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EFFECT OF FLIPPED CLASSROOM INSTRUCTIONAL METHOD ON UPPER BASIC PUPILS ACADEMIC ACHIEVEMENT IN CHRISTAIN RELIGIOUS KNOWLEDGE IN OWERRI MUNICIPAL COUNCIL, IMO STATE.

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Abstract

The study investigated the effect of Flipped classroom instructional strategy on upper basic two (junior secondary school two) students' achievement in Christian religious knowledge. The study adopted a quasi-experimental control design, specifically the pre-test post-test non-equivalent control group design. Two research questions were posed and one hypothesis formulated to guide the study which was carried out in 2 schools in Owerri Municipal Council Area in Owerri Educational Zone2 of Imo State. Eighty (87) JSS two students were used for the study. The study is a quasi- experimental study which employed pretest posttest control design and a 2x1 factorial design. Instrument used for data collection was Christian religious knowledge achievement Test (CRKAT) developed by the researchers. SSAT was validated by three experts and the reliability coefficient using Kuder Richardson (KR-20) was found to be 0.76. Mean and standard deviation were used to answer the research questions while Analysis of covariance (ANCOVA) statistics was used to test the hypothesis at 0.05 significance level. The result revealed that method was a significant factor on students' achievement in Basic science. Thus, it was confirmed that students taught Christian religious knowledge using Flipped classroom instructional strategy performed better than those taught using the lecture method. It was recommended among others things, that efforts should be made by curriculum experts to incorporate Flipped classroom teaching strategy into the teaching of Christian religious knowledge.

Keywords: Flipped classroom, Christian religious knowledge, Upper basic, Academic achievement

1.0 Introduction

Nigeria is presently experiencing corruption alarming dimension terrorism/violence seems to be a reoccurring decimal. To the extent that killings and destructions are common daily occurrence. And sanctity of human life seems to be lost. Cases of insecurity, kidnappings, arsons and armed robbery are prevalent. And most of these crimes are being perpetuated by youths who lack adequate moral upbringings in their teens (Yaro, 2020). This means that the spiritual drive of the youth is weak while the moral life of the students in the school is similarly decaying. The ripple effect is morally bankrupt society at the mercies of all contemptible ills. This evident moral bankruptcy youth especially school pupils; one may wonder the positive effect of subjects offered in the pupils in their basic education.

Basic education in Nigeria is the education that encompasses all levels of education exposed to a child from the six-year primary school to the end of the three-year junior secondary school at the formal school level. In the non-formal, it includes basic functional literacy and post-literacy programmes prearranged for children, youths and adults out of school. National Policy on Education (FME, 2013), sees basic education, as the education targeted at every child for free, universal and compulsory basic education irrespective of age, sex, ethnic or religious backgrounds, language or status. NERDC, (2007) states that basic education in Nigeria was designed to eradicate illiteracy, enhanced effective communication skills in pupils, enlightens young learners on their rights, improve the

learning skills of young learners on key subjects that would be of unlimited significance to them in the future. She further added, that basic education in Nigeria is also meant to educate pupils to healthy habits that would prevent sickness and any form of disease. It also has positive impact on democracy, human rights, moral rectitude, governance and political stability through increased understanding of non-violent ways to solve problems and mutual understanding between groups in conflict.

It seems that the basic education has not achieved its goals of developing pupils' ability to attain intellectual and moral perfection, discipline both mentally and morally so as to face their daily and future challenges as good citizens (Yaro, 2020). The subjects that focused on intellectual and moral rectitude, pious like attitudinal change are Christian religious knowledge and Islamic studies, but in this paper we are focusing on Christian Religious knowledge. It is on this basis that we examined the aims of Christian religious knowledge in upper basic education.

The major aims of inclusion of CRK in Nigerian school curriculum are as follows as articulated by Odo and Eze, (2017), are:

- i. To raise a generation of people who can think for themselves.
- ii. To raise people that can respect the views and findings of others.
- iii. To raise people that respect dignity of labour.
- iv. To raise people that can respect moral values stated in the national aims as good citizens.

- v. To prepare learners for useful living through inculcation of Christian attitudes and values.
- vi. To prepare learners for their salvation in heaven with God Almighty.
- vii. To prepare learners for useful life of peaceful coexistence in the society.
- viii. To prepare learners to be able to adapt to a new of Jesus Christ to be able to love one another as Christ did.
- ix. To prepare learners to practice Christian discipline and molding of moral characters.
- x. To shape the human behaviour and moral values

Widespread moral decadence in our society questions unanswered leaves on effectiveness in teaching and learning of Christian religious knowledge in inculcating moral values to pupils. Studies by Njoku and Njoku (2015) revealed that poor teaching methods and poor interest in the subject by the students are some of problems facing the teaching and learning of CRK. One may wonder why students do not have interest in the subject irrespective of its relevance to students' moral and spiritual wellbeing. This might have been the root cause of moral decadence in the society as research has also shown that students performed poorly in Christian religious knowledge external examinations like WASCE and NECO (Yaro, 2020)

The observed poor performance of students may be attributed to a number of factors, one of which is the use of poor, ineffective traditional method in teaching. Confirming the interrelationship between methods used in teaching and student' academic achievement Egbai and Eke (2022) assert that method used in teaching can stimulate interest and zeal to learn or destroy interest.

All so studies have indicated that teachers in Nigerian secondary schools use lecture method in lesson delivery (Izuagba, 2011& Eke, 2018; & Ugonna & Nwachukwu, 2020 & Egbai and Eke (2022). Lecture method allows a great deal of information to be passed on and favours handling of large classes. In spite of this advantage, the lecture method does stimulate not students' critical thinking, innovation, inquiry, interpersonal skills and scientific attitudes. It encourages students to cram facts which are easily forgotten. It also encourages unhealthy competition among students (Eke, 2018). It could be that appropriate teaching strategies that will activate students' interest and arouse their moral consciousness have not yet been adopted in teaching and learning of Christian religious knowledge in Upper basic class. It is in the light of this that this work investigated the effect of flipped classroom teaching strategy on upper basic pupils' academic achievement in Christian religious knowledge.

Educators have long sought effective methods of instruction that will enhance positive interpersonal attitudinal skills, intellectual abilities and manipulative skills especially now that peace seems to be elusive in our country Nigeria and violent crimes are common place. Egbai and Eke (2022) suggested the use of active learning strategies that that will bring about the needed positive intellectual and social-personal change in the learner. These

instructional strategies should be identified and use for all round educational attainment of the learner. Flipped classroom teaching strategy has been identified to have positive effects on enhancing students' cognitive abilities. encouraging positive attitudinal interpersonal skills among enhance learners also learners' manipulative skills and reflective thinking (Bishop & Verleger, 2013) Although this has been found to be effective in other subjects like English language, economics and Chemistry (Bae, Walker & Driessen, 2014; Butt; 2014 & Hung, 2015). There is no research work to the best knowledge of the researchers on its effectiveness when used in teaching and learning of Christian religious knowledge. It is on these bases that the researchers investigated the effect of flipped classroom teaching strategy on upper basic pupils' academic achievement in CRK.

The flip classroom is an innovative instructional method. It is a type of blended learning where traditional face to face teaching is reversed (Odo & Eze, 2017). In flipped classroom, the classroom based activities like laboratory activities, problem solving, group work, and so on are taught using traditional methods through flipping the procedure of making related homework outside the learning environment (Roehl, Reddy & Shannon, 2013). Flipped classroom is also a blend of technology and student-centered learning. It is a teaching method that increases classroom and out-ofclass productivity. The flipped classroom is structured on constructivist learning theory (Bishop & Verleger, 2013). In this theory, learners construct their own meaning based on their prior knowledge. The students are actively involved in the learning process. In this process, instead of giving direct information to learners, an enabling and appropriate learning environment is created for learners to reconstruct and develop their knowledge (Ogbu, 2018). The out-of-class learning process in flipped classroom is based completely on self-regulated learning.

In flipped classroom, students learnt at home through engaging on content knowledge, tasks and exercises given to them by their teacher and exposed to the assignment model at school (Demiralay, 2014). The flipped classroom, which is an innovative learning model, is different from the traditional face-to-face learning method in the sense that students learn their lessons whenever and wherever they want before coming to school. Consequently, teachers usually prepare their lesson contents through digital materials and support their students to access these materials prior to lessons. With this, students access the related lesson contents with their teachers' instructions. The contents are made available to them before lessons. Challenging, abstruse. difficult issues that cannot be adequately internalized are noted and posed to teachers and peers through face to face contact or through electronic medium. Also, with this process the flipped classroom addresses students' cognitive differences as individual students can learn at their own pace. In the classroom students will have more time to focus on the activities and applications supporting the issue and will participate in teaching-learning process the more effectively and efficiently (Abeysekera and Dawson, 2014 and Baker, 2000). Flipped classroom provides students new

opportunities for the subjects' contents which are not learned in a classroom environment but through flipped classroom technology (Kim, Park and Joo, 2014). Bergmann and Sams (2012), who are the pioneers of the flipped classroom, indicate that this method does not just mean video lessons, the main point in this method is the significant and interactive activities directed in lessons. The advantages of this model include its: student-centeredness, supportive active learning, increase class study time, provision of richer and more flexible learning environment through technological infrastructure adoption of blended learning. The successful application of this model hinge on understanding students' perceived value with regard to in class and out-of-class study time, their challenges in learning activities, relationships and interactions with their friends and teachers. It also includes their attainments and feelings resulting from training, involvement and difficulties faced in these activities (Kim, Park and Joo, 2014).

responsibility Planning and are two requirements for effective flipped classroom. Student implementation vis-à-vis learned activities can be supported by the use of a flipped classroom model. Also, all levels of Bloom's Taxonomy can be achieved. The outside classroom content should have made to suit the lower levels of Bloom's Taxonomy, such as understanding and remembering, and inside classroom content should suit the higher order levels, such as creating, evaluating, analyzing and applying (See & Conry, 2014). Kim, Kim, Khera and Getman (2014) are of the views that the principles guiding flipped classroom should involve provision of an opportunity for students to gain preliminary information

before the class activity, encouraging students to watch online lectures and be prepared before the class activity, organizing methods of assessment and linking in-class activities with out-of-class activities. It also includes supplying clearly stated and well organized guidance, providing sufficient time for the completion of assignments, promoting students to build a learning community, providing immediate feedback on individual or group works and providing the use of familiar technologies which can be accessed easily by students. Enfield (2013)expounded that students stimulated to move out of the classroom to learn anytime and anywhere by flipped classroom approach. The most suitable study strategy can be chosen and used by students while moving at their own pace through the instruction. Hung (2015) demonstrated that participation, satisfaction and students' performance showed a positive change after taking part in this pedagogical approach.

Several studies have indicated the positive effect of flipped classroom on students' academic achievement. Baepler, Walker: and Driessen (2014) applied the flipped classroom model to a Chemistry class and investigated the effect of sex on decreasing the seating time inside a conventional amphitheater lecture hall. The findings of the study showed that learning outcomes were achieved by students at least as good as in the traditional classroom but sex has no significant influence on students' achievement in chemistry and their decreasing seat time inside a conventional amphitheater hall. Butt (2014) studied a flipped classroom approach by inverting classroom materials with after-class materials of a final year actuarial course.

Student views were obtained at the start and end of the semester regarding the flipped classroom structure. At the end of the study, it was found that there was a significantly positive change in student views towards the flipped classroom approach. Hung (2015) examined the possible impacts of flipping the classroom on English language learners' academic performance, learning attitudes and participation levels. Three different formats of flipped teaching were applied and it was found that the structured and semi-structured flipped lessons became more effective than the non-flipped lessons.

In Nigeria, Balaban, (2016) stated in his findings that the flipped classroom instructional format enhances learners' achievement than traditional method when taught the principles of economics course. Furthermore, Odo and Eze, (2017) stated in their findings that students exposed to computer science in tertiary institution using Flipped Classroom method had higher achievement score than those taught with method. It is seen from the traditional above literature that studies on effect of Flipped classroom on students' academic achievement on different fields abound. However, the study on upper basic 2 students' academic achievement in Owerri Municipal council is lacking. It is on this basis, that the researchers investigated the effect of flipped classroom on academic achievement of students in Christian religious knowledge in Owerri Municipal Council.

The general purpose of the study was to determine the effect of Flipped classroom instructional strategy on upper basic two (JSS2) students' achievement in Christian religious knowledge. Specifically, the study intended to determine the effect of Flipped classroom instructional strategy on JS2 students' achievement in Christian religious knowledge. The inclusion of sex as a moderator variable was to determine any differences that may be attributed to it in the study.

Research questions

The following research questions guided the work:

- 1. What is the difference between Flipped classroom strategy and lecture teaching method on upper basic two students' post-test achievement scores Christian religious knowledge?
- 2. What is the difference between the post-test mean of Christian religious knowledge scores of male and female upper basic two students (on CRKAT) taught CRK using Flipped classroom and Lecture method?

HO1 tested at 0.05 level of significance was formulated for the study;

HO1: There is no significant difference in the Post-test mean achievement scores of upper basic two students taught Christian religious knowledge using Flipped classroom and those taught with Lecture methods.

Research method

The study adopted the quasi-experimental design. Specifically, it used pre-test, post-test, non-equivalent control group design. The use of the design was justified by the fact that intact classes that were not equivalent were used.

The population of this study consisted of all the (JSS2) upper schools in Owerri Municipal Council of Imo State, totaling 2,431 students (two thousand, four hundred and thirty-one) in the 2019/2020 academic session, (Imo State Universal Basic Education Board,2021).

The sample consists of eighty-seven students; one class from each of the 2 schools purposively selected out of the seventeen (17) Government owned upper basic schools in Owerri Municipal Council. The classes' population distribution is 43, and 44. In each school, one intact class was used. The experimental sample (N=43) while the control sample (N=44).

Christian religious knowledge Achievement Test (CRKAT) was used for data collection. The (CRKAT) is a 20- item multiple test developed by the researcher using Upper basic 2 past question papers and Christian religious knowledge text books. The contents taught in the lessons were derived from upper basic 2 Christian religious knowledge curriculum.

The research instruments alongside with the purpose of the study, research questions, research hypothesis and lesson plans were face validated by two experts in the Department of Measurement and Evaluation and two experts from Department of Curriculum studies (religion background), School of Education, Michael Okpara University of Agriculture, Umudike. The instrument, Christian religious knowledge Achievement Test (CRKAT) was subjected to trial testing outside the study area. Kuder Richardson (KR-20) was used to determine the reliability of the Christian religious

knowledge Achievement Test which was 0.78.

Two instructional approaches were employed for this study. The first approach was the use of Flipped classroom teaching strategy while the second was the Lecture method. The two approaches were identical in terms of content coverage, time and mode of evaluation. The only difference was in instructional activities where Flipped classroom instructional strategy deviated from Lecture approach by the reversal mode of its instructional delivery activities and engagement of constructivist principles and theories during instructional process. Flipped classroom was used for the experimental (treatment group) while the lecture method was used for the control group. CRKAT was administered to the entire groups as a pre-test before the treatment commenced and as a post-test at the end of the treatment. The teaching lasted for four weeks. After the completion of the teaching of the Christian religious knowledge, **CRKAT** was again administered (the paper colour of the CRKAT was changed). The researcher carried out the task of administering of the achievement test both at the pretest and posttest.

Christian religious knowledge lessons were taught by the researchers to group A based on the lesson format prepared, and with the Flipped classroom instructional strategy. Group B was also taught by the researchers based on the same Christian religious knowledge lesson plans but with Lecture method. The same upper basic two Christian religious knowledge scheme of work was used for all the groups. The scores

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obtained from the pre-test and post-test were analyzed using mean and standard deviation to answer the research questions while analysis of covariance (ANCOVA) was employed for testing the hypothesis.

Results

Results obtained from the analyzed data were presented below based on the research questions and hypothesis.

Table 1
Post-test mean scores and Standard deviation scores of Students in CRK when taught using Flipped classroom strategy and Lecture method.

Teaching Method/Strategy	Number of Students	Types	Mean Gains			
		Pre-test		Post test		
		\overline{X}	S.D	\overline{X}	S.D	
Flipped C.	43	19.03	7.41	41.87	9.02	22.84
Strategy						
Lecture	44					
Method		18.44	6.11	28.41	5.26	9.97

The data presented on Table 1 indicated that students taught CRK using Flipped classroom strategy had a mean score of 19.03 and a standard deviation of 7.41 in the pre-test and a mean of 41.87 and a standard deviation of 9.02 in the post-test with a pre-test post-test gain of 22. 84. The data also

showed students taught using the Lecture method had a mean score of 18.44 and a standard deviation of 6.11 in the pre-test and a mean score of 28.41 and a standard deviation of 5.26 in the post test, making a pre-test posttest gain to be 9.9

Table 2

Post –test mean achievement score and Standard deviation scores of Students in CRK achievement test due to teaching methods and gender.

Teaching method/Strategy	Types of test	Gender							
		Male				Female			
		No. of Student			Mean gain	No. of students			Mean gain
			\overline{X}	S.D			\overline{X}	S.D	
Flipped.C Strategy	Pretest	18	18.69	7.06	22.43	25	18.86	5.44	
	Post- test	18	41.12	8.88		24	42.98	8.54.87	24.12
Lecture method	Pretest	21	16.67	5.31		23	17.39	6.19	
	Post- test	21	27.87	5.03	9.02	23	27.98	5.03	10.59

The data presented on the Table 2 indicated that the male students in the Flipped classroom experimental group had a mean score of 18.69 and a standard deviation of 7.06 in the pre-test while in the post-test, the males scored a mean score of 41.12 and a standard deviation of 8.88 with achievement mean score of 22.43. The result also shows that the female students in the Flipped classroom experimental group had a mean score of 18.86 and a standard deviation of 5.44 in the pre-test of experimental group which is higher than that of male students in the post-test of the experimental group, with achievement mean score of 24.12 which is higher than that of the male students in the post-test score in the Flipped classroom experimental group.

The data presented on Table 2 also indicated that male students had a mean score of 16.69 and a standard deviation of 5.31, with achievement mean gain of 9.02 in the pretest of the control group which was lower than the pre-test of the experimental group, while in the post-test, the male students had a mean score of 27.87 and a standard deviation of 5.03 which was lower than the experimental group. The result also shows that the female students had a mean score of 17.39 and a standard deviation of 6.19 in the pre-test of the control group which is higher than that of the male students score in the pre-test of the control group, while the female students had a mean score of 27.98 and a standard deviation of 5.03 with achievement gain of 10.59 which is high than that of the male students in the post-test of the control group.

Table 3
Analysis of covariance (ANCOVA) for Christian religious knowledge Test mean achievement scores of students when taught using Flipped classroom teaching strategy and lecture teaching method.

Sources of Variation	Type II sum of square	df.	Mean sum of square	F.	Significance
Correlated model	5952.991ª	2	2966.496	132.590	.000
Intercept	3674.011	1	3674.011	163.662	.000
Pre-test	408.541	1	408.541	18.199	.000
Teaching strategy/ method	4886.773	1	4886.773	217.685	.000
Error	1728.559	84	22.411		
Total	86684.000	87			
Corrected total	7681.550				

a. R square = .786 (adjusted R squared = 0.787)

teaching strategy and Lecture teaching method.

The data on Table 3 shows that the teaching method (Flipped classroom and Lecture method) is a significant factor in the mean achievement scores of the students in the CRK Achievement Test, this is because the p-value of .00 is less than 0.05. This result rejects the null hypotheses which state that there is no significant difference between the mean achievement scores of students in CRK Achievement Test when taught using the Flipped classroom and lecture method. Thus, this implies that there was a significant difference between the mean achievement scores of students in Christian religious knowledge Achievement Test when taught using the Flipped classroom

Discussion and conclusion

The research findings based on the data presented are interpreted and discussed below:

Result from Table 1 showed the effects of teaching methods on students' achievement in Christian religious knowledge and that the mean achievement scores of the students in the experimental group were higher than those of the mean achievement scores of students in the control group. This result revealed that method was a significant factor on students' achievement in Christian religious knowledge. Thus, it was confirmed that students taught Christian religious knowledge using Flipped classroom

instructional strategy performed better than those taught using the lecture method. The finding of this study seems to support the findings of previous studies (Hung, 2015; &Balaban,2016 & Odo and Eze, 2019) that confirmed that the use of Flipped classroom strategy leads teaching to students' improved achievement in economics and Computer science. This was further confirmed by the result in Table 2, the data revealed that statistically sex is not a significant factor in academic achievement of male and female students taught Christian religious knowledge with Flipped classroom and Lecture method. The finding is in consistent with Baepler et al (2014). They found that gender does not play significant roles on students' academic achievement when taught with Flipped classroom teaching strategy. This may be as a result of some of the skills that are incorporated in Flipped classroom like facilitation of creative thinking through building on students' prior knowledge. Activating prior knowledge help both gender as logical sequencing of topics helps to present instructional materials in a more meaningful and given the students necessary guide to help them explore topics at their own pace, time and place.

Also, the data on Table 3 shows that the teaching strategy/method (Flipped classroom and Lecture method) is a significant factor in the mean achievement scores of the students in Christian religious knowledge Achievement Test. This indicates that we reject the null hypotheses which state that there is no significant difference between the mean achievement scores of students in Christian religious knowledge Achievement Test when taught using the Flipped

classroom strategy and lecture method. This result is consistent with Enfield 2013; (See & Conry, 2014 & Kim, Kim, Khera, Khera & Getman, 2014) earlier argument that in Flipped classroom students are stimulated to move out of the classroom to learn anytime and anywhere and encourage to work together on significant ideas, under well-organized guidance which provides sufficient time for the completion of assignments, promoting students to build a learning community.

Recommendations

Based on the findings of the study, the following recommendations were made:

- 1. Efforts should be made by curriculum expert to incorporate Flipped classroom strategy in to teaching in upper basic schools. There should be a review in the current instructional procedure to accommodate Flipped classroom strategy in upper basic teaching syllabus, so as to reduce the poor academic performance of students in Christian religious knowledge
- 2. Teaching with Flipped classroom is different from ordinary traditional teaching. As a result of this, upper basic teachers should be trained and versed on how best to develop and use flipped classroom strategy as to achieve its objective of enhancing achievement and enhancing pupils' moral rectitude
- 3. The result of this study underscores the need for Imo State Government through Secondary School Education Management Board (SCMB) to organized workshops for school teachers to acquire and learn more effective teaching methods.

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