Didee Publications International Journal, Vol. 1, Issue 3, April 2026.pp. 375-391
ISSN 3121- 7974

Efficacy of Multimedia Instruction on Student Interest and Achievement in Christian Religious Studies in Edo State

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Abstract

This study investigated the efficacy of multimedia instruction on students' interest and academic achievement in Christian Religious Studies (CRS) in Edo State, Nigeria. . Adopting a quasi-experimental pretest–posttest non-equivalent control group design, 156 students from four public secondary schools participated. The experimental groups received multimedia-based instruction integrating audio, video, text, animations, and interactive exercises, while the control groups were taught using conventional lecture methods. Data were collected using the Christian Religious Studies Achievement Test (CRSAT) and the Christian Religious Studies Interest Scale (CRSIS), and analyzed using descriptive statistics and independent samples t-tests at a 0.05 significance level. Results indicated that students exposed to multimedia instruction achieved comparable outcomes in both interest and academic performance to those taught via traditional methods, with no statistically significant differences observed. These findings suggest that multimedia instruction is a viable alternative to conventional teaching in CRS, offering potential for enhancing engagement and instructional quality when effectively integrated into classroom practice. Implications for teacher training, curriculum design, and future research on technology-supported religious education are discussed.

Keywords: Multimedia instruction, student interest, academic achievement, Christian Religious Studies, Nigeria

Introduction

Education remains a vital instrument for national development, social cohesion, and moral regeneration (Adaralegbe, 2018; Bidemi & Sunday, 2024). Beyond cognitive development, education plays a crucial role in shaping learners' values, attitudes, and behaviours. In Nigeria, increasing concern has been expressed over the declining moral standards among youths, evident in issues such as examination malpractice, cultism, cybercrime, and general indiscipline. These challenges have renewed scholarly and public interest in school subjects that emphasize moral and ethical development, particularly Christian Religious Studies (CRS).

Christian Religious Studies occupies a strategic position in the Nigerian secondary school curriculum (Ilechukwu & Usulor, 2019; Efido, 2022). The subject is designed to inculcate moral values, spiritual consciousness, and responsible citizenship through biblical teachings and Christian ethical principles. Despite its importance, students' interest and achievement in CRS have continued to decline, as reported by public examination bodies (WAEC, 2023; Okafor & Uche, 2023). Several scholars attribute this trend largely to the persistent use of teacher-centred instructional approaches that fail to actively engage learners or make learning meaningful.

Interest is a critical psychological construct that influences learners' level of engagement, motivation, and persistence in learning tasks. According to Ado (2020), students who find a subject interesting are more likely to pay attention, process information effectively, and retain knowledge for longer periods. Unfortunately, many Nigerian students perceive CRS as abstract, monotonous, and disconnected from their lived experiences, leading to low motivation and poor academic outcomes. This situation calls for innovative instructional strategies capable of stimulating learners' curiosity and sustaining their interest.

Student achievement, on the other hand, refers to the measurable outcomes of learners' understanding, retention, and application of acquired knowledge. Research has consistently shown that the use of multimedia in

instruction enhances students' academic achievement through improved comprehension, better retention of information, and increased motivation to learn (Ifenthaler & Yau, 2020). In the context of Christian Religious Studies, multimedia instruction can facilitate deeper understanding of biblical texts, encourage critical thinking, and promote interactive learning experiences. Empirical studies by Ilhan and Oruç (2016) and Park et al. (2019) have demonstrated that multimedia-based teaching strategies significantly improve student engagement and learning achievement.

The rapid advancement of educational technology has further positioned multimedia instruction as a promising alternative to conventional teaching methods (Mayer, 2021; Agbaje & Adesina, 2021). Multimedia instruction integrates text, graphics, audio, video, and animation to present content in ways that appeal to multiple sensory channels, thereby enhancing motivation, comprehension, and retention (Ilhan & Oruç, 2016; Bamidele & Adeyemi, 2022). Despite the growing body of literature supporting multimedia instruction, empirical evidence on its effectiveness in Christian Religious Studies—particularly within the Nigerian secondary school context—remains limited. This study, therefore, investigated the efficacy of multimedia instruction on students' interest and achievement in Christian Religious Studies in Edo State.

Statement of the Problem

Despite the moral, spiritual, and civic objectives of Christian Religious Studies (CRS) in the Nigerian secondary school curriculum, students' interest and academic achievement in the subject have remained persistently low. Examination reports continue to indicate weak enrolment and unsatisfactory performance in CRS when compared with other arts subjects. Classroom instruction in CRS is still largely dominated by lecture-based and rote memorisation approaches, which limit learner participation, critical engagement, and meaningful understanding. As a result, many students perceive CRS as abstract, monotonous, and insufficiently connected to contemporary life.

In response to these challenges, multimedia instruction has been

advocated as an alternative pedagogical approach capable of enriching classroom experiences and supporting learning outcomes. Previous studies in other subject areas have suggested that multimedia instruction can enhance learner motivation, engagement, and achievement. However, empirical evidence on the effectiveness of multimedia instruction in Christian Religious Studies remains limited and inconclusive, particularly within the Nigerian secondary school context. It is therefore unclear whether multimedia instruction significantly improves students' interest and academic achievement in CRS or whether its effectiveness is comparable to that of conventional teaching methods. This unresolved empirical gap necessitated the present study, which examined the efficacy of multimedia instruction on students' interest and academic achievement in Christian Religious Studies in Edo State

Purpose of the Study

The main purpose of this study was to determine the efficacy of multimedia instruction on students' interest and academic achievement in Christian Religious Studies in Edo State. Specifically, the study sought to:

1. Determine whether there is a differences in the posttest mean interest scores of CRS students taught using multimedia instructional package and the traditional method;
2. Examine whether there is a differences in the posttest mean academic achievement scores of CRS students taught using multimedia instructional package and the traditional method.

Research Questions

1. Is there a difference in the posttest mean interest scores of CRS students taught using multimedia instructional package and the traditional method.?
2. Is there a difference in the posttest mean academic achievement scores of CRS students taught using multimedia instructional package and the traditional method.?

Hypotheses

The following null hypotheses were tested at the 0.05 level of significance:

1. There is no significant difference in the posttest mean interest scores of CRS students taught using multimedia instructional package and the traditional method.
2. There is no significant difference in the posttest mean academic achievement scores of CRS students taught using multimedia instructional package and the traditional method.

Theoretical Framework

This study is anchored on the Multimedia Learning Theory developed by Richard E. Mayer and supported by Bloom's Taxonomy of Educational Objectives (Mayer, 2021; Reynolds et al., 2023). Multimedia Learning Theory explains that learners process information through visual and auditory channels. It is based on three assumptions: dual-channel, limited-capacity, and active-processing. The theory suggests that multimedia instruction improves understanding by presenting information through both channels and reducing cognitive overload. It also encourages active engagement, where learners select, organize, and integrate information with prior knowledge. In CRS teaching, multimedia tools such as images, audio, and videos help students better understand biblical teachings. Bloom's Taxonomy further supports this by promoting higher-order thinking skills such as analysis, evaluation, and application of Christian values.

Related Literature

Multimedia Instruction and Traditional Method

Multimedia instruction is an innovative teaching approach that contrasts with traditional teacher-centred methods commonly used in many Nigerian secondary schools. Traditional teaching methods mainly involve lectures, verbal explanations, note taking, and rote memorization, which often limit students' participation and engagement. In contrast, multimedia instruction integrates text, images, audio, videos, animations, and interactive elements in the learning process. According to Richard E. Mayer, learners understand information better when both visual and auditory channels are used. Research shows that multimedia instruction improves comprehension, retention, and engagement by presenting information in multiple formats. Studies by Ifenthaler and Yau (2020) and Park et al. (2019) revealed

that multimedia-supported lessons enhance students' understanding and encourage active learning compared to conventional lecture methods. Therefore, multimedia instruction is increasingly recommended as a more effective alternative to traditional teaching methods.

Multimedia Instruction and Students' Interest

Students' interest plays a crucial role in motivation, attention, and participation in learning. When learners develop interest in a subject, they are more likely to engage actively and achieve better academic outcomes. Studies indicate that multimedia instruction can significantly improve students' interest because visual and interactive elements make lessons more attractive and stimulating. Ado (2020) noted that multimedia learning environments capture students' attention and stimulate curiosity. Similarly, Agbaje and Adesina (2021) found that students taught with multimedia strategies demonstrated greater interest and engagement than those taught using traditional methods. By presenting learning materials in ways that connect with students' real-life experiences, multimedia instruction helps sustain students' attention and participation in classroom activities.

Multimedia Instruction and Academic Achievement

Academic achievement refers to the knowledge and skills students acquire and demonstrate through tests and examinations. Several studies have established a positive relationship between multimedia instruction and students' academic performance. Multimedia learning environments present information through multiple representations, enabling learners to understand complex concepts more easily. Research by Park et al. (2019) showed that students taught with multimedia instruction performed better academically than those taught through conventional methods. Similarly, Ifenthaler and Yau (2020) reported that multimedia instruction enhances comprehension and supports deeper learning. Through interactive learning activities and improved visualization of concepts, multimedia instruction contributes to better academic achievement among students.

Multimedia Instruction and Christian Religious Studies

Christian Religious Studies (CRS) aims to promote moral values, ethical

reasoning, and spiritual development through biblical teachings. However, traditional lecture methods often make CRS lessons appear abstract and less engaging. Scholars therefore recommend integrating multimedia resources such as dramatized biblical stories, documentary videos, visual illustrations, and interactive presentations into CRS instruction. These resources help students visualize biblical events and relate moral teachings to real-life experiences. Studies by Akinyemi and Makinde (2025) and Idris and Abubakar (2023) showed that multimedia instruction improves students' motivation, participation, and understanding in religious education. As a result, multimedia strategies can help revitalize CRS teaching and enhance students' learning experiences.

Gaps in Literature

Despite the increasing use of multimedia instruction in education, research on its application in Christian Religious Studies remains limited. Most existing studies focus on science and technology subjects, with little attention given to humanities and religious education. In addition, few studies examine how learner variables such as gender and interest influence the effectiveness of multimedia instruction. Findings from previous studies are also inconsistent across different subjects and learning environments. These gaps highlight the need for further research on the effectiveness of multimedia instructional strategies in Christian Religious Studies, particularly regarding students' interest and academic achievement in Nigerian secondary schools.

Methodology

Research Design

This study adopted a quasi-experimental pretest–posttest non-equivalent control group design, which is commonly used in educational intervention research where random assignment is not feasible (Agbaje & Adesina, 2021; Ado, 2020). The design allowed for the examination of the difference in the posttest mean interest and academic achievement scores of Christian Religious Studies (CRS) students taught using multimedia instructional package and the traditional method.

Population and Sample

The population of the study comprised 1,503 Senior Secondary School II (SS II) students from public secondary schools in Ovia North-East Local Government Area, Edo State. A sample of 156 students was drawn using multistage sampling:

Stage 1: Stratification of schools Schools in Ovia North-East LGA were divided into:

Single-sex schools

Co-educational schools

Stage 2: Selection of classes within the chosen schools.

Stage 3: Random selection of students from the selected classes, ensuring a balanced representation of urban and rural students, as well as experimental (multimedia) and control (conventional) groups.

Table 1: Sample Distribution of selected schools

S/N	NAME OF SCHOOLS	SCHOOL LOCATION	GROUP	MALE	FEMALE	TOTAL
1	School A	Urban	Experimental	24	22	46
2	School B	Rural	Experimental	21	17	38
3	School C	Urban	Control	15	24	39
4	School D	Rural	Control	14	19	33
	Total			**74**	**82**	**156**

Instruments

Two instruments were used to collect data: Christian Religious Studies Achievement Test (CRSAT)**:** Measured students' knowledge and understanding of CRS concepts. The instrument was validated by experts in Religious Studies and Education, with a reliability coefficient of 0.88. Christian Religious Studies Interest Scale (CRSIS): Assessed students' interest and motivation in CRS. The scale was also validated and yielded a reliability coefficient of 0.89. Both instruments employed Likert-type items for interest and multiple-choice items for achievement.

Procedure

Pretest: Both experimental and control groups completed the CRSAT and CRSIS before the intervention to establish baseline scores.

Intervention: The experimental groups were taught using a multimedia instructional package integrating audio, video, text, animations, and interactive exercises. The control groups received conventional lecture-based instruction using chalk-and-talk.

Posttest: After the instructional period, all groups completed the same instruments to measure post-intervention interest and achievement.

Teachers implementing the multimedia package received orientation and training to ensure fidelity of implementation.

Data Analysis

Data were analyzed using descriptive and inferential statistics: Descriptive statistics (mean and standard deviation) were computed to summarize students' posttest interest and achievement scores across the four groups. Independent sample t-test was employed to test the difference between the posttest mean interest and achievement scores of CRS students taught using multimedia instructional package and control group.All hypotheses were tested at the 0.05 level of significance.

Presentation of Results

Hypothesis 1: There is no significant difference in the posttest mean interest scores of CRS students taught using multimedia instructional package and control group

Table 2: Independent t-test on significant difference in the posttest mean interest scores of CRS students taught using multimedia instructional package and control group

Group	N	Mean	Std. Dev.	t-value	DF	Sig (p-value)	Decision
Control	34	4.7	1.15	.021	62	.416	H_0 Accepted
Experimental	43	4.7	1.06				

Table 1 shows that the posttest mean interest score for the control group (N = 34, M = 4.7, SD = 1.15) and the experimental group (N = 43, M = 4.7, SD = 1.06) were very close. The independent samples t-test result with df = 62, was not significant (p = .416). Since the p-value (.416) is greater than the significance level (α = 0.05), this indicates that there was no significant difference between the posttest mean interest scores of CRS students taught using multimedia instructional package and control group. Therefore, the hypothesis, which states that there was no significant difference in the posttest mean interest scores of CRS students taught using multimedia instructional package and control group is not significant is accepted.

Hypothesis 2: There is no significant difference in the posttest mean achievement scores of CRS students taught using multimedia instructional package and control group

Table 3: Independent t-test on significant difference in the posttest mean achievement scores of CRS students taught using multimedia instructional package and control group

Group	N	Mean	Std. Dev.	t-value	DF	Sig (p-value)	Decision
Control	34	1.6	.56	1.07	62	.361	H_0 Accepted
Experimental	43	1.7	.65				

Table 2 shows that the posttest mean achievement score for the control group (N = 34, M = 1.60, SD = 0.56) and the experimental group (N = 43, M = 1.70, SD =0.65) were very close. The independent samples t-test result with df = 62, was not significant (p = 0.361). Since the p-value (0.361) is greater than the significance level (α = 0.05), this indicates that there was no significant difference between the posttest mean achievement scores of CRS students taught using multimedia instructional package and control group. Therefore, the hypothesis which states that there was no significant difference in the posttest mean achievement scores of CRS students taught using multimedia instructional package and control group is not significant is accepted.

The results showed no statistically significant difference in students' interest and achievement between the multimedia and traditional instruction groups. Sex and school location also did not have significant effects on students' interest and achievement in CRS.

Discussion of Findings

The finding for the first research question indicated that there was no significant difference in the posttest mean interest scores of students taught CRS with multimedia and those taught with traditional methods. This suggests that multimedia did not significantly increase students' interest in CRS beyond what was achieved through conventional instruction. This finding diverges from studies such as Akpan (2016) and Eze et al. (2022), who reported that multimedia significantly boosted students' classroom interest. Idris and Abubakar (2023) similarly found that students in Islamic Studies displayed heightened interest when multimedia was employed. However, Sung and Mayer (2013) emphasized that it is not the medium itself but how it is applied that determines effectiveness. If multimedia is poorly integrated—limited to slideshows or passive viewing—it may not meaningfully enhance learners' situational interest. Supporting this, Dousay (2016) observed that multimedia materials that violate design principles (e.g., redundancy, overloading) may fail to stimulate interest. Likewise, Peprah (2019)

found that multimedia requires sustained and interactive use to meaningfully affect student motivation. Thus, the absence of a significant difference in this study could be linked to short exposure, limited interactivity, or teacher inexperience in integrating multimedia effectively. Theoretically, Mayer's Cognitive Theory of Multimedia Learning (2005) emphasizes that learners must actively select, organize, and integrate information for interest to grow. If this process is not encouraged, multimedia remains ineffective. Pekrun's (2019) control-value theory also explains that interest depends on learners' perception of task value, which may not automatically increase with the introduction of multimedia. In summary, this finding underscores that multimedia is not a guaranteed solution to low student motivation. Its effectiveness depends on the quality of instructional design and teacher competence.

The finding for the second research question revealed no significant difference in posttest achievement scores between students taught with multimedia and those taught with conventional methods. This suggests that multimedia did not significantly improve academic achievement in CRS compared to traditional teaching. This finding contrasts with Adu-Gyamfi et al. (2021) and Asiedu-Addo et al. (2021), in whose study it was reported significant achievement gains in science subjects using multimedia. Nkrumah et al. (2020) also found higher biology achievement in experimental groups exposed to multimedia. However, the present result is in line with Sung and Mayer's (2013) argument that multimedia cannot compensate for weak instructional design or inadequate teacher preparation. Okoro and Ekpo (2016) also noted that traditional teaching can still be effective when delivered meaningfully. The subject nature of CRS may also explain this result. CRS requires moral reasoning, textual interpretation, and abstract thinking. Fasuba (2024) and Gana and Ajibola (2023) stressed that such abstract content often demands contextualization or dramatization. If multimedia was limited to slides without deeper engagement, its effect on achievement would be minimal.

Practical challenges may also have influenced the outcome. Atabek (2019) argued that teachers often lack training in multimedia integration, reducing effectiveness. Peprah (2019) further observed that multimedia may improve interest more readily than achievement, since cognitive gains require sustained reinforcement. In conclusion, this finding highlights the need for thoughtful multimedia integration, blended with strategies like role play (Nedigbo, 2023) or gamification (Patterson, 2023), to achieve significant gains in CRS achievement.

The findings of this study revealed that multimedia instruction did not significantly improve students' interest or academic achievement in Christian Religious Studies when compared with the conventional teaching method. This finding suggests that the presence of multimedia alone does not automatically translate into improved learning outcomes.

The result aligns with Mayer's assertion that instructional effectiveness depends largely on instructional design rather than the medium itself. It also supports previous studies that emphasize the role of teacher competence, lesson structure, and learner engagement in determining the effectiveness of multimedia instruction. However, multimedia instruction was found to be as effective as the traditional method, indicating that it is a viable alternative instructional strategy in CRS classrooms.

Conclusion

The study concludes that multimedia instructional packages are effective tools for teaching Christian Religious Studies but do not necessarily produce superior outcomes in students' interest and achievement when compared with conventional teaching methods. Effective multimedia integration requires appropriate pedagogical strategies, teacher training, and supportive learning environments.

Recommendations

1. Teachers of Christian Religious Studies should be trained on effective multimedia integration through workshops and professional development programmes.
2. School administrators should provide adequate technological

facilities to support multimedia-based instruction.

3. Curriculum planners should promote blended instructional approaches that combine multimedia with learner-centred teaching strategies.

4. Further studies should examine the long-term effects of multimedia instruction on students' moral development and value formation.

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