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EFFECT OF BLENDED INSTRUCTIONAL STRATEGY ON STUDENT'S ACADEMIC PERFORMANCE IN SECONDARY SCHOOLS

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ABSTRACT

The study examined effect of blended instructional strategy on student's academic performance in secondary schools in Uyo Local Government Area. In order to achieve this purpose, two research questions were raised and two hypotheses were formulated to guide the study. The design for the study was quasi-experimental design using a non-randomized pre-test and post-test control group. The population of the study consisted of all the 9,204 senior secondary two students in the public secondary schools in Uyo Local Government Area. The sample for the study was one hundred and eighty-one (181) senior secondary two (S.S.2) students in four (4) intact classes from two secondary schools. The sampling technique used was the purposive sampling technique to select both the schools and the sample. The instrument that was used for data collection was 'Students Achievement Test (SAT)'. Content validity was established for the instrument and Kuder-Richardson 21 formula was used for determining the reliability of the instrument. Reliability coefficient of 0.83 was obtained for the instrument Mean and standard deviation were used to answer the research questions while Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance. The findings of the study revealed that there exists significant difference in the academic performance of students taught using the blended instructional strategy and those taught using the expository method. The findings also revealed that there is no significant difference in the academic performance of male and female students taught using the blended instructional strategy and those taught using the expository method. Based on the findings of the study, it was concluded that blended instructional strategy affects students' academic performance in Secondary Schools. It was recommended that Seminars, workshops and conferences should be organized by the Ministry of Education, Government and NGOs to popularize the innovative and robust teaching strategies.

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Introduction

The continued unabated abysmal performance of student in both external and internal examination and students lack of interest in general subjects, like mathematics indicates that such subjects appears abstract and difficult to student in almost all levels of education (Ndubisi, 2012). To minimize the abstract nature of these concepts in mathematics and others, it is imperative teachers to use innovative-interactive methods of teaching that will enhance students' performance and retention. Nsofor (2006) pointed out that for effective instructional purpose, emphasis should be more on student participatory learning approach as this makes the learner active. The traditional lecture method of most science courses present many challenges to both teaching and learning processes, but are usually effective and efficient in disseminating large body of content to a large number of students. This traditional method keeps the students' passive in class and invariably leads to poor achievement and retention. The use of this method (talk chalk/traditional method) contradicts the students entered-learning-approach recommended by the Federal Ministry of Education (Federal Republic of Nigeria, FRN 2013).

With the growing concern in recent times to have classrooms that are student centered, activity oriented and focused on understanding in order to facilitate learning for the majority of students (Irem, 2016), there emerges the urgent need to explore new approaches with potentially radical teaching applications. In this regard, there is need for teachers or instructors to incorporate blended instructional strategy in teaching and learning process, so as to give the students opportunity to engage actively in the lesson as well as develop technical skills and explore in more details the content taught.

Educational system is evolving with technologies; information technology revolution has ushered rapid expansion across a wide range of areas across the globe, thus making it an essential requirement for schools (basic, post basic and tertiary institutions of learning) to identify and improve teaching as well as learning environments. Giving credence to the foregoing, Ogar, Agomuo, Joe and Ohaemesi (2024) asserted that the adoption of ICT resources in education has transformed learning, teaching, and information engagement, this incorporation of (ICT) in the education industry has brought about a lot of changes in the education process.

Modern educational technology tools and resources have been integrated into conventional method to supplement and develop teaching and learning in a complementary manner. The integration of blended learning environment in classroom teaching has brought education one step

higher from the traditional teaching method to a more integrative method of teaching (Etim, 2016).

Blended instructional strategy is a form of teaching method in which learners learn partly through delivering of content and instructions via digital and online media with some elements of pupil control over time, place or pace. The concept of blended learning has been around for a long time, but its terminology was not firmly established until around the beginning of the 21st century. Blended learning can be defined as learning systems that combine face-to-face instruction with computer mediated instruction (Graham, 2013). It involves a combination of conventional face-to-face and online technology-based learning (Wang, 2011). The combination may involves mixing various event-based activities such as face-to-face classroom, live e-learning, self-paced learning, synchronous online conference and training, or asynchronous self-pace learning (Graham, 2013). Muthuchamy and Thiyagu (2011) described blended learning as the integrated combination of traditional learning with web-based online approaches. They described it as combining offline and online forms of learning where the online may be over the internet, intranet, computer and other software packages while offline is the traditional classroom where students and teachers meet face-to-face to engage in learning activities. Norm (2012) defined blended learning as a formal education program in which students learns at least in part through delivery of content and instruction via digital and online media with some element of students control over time, place, path, or pace Blended learning can also be referred to as an approach of learning which allow creation of suitable environment for students to achieve their objective more easily in improve educational environments by applying appraise technologies in various classroom environment.

Gambari, Shittu, Ogunlade and Osunlade (2014) in their study on the effectiveness of blended learning and E-learning modes of instruction on the performance of undergraduates in Kwara State, Nigeria. reported that: (i) there was significant difference in the performance of the three groups in favour of Experimental group 1 (Blended learning), (ii) there was no significant difference in the performance of male and female undergraduates taught with blended learning, (iii) similarly, no significant difference was found in the performance of male and female undergraduates exposed to e-learning mode of instruction. This implies that performance of undergraduates was enhanced when they are exposed to blended learning mode of instruction. Similarly, Abidoye (2015) who examined the effect of blended learning instructional approach on students' academic achievement in geography. The finding revealed that students taught using station-rotation model performed most followed by students taught using conventional method, also that students taught using the station-rotation model had the highest retention

level, then those taught using the conventional method. It was concluded that Blended learning have greatly enhanced teaching and learning among secondary school students.

However, due to the fact that there was no empirical work in the knowledge of the researchers conducted in Akwa Ibom State using blended instructional strategy on students' academic performance. This study was poised to fill this gab by examining effect of blended instructional strategy on students' academic performance in secondary schools in Uyo Local Government Area of Akwa Ibom State.

Statement of Problem

Literatures and observations have it that the unabated poor performance of student in both external and internal examination and students lack of interest in general science courses, indicates that science subjects like mathematics appears abstract and difficult to student in almost all levels of education. This unfortunate development has however birthed series of researches, and in spite of the efforts made by researchers to enhance students' performance in mathematics in particular and other subjects in general, the problem still remains unresolved.

It is not out of place to reason that the techniques used by teachers to explain concepts to the students could stimulate students' interest in the subject as well as lead to mastery of the learning task. Experience over the years has shown that Nigerian teachers use talk-chalk/traditional method of teaching, making the learners passive without being actively involved in the process which contradicts the student-centred-learning-approach recommended by the Federal Ministry of Education. This therefore calls for the need for the adoption of innovative teaching strategies that engages students actively in the learning process. It is the belief of the researcher that if innovative teaching strategies like the use of blended instructional strategy is used by teachers, it will give the students opportunity to engage actively in the lesson and this will lead to improved performance. Therefore, exploring the effect of blended instructional strategy on students' achievement is not only desirable but timely. The problem of this study was therefore to examine effect of blended instructional strategy on students' academic performance in Uyo Local Government Area of Akwa Ibom State.

Purpose of the Study

The main purpose of this study was to examine effect of blended instructional strategy on students' academic performance in secondary schools in Uyo Local Government Area of Akwa Ibom State.

Specifically, to;

i. Compare the academic performance of students taught using blended instructional strategy and those taught using the traditional method

ii Examine the difference in the academic performance of male and female students taught using blended

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instructional strategy and those taught using the traditional method

Research Questions

The following questions were raised to guide the study.

i. What difference exists in the academic performance of students taught using blended instructional strategy and those taught using the traditional method?

ii. What difference exists in the academic performance of male and female students taught using blended instructional strategy and those taught using the traditional method?

Hypotheses

The following hypotheses were formulated to guide the study.

$H0^1$ There is no significant difference in the academic performance of students taught using blended instructional strategy and those taught using the traditional method

$H0^2$ There is no significance difference in the academic performance of male and female students taught using blended instructional strategy and those taught using the traditional method

Methodology

The quasi-experimental design using a non-randomized pre-test and post-test control group was adopted for the study, two research questions and two hypotheses guided this study. The population of the study consisted of 9,204 senior secondary two students in public secondary schools in Uyo Local Government Area of Akwa Ibom State. the purposive sampling technique was used to select one hundred and eighty-one SS II students. A self-developed and validated research instrument titled "Students Achievement Test (SAT)' was used with a reliability coefficient of 0.83. Mean and standard deviation were used to answer the research questions while Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance

Result Presentation

Research Question One: What difference exists in the academic performance of students taught using blended instructional strategy and those taught using the traditional method?

Table 1: Mean and standard deviation of the difference in academic performance of students taught using blended instructional strategy and those taught using the traditional method

Instructional strategies	N	Pretest		Posttest		Mean Difference
		Mean	SD	Mean	SD	
Blended instructional strategy	93	9.07	1.44	16.09	2.43	7.02
Traditional method	88	9.06	2.05	12.97	2.61	3.91

Source: field work (2024)

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The result in Table 1 revealed the pretest and posttest means of treatment group (those taught with blended instructional strategy) of 9.07 and 16.09 and their respective standard deviations of 1.44 and 2.43 respectively. The result further shows the pretest and posttest means of control group (those taught with the traditional method) of 9.06 and 12.97 and their respective standard deviations of 2.05 and 2.61 respectively with a mean difference of 3.11 between the treatment group and the control group. This difference in mean implies that there is difference in the academic performance of students taught using blended instructional strategy and those taught using the traditional method.

Research Question Two: What difference exists in the academic performance of male and female students taught using blended instructional strategy and those taught using the traditional method?

Table 2: Mean and standard deviation of the difference in the academic performance of male and female students taught using blended instructional strategy and those taught using the traditional method

Instructional strategies	N	Pretest		Posttest		Mean Difference
		Mean	SD	Mean	SD	
Blended instructional strategy	Male 50	9.10	1.34	16.62	2.28	7.52
	Female 43	9.09	1.32	16.51	1.98	7.42
Traditional method	Male 46	9.15	2.19	13.17	2.78	4.02
	Female 42	9.10	1.82	13.45	2.29	4.35

Source: field work (2024)

The result in Table 2 revealed the pretest and posttest means of male and female students' performance in the treatment group (those taught with blended instructional strategy) of 9.0 and 16.62 and 9.09 and 16.51 respectively and their respective mean differences of 7.52 and 7.42. The Table also revealed the pretest and posttest means of male and female students' performance in the control group of 9.15 and 13.17 and 9.10 and 13.45 respectively and their respective mean differences of 4.02 and 4.35. Comparing mean differences of male and female students in the treatment group as well as mean differences of male and female students in the control group implies that there is no difference in students in the academic performance of male and female students taught using blended instructional strategy and those taught using the traditional method.

Hypothesis One: There is no significant difference in the academic performance of students taught using blended instructional strategy and those taught using the traditional method

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Table 3: Result of ANCOVA analysis of the difference in the academic performance of students taught using blended instructional strategy and those taught using the traditional method

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	474.86[a]	2	237.43	38.44	.000
Intercept	978.32	1	978.32	158.38	.000
Pretest	34.68	1	34.68	5.62	.019
Instructional strategy	439.63	1	439.63	71.17	.000
Error	1099.53	178	6.18		
Total	39993.00	181			
Corrected Total	1574.39	180			

a. R Squared = .302 (Adjusted R Squared = .294)

The result in Table 3 reveals that the calculated F value of 71 .17 is greater than the critical F value of 3.89 at 1 and 180 degrees of freedom with .05 level of significance. With this result, the null hypothesis that says there is no significant difference in the academic performance of students taught using blended instructional strategy and those taught using the traditional method was rejected. This implies that there is significant difference in the academic performance of students taught using blended instructional strategy and those taught using the traditional method.

Hypothesis Two: There is no significance difference in the academic performance of male and female students taught using blended instructional strategy and those taught using the traditional method

Table 4: Result of ANCOVA analysis of the difference in the academic performance of male and female students taught using blended instructional strategy and those taught using the traditional method

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	504.80[a]	4	126.20	22.57	.000
Intercept	1023.81	1	1023.81	183.09	.000
Pretest	21.39	1	21.39	3.83	.052
Gender	.38	1	.38	.068	.795
Instructional strategy	478.14	1	478.14	85.51	.000
Gender * Instructional strategy	1.78	1	1.78	.32	.574
Error	984.15	176	5.59		
Total	42124.00	181			
Corrected Total	1488.95	180			

a. R Squared = .339 (Adjusted R Squared = .324)

The result in Table 4 reveals that the calculated F value of .32 is less than the critical F value of 3.89 at 1 and 180 degrees of freedom with .05 level of

significance. With this result, the null hypothesis that says there is no significant difference in the academic performance of male and female students taught using blended instructional strategy and those taught using the traditional method was accepted. This implies that there is no significant difference in the academic performance of male and female students taught using blended instructional strategy and those taught using the traditional method.

Discussion of Findings

Based on the result of the analysis, the findings of the study were discussed as follows:

In attempt to find the difference that exists in the academic performance of students taught using blended instructional strategy and those taught using the traditional method, findings revealed that there is significant difference in the academic performance of students taught using blended instructional strategy and those taught using the traditional method. This result could be attributed to the fact that students are motivated to learn concepts when such an innovative instructional strategy like the blended instructional. This in turn could be manifested through effective academic performance. The finding supports that of Abidoye (2015), who found that blended learning instructional approach was more effective in enhancing students' achievement in geography than conventional teaching method. The findings also support Paul and Richard (2017), that students taught using station-rotation model performed most followed by students taught using conventional method, also that students taught using the station- rotation model had the highest retention level than those taught using the conventional method.

In attempt to find out the difference exists in the academic performance of male and female students taught using blended instructional strategy and those taught using the traditional method, findings revealed that there is no significant difference in the academic performance of male and female students taught using blended instructional strategy and those taught using traditional method. This result implies that gender has no significant effect on the academic performance of students based on the instructional strategies (blended instructional and traditional methods) used. This result implies that gender has no significant effect on the academic performance of students based on the instructional strategies (blended and face-to-face) used. This finding could be due to the fact that when students are exposed to instructional strategies that are captivating in nature such as the use of blended method, their interest seems to be sustained as they pay full attention to such lessons and this is applicable to both gender. Also, through blended instructional strategy, boundaries of the classroom can be expanded enabling students to work with peers from other classrooms or schools in an online environment which in turn could lead to improved performance irrespective of the gender of the students. This means that both male and female students once appropriate instructional strategies are used, their

performance will be enhanced. This finding supports Gambari , Shittu , Ogunlade and Osunlade (2014), that there was no significant difference in the performance of male and female undergraduates taught with blended learning. Similarly, no significant difference was found in the performance of male and female undergraduates exposed to e-learning mode of instruction. This implies that performance of undergraduates was enhanced when they are exposed to blended learning mode of instruction.

Conclusion

Based on the findings of the study, it was concluded that blended instructional strategy affects students' academic performance.

Recommendations

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

i. Teachers should strive to use the innovative instructional strategies in teaching as this will help to concretize learning and hence facilitate academic achievement of students.

ii. Teachers should be dynamic in their approach to knowledge and skills acquisition and their utilization of resource materials in teaching process

iii. Seminars, workshops and conferences should be organized by the Ministry of Education, Government and NGOs to popularize the innovative and robust teaching strategies.

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