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IMPACT OF BLENDED LEARNING STRATEGY ON UNDERGRADUATE STUDENTS' ACADEMIC PERFORMANCE IN EDUCATIONAL FOUNDATIONS GENERAL STUDY COURSE IN EMMANUEL ALAYANDE UINVERSIY OF EDUCATION, OYO.

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Abstract

The study determined the impact of blended learning strategy on undergraduate students' academic performance in educational foundation general study course (Edu. 101) in Emmanuel Alayande University of Education, Oyo. A pre-test-post-test quasi-experimental design was used for the study. The sample included two groups of experimental (n=30) undergraduate students who were taught using blended learning strategy method and control group (n=30) students taught using traditional method. Pre and post tests were used to gather data which were analyzed using means, standard deviation, independent t-tests compacted on SPSS 20. The results of the study revealed that there was no significant difference in the mean performance of the experimental and control group in the pre-test. The study also revealed a significant difference in the mean performance of the experimental and control group in the pre-test in favour of the experimental group. The study concluded that blended learning strategy improves undergraduate students' academic performance in educational foundation general study course in Emmanuel Alayande University of Education, Oyo and the study recommended that it is necessary for teachers to use blended learning strategy in the course of their instruction. Students should be properly equipped with appropriate information and communication technology for blended learning strategy to be implemented effectively and efficiently. It is necessary to train in service and pre-service teachers on how to design electronic courses using virtual learning environment on a correct scientific and educational basis so as to equip them with the skills necessary for designing and implementing blended learning and that future researchers should studying the effect of using blended learning in teaching other subject in the university curriculum.

Keywords: Blended learning, undergraduate students' academic performance, educational foundation general study course.

Introduction

Education is considered to be the key with which students can open the way that will direct them to the appropriate path, to take them out from darkness to light. It is a process of teaching,

training and especially in schools, Colleges and universities, aimed at improving knowledge and achieving skills and which occupies a major position in the transformation of the individual into a sound and effective citizenship.

Education is a structure that influences individual's behaviours and provides guidance; in the widespread implementation of education, there are various sub-elements, and one of these elements is educational foundation general study course that is offered by all education students in Nigerian universities. This course consists of topics that can be handled with the use of new learning models (Al-Madani 2015).

Educational institutions according to Al-Hasan, Eltahir, and Agel (2013), have begun to seek quality teaching methods that aim to create active and positive students. One of the ways in which teachers are being guided to achieve such educational outcomes is through mixing, traditional education with e-learning with its multiple style, and with technological and electronics innovations inside the classroom and outside it. Therefore, the focus is on the simultaneous application of two types of education traditional and e-learning (Crawford and Jenkins, 2017).

According to Yilmaz and Orhan (2010) to achieve the goals of constructivist learning, strategies have emerged that link technology to learning in accordance with structural philosophy and call for cooperative collaborative learning and social interaction through which learner build their own knowledge. Thus, the philosophy of blended learning emerged, which is an extension of classroom instructions with information communication Technology and Computer assisted instruction. Here the students are exposed to teaching through the conventional method and complementing it with electronic learning (Mula, 2015).

The use of blended learning strategy in teaching educational foundation as a course in the university has become a paramount priority to educational foundation lecturers all over the world. Educational foundation through web-based tools is not totally a new trend. Adiguzel, Kamit and Ertas (2020) observed that we have always used a "blended" of teaching approaches in order to provide rich learning environment as much as possible for our students. What is new is the expectation of our students to use technology in and out of the lecture room as part of the learning process. Concerning the individual differences and class room instruction, Meyer and Norman (2021) also believe that teachers can help students enhance their repertoire of learning through the use of blended learning strategy and this will enhance greater flexibility in students approach to learning as a result of their exposure to various learning material that include various instructional materials such as Videos, blogs, online forums and other digital tools, students are offered opportunities to study facts, concepts and generalization relevant to educational foundations in Nigerian universities.

Marina and Tafjana (2020) observes that the exploration of science and technology has necessitated the emergence of E-learning as learning model. Hence, the traditional method is not able to cope with this breakthrough. Despite the enormous advantage of E-learning, it has some limitations reflected in the lack of face-to-face interaction which necessitates the availability of a new model combining some attributes of both traditional learning and E-learning which can overcome the advantages of both kinds of learning. Thus, a more advanced strategy, blended learning has spouted. It brings together the virtual learning environments so it is based on face-to-face learning as a form of learning as well as introducing information technology and telecommunications as an a synchronous model. Rahman, Singh and Pandian (2018). Besides it

mixes a learning environment based on online and a face-to-face traditional environment in a strategy which utilizes all possible means for both of them in the educational processes. Learning of educational foundation can only be achieved with teaching strategies that appeal to various learning styles.

Several studies have shown many advantages of different technology based instructional strategies for effective teaching and learning. Thus, many educational institutions are using blended learning as complementary means developing students' knowledge, enhancing motivation and retention, thereby enhancing students' academic performance, due to the short comings inherent in information and communication technology and Traditional method of transmitting knowledge. Blended learning which is the mixture of face-to-face strategy and the use of information and communication technology tends to over better option.

There are many researchers who have also reported that blended learning has surfaced as a natural development of e-learnings as blended learning combines and integrate e-learning with traditional face-to-face classroom learning in a single learning model to gain the benefits and advantages of each and to achieve the desired objectives (Khader, 2016), Sibandze, Oloyede & Pereira (2020)Usturn & Tracey 2020),

Blended learning is a student- centered learning method that combines traditional face-to-face classroom (Synchronous learning activities) with e-learning activities Synchronous learning activities.Blended learning according to Tongcha (2016) is as extension of the physical and online learning approaches where the teachers facilitate students to engage in activities. Online learning software include Edmodo, Moodle, Easyclass, and others with features that support students in communicating, sharing information and learning resources working in groups, submitting assignments and performing other learning activities. Vasileva-Stojanovska (2015) emphasized the role of e-learning that it aid effective teaching and learning and consequently improve students' academic performance..

According to Poom (2013) andLazar, Pani seara and Pani Soara (2020) blended learning results from digital technology and digital educational tools. Online tools such as apps, books, and Computers can be used as lesson plan, lectures, textbooks, assignments software, quizzes, tests, resources, audio, and video, digital and social networking platforms such as Twitter, Youtube, and Facebook (Watline, 2012), meanwhile, Lazar et al. (2020) used the concept of digital learning tool to refer to digital sources used in blended learning which include:

- i. High-tech digital learning tools: These include software to support students learning, such as interactive boards, scientific software, applications, digital teaching software, digital textbooks, and mobile devices (Smartphony or Tablet)
- ii. Traditional digital tools: These include digital video support, aerial video projectors, interactive materials, digital assemblies containing interactive resources, and reference content such as lecturer notes and dictionaries (Lazar et al, 2020)

Blended learning according to Alaminary, Sheared and Carbone (2014) consists of five components, of which there are face-to-face and there are online. These units include

1. Face-to-face instructor-led: Students participate in a class where the teacher presents the learning content, and there is little interaction, experiential learning, or practice.

2. Face-to-face collaboration: Encourage students to participate in learning activities together in the classroom
3. Online instructor-led: The teaching process is accomplished online with the teacher's assessment of the learning process and interactions throughout the learning process.
4. Online Collaboration: Encourage students to participate in learning activities online
5. Online self-paced: Allows students to study at their own pace, with flexible time and space

As a part of blended learning, online, learning allows the students to connect with classroom activities at any time in any place (Nathan & Rajamanoharan, 2016). Singh and Singh (2017) reiterated that it allows students to work together and report back or present to the class as a whole, thereby, encouraging students-to-students interaction.

Furthermore, teachers are able to provide clear directions and realistic goals for group and individual assignments. Their role include designing blended activities for face-to-face and online learning and giving directions and instruction to enable students to acquire basic skills through academic activities within and outside the classroom.

Blended learning according to Akseh, 2021 is one of the most modern methods of learning helping in solving the knowledge explosion problem. Then growing demand for education and the problem of overcrowded lectures if used in distance learning, expanding the acceptance opportunities in education, being able to train, educate and rehabilitate worked without leaving their jobs and teaching housewives, which contributes to raising literacy rate and eliminating illiteracy. Blended learning increases the learning effectiveness to a large degree, decreases the time environment required for training, decreases the training costs, allows the learner to study at his favorite time and place, allows for live interviews and discussions on the network, provides updated information, suiting learners need and provides simulations, animations, practical events and exercises and practical applications.

Blended learning according to Yu, Xu and Wi, Sukiairun, Waltana (2022) is one of the contemporary trends of education and one of the new trends of the teacher in the recent time; it can be described as an educational method in which more than one means is used for transmuting knowledge and experience to learners to achieve the best of the learning outputs.

Some features and characteristics that distinguishes blended learning according to Graham (2019) include providing a face-to-face communicating, which increases the interacting between the student and the trainer, (teacher) and students, students among each other, the teaching costs through increasing the learning proportion to cost, enhancing the humanitarian aspects and the social relations between learners and teachers, meeting the needs of each learner according to his abilities, integrating the structural and final evaluation systems, transmuting from the collective learning pattern to the learning concentrated on the student and using then physical and virtual materials in the best way. Blended learning is also beneficial in using the technological development in the design, implementation and use, supporting the traditional teaching methods used by the faculty staff in appropriate interactive learning, providing training members in the job or study environment, through using a minimum amount of efforts and resources to gain the maximum result and finally enabling individuals to continuously apply skills to becomes a habit with practice (Stuchlikova, 2016)

According to Al-Faqqi (2011); the following models were identified as models for the blended learning.

1. The learning model which leads the skill combining the self-paced learning and supporting the development of certain knowledge requiring a facebook and organized support from the teacher that the interaction with the teacher is blended through e-mail, discussion forums, and face-to-face meetings through the self-pace learning such as books and courses listed on the internet; tis types of treatment is identical to the chemical reaction in which the interaction with the teacher acts as a motive for achieving the reaction required for learning.
2. The learning model which leads the trend and blends varied events and means for developing certain behaviours requires learner's interaction with each other as well as a risk-free environment.
3. Efficiency-led learning model, which integrates the tools of supporting the performance with the sources of knowledge management and consultations to develop specific contemporaries to capture and transfer the implied knowledge that requires learners interaction with experts in the specialty.

Although, numerous studies have been carried out on the effect of blended learning on student's academic performance by several researchers among which are Buni Hamad 2022, Al-dani, 2015, Al-Hasan 2013, Shahin (2008). The results of these studies have revealed the importance of blended learning in improving students' academic achievement, increasing their motivation, and developing their positive attitudes towards a particular subject. They have also confirmed that acceptance of blended learning in universities and schools as an effective approach for teaching and learning different course of studies but there is no empirical evidence that studies have been carried out on the impact of blended learning strategy on undergraduate students' academic performance in educational foundation general study course.

Purpose of the Study

The purpose of the study is to examine the impact of blended learning strategy on undergraduate students' academic performance in educational foundation general study course in Emmanuel Alayande University of Education. The objective of the study included the following:

- i. To compare the performance of undergraduate students in educational foundations general study course that were taught with traditional method of teaching and those that were taught with blended learning strategy in pre-test stage
- ii. To investigate the difference in academic performance of undergraduate students exposed to blended learning strategy and those taught with traditional method of teaching in post-test stage

Research Questions

- i. What is the difference in the pre-test mean scores of the experimental and control group in educational foundation general study course in pre-test stage.

- ii. What is the difference in mean performance scores of undergraduate students exposed to blended learning strategy and those taught with traditional method of teaching in post-test stage

Research Hypotheses

The following research hypotheses was formulated and tested at 0.05 level of significance.

HO₁: There is no significant difference in the pre-test mean scores of the experimental and control group in educational foundation general study course

HO₂: There is no significant difference in the post-test mean scores of the experimental and control groups in educational foundation general study course.

Methodology

The research design was pre-test-post-test-quasi-experimental. The experimental was treated with blended learning strategy while the control group was taught with traditional teaching method. The researcher used two groups of students in experimental group (n=30) and control group (n=30). The topics of the educational foundation course (Course code Edu 101) were taught to the students in the control group using traditional teaching method, while in the experimental group the students were taught the same topics of the educational foundation by using blended learning. During the first semester of the 2024/2025 academic session, the two groups structured the same topics through fifteen (15) weeks. The teaching topics are shown in table 1 below:

The pre-test is used to establish the students' undergraduate entry behaviour before the commencement of the treatment to determine the impact of the blended learning strategy in the experimental procedure. The design is schematically represented below:

E Q₁ X₁ Q₂ – This is the experimental group

C Q₃ C Q₄ – This is the control group

E- Recorded lecture for blended learning strategy

C- Traditional method of teaching

Q₁, Q₃- Pre-test in E and C

Q₂, Q₄- Post-test in E and C

Q₁-Experimental treatment (blended learning)

C-Traditional method of teaching used for the control group.

The researcher formulated the achievement examination to explore the impact of blended learning on students' academic achievement in the educational foundational study course (Edu. 101). The examination was design in line with Bloom's cognitive domain taxonomy. Furthermore, a specification table for this examination was designed. The examination consisted in its finished product of twenty (20) multiple choice items. The item element earned one mark for a correct response and zero for a wrong response. The highest possible score was 20 and the test duration was twenty (20) minutes. The achievement examination was verified by members of the teaching staff at Emmanuel Alayande University of Education, Oyo whose Doctoral and Master's degree are in the areas of educational foundation. Some items were removed, and others introduced as recommended, producing a valid examination. In addition, the test-retest method was used to check the reliability of the achievement examination. The value of the Pearson's correlation coefficient was 0.84, which is considered sufficient for this study's purpose.

The population of the study consists of sixty (60) of undergraduate students in the department of Early Childhood education in the faculty of specialized and professional Education in Emmanuel Alayande University of Education, Oyo. All the 60 students were used for the study. These students were approached voluntarily throughout the 2023/2024 academic session.

The study of Maccoun (2016) which arrived to explore the effect of using blended learning in students' achievement and information preservation for the fifth graders in the Biology course reported that the results expressed the superiority of the experimental group (blended learning) to the control group (conventional learning) in the achievement test and information retention. The finding of Al-Rimawi (2014) that investigated the effect of blended learning on the direct and delayed achievement of the sixth graders in the English language Course showed that there was presence of statistically significant and the delayed achievement for the members that were taught with blended learning which was the experimental group.

Shahin (2009) also measured the extent of the effectiveness of the blended learning on achievement and develop the science operations among the blended learning was effective in the teaching of science subjects because it combines the e-learning and the traditional materialism the. The study further reported that there was statically difference between the mean of the students' marks in the experimental group in the post-application for then trend's scale towards learning in favour of the experimental group.

The pre-test was administered to both the experimental and control group on the same day in the morning and afternoon respectively by the researcher. The pre-test was marked by the researcher and then given to a lecturer in the same department to moderate. The score were recorded for use in the study. After the treatment, a post-test was administered to both groups. Scores from the pre-test and post-test were analysed using descriptive inferential statistics. The research questions were answered using mean, standard deviation while t test was used to test the hypotheses at 0.05 level of significance.

Results

Research Question 1: What is the difference in mean performance scores of undergraduate students exposed to blended learning strategy and those taught with traditional method of teaching in pre-test stage?

Table 1: Mean and Standard Deviations of the difference in the pre-test mean scores of undergraduate students exposed to blended learning strategy and those taught with traditional method of teaching

Pre-Test	N	Mean	SD	Mean Difference
Experimental	30	5.80	2.09	0.17
Group				
Control Group	30	5.63	2.25	

Table 1 shows the mean and standard deviation of the difference in the pre-test mean scores of undergraduate students exposed to blended learning strategy and those taught with traditional method of teaching Educational Foundation General Study Course to be 5.80; 2.09 and 5.63; 2.25 for blended learning strategy and control group respectively with a mean difference of 0.16. It could be deduced from the table that students in the two groups were of comparable ability in Educational Foundation General Study Course.

Research Question 2: What is the difference in mean performance scores of undergraduate students exposed to blended learning strategy and those taught with traditional method of teaching in post-test stage

Table 2: Mean and Standard Deviations of the difference in the post-test mean scores of undergraduate students exposed to blended learning strategy and those taught with traditional method of teaching

Pre-Test	N	Mean	SD	Mean Difference
Experimental	30	9.73	0.58	0.46
Group				
Control Group	30	9.27	0.98	

Table 3 shows the mean and standard deviation of the difference in the post-test mean scores of undergraduate students exposed to blended learning strategy and those taught with traditional method of teaching Educational Foundation General Study Course to be 9.73; 0.58 and 9.27; 0.98 for blended learning strategy and control group respectively with a mean difference of 0.46. It could be deduced from the table that students exposed to blended learning strategy had better performance in Educational Foundation General Study Course than their counterparts in the control group.

Hypotheses Testing

HO₁: There is no significant difference in the pre-test mean score of students in the experimental and control groups.

Table 3: t-test showing significant difference in the pre-test mean scores of students in the experimental and control groups.

Pre-Test	N	Mean	SD	t	P	Remark
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Blended Learning	30	5.80	2.09		
Strategy				1.6490.068	NS
Control Group	30	5.27	2.25		

P > 0.05

Table 4 shows that the t-cal (1.649) is not significant at 0.05 level of significance. The null hypothesis is not rejected. This implies that there is no significant difference in the pre-test mean scores of students in experimental and control groups. The implication is that the groups are homogeneous.

HO₂: There is no significant difference in the pre-test mean scores of the experimental and control group in educational foundation general study course

Research Hypotheses 2

Table 4: t-test showing significant difference in the post-test mean scores of students in the experimental and control groups

Pre-Test	N	Mean	SD	t	P	Remark
Blended Learning	30	9.73	0.58			
Strategy				2.017	0.001	S
Control Group	30	9.27	0.98			

P > 0.05

Table5 shows that level of significance of the null hypothesis is not accepted, this implies that there is a significant difference in the post test mean scores of undergraduate students in experimental and control groups. It implies undergraduate students in experimental group outperformed the undergraduate students in the control group.

Discussion of Findings

The findings revealed that undergraduate students in the two groups that is experimental and control group were homogenous with comparative abilities. This results agrees with the finding of who reported that students that are exposed to blended learning and those who were taught with the use of traditional method of teaching performance was the same before they were exposed to the treatment. These findings also agree with the findings of Tsong, Kano and Hsu (2014) who investigated the effect of integrating blended teaching into mathematics leaning for junior higher school in Taiwan. The results showed that the control group reformed better than the experimental group in the post-test.

The results of this finding also revealed that these was as a significant different in the mean performance of the experimental and control groups on the post-test in favour of the experimental group, which means that the experimental group performed better than the control group in the post-test. This implied teaching the experimental group with the use of blended learning improved their performance which means that because the experimental groups received instructions aside from face-to-face session an online platform that boosted their level of

understanding since the online platform allows students to ask questions that they could not ask during the face-to-face classroom interaction.

The study also revealed in its findings that there is a significant difference in the performance of students that were exposed to blended learning strategy and those who were exposed to traditional teaching method. This findings is in line with the finding of Al-Qatawneh, Eltahir, and Alsalihi (2020) who reported that there was a significant difference between the students in the experimental and control group in the study, in favour of students of the experimental group who were exposed to blended learning. The average student score in the experimental group using blended learning was 16.87, compared to 12.74 for control group students who were not exposed to blended learning and those with conventional learning. This means that the academic achievement for the students for the experimental group who studied via blended learning strategy was better than that of students of the control group who studied via conventional teaching method.

These results could be attributed to the positive features of a blended learning application in the teaching process such as its flexibility, promotion of student's efficiency, and meeting of the students' needs building of engagement, and taking into account individual differences between students for their more, Eryilmaz (2015) refer to the fact that, during blended learning, students can view and stop the lesson repeatedly at different times and periods, which means that students have time flexibility during their learning. Seage and Turegun (2020) also pointed out that classroom activities and interaction with content and the teacher through blended learning also motivate and encourage students to think about content more deeply which gives them better understanding of the topics of the academic content.

Moreover, the results of this study are consistent with the results of previous studies that have supported of blended learning in the improvement of the achievement of the students and indicated the significance of blended learning in increasing motivations, and positive trends for learning topics content. Nevertheless, the findings of this study negate the findings of the study conducted by Yusuff, Yusoff and MdNoh (2017) on the impact of blended learning on the academic achievement of students on Mathematics and Science courses.

Conclusion

This study aimed to evaluate the impacts of blended learning on University undergraduate students' academic achievement in Educational Foundation General Study Course (Edu. 101) in Emmanuel Alayande University of Education, Oyo. This learning strategy according to the findings, demonstrate the potential to provide effective learning experimental for university undergraduate students in Educational Foundation General Study Course. The findings of the research work revealed that blended learning had positive impact on increasing students' academic achievement.

Recommendations

In light of the findings obtained from the study, it is recommended that:

1. It is necessary for lecturers of educational foundation general study course and other lecturers teaching general study courses to use blended learning strategies in the course of their instruction
2. Students should be properly equipped with appropriate information and communication technology for blended learning method to be implemented effectively and efficiently.
3. It is necessary to train in service and pre-service teachers on how to design electronic courses using virtual learning environmental on a correct scientific and educational basis so as to equip them with the skills necessary for designing and implementing blended learning
4. Future researchers should study the effect of using blended learning in teaching other subjects.

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