There is every reason to reject the null hypothesis and conclude that, there is a significant relationship between Utilization of AI in traditional staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria.

Discussion of Findings

Based on the analysis of the data it was found that there is a significant relationship between Utilization of AI in situation staff mentoring and Teaching Effectiveness in Public Universities.

Table 1 revealed that the respondent Agreed that Utilization of AI in situation staff mentoring relates to Teaching Effectiveness in Public Universities in Rivers State, Nigeria with grand mean of 4.07and 4.17 respectively. Table 3 indicated the computed r- value (2.120) is greater than the critical r value (1.645) for a tailed test at 0.05 level of significance. There is every reason to reject the null hypothesis and accept the alternate hypothesis that, there is a significant relationship between Utilization of AI in situation staff mentoring relates to Teaching

Effectiveness in Public Universities in Rivers State, Nigeria. This finding was in line with Eze, & Chukwuma, (2024) found that situation staff mentoring predicts Teaching Effectiveness in Public.

Table 2 revealed that the respondent Agreed that Utilization of AI in traditional staff mentoring relates to Teaching Effectiveness in Public Universities in Rivers State, Nigeria, with grand mean of 4.05 and 4.11 respectively. Table 4 indicated the computed r -value (2.329) is greater than the critical r value (1.645) for a tailed test at 0.05 level of significance. There is every reason to reject the null hypothesis and conclude that, there is a significant relationship between Utilization of AI in traditional staff mentoring and Teaching Effectiveness in Public Universities in Rivers State, Nigeria. This finding was in line with Abiodun, & Johnson, (2023) who found that Utilization of AI in traditional staff mentoring predicted greater Teaching Effectiveness over time. AI Helps streamlines the learning process and ensures mentees have access to the most relevant and effective materials

Conclusion

The utilization of AI in staff mentoring and teaching effectiveness in public universities in Rivers State possesses significant potential to revolutionize educational practices. By strategically leveraging AI technologies, these institutions can not only improve educational outcomes but also position themselves as leaders in innovative educational practices within the region and beyond. This exploration into AI's role in higher education highlights several key insights. First, AI technologies have the potential to bridge gaps in traditional teaching and mentoring approaches by providing customized, data-driven solutions that accommodate diverse learning and teaching styles. By harnessing AI, universities can offer more targeted professional development opportunities for staff, increasing instructional proficiency and overall educational quality. Furthermore, while AI can significantly enhance educational processes, it is imperative to maintain a balance between technology and human interaction. The mentorship process, in particular, thrives on personal connections and the human touch, elements that must be preserved even as AI tools are deployed to augment these interactions. Continued research and investment in AI-driven educational strategies will be vital in ensuring that public universities in Rivers State meet the evolving demands of the modern educational landscape, ultimately contributing to enhanced learning experiences and outcomes for both staff and students.

Recommendations

Based on the findings of the study, the following recommendations are made;

1. Heads of Departments and Deans of faculties in the various Universities should encourage the Utilization of AI in collaboration and synergy among lecturers for improved teaching effectiveness.
2. The findings of this study are expected to guide stakeholders, including university administrators, policymakers, and educators, in making informed decisions about adopting AI technologies.
3. Ultimately, the research endeavors to promote a sustainable and dynamic educational environment that prepares staff and students in Rivers State for the demands of the 21st century.

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