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Article

Cloud computing: Innovative strategy towards effective pedagogy in Christian religious studies

Odey Elizabeth Akpanke[1,*], Eneji Gabriel Ajor[2], Okafor Justus Onyebuchi[3], Adams Peter Akpo[4]

Department of Religious and Cultural Studies, Faculty of Arts, University of Calabar, Calabar Cross River State, PMB 1115, Nigeria
*** Corresponding author:** Odey Elizabeth Akpanke, odeyelizabeth@unical.edu.ng

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Abstract: Cloud computing is an emerging phenomenon within the realm of Information and Communication Technology (ICT) that holds significant potential for enhancing various aspects of skill acquisition, data analysis, critical thinking, knowledge updating, problem-solving, research data generation, and the facilitation of engaging and stimulating teaching and learning experiences, among other benefits. Cloud computing is widely recognized as a standard paradigm that offers efficient network access to a shared pool of computing resources. These resources can be provisioned and released with minimal effort and reciprocal agreements between service providers. Education, on the contrary, is a systematic procedure of imparting knowledge that necessitates consistent updating and application of internationally recognized best practices in its execution. Therefore, this paper articulates the significance of implementing and utilizing cloud computing as an innovative approach to future-oriented and efficient pedagogy in the field of Christian Religious Studies. The outcome of this interaction can best be illustrated from the experience of many seminaries and theological colleges that have adopted cloud-based Learning Management Systems (LMS) such as Moodle or Canvas. These platforms allow educators to share course materials, facilitate discussions, and assess student performance. The research design employed in this study is survey methodology. The study's population included 540 participants, specifically 313 undergraduate students, 192 education lecturers, and 35 administrative staff members from a tertiary institution. The sample size of 230 respondents was determined using the YARO YAMENT formula and selected through a stratified random sampling technique. A questionnaire consisting of 30 items was utilized to collect data. The questionnaire was developed, validated, and its reliability was assessed using the CRONBACH alpha formula, yielding a coefficient of 0.84. The collected data underwent analysis utilizing measures of central tendency (mean) and dispersion (standard deviation) in order to address the research inquiries. Additionally, the null hypothesis was assessed through the application of ANOVA. The study revealed that achieving a global equilibrium in terms of information and materials accessible to cloud computing users is crucial. Specifically, online materials should be designed to incorporate both local and global content, ensuring their relevance and appeal to individuals regardless of their language or cultural background. Fifteen viable strategies for enhancing futuristic and effective pedagogy in the field of Christianity.

Keywords: cloud computing; ICT; teaching and learning; pedagogy; Christian religious studies

1. Introduction

Cloud computing is a contemporary paradigm that offers a comprehensive reservoir of computational resources, characterized by its inherent ability to dynamically scale and utilize virtualized assets as a service over the internet. According to Utpal and Majidul [1], the resources encompass a variety of components

such as network servers, applications, platforms, infrastructure segments, and services. Cloud computing is capable of autonomously delivering services in response to demand. It also offers adequate network access, a data resource environment, and effective flexibility. Harrison and Ritchie [2] emphasized that students reported increased accessibility to resources, enabling them to engage with materials at their own pace. This flexibility led to higher completion rates of online courses and improved grades, as students could revisit lectures and readings as needed.

According to the research conducted by Faisal et al. [3], this particular technology offers enhanced computational efficiency through the consolidation of storage and memory resources. The computing capacity of personal computers and services eliminates the need for users to possess expertise and knowledge in managing the infrastructure segment of cloud computing. This allows for the provision of abstraction, enabling users to leverage internet services with attributes such as high scalability, high quality of services, and high computing power. Again, O'Brien and Cline [4] maintain that institutions have utilized cloud tools like Google Workspace for collaborative projects, enabling students to work together on assignments, share documents, and provide peer feedback in real-time, regardless of their physical location. Norton [5] further averred that collaboration of information technology as teaching and learning aids will foster a deeper understanding of complex theological concepts, as students are able to discuss and analyze their ideas collectively. Surveys indicated improved critical thinking skills and greater engagement with the subject matter.

Bartlett [6] also corroborated that programs that have implemented/incorporated cloud-based video conferencing tools like Zoom or Microsoft Teams to host live lectures, discussions, and guest speaker events have resulted in great result-oriented impact. This was particularly important during the COVID-19 pandemic, allowing classes to continue remotely. The impact of cloud computing on learning outcomes cannot be overemphasized, as alluded to by Miller and Thompson [7]. They opined students benefitted from interactive learning experiences and direct engagement with experts in the field. Feedback showed that participants felt more connected and motivated, leading to higher levels of participation and retention of information. Burgess [8] also emphasized that implementation-oriented ICT application is sacrosanct. According to him, educators have implemented cloud-based tools like Kahoot and Padlet to create interactive quizzes and discussion boards during lectures.

In general, the education system has experienced gradual expansion over time. As a result, various methods of imparting knowledge have been adopted, including online, virtual, internet, web, and open education resources, and, most recently, the integration of cloud computing. This initiative aims to provide comprehensive and effective instruction and education. Hence, the significance of cloud computing cannot be overstated. The increase in awareness and modernization within contemporary society has led to a significant rise in the number of individuals receiving education. Consequently, this has given rise to a series of new challenges. For instance, as instructional approaches evolve, the current teaching and learning methods prove inadequate to meet the demands and necessitate substantial infrastructure investments at high costs. Moreover, with the continuous expansion of education, the existing teaching facilities must undergo regular updates to remain relevant. Hence, the

significance of cloud computing is evident as an innovative approach to enhance pedagogy in the field of Christian religious studies. Therefore, this paper examines the utilization of

1.1. Literature review

Cloud computing is a technological paradigm that leverages the internet and centralized remote servers for the purpose of storing and managing data as well as running applications [1]. Cloud computing enables individuals and organizations to utilize applications without the need for installation, thereby granting them the ability to access their personal files from any computer that has internet connectivity. This technology enables significantly enhanced computational efficiency through the consolidation of data storage, processing, and bandwidth.

As per the definition provided by the National Institute of Standards and Technology (NIST) [9], cloud computing is a paradigm that facilitates widespread and convenient access to a standardized collection of configurable computing resources (such as networks, services, storage, applications, and services) through on-demand network connectivity. These resources can be swiftly allocated and released with minimal involvement from service providers or the need for extensive management efforts. Cloud computing refers to the utilization of computing resources, including both hardware and software, which are provided as a service through a network, commonly the internet. The nomenclature is derived from the utilization of a cloud-shaped symbol as a representation for the intricate infrastructure encompassed within system diagrams.

On the contrary, pedagogy refers to the vocation of instructing. Education encompasses the various endeavors involved in imparting knowledge, fostering learning, and providing instruction. It could also be defined as instructional strategies. The process of teaching and learning is a captivating endeavor that entails the ongoing acquisition of knowledge and data through both structured and unstructured means. Hence, the incorporation of sufficient, up-to-date, and popular global best practices is an integral component of the pedagogical approach. According to Fafunwa [10], an essential aspect of effective pedagogy is the widespread recognition and adoption of significant ideas and innovative approaches within the framework of proper teaching and learning strategies, commonly referred to as expert pedagogy.

Alshami and Alzahrani [11] averred cloud computing has emerged as a transformative technology in educational settings, particularly in specialized fields like Christian Religious Studies. This innovative strategy facilitates enhanced pedagogical practices by providing flexible access to resources, promoting collaborative learning, and enabling diverse instructional methods. In the same vein, Kumar and Sharma [12] maintained by leveraging cloud-based tools, educators can create interactive and engaging learning environments that cater to the diverse needs of students. This paper explores the integration of cloud computing in Christian Religious Studies, focusing on its impact on curriculum delivery, student engagement, and the overall educational experience. Rogers [13] further postulated that recent advancements in cloud technologies are highlighted, along with case studies demonstrating successful implementations in religious education. His findings suggest

that cloud computing not only supports effective pedagogy but also fosters a deeper understanding of Christian teachings in a contemporary context.

The integration of cloud computing in educational settings has revolutionized pedagogical strategies, particularly in religious studies. This literature review examines the role of cloud computing as a facilitator of innovative teaching methods and its specific applications in Christian religious studies. Cloud computing offers scalable resources, facilitating access to educational materials and collaborative tools. According to Alhassan et al. [14], cloud-based platforms enhance student engagement by providing flexible learning environments. The ability to store, share, and access resources online enables educators to create interactive and resource-rich curricula. Research by Hwang and Wu [15] highlights how cloud computing supports collaborative learning and active participation among students. The use of tools such as Google Classroom and Microsoft Teams allows for real-time interaction, fostering a community of learners. This is particularly beneficial in religious studies, where discussions and collaborative interpretation of texts can enhance understanding. In the context of Christian religious studies, cloud computing promotes access to a wide range of theological resources. Studies by Johnson [16] indicate that cloud services provide platforms for hosting online lectures, seminars, and discussion forums, thus reaching a broader audience. For instance, the use of platforms like Zoom for virtual Bible study sessions has become prevalent, allowing participants from diverse locations to engage meaningfully. Despite the advantages, the adoption of cloud computing in education faces challenges such as digital divide issues and concerns over data privacy. According to Smith and Brown [17], educators must be aware of these challenges and strive to create inclusive environments that address technological disparities among students. Looking ahead, the integration of artificial intelligence (AI) with cloud computing in religious studies may further enhance personalized learning experiences. Research by Thompson et al. [18] suggests that AI-driven tools can analyze student interactions and provide tailored resources, thus improving engagement and comprehension.

Smith [19] opined that cloud computing has revolutionized educational methodologies, offering innovative strategies that significantly enhance the teaching and learning of Christian Religious Studies. His study investigates how cloud-based technologies facilitate access to a wealth of digital resources, promote collaborative learning environments, and support diverse pedagogical approaches. By integrating tools such as Learning Management Systems (LMS), virtual classrooms, and cloud storage, educators can create more engaging and interactive learning experiences tailored to students' needs. The study includes examples of successful implementations in various educational institutions and discusses the implications of cloud computing for curriculum design, assessment, and student engagement in religious education. Ultimately, the findings affirm that cloud computing is not just a technological advancement but a catalyst for pedagogical transformation in Christian Religious Studies, fostering deeper engagement with spiritual texts and community-building among students.

Smith further expound that implementation of cloud storage solutions like Dropbox or Google Drive have been used to create digital libraries of theological texts, multimedia resources, and research materials that are accessible to all students.

Corroborating thus, Thompson et al. [18] averred that the impact on Learning Outcomes is numerous such as access to a wide array of resources enhanced students' research capabilities and understanding of diverse theological perspectives. Thompson et al succinctly concludes that many reported that having easy access to materials enriched their assignments and overall academic performance. Again in Rogers [13] assertion, mobile learning applications implementation allow some institutions develop mobile apps that leverage cloud technology to deliver course content, quizzes, and interactive elements directly to students' devices. This in-turn generates impact on learning outcomes which results in increased engagement and allowed students to learn on-the-go. Studies indicated that mobile access to learning materials led to higher levels of interaction and satisfaction with the learning process, ultimately improving academic performance. Furthermore, O'Brien ang Cline [4] explained that interactive learning experiences impact on learning outcomes. He asserts that, these tools encouraged active participation and immediate feedback, making learning more dynamic. Students expressed increased motivation and retention of information, as they are more involved in the learning process.

1.2. Statement of the problem

Proper education entails the incorporation of universally recognized and accepted methods of instruction and skill acquisition. In the context of Nigerian society, it is evident that the economic downturn has had a significant impact on the education sector. Consequently, the implementation of globally recognized standards in teaching and learning has been lacking, leading to a continuous decline in the quality of education and the content being delivered. Furthermore, the academic discipline of Christian religious studies is experiencing a decline in both its popularity and the number of students and candidates applying to pursue this course. This downward trend has persisted over the years. Hence, it is crucial to enhance the value of the field by incorporating additional engaging pedagogical approaches for teaching and learning. In order to accomplish the aforementioned objective, cloud computing functions as an innovative approach towards future-oriented pedagogy in the field of Christian Religious Studies.

The objective of this study is to ascertain the efficacy of integrating cloud computing into the instruction and learning of Christian Religious Studies as an innovative approach. Additionally, it aims to establish the potential of this strategy as a blueprint for future research endeavors in the field of Christian religious studies. The integration of Cloud Computing into the instruction of Christian religious studies is anticipated to improve the effectiveness, comprehensiveness, and engagement of pedagogical approaches in this field. The present study aims to address the following research question.

1.3. Research questions

(1) What are the regular methods of teaching and learning of Christian Religious Studies?
(2) What are the innovative strategies towards pedagogy in Christian Religious Studies?

1.4. Hypothesis

Ho: There is no significance difference in the mean ratings of the methods of teaching and learning of Christian religious studies and the innovative strategies towards pedagogy in Christian religious studies.

2. Methodology

The study employs a survey research design with the aim of gathering data from a sample of undergraduate students, tertiary education lecturers, and university administrative staff. According to Olaitan and Nwoke [20], a survey design involves the comprehensive study of an entire population or a representative sample. This is achieved by collecting and analyzing data from the group through the utilization of questionnaires, interviews, or field observations. The research is conducted at the University of Calabar, situated in Calabar, Cross River State, Nigeria. The sample size for the study consisted of 540 participants, comprising 313 undergraduate students, 192 university lecturers, and 35 administrative university staff members. The researcher selected a sample of 230 respondents using the Yaro Yameni formula, which takes into account the large size of the population. The sample consisted of 133 undergraduate students, 82 undergraduate lecturers, and 15 administrative staff. The sampling technique used was proportionate stratified random sampling. The appropriateness of this technique is attributed to its consideration of the identified characteristics that are relevant to the study. Additionally, the selection of each segment was based on its proportion to the population, as noted by Uzoagulu [21].

Data collection was facilitated through the utilization of a structured questionnaire as an instrument. The questionnaire was developed using data obtained from field observations and a comprehensive review of relevant literature. The questionnaire utilized a structured format consisting of a four-point response scale for assessing competency and strategy items. The scale values assigned to each response option were as follows: very great extent (VGE) = 4, great extent (GE) = 3, low extent (LE) = 2, and very low extent (VLE) = 1. The rating scale for research question two includes options for strongly agree, agree, disagree, and strongly disagree. The instrument underwent face validation by three experts, two of whom were affiliated with the Department of Religious and Cultural Studies, and one from the Department of Christian Religious Studies at the University of Calabar in Calabar. Every individual who was deemed to be valid was provided with a duplicate of the document for comprehensive examination. Modifications were implemented on the instrument, resulting in a reduction of the total number of items from 35 to 30. These changes were made in response to constructive criticism and suggestions provided by individuals involved in the study. The finalized version of the instrument, incorporating these amendments, was subsequently utilized for the research.

A total of 20 questionnaires were distributed to a sample of 20 participants at the University of Calabar in order to assess the reliability of the survey instrument. The sample consisted of 12 undergraduate students, 6 university lecturers, and 2 university administrative staff members. The instrument's reliability was assessed through the utilization of Cronbach's Alpha (α). The analysis produced a reliability coefficient of 0.83, indicating a satisfactory level of internal consistency for the instrument. A total

of 230 questionnaires were distributed to the respondents through personal delivery, facilitated by two research assistants who had received training specifically for this task. The finalized documents were promptly returned at the location. Thus, attaining a return rate of 100 percent. The collected data underwent analysis using the mean (x) and standard deviation (SD) to address the research questions. Additionally, the null hypothesis was tested using ANOVA (Analysis of Variance) at a significance level of 0.05 and with 227 degrees of freedom. The determination of the extent of the perceived innovative approach to pedagogy in Christian religious studies was predicated on the upper and lower bounds of the mean. Thus:

3.50–4.00 very great extent (VGE)

2.50–3.49 great extent (GE)

1.50–2.49 low extent (LE)

1.00–1.49 very low extent (VLE)

In the determination of the innovative strategies towards effective/futuristic pedagogy in Christian religious studies, the mean was also the deciding statistic for the research question. Two the mean of 2.50 and above was regarded as agree for the items, whereas any item with mean less than 2.50 was indicated as disagree. The null hypothesis was rejected when the calculated F-ratio was greater than the F-table value and was significant, otherwise do not reject.

3. Results

The results of the analysis of the data collected were presented in tables according to the research questions and hypothesis being answered and tested respectively.

3.1. Research question one

What are the regular methods of teaching and learning of Christian Religious Studies (see **Table 1**)?

Table 1. Mean rating and standard deviation on the regular methods of teaching and learning of Christian religious studies.

S/No	Reg. Meth of Teach. CRS	Undergraduate stu.		Univ. Lectures		Univ.Admin. Staff		Overall		Dee
		$\bar{x}1$	SD1	$\bar{x}2$	SD2	$\bar{x}3$	SD3	$\bar{x}4$	SD4	
1	Teaching with Chalk board	2.31	0.91	2.40	0.32	1.98	0.84	2.23	0.69	LE
2	Cardboard is often used	2.46	0.94	2.38	0.6	2.02	0.93	2.29	0.83	LE
3	Take home Assignment	2.12	0.97	2.26	0.78	2.10	0.86	2.16	0.87	LE
4	Face to face method	1.30	0.92	2.20	0.95	2.35	0.87	1.95	0.91	LE
5	Students/Teacher interaction	1.51	0.95	2.32	0.85	2.01	0.67	1.95	0.82	LE
6	Group learning method	2.15	0.66	2.37	0.77	2.11	0.73	2.21	0.72	LE
7	Field trip	2.30	0.95	2.31	0.68	2.33	0.75	2.31	0.79	LE
8	Site seeing	2.05	0.93	2.08	0.70	2.04	0.81	2.30	0.81	LE
9	Internship	2.13	0.86	2.41	0.83	2.15	0.78	2.23	0.82	LE
10	Use of marker and white board	2.19	0.90	1.97	0.78	1.99	0.69	2.05	0.79	LE
11	Use of microphone	1.20	0.98	2.06	0.84	1.79	0.74	1.68	0.85	LE
12	Use of loud speaker	1.53	0.93	2.03	0.87	2.09	0.91	1.88	0.90	LE

Table 1. (*Continued*).

S/No	Reg. Meth of Teach. CRS	Undergraduate stu.		Univ. Lectures		Univ.Admin. Staff		Overall		Dee
		$\bar{x}1$	SD1	$\bar{x}2$	SD2	$\bar{x}3$	SD3	$\bar{x}4$	SD4	
13	Periodic studies	1.65	0.94	2.07	0.85	1.87	0.88	1.86	0.89	LE
14	Administration of test	2.04	0.83	2.09	0.74	2.06	0.76	2.06	0.78	LE
15	Administration of exams	2.18	0.73	2.21	0.61	2.16	0.73	2.15	0.68	LE
Grand Mean ($\bar{x}$)		1.94	0.89	2.26	0.75	2.07	0.80	2.09	0.81	LE

The result of the analysis on table one on the mean response of undergraduate students, university lecturers and university administrative staff with respective mean range of 1.20–2.48, 1.79–2.35 with grand mean of 1.94, 2.26 and 2.07 respectively indicated the adverse and significant use of older methods of teaching and learning. In the same view, the overall grand mean of 2.09 revealed that the used of older method of pedagogy in the CRS discourages interest in the course as such requires the introduction of innovative strategy in its pedagogy. More so, the SD of 0.89, 0.75, and 0.80 respectively for the three categories of the respondents are close therefore indicates homogeneity in their responses. This implies that there is the need for the introduction of cloud computing as innovative strategy in the teaching and learning of Christian religious studies.

3.2. Research question two

What are the innovative strategies towards pedagogy in Christian Religious Studies?

Table 2. Mean rating and standard deviation on the innovative strategies towards pedagogy in Christian religious studies?

S/No	Reg. Meth of Teach. CRS	Undergraduate stu.		Univ. Lectures		Univ.Admin. Staff		Overall		Dee
		$\bar{x}1$	SD1	$\bar{x}2$	SD2	$\bar{x}3$	SD3	$\bar{x}4$	SD4	
16	Use of Computer	2.65	0.68	2.76	0.81	2.80	0.87	2.74	0.79	LE
17	Use of bible illustration	3.15	2.72	2.72	0.83	3.13	0.92	3.01	0.82	LE
18	Use recorded stories	3.10	0.81	2.83	0.75	2.74	0.93	2.89	0.83	LE
19	Use of internet	2.78	0.73	3.92	0.67	3.01	0.98	3.24	0.79	LE
20	Use of DVD	2.70	0.76	2.73	0.78	2.91	0.95	2.78	0.83	LE
21	Use of power point	2.61	0.71	3.08	0.71	2.78	2.91	0.82	2.78	LE
22	Seminars	3.21	0.82	2.89	0.80	3.16	0.86	3.09	0.83	LE
23	Workshops	2.89	0.65	2.79	0.75	3.04	0.67	2.91	0.69	LE
24	Use of VCD	3.07	0.74	3.20	0.72	3.02	0.85	3.10	0.77	
25	Use of HVD	3.06	0.73	3.12	0.77	3.21	0.90	3.13	0.80	LE
26	Use of library materials	3.13	0.69	2.75	0.92	3.07	0.97	2.98	0.86	LE
27	Use of resource room/library	2.76	0.66	3.16	0.85	2.89	0.92	2.94	0.81	LE
28	Term paper writing	2.75	0.78	2.96	0.79	3.05	0.94	2.83	0.81	LE
29	Seminar papers	2.89	0.74	3.02	0.65	3.11	0.82	3.01	0.74	LE

Table 2. (*Continued*).

S/No	Reg. Meth of Teach. CRS	Undergraduate stu.		Univ. Lectures		Univ.Admin. Staff		Overall		Dee
		$\bar{x}1$	SD1	$\bar{x}2$	SD2	$\bar{x}3$	SD3	$\bar{x}4$	SD4	
30	Inter-departmental/Institutional debate	2.26	0.87	2.76	0.71	2.95	0.74	2.80	0.77	LE
	Grand Mean ($\bar{x}$)	2.88	0.74	2.96	0.77	2.99	0.88	2.95	0.85	LE

Table 2 above shows the mean and standard deviation responses of undergraduate students, University Lecturers and Administrative staff on the innovative strategies towards effective/futuristic pedagogy in Christian religious studies. The result shows that the overall mean (x) and standard deviation (SD) scores range between 2.74 and 3.13 and 0.69 and 0.86 respectively for the three groups. More so, the grand mean of 2.88, 2.99 of undergraduate students, university lecturers and university administrative staff respectively, with overall grand mean of 2.85 which were all above the benchmark of 2.50 indicated agreed to all the strategies investigated. Hence, these strategies were found to be viable enough for improving and increasing effective pedagogy in Christian religious studies.

Table 3. ANOVA Comparism of the mean responses of undergraduate students, university lecturer and university administrative staff on the strategies for ensuring innovative strategy towards effective/futuristic pedagogy in Christian religious studies.

Respondents	df	Sum Square (SS)	Mean Square (MS)	f-cal	Critical value	Signature	Dee
Between group	2	0.69	0.345	0.227	3.32	NS	Do not
Within group	2.27	343.83	1.52				Reject
Total	229	344.52					

The responses of the three groups of respondents were compared using one-way analysis of variance (ANOVA) and the result indicate that the calculated f-ratio of 0.227 is less than the *f*-table value (critical value) of 3.32 (see **Table 3**). Therefore, the null hypothesis is rejected, since the computed F is considered not significant. This implies that the three groups do not differ significantly in their opinion regarding the innovative strategies towards effective/futuristic pedagogy in Christian Religious Studies, as such, cloud computing would serve the purpose of increasing the standard of teaching and learning in Christian religious studies.

3.3. Major findings

(1) All undergraduate, university lecturer and administrative staff indicated that new and innovative strategy in teaching and learning processes is a necessary requirement for the effective/future studies and increase of interest of students and candidate to study Christian religious studies as an academic discipline.

(2) The study found that the 15 factors identified were viable innovative strategies towards effective/futuristic pedagogy in Christian religious studies.

4. Discussion of findings

The findings of the study indicate that the 15 items examined were predominantly categorized as being at a low level. This suggests that there is room for enhancement in the implementation of innovative strategies for more effective and forward-thinking pedagogy in the field of Christian religious studies. Consequently, it is recommended that the integration of cloud computing be considered as a means to facilitate the teaching and learning of Christian religious studies. This finding aligns with the research conducted by Larson and Murray [22], who argued that one of the fundamental goals of cloud computing is to enhance the quality of education. The adoption and implementation of cloud computing is a positive advancement, with the primary objective being accessibility for a wide range of users. Therefore, it is imperative to include Christian religious studies within this prevailing pattern. There is an expectation that the integration of cloud computing into the educational system can address the inherent challenges associated with the delivery of lectures across various disciplines. Larson and Murray [22] argue that cloud computing should encompass a hybrid learning approach in the field of education, wherein technology-facilitated instructional materials are combined with traditional in-person teaching methods. This implies that in situations where internet access is unavailable, which poses a significant challenge to the utilization of CC, alternative technological devices such as CDs, DVDs, or VHAs should be considered for adoption. This refers to the process of capturing online content using widely utilized devices, with the aim of enhancing educational practices and knowledge acquisition. Moreover, this implies that every academic discipline or department within Nigerian tertiary education can be effectively conveyed through the use of easily accessible, low-tech mediums such as CDs, DVDs, VHS tapes, and similar formats. This approach offers enhanced convenience and accessibility for both educators and students.

According to Fowora [23], it has been confirmed that instructional media has the potential to improve comprehensive understanding, retention, and recall. According to Akambi [24], it is suggested that students have the potential to acquire knowledge at a faster pace when oral presentations are supplemented with visual or tangible "objects" that they can perceive, physically interact with, or manipulate. According to Sutton [25], the utilization of ICT has the potential to enhance students' cognitive abilities by fostering higher order thinking, facilitating problem-solving skills, enhancing communication proficiency, and promoting a profound comprehension of the learning tools and concepts being taught. Cloud computing is enabled through the utilization of internet connectivity and the provision of unrestricted access to online resources for its user base. Hence, the utilization of ICT is integral and indispensable for its effective implementation. Hence, the significance of utilizing it for the instruction and acquisition of Christian religious studies cannot be overstated. According to Hawkins [26], it is aptly acknowledged that information and communication technology (ICT) has the potential to foster inclusive and interactive educational environments, facilitating the formation of supportive communities for teaching and learning. Additionally, ICT can serve as a valuable resource for students, including those with specific educational requirements. Similarly, Franke [27] proposed that computer graphics have been employed to depict various types of

relationships, particularly dynamic processes that cannot be effectively conveyed through individual images. According to Larson and Murray [22], in order to enhance comprehension and retention, course content can be effectively presented through the utilization of various technological tools such as computers, CDs, VCDs, and VHS. These resources can be incorporated as supplementary or blended open education resources.

Furthermore, the utilization of PowerPoint, along with visual aids such as field and animation effects, can enhance the presentation of various topics including the Ten Commandments, the Crossing of the Red Sea, the Exodus, the baptism of Jesus, the miracles of Jesus, and St. Paul's missionary journeys [28]. According to Bebia and Odey [28], the utilization of cloud computing in education can facilitate students' acquisition of knowledge pertaining to religion, as well as their learning derived from religious contexts. This is achieved through the provision of practical communicative skills, access to a diverse array of information and perspectives, and assistance in organizing, documenting, presenting, and exchanging research findings. Likewise, cloud computing has the potential to provide numerous advantages to the educational process across various academic fields. The internet can serve as a valuable tool for researching and exploring the diverse ways in which Easter and Christmas are observed across different cultures globally. By conducting research, gathering personal testimonies, collecting photographs, audio recordings, and video clips, and facilitating email correspondence with another educational institution to foster student engagement with peers from diverse nations, or utilizing email communication to connect with guest speakers, virtual excursions to various regions across the globe can be achieved. Additionally, the utilization of multimedia packages can be employed to enhance the presentation of new topics in a stimulating manner. This can be achieved through the incorporation of graphics, textual elements, and animated sounds.

Furthermore, the inclusion of digital photographs or videos can facilitate virtual visits to various locations or regions across the globe. This approach serves to augment subsequent work and enrich displays. This approach effectively promotes sustainable teaching and learning, assesses skills, and upholds the highest standards of global pedagogy.

In relation to research question two, the study revealed that the 15 factors identified in the research are viable strategies that have the potential to enhance effective pedagogy in the field of Christian religious studies. This aligns with the research conducted by Bebia and Odey [28], who argued that Cloud computing has the potential to facilitate comparative studies among students, enabling them to explore global practices, methodologies, analyses, and theories. The incorporation of this approach provides students with an additional motivating factor, as it increases the teacher's objectivity in delivering course material, in contrast to prevailing educational practices. Bebia and Odey [28] emphasize the significance of information and communication technology (ICT) in facilitating virtual experiences that can replace physical excursions or pilgrimages. They argue that through ICT, students can explore various religious sites, such as Jerusalem, and engage in activities such as studying the lives of saints and conducting independent theological analyses. This technology enables students to access a wealth of religious information and obtain

answers to basic religious inquiries without leaving the confines of the classroom. Cloud computing has provided various benefits to both educators and students.

Likewise, the implementation of cloud computing has the potential to significantly enhance user efficiency. This implies that educators utilize cloud computing to enhance their subject-specific knowledge and educational resources by leveraging internet resources, such as internet browsing and Google. According to Pranay et al. [29] and colleagues, it has been argued that the utilization of information and communication technology (ICT) has the potential to enhance the performance of both educators and learners. The utilization of cloud computing has the potential to improve the performance of both teachers and students, leading to increased interest and effectiveness in the field of Christian religious studies. The utilization of cloud computing in both instructional and administrative tasks is praiseworthy, as it demonstrates the capacity of teachers to effectively employ ICT tools, such as cloud computing, to support their administrative and instructional responsibilities. Consequently, the presence of cloud computing in educational institutions becomes imperative.

5. Recommendations

In order to achieve optimal and sufficient enhancement in the utilization and integration of Cloud Computing in the educational context of tertiary institutions in Nigeria, the subsequent suggestions are emphasized:

It is imperative that the appropriate authorities ensure the provision of contemporary computer laboratories within educational institutions at the collegiate and university levels. It is recommended that governmental entities at various levels provide financial assistance in the form of subsidies to institutions, teachers, and students for the purpose of acquiring computers. This initiative would facilitate the utilization of computers in educational settings, both within schools and at home, thereby promoting increased productivity within the educational system.

The integration of blended teaching and learning methodologies should be considered for implementation in colleges and universities that lack access to internet devices. In a similar vein, additional electronic devices such as VCDs, DVDs, and HVDs could be employed for the purpose of capturing instructional content in situations where internet connectivity is unavailable.

It is imperative for the government to formulate a comprehensive information and communication technology (ICT) policy specifically tailored for tertiary education in Nigeria.

It is recommended that educational institutions, specifically colleges and universities, consider retrofitting their classrooms to incorporate ICT/cloud computing facilities in order to enhance their instructional capabilities.

Regularly conducting seminars and workshops is essential to ensure that teachers and students acquire the highest level of proficiency in utilizing ICT/OERS/cloud computing for educational purposes.

The integration of ICT, open education resources, and cloud computing in the education system necessitates a reliable supply of electricity. Therefore, it is

imperative for the Nigerian government to intensify its efforts in providing electricity across the nation, ensuring its widespread availability.

In order to ensure a secure evaluation of cloud computing options, the higher education institutions in Nigeria should establish clear requirements and give careful consideration to essential privacy and security concerns when assessing vendors and implementing service agreements. It is imperative for individuals to thoroughly examine the essential contractual provisions and stipulations within the rapidly evolving domain. When considering enterprise ICT decisions, cloud computing introduces a multitude of legal concerns.

Ensuring a global equilibrium in the accessibility of information and resources for users of Open Educational Resources (OERs) and cloud computing is imperative. In order to cater to a diverse audience, it is imperative for online materials to incorporate both local and global content that appeals to individuals regardless of their linguistic or cultural background.

The implementation and sustainability of a fifth-generation (5G) network in Nigeria is crucial for the improvement of internet accessibility and availability.

6. Conclusion

The utilization and attainment of information and communication technology (ICT) knowledge is a prevailing inclination aimed at enhancing the pedagogical practices and educational processes. The utilization of Information and Communication Technology (ICT) yields significant advantages, encompassing the acquisition of up-to-date knowledge, effective problem-solving, data generation for research purposes, and the facilitation of engaging and captivating teaching and learning experiences. Additionally, ICT enables individuals to access a broader range of ideas and global best practices, among other benefits. Therefore, it is imperative to promote the utilization of cloud computing in the educational context of Christian religious studies.

Cloud computing represents a transformative strategy in pedagogy, particularly within Christian religious studies. By facilitating collaboration, enhancing resource accessibility, and promoting innovative teaching methods, cloud technologies have the potential to significantly enrich the learning experience. Future research should focus on developing frameworks to overcome existing challenges and explore the integration of emerging technologies. Cloud computing in Christian religious studies highlights how the technology not only enhances access to resources but also promotes collaboration, engagement, and ultimately better learning outcomes for students. The integration of cloud solutions has proven to be a significant catalyst for pedagogical innovation in learning outcomes in practical applications.

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