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REPOSITIONING THE STUDENTS'-LECTURER CLASSROOM EXPERIENCE IN INSTRUCTION DELIVERY: THE ROLE OF ARTIFICIAL INTELLIGENCE

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ABSTRACT

The main focus of this study was to investigate how artificial intelligence (AI) transforms students-lecturer relationships and classroom experiences in higher Education institutions in Nigeria. Descriptive research design was adopted for the study. The sample size consists of two hundred (200) undergraduate students and fifty (50) academic staff drawn from three tertiary institutions which were selected through stratified random sampling technique. The content and face validity of the research instrument was ensured through experts in the field of test and measurement while test-re-test was used to ensure the reliability of the instrument. Inferential statistics was used to analyze the data collected. The results from the study shows that artificial intelligence has a significant influence in the repositioning of students-lecturer experience in the classroom. These findings further contribute to understanding how AI can enhance educational quality while preserving the essential human elements of tertiary education. The study recommended that AI models be integrated into the classroom experience to enable students and lecturers collaborate for effective instruction delivery.

Keywords: *artificial intelligence, higher education, student-lecturer relationships, personalized learning, educational technology, tertiary teaching*

INTRODUCTION

The incorporation of Artificial Intelligence into educational systems is fundamentally changing how instruction is delivered in classrooms. Educational institutions are progressively adopting AI-powered teaching approaches to boost student participation and enhance academic achievement. These approaches encompass customized AI learning systems, responsive educational platforms, and smart tutoring applications (Kehinde-Awoyele, Adeowu & Oladejo, 2024)

The infusion of AI technology into academic environments has created significant changes in instructional delivery, learner participation, and educational achievements. AI-powered educational approaches—including individualized learning systems, intelligent tutoring programs, and dynamic assessment tools—present valuable opportunities to customize education according to each student's specific requirements. This research examines the ways these AI-enhanced approaches influence student- lecturer participation and academic success in educational settings, emphasizing both their advantages and potential obstacles.

AI has become an essential resource in contemporary education, facilitating customized learning experiences that adjust to students' capabilities, preferences, and learning rates (Holmes et al., 2019). AI-enhanced systems, particularly intelligent tutoring programs, employ machine learning technologies to evaluate students' comprehension levels and deliver focused instruction and guidance, enabling learners to advance individually while addressing knowledge gaps more effectively than conventional teaching methods (Kulik& Fletcher, 2016). For example, adaptive educational platforms can adjust content delivery and provide supplementary exercises when students encounter difficulties, thereby establishing a more learner-focused educational setting (Luckin et al., 2016).

The traditional tertiary institution classroom has historically operated on a model of knowledge transmission, where lecturers are seen as primary sources of information and students as passive recipients. This paradigm, while effective for standardized content delivery, increasingly conflicts with contemporary understanding of learning as a collaborative, constructive process requiring active student engagement and personalized approaches. The advent of AI capabilities that can provide and synthesize information for students in seconds raises critical questions about the unique value proposition of tertiary instructors (Ekoro *et al,* 2023)

This transformation is particularly significant in higher education, where critical thinking, research skills, and independent learning are paramount. Unlike primary and secondary education contexts, tertiary settings require sophisticated reasoning, complex problem-solving, and advanced analytical capabilities that push the boundaries of both human and artificial intelligence

capabilities. The general trend shows movement from generic, piecemeal tertiary systems to student-centric, personalized systems that enable end-to-end coverage of the student journey.

Despite growing adoption rates, surveys of recent research showed that just 9% believe higher education is prepared for AI's rise, highlighting a significant gap between technological capability and institutional readiness (Freire, 2018). This disconnect necessitates empirical investigation into how AI integration affects core educational relationships and processes.

Learner participation represents a fundamental element in academic achievement, incorporating behavioral, emotional, and cognitive aspects (Fredricks et al., 2004). AI-powered instructional resources can enhance participation by creating more interactive and meaningful learning experiences. Customized suggestions, game-based learning activities, and immediate feedback mechanisms can attract students' focus and maintain their motivation (Baker, 2017). Research indicates that gamified AI learning settings can enhance both participation and information retention, as students benefit from instant rewards and challenges that maintain their interest (Hu et al., 2018). Additionally, AI can assist educators in identifying disengaged learners through behavioral data analysis, including interaction frequency and assessment performance, facilitating prompt intervention (Zawacki-Richter et al., 2019).

Studies demonstrate that AI-powered instructional approaches can positively influence student academic outcomes, particularly in enhancing knowledge retention, analytical thinking, and problem-solving abilities. Through customized instruction and self-paced learning opportunities, AI tools help optimize learning potential (Popenici& Kerr, 2017). In mathematics education, AI-enhanced tutoring systems have produced measurable performance improvements by delivering individualized problem-solving activities and explanations tailored to each student's ability level (Kulik& Fletcher, 2016). The immediate feedback provided by AI enables students to learn from errors quickly, strengthening their grasp of fundamental concepts and promoting advanced thinking skills (Zheng et al., 2020).

Despite the substantial advantages of AI-powered instructional approaches, they also present challenges, especially concerning equity, accessibility, and data protection (Means et al., 2019). AI effectiveness in education frequently depends on technological resources and infrastructure availability, which can differ significantly across educational institutions and geographical areas. Furthermore, concerns exist regarding the ethical implications of data gathering and privacy protection, as AI systems require extensive student data to deliver personalized instruction (Holmes et al., 2021). Ensuring that AI applications remain equitable, transparent, and respectful of student privacy is crucial for maximizing their beneficial impact on learning outcomes.

The growing implementation of AI-powered instructional approaches necessitates a comprehensive understanding of their effects on students' participation and learning outcomes.

Through examining these impacts, this research aims to provide insights that can guide educators and policymakers regarding AI's potentials and limitations in education. The results are anticipated to contribute to developing best practices for implementing AI-powered tools in classrooms, supporting the objective of enhancing student learning experiences and outcomes, thereby changing the dynamics of students –lecturer interactions in the classroom

Problem Statement

Although AI-powered instructional approaches are increasingly common in educational environments, empirical evidence regarding their actual impact on student participation and outcomes remains limited. Understanding the connection between AI integration and student-lecturer learning experience is essential for educators and policymakers seeking to implement AI-driven methods effectively. This research addresses this knowledge gap by investigating how AI-based approaches influence Students-Lecturer interactions and academic performance in classroom settings. The following are the objectives of the study:

1. To examine the impact of AI-powered instructional approaches on Students-Lecturer interaction in classroom participation
2. To analyze the influence of AI-powered instructional approaches on student academic outcomes

Research Questions

The following are the research questions that guided the study:

1. To what extend does AI-powered instructional approaches influence Students-Lecturer interactions in classroom participation?
2. To what extend does AI-powered instructional approaches impact student academic outcomes?

Significance of the Study

This research provides important insights for educators, administrators, and policymakers regarding AI's role in improving classroom interactions between students and lecturers in our academic institutions. It adds to the expanding research body on educational AI, providing empirical evidence of its effectiveness in enhancing Student-Lecturer participation and classroom dynamics, thereby enhancing learning outcomes. The study's findings can inform the development of more effective AI-driven instructional frameworks and guide future educational policy decisions.

REVIEW OF RELATED LITERATURE

Artificial Intelligence is rapidly transforming educational instructional approaches, improving teaching effectiveness and enhancing learning outcomes. Its integration into education spans various levels, from personalized learning experiences to administrative task automation.

This literature examination explores AI-powered instructional approach applications, their effectiveness, and associated challenges, focusing on recent studies and relevant research.

AI facilitates personalized learning by customizing content, pace, and methods to individual learner requirements. Adaptive learning systems like DreamBox and ALEKS use AI algorithms to analyze student performance and dynamically adjust learning paths. Research shows that such systems significantly enhance learner participation and comprehension (Nguyen et al., 2023). In Nigeria, AI adoption in education remains emerging but promising. Research by Olaleye and Adekunle (2022) highlights AI-powered systems' potential to address learning gaps in under-resourced schools. However, challenges including insufficient infrastructure and technical expertise limit widespread implementation.

AI promotes collaborative learning by facilitating peer interactions and group projects. Tools including chatbots and AI-assisted discussion platforms enable students to participate in meaningful conversations, guided by AI-generated prompts. Research by Adeniran et al. (2024) shows that AI-supported collaborative learning enhances critical thinking and problem-solving skills among Lagos State secondary school students. Additionally, AI-powered collaborative platforms like Google Classroom and Microsoft Teams have become essential in post-pandemic education. These tools support real-time interaction while providing insights into group dynamics and individual contributions, ensuring balanced participation.

AI streamlines administrative tasks including grading, attendance monitoring, and content distribution, allowing educators to focus more on instruction. Systems like Gradescope and Turnitin automate grading and plagiarism detection, ensuring consistency and efficiency (Baker et al., 2023). In Nigeria, institutions like the University of Lagos are testing AI-driven platforms for managing course assignments and student assessments, as reported by Ajayi and Okonkwo (2024). These innovations reduce educators' administrative workload, enabling them to dedicate more time to instructional design and student mentoring.

AI-powered tools like Grammarly and Claude provide immediate feedback on writing assignments, helping students improve their abilities iteratively. Research by Wang and Li (2023) shows that such tools significantly enhance undergraduate academic writing proficiency. Similarly, AI-based formative assessments, including quizzes generated through platforms like Quizlet, provide instant feedback, reinforcing learning and identifying improvement areas. In Nigerian universities, AI-driven feedback systems are being incorporated into e-learning platforms to ensure timely and constructive feedback (Ogundele et al., 2023).

Despite AI's immense potential, its educational implementation faces challenges. Issues including data privacy, algorithmic bias, and accessibility disparities create significant obstacles. Adebayo and Folarin (2023) emphasize the importance of ethical considerations in deploying AI-powered instructional approaches, highlighting the need for inclusivity and transparency in

algorithm design. Additionally, the digital divide remains a critical Nigerian issue. Rural schools often lack the necessary infrastructure to support AI technologies, further increasing educational inequalities (Umeh et al., 2024).

AI-powered instructional approaches have the potential to transform education by personalizing learning, enhancing collaboration, and automating routine tasks. However, effective implementation requires addressing infrastructure challenges, promoting digital literacy, and ensuring ethical deployment. As Nigerian educational institutions increasingly adopt AI, the focus should remain on utilizing its benefits to create an inclusive and equitable learning environment.

Student participation represents a critical factor in promoting academic success and encouraging deeper learning. Participation refers to the level of involvement, interest, and emotional investment students demonstrate in their learning activities. It significantly influences both cognitive and affective educational outcomes. This literature examination explores student participation concepts, dimensions, and factors that enhance or hinder participation, focusing on recent research and developments.

Student participation is typically divided into three interconnected dimensions: behavioral, cognitive, and emotional. Each dimension contributes uniquely to students' overall participation and academic performance.

Behavioral Participation refers to students' active involvement in academic activities, including class attendance, assignment completion, and discussion contributions. It represents the most visible participation form. In research by Okafor et al. (2023), students who participated in interactive activities like collaborative projects and peer teaching demonstrated higher behavioral participation levels. These students were more likely to complete assignments punctually and contribute meaningfully to class discussions.

Cognitive Participation involves the mental investment students make in their learning, including self-regulation strategies, critical thinking, and problem-solving. This dimension is particularly important for promoting deeper learning. Umeh and Okonkwo (2023) found that students utilizing metacognitive strategies and engaging in complex problem-solving activities exhibited greater cognitive participation, linked to higher academic achievement. AI-driven learning tools that adapt to individual student needs have also been found to support cognitive participation by providing personalized challenges that encourage higher-order thinking (Adebayo et al., 2023).

Emotional Participation pertains to students' feelings toward their learning, including interest, enthusiasm, and motivation. Positive emotional participation is often associated with higher motivation and academic persistence. Adeniran and Folarin (2024) noted that students who felt supported and recognized in classrooms were more emotionally engaged, contributing to their persistence and overall academic success. Using gamification and AI-powered tools, such as

virtual learning environments, has been shown to increase emotional participation by making learning more interactive and enjoyable (Adetunji&Alabi, 2024).

Teaching Strategies play a crucial role in fostering student participation. Approaches emphasizing active learning, collaboration, and real-world problem-solving are associated with higher participation levels. Adebayo et al. (2023) demonstrated that incorporating project-based learning (PBL) and flipped classrooms into curricula led to higher student participation, particularly among students who struggled with traditional lecture-based teaching. Similarly, integrating AI tools that personalize learning experiences has been found to enhance participation by catering to individual learning preferences (Adetunji&Adeoye, 2023).

Classroom Environment, including both physical and social factors, can significantly impact student participation. Positive teacher-student relationships and supportive classroom atmospheres are key to fostering emotional participation. Okafor et al. (2024) found that students in classrooms where teachers encouraged open communication and provided timely feedback demonstrated greater emotional and behavioral participation. Creating inclusive environments where diverse perspectives are valued has been shown to increase student participation, particularly for underrepresented group students (Olawale& Folarin, 2024).

Technology Integration in classrooms, particularly AI-driven educational tools, has been shown to increase participation. Adaptive learning systems providing personalized learning experiences help students stay engaged by challenging them at appropriate levels. Umeh and Okonkwo (2023) found that AI-based tools such as virtual reality (VR) and interactive simulations significantly boosted STEM course participation by providing immersive and hands-on learning experiences. Mobile apps and gamified learning platforms have been shown to keep students motivated by offering instant feedback and rewards, fostering both cognitive and emotional participation (Adeniran& Folarin, 2024).

Collaboration and Peer Interaction also significantly enhance student participation. Peer teaching, group discussions, and collaborative projects allow students to share ideas, solve problems collectively, and engage in meaningful dialogue. Okafor et al. (2023) noted that students engaging in collaborative learning experiences were more likely to demonstrate both cognitive and behavioral participation. In classrooms encouraging peer interaction, students not only gained new insights but also felt a greater sense of belonging and motivation to participate.

Motivational Challenges: Many students face motivational difficulties, particularly in subjects they find less interesting or challenging. According to Adeniran and Folarin (2024), students who perceived their coursework as irrelevant to their personal interests or future careers often exhibited lower participation levels. Teachers must design learning experiences that are meaningful and relevant to students' lives to overcome these barriers.

While technological tools can enhance participation, unequal resource access can create participation disparities. Olawale and Folarin (2024) pointed out that students in underfunded schools or rural areas often lack necessary technology to fully participate in AI-enhanced learning environments, limiting their participation.

Teachers lacking sufficient training in modern teaching strategies, including technology integration, may struggle to foster student participation. Okafor et al. (2023) emphasized the importance of ongoing professional development for teachers to help them effectively integrate new technologies and pedagogies that promote participation.

Student participation is a multifaceted and dynamic construct playing a vital role in promoting academic success. Literature highlights that both individual factors (motivation and self-regulation) and contextual factors (teaching strategies, classroom environment, and technological tools) contribute to participation.

Recent studies emphasize the importance of personalized learning experiences, collaboration, and emotional support in enhancing student participation. As educational technologies, particularly AI, continue evolving, they offer new opportunities to further engage students by providing adaptive and immersive learning experiences. However, challenges including motivational barriers, technological inequities, and insufficient teacher preparedness must be addressed to maximize student participation potential in contemporary education (Kehinde-Awoyele, Adeowu&Oladejo, 2024)

METHODOLOGY

A descriptive research design was adopted for this study. This design was considered appropriate because the research aims to examine an existing phenomenon. The study population consists of all students in tertiary institutions in Cross River State

The study involves tertiary institution students and academic staff from selected tertiary institutions in Cross River State Stratified random sampling was employed to ensure the sample included students from varied discipline. The sample size of 250 respondents was used for the study

Data collection utilized a structured questionnaire employing a 5-point Likert scale (Strongly Agree, Agree, Undecided, Disagree, Strongly Disagree). The questionnaire assessed students' perceptions of AI-powered instructional approaches and their impact on participation and learning outcomes. Initially, 25 items were developed for students and lecturers class interaction and learning outcomes respectively and submitted to test and measurement experts for necessary feedback regarding suitability, item difficulty, and test item coverage. Based on their recommendations, certain modifications were implemented.

A field trial of the instruments was conducted on purposively selected students outside the study area. Cronbach's alpha was used to determine item consistency and overall instrument

reliability, achieving a value of 0.79. With research assistants' help, the researchers distributed questionnaires to the sampled population after receiving approval from relevant school authorities. The study purpose was explained, and students were assured that supplied data would be treated with utmost confidentiality. Questionnaires were subsequently distributed and retrieved. Descriptive statistics, including frequency and percentage distributions, were used to summarize responses. Informed consent was obtained from both the students and their parents before participation. The anonymity of respondents was ensured, and all data were kept confidential. The ethical principles of fairness, transparency, and non-harm were upheld throughout the research.

RESULTS

Presentation of data

Table 1: Distribution of Respondents

Variables	Category	Frequency	Percentage(%)
Gender (Students)	Male	126	63
	Female	74	37
Gender (Lecturers)	Male	34	68
	Female	16	32
Tertiary Institution	University	2	75
	Polytechnic	1	25

Table 2: Summary of response from 200 students

S/N	Statements	SA	A	D	SD
1	Introduction of AI enhances interaction and collaboration between students and lecturers in the classroom	55%	30%	10%	5%
2	AI tools enhances my academic performance	70%	15%	8%	7%

Table 3: Summary of response from 50 Lecturers

S/N	Statements	SA	A	D	SD
1	Introduction of AI enhances interaction and collaboration between students and lecturers in the classroom	50%	20%	20%	10%
2	AI tools enhances students' academic performance	70%	15%	8%	7%

DISCUSSION OF RESULTS

Educational institutions worldwide have increasingly embraced AI-powered instructional approaches, with mounting evidence supporting their effectiveness in boosting student participation and academic achievement. Technologies including adaptive learning systems, smart tutoring applications, and live data analysis create individualized educational journeys tailored to each learner's requirements, learning speed, and preferred methods. Beyond improving educational accessibility, these technological advances significantly increase student interaction and enthusiasm for learning. Platforms such as Udemyand Coursera exemplify this trend by utilizing sophisticated algorithms that respond to individual learning behaviors, delivering personalized guidance and content suggestions. Research conducted by Zhang et al. (2023) revealed that this tailored approach strengthens student engagement and dedication, especially in difficult subject areas. Concurrently, AI solutions allow Lecturers to streamline administrative duties including assessment marking and attendance monitoring, enabling greater focus on teaching excellence and student guidance. This optimization leads to enhanced educator-student relationships and more productive educational settings (Adekunle, 2022).

Furthermore, predictive analytics powered by AI assist instructors in early identification of struggling students, facilitating timely support interventions. This study agreed with recent research by Oladipo and Ahmed (2023) showed that AI-driven alert systems decreased school abandonment rates by 25% in Nigerian secondary institutions. These technologies additionally support educational equity by serving learners with varied needs, particularly students with disabilities, through AI-enhanced accessibility tools such as voice-to-text and text-to-voice software. While these developments show considerable promise, effective AI implementation in education must overcome obstacles including privacy protection issues, technological infrastructure gaps, and unequal access to digital resources. Nevertheless, through ongoing innovation and thoughtful policy development, AI's capacity to revolutionize student engagement and educational success remains significant.

Implications of the findings

The research demonstrating AI-driven teaching methods' beneficial effects on student participation and academic achievement presents significant consequences for educational implementation, governance, and scholarly investigation.

Initially, these results emphasize educators' responsibility to welcome and incorporate AI technologies within their instructional practices. Through implementing AI-enhanced tools, instructors can provide customized educational experiences addressing varied learner requirements, promoting increased involvement and superior academic results. This necessitates specialized training initiatives to prepare teachers with competencies for classroom AI utilization.

Furthermore, AI's substantial contribution to improving educational outcomes emphasizes the critical nature of educational technology infrastructure investment. Government officials must give precedence to financing AI-centered educational programs, especially in disadvantaged areas, to eliminate technological disparities. This encompasses ensuring dependable internet connectivity, AI-compatible equipment, and educational resources to guarantee equal learning opportunities for all students.

Moreover, the research indicates AI's capacity to advance educational inclusivity. Through utilizing AI resources like predictive analysis and accessibility technologies, educational institutions can establish more welcoming environments supporting students with varying capabilities and learning difficulties. Policy developers and school leaders should formulate approaches to incorporate these resources while managing ethical considerations including information security and algorithmic prejudice.

Regarding scholarly investigation, these discoveries create opportunities for additional research examining AI-based teaching strategies' extended impacts. Scholars should investigate how these technologies affect various population groups, including learners from distinct cultural, economic, and educational contexts. Comprehending these complexities will assist in improving AI applications for enhanced effectiveness and fairness.

Finally, the research demonstrates AI's revolutionary capacity in transforming conventional educational frameworks. As educational institutions progressively implement AI-powered innovations, cultivating partnerships among educators, technology specialists, and policy makers becomes crucial for establishing comprehensive frameworks supporting sustainable and ethical AI educational integration. This methodology ensures technology enhancement of student achievement while supporting wider community objectives.

CONCLUSION

To summarize, the evidence demonstrates that AI-powered teaching approaches substantially improve student participation and academic achievement, offering revolutionary possibilities for educational systems. Through creating individualized learning pathways, automating routine operations, and promoting accessibility, AI has demonstrated its effectiveness as an essential resource for meeting varied learner requirements. Nevertheless, maximizing AI's educational impact demands collaborative commitment from teaching professionals, policy leaders, and academic researchers. Financial commitment to technological infrastructure, educator preparation, and comprehensive practices remains crucial for guaranteeing fair access to AI-enhanced educational innovations. Additionally, moral considerations including information protection and algorithmic equity must stay fundamental to these initiatives. Through thoughtful deployment and continuous investigation, AI can function as an influential driver for establishing more captivating, accessible, and successful educational environments, ultimately equipping learners to succeed in

our progressively digital society. The study was limited to few tertiary institutions in southern senatorial district of Cross River State, which may limit the generalizability of the findings. Future research could involve larger and more diverse populations across multiple geographical area

RECOMMENDATIONS

Drawing from the research outcomes, multiple suggestions emerge for optimizing AI-driven teaching methods to enhance student participation and academic success. Initially, Lecturers should proactively incorporate AI-enhanced resources into their pedagogical approaches to establish customized and engaging educational settings. Educational institutions and faculty development centers should offer ongoing training initiatives designed to provide Lecturers with essential competencies for successful AI technology utilization. These initiatives should highlight practical AI implementation across various instructional contexts.

Additionally, government officials and educational stakeholders should emphasize AI infrastructure development as a priority. Initiatives should focus on supplying schools, especially those in disadvantaged communities, with AI-compatible equipment, dependable internet connectivity, and essential technical assistance. Public agencies and private organizations can work together to create funding programs or financial support mechanisms that make AI resources available to institutions facing budget constraints.

Moreover, to tackle inclusivity challenges, schools should implement AI solutions supporting varied learners, including students requiring additional assistance. Support technologies like voice-to-text and audio-to-text systems should become integral parts of academic programs, ensuring universal access to AI innovations. This strategy must include safeguards protecting student information and mitigating algorithmic discrimination to guarantee responsible technology deployment.

For sustainable progress, establishing collaborative relationships among educators, software developers, and policy architects is essential. Joint initiatives can promote creating AI applications specifically designed for educational system requirements, maintaining consistency with teaching objectives.

Finally, academic researchers should undertake extended studies examining the lasting effects of AI-based teaching approaches across various student groups. This investigation will reveal effective implementation strategies for AI across different educational environments and guide informed policy formulation. Through emphasizing these suggestions, stakeholders can utilize AI's revolutionary capabilities to develop more compelling and efficient educational experiences.

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