

Impact of Blended Learning Strategy in Training Students' Teachers in National Teachers' Institutes Centres Adamawa State, Nigeria

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Abstract

The study was conducted on the Impact of Blended Learning Strategy in Training Students' Teachers in National Teachers' Institutes Centres Adamawa State, Nigeria. The study adopted quasi-experimental design using pre-test, post-test for both groups. The population is 5845 in NTI centres in the state, sample of the study comprised of two intact classes from NTI centres in Mubi and Michika centres with the sample of 121 it comprises male and female students. The experimental group was taught using blended learning strategy, while the control group was taught using conventional method. Performance Test for Students' Teachers (PTFST), was constructed by the researchers as the instrument for data collection. A reliability coefficient of 0.76 was obtained. Data obtained were analysed using mean and standard deviation for answering the two research questions, related t-test and independent t-test were used for testing null hypotheses 1 and 2. The mean scores for post-test is far better than the mean scores obtained from pre-test. Also, mean scores for experimental group is higher than the mean scores for control group. All null hypotheses were rejected the $p < 0.05$, therefore, the students taught using blended learning strategy performed better than their counterparts with conventional method. The researchers suggested that blended learning strategy should employ into school curriculum, the curriculum planner should adopt blended learning strategy and consider it during their planning, likewise, book publishers, subjects' teachers, stakeholders and school managements among others due to the results obtained in the study.

Keywords: ICT; online learning; blended learning; Students' teacher; curriculum.

Introduction

The ability of Nigeria to realize and achieve of becoming one of the twenty largest economies in the world dependent on the capacity on how she seriously develops her educational system of education. The nations all over the world are competing with one another in terms of technology and transforming its youth into highly skilled and competent citizens capable of competing globally. Consequently, a major part of the responsibility for preparing such a workforce rest on the nation's education system or how the education system is built. To be competitive in the current world economy our leaders and stakeholders need to develop the appropriate knowledge and skill sets, globally it is estimated that about eighty per cent (80%) of the jobs undertaken by people require technical and vocational skills. Therefore, labour supply in

Nigeria is characterised by an abundance of unemployed and under employed workers, mostly in agriculture and other sectors, all of these are happening as the poor attitudes of nation leaders in handling our education system.

And so, there is need to strengthen our education system which is the key and wheel to drive our nation economy forward. Throughout the world, education is considered to be an important tool for attaining national goals as it provides learners with skills needed for survival. (Aniefiok and Mfon, 2020).

With all these bunches of problems we have more especially, in education sector, world has experienced deathly disease and economy break down in last days of 2019 to present days, this accumulates on the existing one. Thus, there is need to find out a solution to our education sector since it is the drive force of all development in present and future coming, in searching for the

solution the researchers realised that there is a need to find a strategy of teaching which can enhance teaching and learning either in face-to-face or in vision, doing so, the learning would not experience the total closure as it happens in the past to date.

In searching the solution, it was convinced that blended learning should be considered as the most appropriate strategy to tackle or handle the problems in teaching and learning and it is expected it would bring the lasting solution of any pandemic in the future coming. According to Graham (2013), blended learning is an instructional with an integration between the online learning and face-to-face learning. The implementation of blended learning became popular among the educators due to the development of Information Communication Technology (ICT) in education. A blended learning instruction should be representing for fundamental in conceptualising and reorganising for dynamic teaching and learning to incorporate various teaching components such as online learning, face-to-face learning, media for learning contents, synchronous and asynchronous interaction, different of teaching materials and activities for groups or individuals (Garrison & Kanuka, 2004; Hoic-Bozic, Mornar, & Boticki, 2009).

The researchers are on the opinion that the integration of online learning using the computer and face-to-face classroom learning may arouse the students' interest to give maximum attention to learn as well as to motivate them in achieving the goal in education. Therefore, using the strategy would involve a planned combination of approaches, such as coaching by a supervisor; participation in an online class; breakfast with colleagues; competency descriptions; reading on the beach; reference to a manual; collegial relationships; and participation in seminars, workshops, and online communities.

Although, in the past, blended learning went from a niche to the norm. The pandemic forced all teaching most especially in higher education to move online, even though majority of educators did not have any experience with teaching online. With these present setbacks in institutions of learning, educators should return to face-to-face education, but going back to exactly how they did it before would be a loss. Educators are better equipped than ever because they now have the

competence to blend the best of digital and face-to-face learning. The researchers observed that the teaching materials such as videos, notes, online learning discussion, and online quizzes in the online learning platform could improve the students' ability to comprehend the topic taught by the teachers. The combination of multimedia in teaching and collaborating among the students are some of the effective techniques to help the students in order to master the lesson as well as improving their performance in academic (Asparin and Tan, 2018).

In addition, Mohd, Othman, Tajularipin and Nurzatulshima (2021) have observed that the participation of students in the online learning discussion could make the instructional become more effective and enhance the active learning among them. In this learning strategy, the students will discuss the topic with the teacher and peers to improve their understanding for the particular subject in classroom session. This means that the students will be more active in the classroom, also, they should be more creative during the instructional, better prepared and more interesting because blended learning provides the various teaching materials and resources for the students (Susan & Chris 2015).

Moreover, blended learning has several features which will help the students in learning process. Driscoll (2002); Whitelock and Jelfs (2003); and Graham (2006) the features of blended learning are shortened as follows:

1. The strategy used in blended learning was combined with different types of technology which based on internet in order to achieve the goal in education.
2. The blended learning is considered as combination between instructional with technology and face-to-face traditional method.
3. There are multiple theories such as constructivism and behaviourism involved in teaching method for the blended learning.
4. Blended learning consists of in-person classroom time and individual study using the online learning through applying the internet technology.

Also, Kanuka cited in Heather and Liam (2013) reveals there are three ways net-based tools are typically used in blended learning contexts these are;

1. A tool in the learning process - which is the integration of net-based tools as a "technology"

with the aim of constructing learning activities from a technological perspective.

2. A learning environment - which is the integration of net-based tools as a platform for learning and includes, for example, learning management systems (e.g., Black- Board, Moodle, Desire2Learn).

3. An interactive learning medium - which is the aim of using the net's unique communication features to facilitate interactive and engaged learning. Intentions to design blended learning as a platform for interacting and inquiry-based learning fall into this category.

Looking at the effectiveness of blended learning strategy many educators are eager to implement blended learning in their instructions due to several aspects such as the richness of pedagogy in blended learning, the efficiency of learning strategy in blended learning, easier in accessing knowledge for students during the lesson, relevant cost in implementing blended learning and the easiness of innovation in the instructional (Osguthorpe and Graham, 2003).

In a nutshell, the world is changing constantly and the various domains are also influenced by the change. There is no exemption even in the education domain. Therefore, the evolution of the digital learning platforms has a huge impact in educational institutions and has eventually put the traditional methods in the back seat, this leads to the demands for both technology and traditional learning methods. As a result of this, the art of combining digital learning tools with more traditional classroom face to face teaching gave birth to the term Blended Learning (Beaver, Hallar and Westmaas, 2014).

Statement of the Problem

Students' performance is essential to student's progress from one class to the next class in any institutions of learning. Therefore, students studying in NTI institution with the aims to become the holders of Nigeria Certificate in Education (NCE) seem to have trouble with educations course which is the backbone of the entire programme. As the result of this has led to poor performance and in some cases, most of the students in this programme could not be able to answer the questions asked in their examinations in educational questions, these may be as the results of either lack of enough time, materials, teaching method or comprehensive explanation

from the facilitators, based on these the researchers have intended to implore new strategy which could replace the conventional or the existing one that is been used, which can comprises both visual and face to face learning, so that to analyse at end to find out if it has significant impact on students' performance .

Objectives of the Study

In this work the researchers were guided with two objectives on the Impact of Blended Learning Strategy in Training Students' Teachers in National Teachers' Institutes Centres Adamawa State, Nigeria. The study sought to:

7. ascertain the performances of students in pre-test and post-test on students' teachers in National Teachers' Institutes (NTI) Centres Adamawa State Nigeria;

8. find out the performances of Students taught with blended learning strategy and those taught using conventional method in National Teachers' Institutes (NTI) Centres in Adamawa State Nigeria.

Research Questions

The researchers were guided by the following research questions:

1. What are the differences in the performances of students in pre-test and post-test on students' teachers in National Teachers' Institutes (NTI) Centres Adamawa State Nigeria?

2. What are the differences in the performances of Students taught with blended learning strategy and those taught using conventional method in National Teachers' Institutes (NTI) Centres in Adamawa State Nigeria?

Research Hypotheses

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

H₀₁. There are no significant differences in the performances of students in pre-test and post-test on students' teachers in National Teachers' Institutes (NTI) Centres Adamawa State Nigeria.

H₀₂. There are no significant differences in the performances of students taught with blended learning strategy and those taught using conventional method in National Teachers' Institutes (NTI) Centres in Adamawa State Nigeria

Significance of the Study

This study will highly benefit the following stakeholders in enhancing teaching and learning in schools such as; students, teachers, curriculum planners, parents, publishers and proprietors among others. It was observed that the performance of students' teachers in training programme institution (NTI) is diminishing due to nature of the programme and limited time for, but by imploring blended strategy it will boost their performance. Similarly, the strategy is one of new teaching technique that emphasised more on students' centre which is the type of learning strategy that educationists are making emphasis on. Equally, the finding of this study would be more beneficial to governments at all levels for developing her citizen now and future coming,

Research Design

In this study pre – test, was used in knowing the level of students before using the strategy and after in experimental group, while post – test was used in testing both the experimental and control group. Similarly, the design adopted is quasi-experimental design, Aliyu, Ofo, Cook and Campbell cited in Usman (2019) have stated that whenever the researcher (s) intends to an intact class or classes the appropriate design in education should be quasi-experimental research design. So, it should be noted that the non-equivalent control groups were involved, both groups were post-tested, although experimental group was tested twice while the control group faced once at end to compare it with the treatment class.

Population, Sample and Sampling Techniques

The target population of NCE programme in UNICEF in collaborating with NTI Kaduna is five thousand eight hundred and forty-five (5,845), while two intact classes were used with the sample size of one hundred and twenty-one (121).

Therefore, Federal Polytechnic Mubi centre stands for experimental group with sixty-eight (68) while government secondary school, Michika centre stands for control groups with fifty-three (53). The two centres are running programme of Nigeria Certificate in Education (NCE).

Instrumentation

The instrument of the study is performance test for students' teachers (PTFST), it was constructed for testing students' performance in Mubi and Michika centres. The instrument contains two parts, sections. Eight lesson plans were developed for both experimental and control groups, experimental group was taught with blended learning strategy, while control group was taught with conventional method. The findings will determine the Impact of Blended Learning Strategy in Training Students' Teachers in National Teachers' Institutes Centres Adamawa State, Nigeria, among the variables.

Procedure for Data Analysis

Therefore, means and standard deviations were used for the two research questions, related t-test for hypothesis one and independent t-test for hypothesis two.

Descriptive Analysis

In order to answer the research questions descriptive statistical analysis was done using means and standard deviation.

Research Question one:What are the differences in the performances of students in pre-test and post-test on students' teachers in National Teachers' Institutes (NTI) Centres Adamawa State Nigeria?

Table 1: Descriptive Statistics of Mean and Standard Deviation for Research Question One (pre-test and post-test)

Groups	Descriptive			
	N	Mean	Mean Differences	Std. Deviation
pre-test	68	41.04	21.09	9.396
post-test	68	62.13		13.876

Table 1 result indicated that the pre-test means scores is 41.04, while 62.13 is obtained as mean scores in post-tests. Consequently, the mean differences do exist between pre-test and post-test is 21.09, therefore, the post-test mean scores are far better than the pre-test mean scores. With this result the researchers concluded that there is significant impact in the performances of Students taught with blended learning strategy and those taught using conventional method in National

Teachers' Institutes (NTI) Centres in Adamawa State Nigeria.

Research Question 2: What are the differences in the performances of Students taught with blended learning strategy and those taught using conventional method in National Teachers' Institutes (NTI) Centres in Adamawa State Nigeria?

Table 2: Descriptive Statistics of Mean and Standard Deviation for Research Question Two (Experimental and two control groups)

Descriptive				
Groups	N	Mean	Mean Differences	Std. Deviation
Experimental	68	62.13	16.64	13.876
Control	53	45.49		7.743

Table 2 result indicated that the experimental group has the means of 62.13, while 45.49 is obtained as mean scores in control group. So, the mean differences do exist between experimental group and control group is 16.64. Therefore, the experimental group mean scores are far better than the control group mean scores. With this result the researchers concluded that there is significant impact in the performances of students taught with blended learning strategy and those taught using conventional method in National Teachers' Institutes (NTI) Centres in Adamawa State Nigeria.

Consequently, imbibing blended learning strategy in teaching students would surely enhance students' performance because it was found very effective in students' teachers.

The study made use of paired t-test for comparing between pre-test and post-test for testing hypothesis one, although independent t-test is used for testing hypothesis two.

Hypothesis 1: There are no significant differences in the performances of students in pre-test and post-test on students' teachers in National Teachers' Institutes (NTI) Centres Adamawa State Nigeria.

Table 3: Paired Samples t-test for hypothesis one (Pre-test and Post-test)

Paired Samples Statistics					
Groups	N	Mean	Mean Dif.	Std. Dev.	Sig. (2-tailed)
pre-test	68	41.04	21.09	9.396	.000
post-test	68	62.13		13.876	

Table 3 shows the result of pre-test and post-test students, the pre-test mean score is 41.04, while

the post-test mean is 62.13 and 21.09. The differences do exist between the two tests, the null-hypothesis which stated there are no

significant differences in performances of students taught with blended learning strategy and those taught using conventional method in National Teachers' Institutes (NTI) Centres in Adamawa State Nigeria is rejected. Since the p-value obtained is 0.000 ($P < 0.05$), therefore, significant differences do exist in the performances of students in post-test compared to pre-test because of the $P < 0.05$ is less than the alpha value of .05 level of significance. So,

blended learning strategy has significant impact on students' performance.

Hypothesis 2: There are no significant differences in the performances of students taught with blended learning strategy and those taught using conventional method in National Teachers' Institutes (NTI) Centres in Adamawa State Nigeria.

Table 4: Independent t-test for hypothesis two (Experimental and Control)

Independent t-test					
Groups	N	Mean	Mean Dif.	Std. Dev.	Sig. (2-tailed)
Experimental	68	62.13	16.64	13.876	.000
Control	53	45.49		7.743	

Table 4 indicated that the students taught with blended learning strategy performed better compared with those taught with conventional method with the differences of 16.64, therefore, the researchers have concluded that the statement of the null-hypothesis which stated there are no significant differences in the performances of students taught blended learning strategy and those taught using conventional method in National Teachers' Institutes (NTI) Centres in Adamawa State Nigeria is rejected. It happened due to the p-value is 0.000 ($P < 0.05$), therefore, it is confirmed teaching students using blended learning strategy has significant impact on students' performances compared to those taught using conventional method, due to the $P < 0.05$ is less than the alpha value of .05 level of significance.

Discussion of Findings

In the table 1 the result shows that post-test mean scores is 62.13 while pre-test has 41.04, there is difference of 21.09 based on this the post-test mean scores are far better than the pre-test means scores. This confirms there is significant impact on the performances of students taught blended learning strategy and those taught using conventional method in National Teachers' Institutes (NTI) Centres in Adamawa State Nigeria. Similarly, the null-hypothesis two in

table 3 which stated there are no significant differences in performances of students taught with blended learning strategy and those taught using conventional method in National Teachers' Institutes (NTI) Centres in Adamawa State Nigeria is rejected. Since the p-value obtained is 0.000 ($P < 0.05$), therefore, significant differences do exist in the performances of students in post-test compared to pre-test because of the $P < 0.05$ is less than the alpha value of .05 level of significance. So, blended learning strategy has significant impact on students' performance. This agreed with the study conducted by Aniefiok and Mfon (2020) on the effects of Blended Learning and Expository Instructional Strategies on Senior Secondary School Students' Performance Based on the Concept of Atomic Structure. The results obtained showed that of the two teaching strategies investigated, blended learning is the more effective in facilitating students' academic achievement and retention in the concept. The findings showed that students taught using blended learning strategy retain the concepts taught significantly better than those taught using computer simulation strategy. Likewise, it is also, agreed with the findings of Mohd, Othman, Tajularipin, and Nurzatulshima (2021) on the Effects of Blended Learning towards Students' Performance in Electrochemistry Topic among Secondary School Students in Malaysia. There findings revealed that blended learning and

traditional learning had improved students' performance in Electrochemistry topic. However, there was a significant difference on the mean scores of the electrochemistry performance post-test between the blended learning group and the traditional learning method group. In this, the findings revealed that blended learning is more effective than traditional learning method in order to improve students' performance in Electrochemistry topic. The researchers suggested that blended learning should be implemented to other subjects and the policy maker should adopt blended learning instruction in education curriculum.

In table 2 revealed the outcome performances for experimental and control group, the experimental group obtained the mean scores of 62.13 while the control group has 45.49 with the differences of 16.64 between the two groups. Consequently, teaching students using blended learning strategy is every effective and can enhance teaching learning due to the higher scores obtained compare to control group.

Then, table 4 the researchers concluded that the statement of the null-hypothesis there are no significant differences in the performances of students taught blended learning strategy and those taught using conventional method in National Teachers' Institutes (NTI) Centres in Adamawa State Nigeria is rejected. It happened due to the p-value is 0.000 ($P < 0.05$), therefore, it is confirmed teaching students using blended learning strategy has significant impact on students' performances compared to those taught using conventional method, due to the $P < 0.05$ is less than the alpha value of .05 level of significance.

Moreover, it is in line and agreement with the findings of Ashikin and Osman (2013), study about the blended learning on chemistry subject at the secondary school level is still lack in Malaysia due to the minimum number of teachers used the online learning platform. The studies had showed the effectiveness of blended learning in order to improve students' performance. Also, a study about the blended learning conducted by Al-Qahtani and Higgins (2013), showed that students who were exposed with blended learning group showed the highest achievement compared to e-learning and traditional learning method. In the study researchers had investigated the three different of instructional in order to improve

students' achievement in academic. The findings revealed that there was no significant different when comparing the e-learning and traditional learning.

In conclusion, the findings in this study were in line with a study conducted by Khader (2016) which stated that the students in blended learning showed higher achievement in the examination when compared to students in traditional learning group. Similarly, to a study conducted by Alsalhi, Eltahir, and Al-Qatawneh (2019), revealed that students in the blended learning group showed higher scores in science subject than the traditional learning group. The findings in this study verified that blended learning has a significant impact to improve students' performance in education courses topics among the students NCE in NTI programme in Adamawa state centres.

Conclusion

The findings in this study revealed that blended learning strategy was an effective method to improve students' performance in institutions of learning. However, the scores among the students in both blended learning group and traditional learning method had improved at the end of the treatments.

Recommendations

The researchers recommended the following:

1. Blended learning should be adopted in our classes since it was found it has significant impact on students' teachers.
2. The researchers also suggested to implement blended learning to other institutions such universities, colleges of education, polytechnics among others, also, policy maker should implement the blended learning in education curriculum while the teacher should be encourage to practice blended learning in their instruction due to the development of technology in education around the world which affected the our daily activities.

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