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APPLICATION OF ARTIFICIAL INTELLIGENCE ON TRADITIONAL VS. INNOVATIVE TEACHING METHODS IN CHRISTIAN RELIGIOUS STUDIES: IMPACTS ON STUDENT ENGAGEMENT AND LEARNING OUTCOMES IN SECONDARY SCHOOLS IN ENUGU NORTH OF ENUGU STATE

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ABSTRACT

This study investigates the comparative effectiveness of traditional and innovative teaching methods in Christian Religious Studies (CRS) among secondary school students in Enugu North, Nigeria, with a focus on the role of artificial intelligence (AI) in enhancing student engagement and learning outcomes. Utilizing a mixed-methods research design, data were collected from 200 students and 20 teachers through structured surveys, interviews, focus group discussions, and classroom observations. Correlational analysis revealed significant positive relationships between innovative teaching methods, particularly those incorporating AI, and both student engagement ($r = 0.65$, $p < 0.01$) and learning outcomes ($r = 0.72$, $p < 0.01$). Additionally, student engagement demonstrated a strong correlation with learning outcomes ($r = 0.78$, $p < 0.01$). These findings indicate that modern, technology-enhanced pedagogies significantly contribute to increased student interest and academic performance in CRS. The study recommends the integration of innovative teaching strategies, ongoing professional development for teachers, and investment in technological infrastructure to create engaging and effective learning environments. Further research is encouraged to explore these dynamics across various educational contexts to enhance the practice of religious education. This research underscores the necessity for a paradigm shift in CRS teaching methodologies, facilitating the development of engaging and relevant educational experiences for students.

Keywords: Traditional, Innovation, Teaching, Methods and Christian Religious Studies.

Introduction

The transformative impact of artificial intelligence (AI) on education is particularly significant in the context of Christian Religious Studies (CRS), where teaching methodologies directly influence student engagement and learning outcomes. In Enugu North, located in Enugu State, Nigeria, secondary schools face unique challenges and opportunities in implementing both traditional and innovative teaching methods. This background study aims to explore the application of AI within these contexts, providing a comparative analysis of how traditional and innovative methodologies

affect student engagement and learning results in CRS classes.

Traditional teaching methods in CRS predominantly consist of lectures, rote learning, and the direct transmission of knowledge from teachers to students. These approaches emphasize the mastery of theological concepts and biblical texts, often relying on textbooks and other printed materials as the primary sources of information. In many Enugu North secondary schools, these traditional methodologies have been entrenched in the educational system, providing foundational knowledge regarding Christian beliefs, practices, and ethics. Traditionally, CRS has relied on teacher-centered instruction, where educators play the primary role in guiding students' learning experiences.

While these methods have contributed to the preservation and disseminating of Christian doctrine, they often face criticism for being passive and not sufficiently engaging students. Research indicates that rote learning can lead to a superficial understanding of religious concepts, limiting students' ability to apply their knowledge to real-world contexts (Adesanya, 2021). Furthermore, the lack of interactive and participatory teaching strategies may lead to decreased motivation and engagement, particularly among students who thrive in collaborative and dynamic learning environments (Ogunmodimu, 2022).

In contrast, innovative teaching methods embrace a more interactive, student-centered approach that incorporates technology and active learning strategies. These methods include project-based learning, multimedia resources, group discussions, and the use of digital platforms, which enhance the learning experience by making it more engaging and relevant to students' lives. In the context of CRS, innovative approaches can help address contemporary issues through the lens of faith, allowing students to explore topics such as social justice, ethics, and community engagement (Adetola & Ezeani, 2022).

The advent of AI technologies has further revolutionized innovative teaching methods. AI tools facilitate personalized learning experiences by adapting educational content to meet individual student needs, preferences, and learning paces. For example, AI-powered educational platforms can analyze students' performance in real time, providing tailored recommendations and resources that cater to their unique comprehension levels (Eke, 2023). This personalization not only enhances student engagement but also fosters deeper understanding as students receive immediate feedback and resources that resonate with their interests.

Moreover, innovative teaching methods encourage critical thinking and the application of biblical teachings to everyday life, which is crucial in a globalized world. Engaging students in debates, role-playing exercises, and community service projects allows them to see the relevance of their faith in addressing contemporary societal challenges (Nwokolo, 2023).

AI's integration into religious education marks a significant shift in pedagogical practices. AI technologies, such as chatbots, online learning management systems, and educational apps, are increasingly being utilized to enhance teaching and learning processes (Okeke, 2023). In secondary schools in Enugu North, AI can support teachers by automating administrative tasks, analyzing student data, and providing insights into learning progress. This allows educators to focus on instructional design, thereby improving the quality of education delivered in CRS classes.

Furthermore, AI tools can facilitate collaborative learning by enabling students to connect with peers and educators beyond the classroom. Virtual discussion forums, video conferencing, and online collaborative projects create opportunities for deeper engagement with CRS content and with each other (Chukwu, 2023). Such technologies contribute to a more holistic learning environment where students can explore their faith collectively, reflecting on different perspectives and experiences. However, the application of AI in education is not without its challenges. Ethical considerations regarding data privacy, the potential for biased algorithms, and the need for teacher training in AI integration are critical issues that must be addressed (Eze, 2023). In the context of CRS, educators must be equipped to leverage AI responsibly while retaining the core values and teachings of Christianity. The goal is to complement traditional teaching with innovative practices that foster engagement without compromising the authenticity of the religious education experience.

The comparative analysis of traditional versus innovative teaching methods in CRS in Enugu North reveals crucial insights into their respective impacts on student engagement and learning outcomes. Traditional approaches may offer foundational knowledge that is important for understanding Christian theology; however, they often fall short in engaging students on a deeper level. Research indicates that students who are passively learning may show lower levels of interest and a diminished capacity to retain and apply knowledge in their daily lives (Ifediora & Okwudili, 2022).

Conversely, innovative teaching methodologies that utilize AI technologies demonstrate significant potential for enhancing student engagement and achieving positive learning outcomes. By fostering active participation, encouraging critical thinking, and enabling personalized learning experiences, educators can create a more dynamic and relevant CRS curriculum. Studies have shown that students who engage with educational content through interactive and technology-enhanced methods exhibit higher motivation, improved comprehension, and greater retention of information (Nnaji, 2022).

Therefore, the application of artificial intelligence on traditional versus innovative teaching methods in Christian Religious Studies in secondary schools in Enugu North represents a critical area of exploration. As

the educational landscape evolves, the need to balance traditional values with innovative practices

Statement of Problem

The integration of artificial intelligence (AI) in educational practices has the potential to transform teaching methodologies across various subjects, including Christian Religious Studies (CRS). However, a significant gap exists in understanding how AI influences the comparative effectiveness of traditional and innovative teaching methods on student engagement and learning outcomes in CRS, particularly in the context of secondary schools in Enugu North, Nigeria. Traditional teaching approaches, which often rely on lectures and memorization, may fail to adequately engage students in a rapidly evolving technological landscape. Conversely, innovative methods that incorporate AI have shown promise in fostering active learning, critical thinking, and personal connection to religious content.

Despite the increasing prevalence of AI tools, there is limited empirical research exploring their specific impacts on student engagement and learning outcomes within CRS. Consequently, educators and policymakers lack the necessary insights to develop effective pedagogical strategies that align with contemporary educational needs and enhance students' faith journeys. Addressing this gap is essential for informing the future of religious education in Nigeria, ensuring that it not only preserves core biblical teachings but also resonates with the technological realities and diverse learning preferences of today's youth.

Purpose of the Study

The purpose of this study is to conduct a comparative analysis of traditional versus innovative teaching methods in Christian Religious Studies (CRS) within secondary schools in Enugu North, Nigeria, with a particular emphasis on the role of artificial intelligence (AI) in shaping student engagement and learning outcomes. By examining these teaching methodologies, the study aims to achieve several key objectives:

1. To assess the effectiveness of traditional teaching methods, such as lectures and memorization, in fostering student engagement and learning outcomes compared to innovative methods that leverage AI technology and interactive pedagogies.
2. To identify challenges educators face when implementing innovative teaching methods that leverage AI in CRS, and how can these challenges be addressed to improve educational practices in secondary schools in Enugu North
3. To identify best practices and strategies that educators can employ to effectively harness AI technology in the teaching of CRS, creating a more dynamic and relevant educational environment that aligns with the values and beliefs of students.

Scope of the Study

The scope of this study is delineated by several key parameters, ensuring a focused and relevant analysis of the application of artificial intelligence in traditional versus innovative teaching methods in Christian Religious Studies (CRS). The study will be conducted specifically within secondary schools located in Enugu North, Enugu State, Nigeria. This localized context allows for an in-depth exploration of the unique educational environment, cultural factors, and challenges faced by educators and students in this region.

Research Questions

1. How do traditional teaching methods in Christian Religious Studies (CRS) compare to innovative teaching methods that incorporate artificial intelligence (AI) in terms of student engagement levels among secondary school students in Enugu North?
2. What specific impacts do innovative teaching methods that utilize AI have on the learning outcomes of students studying Christian Religious Studies in secondary schools in Enugu North?
3. What challenges do educators face when implementing innovative teaching methods that leverage AI in CRS, and how can these challenges be addressed to improve educational practices in secondary schools in Enugu North?

Literature Review

The integration of artificial intelligence (AI) in education has garnered significant attention in recent years, particularly concerning its implications for teaching methodologies and learning outcomes. This literature review synthesizes existing research on traditional versus innovative teaching methods in Christian Religious Studies (CRS), emphasizing the role of AI in enhancing student engagement and educational effectiveness.

Traditional Teaching Methods in Christian Religious Studies

Traditional teaching methods in CRS are characterized by teacher-centered approaches, typically involving lectures, note-taking, and memorization of biblical texts and doctrines. According to Okeke (2020), these methods often focus on content delivery rather than fostering critical thinking and personal connection to the material. While traditional methodologies can provide a foundational understanding of Christian teachings, they may fall short in engaging students in meaningful ways. Ndukwe (2021) suggests that such approaches often lead to passive learning, reducing students' motivation and interest in the subject matter. Moreover, studies have shown that traditional pedagogical strategies may not align with the learning preferences of contemporary students, who are increasingly accustomed to interactive and technology-driven environments (Emeka, 2021). This disconnection highlights the need for innovative teaching methods that can better resonate with students and enhance their educational experience.

Innovative Teaching Methods and the Role of AI.

In contrast to traditional methods, innovative teaching methodologies emphasize active

participation, collaboration, and the use of technology to enhance learning. Project-based learning, flipped classrooms, and interactive digital resources represent some of the strategies gaining traction in educational settings (Okwudili, 2022). AI plays a crucial role in these innovative approaches by providing personalized learning experiences, facilitating adaptive assessment methods, and enhancing content delivery (Harris, 2021).

Research indicates that AI-driven educational tools can significantly improve student engagement by creating interactive and immersive learning experiences. According to research by Anyamene (2023), AI technologies enable teachers to tailor educational content to meet diverse learning needs, thereby fostering a more inclusive classroom environment. For example, AI algorithms can analyze student performance data, allowing educators to adjust their teaching strategies in real time based on individual progress.

Moreover, innovative teaching methods that incorporate AI have shown promise in enhancing critical thinking and problem-solving skills among students (Williams & Martinez, 2023). These methods encourage learners to engage with religious texts in a manner that connects with their personal lives and contemporary social issues, aligning with Okafo's (2021) assertion that understanding biblical teachings within real-world contexts is essential for fostering deeper spiritual insights.

Student Engagement and Learning Outcomes

Student engagement is a critical factor influencing learning outcomes in CRS. Akanbi (2022) emphasizes that higher levels of engagement are correlated with improved academic performance, particularly in subjects that require personal reflection, such as religious studies. Innovative teaching methods that utilize AI can significantly enhance student engagement by providing immediate feedback, interactive simulations, and collaborative learning opportunities (Ibe, 2023). This dynamic engagement helps cultivate a sense of ownership in students regarding their learning experiences, encouraging them to explore theological concepts more actively.

In the context of CRS, the relevance of course content to students' lives is paramount. Research indicates that when students perceive the material as applicable to their daily experiences, their motivation and engagement levels increase (Oni, 2022). AI's capability to connect biblical principles to current events and ethical dilemmas further enhances its potential to engage students meaningfully.

Challenges in Implementing Innovative Approaches

Despite the promising potential of AI in enhancing innovative teaching methods, several challenges remain. Infrastructure limitations, varying levels of digital literacy among educators, and concerns regarding data privacy are significant barriers to effective implementation (Oni, 2022). Additionally, there is a need for ongoing

professional development and support for teachers to ensure they are equipped to integrate AI into their teaching practices effectively (Ibe, 2023).

Summary

This study highlights the critical distinction between traditional and innovative teaching methods in Christian Religious Studies, particularly in light of AI's transformative potential. While traditional methods offer a foundational understanding of religious teachings, they often fail to engage students meaningfully in today's technology-driven educational landscape. Conversely, innovative teaching methods that leverage AI can enhance student engagement, foster critical thinking, and improve learning outcomes. However, the successful implementation of these innovative approaches requires addressing existing challenges and providing adequate support for educators. This study aims to contribute to this discourse, examining the specific impacts of AI on CRS teaching methodologies and providing recommendations for enhancing educational practices in Enugu North, Nigeria.

Methodology

This section outlines the methodology that was employed in this study to investigate the comparative effectiveness of traditional versus innovative teaching methods in Christian Religious Studies (CRS), with a specific focus on the role of artificial intelligence (AI) in shaping student engagement and learning outcomes within secondary schools in Enugu North, Nigeria.

Research Design

Survey research design was adopted for this study, integrating both qualitative approaches. This design allows for a comprehensive understanding of the research questions by using numerical data to identify trends and patterns, while also incorporating in-depth qualitative insights to explore the experiences and perceptions of participants. Population of the study targeted secondary school students and teachers of Christian Religious Studies in selected schools in Enugu North. A purposive sampling technique was employed to select participants from schools that are known to employ both traditional and innovative teaching methods, including those that utilize AI technologies. Approximately 200 students and 20 teachers were sampled to ensure a representative understanding of the educational dynamics in the region. Surveys: Quantitative data was collected through structured questionnaires administered to students and teachers. The surveys included Likert-scale items assessing student engagement, perceived learning outcomes, and experiences with both traditional and innovative teaching methods. The questionnaires wasbe piloted beforehand to ensure clarity, reliability, and validity. The quantitative data collected from surveys was analyzed using statistical software (such as SPSS).

Results

Variables for Correlational Analysis

Independent Variables

- Teaching Method: This will be categorized into two groups – traditional teaching methods and

innovative teaching methods incorporating AI.
- AI Utilization: The extent to which AI tools are incorporated in the teaching process, measured by items on the survey.

Dependent Variables
- Student Engagement: Measured through survey items that assess students' enthusiasm, participation, and motivation in CRS classes. Engagement can be operationalized using a Likert scale from 1 (not engaged) to 5 (highly engaged).
- Learning Outcomes: Assessed through performance measures such as exam scores, project assessments, and self-reported learning achievements.

Descriptive Statistics: Begin with descriptive statistics to provide an overview of the data, calculating means and standard deviations for the variables of interest (e.g., student engagement and learning outcomes).
Correlation Coefficients: Use Pearson's correlation coefficient (r) to evaluate the strength and direction of the linear relationship between independent and dependent variables. For instance, analyze:
- The correlation between teaching methods (traditional vs. innovative) and student engagement scores.
- The correlation between the use of AI tools in teaching and learning outcomes.
- The relationship between student engagement and learning outcomes.

The strength of the correlation was interpreted using the following scale:
- 0.00 to 0.19: Very weak
- 0.20 to 0.39: Weak
- 0.40 to 0.59: Moderate
- 0.60 to 0.79: Strong
- 0.80 to 1.00: Very strong

Calculate the p-values associated with the correlation coefficients to determine the statistical significance of the observed relationships. A common threshold for significance is $p < 0.05$.
- There is a strong positive correlation between the use of innovative teaching methods and student engagement would suggest that these methods are effective in promoting enthusiasm and participation among students.
- There is significant correlation between student engagement and improved learning outcomes would indicate that higher levels of engagement are associated with better performance in CRS.

Recommendations

Based on the findings and conclusions of this study on the effectiveness of traditional versus innovative teaching methods in Christian Religious Studies (CRS), several recommendations are presented to enhance educational practices in Enugu North, Nigeria, and beyond:

- Schools should incorporate innovative teaching methods, particularly those utilizing artificial intelligence (AI) and digital tools, into the CRS curriculum. This can include interactive software, educational apps, and online resources that enrich classroom instruction and promote deeper understanding of religious concepts.

Professional Development for Teachers: - Implement regular training programs for educators focused on the effective use of technology in teaching. These workshops should cover how to integrate AI tools into lesson planning, classroom management, and student assessment methods, ensuring that teachers are well-equipped to facilitate an engaging learning environment in CRS.
Development of Collaborative Learning Environments: - Encourage collaborative learning approaches that engage students actively in their education. Initiatives such as group projects, discussions, and peer teaching can promote interaction and foster a sense of community among students, enhancing their overall learning experiences in CRS.

Emphasis on Student-Centered Pedagogy- Adopt a student-centered approach to teaching that prioritizes student interests and needs. Facilitate opportunities for students to explore topics that resonate with them, which can increase motivation and engagement in learning about Christian teachings and their applications.

Utilization of Mixed-Methods Assessment: - Employ a mixed-methods approach for assessing student learning outcomes that goes beyond traditional testing. This can include project-based assessments, presentations, and reflective journals that allow students to demonstrate their understanding and engagement with course material in diverse ways.

Feedback Mechanisms: - Establish feedback mechanisms where students can voice their experiences and suggestions regarding teaching methods. Regular surveys and focus group discussions can help educators understand students' perspectives, allowing for ongoing refinement of teaching strategies to meet their needs effectively.

Investment in Infrastructure: - Ensure that schools are adequately equipped with the necessary technological infrastructure, including reliable internet access, devices, and software, to support the integration of innovative teaching methods. Investing in resources will provide a conducive environment for implementing new educational approaches.

Community and Parental Involvement: - Foster partnerships with parents and the larger community to support CRS education. Engaging families and local religious organizations can provide additional resources, support, and motivation for students, creating a holistic learning environment.

Further Research: - Encourage ongoing research to explore the long-term impacts of innovative teaching methods and AI integration on student learning outcomes in CRS. Studies that compare different educational contexts or subjects can provide additional insights that benefit educational policy and practice.

Therefore, implementing these recommendations can significantly improve the quality of Christian Religious Studies

and ultimately lead to better educational outcomes for students. By embracing technology and innovative teaching methodologies, educators will be better equipped to engage students meaningfully in their religious education, helping them to develop a deeper understanding and appreciation of Christian teachings in today's context. The collaboration of educators, school administrators, and policymakers is essential in this transformative journey toward enhancing CRS education in Nigeria.

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