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Note From the Editor-in-Chief

The outburst of information superhighway has sharpened the knowledge society, especially in the area of research, considering the critical role of research in the academic world. It has therefore become imperative for professionals in the academic world to adapt to the ICT bound environment with innovativeness in research, including the quality of research blue-print; its visibility and above all, the appropriateness of issues raised in addressing the problems in today's contemporary global society.

The International Journal of Vocational Education (IJOVED), an annual publication of the Department of Vocational Education publishes issue-based research in Technical and Vocational Education and Training (TVET) and general education. This edition is unique, its quality and content leave no one in doubt, and purposes to build in the minds of would-be readers across academic disciplines and organisations factual knowledge that would further develop the academic community. I strongly recommend this publication to academic libraries within and outside vocational education.

Assoc. Professor Isaac Okeme
Editor-in-Chief

Editor s Note

This edition of International Journal of Vocational Education (IJOVED), Volume 11, No. 1, November 2021 is unique, drawing contributions across institutions and across disciplines as well as across border. Of course, we are in an era where globalisation and digitalisation combine to ease research activities. Faculty members are therefore on advantage for collaborative research.

This Journal addresses concerns in Technical and Vocational Education and Training (TVET) and other related disciplines in line with the demands of the 21st Century, home-grown demands of Nigeria's economy, institutional goals and individual aspirations in an era of global competitiveness. It is pertinent to draw the attention of our esteemed authors that they take responsibility of all rules and considerations pertaining to publication of this magnitude. Creative Commons copyright licenses and tools apply, thereby creating a balance in the traditional 'all right reserved" that copyright law creates, which is why all authors completed and returned the Creative Common open access license form.

Your esteemed authorship is highly appreciated as you continue considering IJOVED for publishing your research outputs. Also, avail your colleagues the opportunity of publishing in this Journal.

Dr. E. E. Okon
Production Editor

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EFFECT OF BLENDED LEARNING INSTRUCTIONAL STRATEGY ON STUDENTS' ACADEMIC ACHIEVEMENT IN JUNIOR

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Abstract

This study investigated the effect of blended learning instructional strategy on students' academic achievement in junior secondary school Business Studies using a quasi-experimental research design. A total of 91 Junior Secondary School two (JSS 2) students selected through purposive learning technique from two intact classes in Abeokuta metropolis of Ogun State participated in the study. A validated instrument titled Business Studies Achievement Test (BSAT) was used for data collection. Data from the field were analyzed using the Analysis of Co-variance (ANCOVA). Findings from the study revealed that, students exposed to a blended learning instructional strategy performed significantly better than those exposed to only the conventional method. There is also no significant gender difference in the achievement of students exposed to blended learning instructional strategy. It is recommended among others that agency responsible for curriculum development should integrate the use of blended learning in the teaching of Business Studies at the junior secondary level of education; while Government should make available ICT facilities for pedagogical purposes in secondary schools.

Keywords: Blended Learning, Instructional Strategy, Academic Achievement.

Introduction

The Information and Communication Technology revolution is transforming the way 21st-century education is being delivered all over the world. The transformation is facilitated by the emergence and convergence of modern digital technologies. Technology is developed to solve problems associated with human needs in more productive ways (Hussain, 2021). Through information technology, a lot of activities are better done, like better teaching and learning, improved means of communication and service delivery etc. In the field of education, information and communication technology offers a powerful learning tool that requires new skills and understanding from the teacher and the learners, as well as provides new ways of engaging learners at all levels of education.

Blended learning is a term used to represent both teaching and learning processes that combine online learning with in-classroom learning. Graham (2006) defines blended learning approach as a combination of face-to-face instruction with computer-mediated instruction. Blended learning approach is the teaching/learning approach that brings together the face-to-face approach and the online learning approach. It is the hybrid of the

two approaches to form a blend. Blended Learning Approach (BLA) is that approach that bridges the gap between the fully online learning approach and the conventional classroom approach. It integrates online learning with in-person instruction from the teacher. BLA involves combining classroom instruction and e-learning which is increasingly being adopted in institutions and schools around the world.

Blended learning consists of five components including, two are face-to-face and three online components (Alammary, 2019). They are: Face-to-face instructor-led: this is a component where students participate in a physical class where the teacher presents the learning content, and there is little interaction, experiential learning, or practice; face-to-face collaboration: this encourages students to participate in learning activities together in a physical classroom; online instructor-led: here, the teaching process is accomplished online with the teacher's assessment of the learning progress and interactions through learning process; online collaboration: this encourages students to participate in learning activities online; and online self-paced: this allows students to study at their own pace with flexible time and space.

Blended learning is associated with two different learning theories: the cognitive learning theory and the constructivist learning theory. On the one hand the cognitive learning theory emphasizes the learner's schema as an organized knowledge structure that is designed to interpret information. The underlying theme identified in the cognitive learning theory is the idea of how to interpret information and construct meaning through the organization and structuring of knowledge acquisition. Knowledge acquisition can be identified as the outcome of interaction between new experiences and knowledge that have already been obtained. With regards to blended learning, when teachers apply a cognitive approach to the curriculum, they are able to focus, understand, and apply concepts in terms of their relationships. Learners are able to understand the connections made between concepts, the breakdown of information and the rebuilding of new information.

On the other hand, constructivist learning theory, according to Garrison and Vaughn (2008), suggests that blended learning is predicated on the recognition of information and knowledge, discourse and reflection, control and responsibility with the process of learning outcomes. The constructivist theoretical perspective holds the assumption that understanding is gained through an active process of creating hypotheses and building new forms of understanding through activities. Constructivism is a framework that views learning as the product of passive transmission rather than a process of active construction whereby the learners construct their own representation of knowledge based on their prior knowledge and experience. Constructivist requires learners to demonstrate their skills by applying their own knowledge when solving real-world problems.

Blended learning approach in teaching and learning has become a matter of considerable interest to teachers all over the world. As opposed to pure e-learning which refers to using only electronic media to learn, blended learning supplements traditional face-to-face teaching and learning environment with different digital technologies. According to Osguthrape and Graham (2003), the main feature of blended learning is making the whole operation depend on students' interaction with computer and help them to be more creative and positive while teachers' role is to control the work flow of the digitalized subjects. It

has a lot of advantages as summarized by Graham (2006) to include the potential advantages in offering a more effective education, convenient and access to teaching/ learning environment. Also, Davies and Gaff (2005) suggested that such learning environment promotes student-centered learning and encourages greater interaction among students.

Literature is replete with the positive benefits of blended learning in the teaching and learning of various school subjects. For instance, Zhang et al. (2011) examined the effectiveness of vocabulary learning through mobile phones and compared two groups of students at a Chinese university. While one group of students studied a selected list of vocabulary via text messages, the other group of students worked on the same list through paper material. When students' test results were compared, their findings revealed that "students can learn vocabulary more effectively via mobile phones than with paper material". Similarly, Khazaei and Dastjerdi (2011) made a comparative study on the impact of traditional and blended teaching on EFL learners' vocabulary acquisition. The study aimed to explore the application of short message sentences (SMS) to the blended method of teaching L2 vocabulary. Students were evaluated on their recognition and recall of vocabulary items. The results revealed that the students who received the learning content through blended teaching approach had better test results than the group of students who received the learning content in the traditional way. Based on the research findings, they confirmed "the significant supplementary role of Mobile-Assisted Language Learning (MALL) in the teaching of new vocabulary items".

In another study, Abidoye (2015) carried out a study on the effect of blended learning instructional approach on secondary school students' academic achievement in Geography. The findings of the study revealed that a blended learning instructional approach was more effective in enhancing students' achievement in Geography than a conventional teaching method. Similarly, Maadi (2021) in his study's result revealed the superiority of blended learning in terms of the high degree of learners' acquisition of geography skills in favour of the experimental group (blended learning). In addition, the effect size of using blended learning was large. Furthermore, the findings showed that there were statistically significant differences between the mean post-test scores of the two groups in geography facts, concepts, and skills in favour of the experimental group. Meanwhile, there are very few empirical studies in the literature which have found that blended learning instruction had no impact on students' academic achievements. For instance, Alshwiah (2009) investigated the effects of a proposed blended learning strategy and analyzed students' attitudes toward the English language at Arabian Gulf University. The sample was divided into two groups: control group and experimental group. The findings indicated no significant difference between two groups regarding achievement or attitude towards English Language.

Similarly, Chang et al. (2014) conducted a study to examine the effects of blended e-learning on electrical machinery performance. The participants were two classes of 11th graders majoring in Electrical Engineering. The participants were randomly selected and assigned to experimental group and the control group. The experiment lasted for five weeks. The results showed that there were no significant differences in achievement test scores between blended e-learning and traditional learning. In the same vein, Ilorah et al.,

(2018) in their study on secondary school students' performance in physics practical using blended learning instructional strategy, the result showed there is no significant difference between the mean achievement scores of male and female students. Whereas, on their part (Gambari et al., 2017), the study revealed no significant main effect of learning strategy (blended learning) on male and female undergraduates' performance, with value of F (1, 27) = 1.889, p > 0.05. In the study of Anari, (2021) the calculated p-value (.587) of the main effect of gender is greater than the alpha level (.05) implying that there exists no significant difference in the mean performance scores of male and female students taught separation techniques using blended learning, simulation and conventional instructional strategies. On the contrary the result of analysis in a study conducted by Etim (2017) indicates that there is a significant difference in male and female students' academic performance in commerce when blended instructional strategy was used for instruction. The calculated F - value of 6.03 is higher than the critical F-value of 3.07 at 1 and 119 degrees of freedom at .05 levels of significance. As much as empirical evidences supported the use of blended learning in the teaching of various school subjects, the extent to which it is beneficial in the teaching of vocational subjects remains sketchy and not widespread. It is on this premise that this study, therefore investigated the effect of blended learning on students' academic achievement in junior secondary school business studies in Abeokuta metropolis of Ogun State, Nigeria.

Research questions

1. What are the mean achievement scores of students taught Business Studies using blended learning instructional strategy and those taught using conventional teaching method?
2. What are the mean achievement scores of male and female students taught Business Studies using blended learning instructional strategy?

Null hypotheses

1. There is no significant difference in the mean achievement scores of students taught business studies using blended learning instructional strategy and those taught using conventional teaching method.
2. There is no significant difference in the mean achievement of male and female students taught business studies with blended learning instructional strategy.

Research methods

The study adopted quasi experimental research design, specifically a pre-test post-test non-equivalent control group design. The study was conducted in Abeokuta, Ogun State, Nigeria. The study area was used because it has schools with facilities that could facilitate the conduct of the study in the area. Besides, the area has students with iPad and laptops that could be used for blended learning. The population of the study consisted of all 2715, JSS2 Business Studies students in all 42 private secondary schools in the area for 2020/21 academic session. Two schools were sampled using purposive sampling technique where two intact classes were drawn using simple random sampling technique. The sample of the study was 91 JSS2 students. To avoid disrupting the schools usual teaching and learning activities, intact classrooms were used. The two intact classrooms were divided into two groups, one for blended learning (experimental) and the other for conventional method (control). There were 54 students in the experimental group and 37 in the control group.

The Business Studies achievement test (BSAT) developed by the researchers was used for data collection. The BSAT contained 30-multiple choice items with four response options A, B, C and D. The BSAT together with the lesson plan for the experimental and control group were content and faced validated by three experts in the faculty of education, Olabisi Onabanjo University, Ago-Iwoye, Nigeria. The BSAT was later trial tested 30 JSS2 students in a school that was not part of the study to establish the reliability of BSAT, the Kuder-Richardson 20 method was used and a reliability coefficient value of .86 was obtained.

Regarding the procedure adopted, the researchers visited the sampled schools to seek permission from the school principals before the commencement of the study. After the permission was granted, the researchers engaged the services of two regular Business Studies teachers (one from each intact class) as research assistants. The research assistant for the experimental group was trained for four days on the use of blended learning instructional strategy while the control group used the conventional method (teacher-centred, chalk and talk). The experiment lasted for a period of five weeks. In the first week the research assistants were trained and given orientation for four days. The instrument was administered on both groups on the fifth day as pre-test. The normal lesson periods on the school's timetable were used to conduct the experiment which lasted for 40 minutes per lesson for two times a week. The control group was taught in the class while the experimental group was taught in a computer laboratory where blended learning app (BLAPP) was downloaded into the computers and the teachers did online classes using the app. Two sets of lesson plan, with the same content, specific objectives, duration and evaluation were developed for the two groups. However, the lesson plan for the experimental group was electronically prepared for online learning with blended learning App while that of the control group was prepared for conventional method. On the fifth week, items on the BSAT were reshuffled and re-administered to the students as post-test in order to determine the effect of the treatment on students' achievement in Business Studies. A week after the expiration of the intervention, the data collected were analyzed using descriptive statistics of mean and standard deviation and t-test for the research questions, while the null hypotheses were tested using analysis of covariance (ANCOVA).

Results

Research question one: What are the mean achievement scores of students taught business studies using blended learning instructional strategy and those taught using conventional teaching method?

Table 1: Mean achievement scores of students taught business studies using blended learning instructional strategy and conventional teaching method.

Strategy		Pte-test		Post-Test		Gain	
	N	Mean	SD	Mean	SD	Mean	SD
CMT	42	14.05	8.21	48.10	13.87	34.05	11.83
BLS	49	14.64	8.65	72.45	16.55	57.81	17.08

Table 1 shows mean and standard deviation of the achievement scores of students taught business studies using blended learning instructional strategy and those taught using conventional teaching method. From the result, the mean and standard deviation of pre-test and post-test scores of students taught with blended learning instructional strategy are 14.64, 8.65 and 72.45, 16.55 respectively. This gives a mean gain score 57.81. While the mean and standard deviation of the pre-test and post-test scores of the students taught with conventional teaching method are 14.05, 8.21 and 48.10, 13.87 respectively. This gives a mean gain of 34.05. Thus, students taught business studies using blended learning instructional strategy have a higher mean gain than those taught business studies using conventional teaching method.

Research Question Two: What are the mean achievement scores of male and female students taught business studies with blended learning instructional strategy?

Table 2: Mean achievement scores of male and female students taught business studies using blended learning instructional strategy.

Strategy		Pte-test		Post-Test		Gain	
	N	Mean	SD	Mean	SD	Mean	SD
Male	54	14.31	8.22	62.59	20.02	48.29	20.49
Female	57	14.46	8.78	59.19	18.97	44.73	16.64

Table 2 shows mean and standard deviation of the achievement scores of male and female students taught business studies using blended learning instructional strategy. From the result the mean and standard deviation of pre-test and post-test scores of the male students are 14.31, 8.22 and 62.59, 20.02 respectively. This gives a mean gain score of 48.29. Also, the mean and standard deviation of pre-test and post test scores of the female students are 14.46, 8.78 and 59.19, 18.97 respectively; this gives a mean gain score of 44.73. However, the mean gain difference between male and female students is 3.56 in favour of the male students. Therefore, male students taught Business Studies with blended learning instructional strategy achieved higher than their female counterparts taught Business Studies with the same instructional strategy.

Research hypothesis 1: There is no significant difference in the mean achievement scores of students taught Business Studies using blended learning instructional strategy and those taught using conventional teaching method.

Table 3: Analysis of Covariance (ANCOVA) of Business studies students taught using blended learning instructional strategy and conventional teaching method.

Table 3: Analysis of Covariance (ANCOVA) of Business studies students taught using blended learning instructional strategy and conventional teaching method.

Source	Type III Sum of Squares	Df	MeanSquare	F	Sig.
Corrected Model	15707.584a	2	7853.792	36.891	.000
Intercept	61372.244	1	61372.244	288.279	.000
Pre-Test	2294.292	1	2294.292		
Strategy	13005.800	1	13005.800	61.091	.000
Error	18734.449	88			
Total					
Corrected Total	34442.033	90			

R Squared = .456 (Adjusted R Squared = .444)

Table 3 reveals that the effect of instruction on secondary school students taught Business Studies using blended learning instructional strategy and those taught using conventional teaching method produced F= 61.091 and this value is significant at 0.000. The value of F is significant at 0.05. That is (p= 0.000; p<0.05). The Business Studies students taught using blended learning instructional strategy produced significant difference on their achievement, hence the null hypothesis which states that there is no significant difference between the mean achievement scores of students taught Business Studies using blended learning instructional strategy and those taught with conventional teaching method is rejected.

Research hypothesis 2: There is no significant difference in the mean achievement of male and female students taught Business Studies with blended learning instructional strategy.

Table 4: Analysis of Covariance (ANCOVA) of male and female students taught business studies using the blended learning instructional strategy.

{◘ĵ ʼnľś	Type III Sum of Squares	Df	Mean Square	F	Sig.
/ ◘ʼnʼnśľĊśŕ Model	ىوىملأيوa	و	ويديييو	ىويى	ملأ
L■Ċšnľš♫Ċ	60348.937	1			
Pre-Test	2717.003	1	2717.003		
Gender	269.539	1	269.539	61.091	.388
Error	31470.710	88	357.622	.754	
Total	375375.000	91			
Corrected Total	34442.033	90			

R Squared = .086 (Adjusted R Squared = .066)

Table 4 shows that the effect of treatment on male and female students taught with blended learning instructional strategy produced F value of .388. The value of F is not significant at 0.05. That is (p= 0.388; p> 0.05). Business Studies students taught using blended learning instructional strategy produced no significant difference on the mean achievement score of male and female students. Therefore, the hypothesis which states that there is no significant difference between the mean achievement score of male and female students taught Business Studies using the blended learning instructional strategy is hereby retained.

Discussion of findings

Students taught with the Blended Learning Instructional Strategy achieved higher than those taught using the conventional teaching method. A significant difference was found in the academic achievement of Business Studies students taught with blended learning instructional strategy and those taught with conventional teaching method. The results is in line with Chang (2014) but the finding is not supported by findings of Ibrahim and Mehmet (2014) who in their research studies observed that the use of internet in learning made the quality of learning to slightly decline. The finding is however supported by the findings of Abidoye (2015), Ahmad (2020), Khazaei (2011) and Maadi (2021) who all reported improvement and superiority in achievement and performance of students after exposure to blended learning in class as compared to conventional method of teaching. This outcome could be attributed to the fact that contemporary school children are quick and receptive to learning with technologies which the new generation of students may find interesting and engaging. On the issue of gender, it was found that the mean achievement of male and female students taught business studies with blended learning instructional strategy showed no significant difference in favour of either the male students or female students. Hence, both genders is at par. However, Etim (2017) negates this outcome but Anari (2021), Gambari et al., (2017) and Ilorah et al., (2018) are in concert with this study's finding. It means that there is no significant difference in the mean achievement scores of both male and female counterpart taught with blended learning in business studies. This outcome may be attributable to the fact that a novel, innovative and flexible learning method like blended learning should not discriminate against any category of student especially the gender. This may be an indication that the instructional strategy is desirably gender friendly.

Conclusion

The conclusion drawn from this study stemmed derived from the experience gathered during this study. Firstly, blended learning instructional strategy is more effective in enhancing students' achievement in business studies compared with conventional teaching method. Secondly, the achievement of male students taught business studies with blended learning instructional strategy showed higher performance when compared with the female students taught in business Studies. Lastly, there is a revelation that there exists no significant difference in the mean achievement of male and female students taught in business studies with blended learning instructional strategy.

Recommendations

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

1. Business studies teachers should be exposed to intensive ICT training, with a view to enhancing their capacity in the use of ICT for pedagogical purposes. Ogun State

government should provide ICT and internet facilities in secondary schools for this pedagogical purpose.

2. The State government agency responsible for curriculum development in Ogun State that is, the Ministry of Education, Science and Technology should integrate the use of blended learning instructional strategy in the teaching of business studies at the junior secondary level of education. Professional association in education particularly in the areas of Vocational and pre-vocational subjects should organize workshops and seminars to train business studies teachers on the use blended learning instructional strategy in order to keep them abreast of innovative teaching strategies.

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