



## **Effects of Blended Learning on Academic Achievement and Knowledge Retention of Students in Word Processing in Colleges of Education in Yobe State, Nigeria**

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### **Abstract**

*This study determined the effects of blended learning on academic achievement and knowledge retention of students in Word Processing in Yobe State Colleges of Education. The study adopted the quasiexperimental research design. The study was conducted in the two colleges of education in Yobe State. Federal College of Education (Technical) Potiskum, and Umar Sulaiman College of Education Yobe State. The population of the study was (127) 200level business education students in the two Colleges of Education. The instrument used for data collection was Word Processing Achievement Test (WPAT) and Word Processing Retention Test (WPRT). Both WPAT and WPRT were 40 items multiple choice objective questions with options of A, B, C, and D with only one option as the correct answer. The validity of the instrument was done by three experts in business education. To ascertain the reliability of the instruments, a trial testing was conducted at the Department of Business Education, State Polytechnic Bauchi State which is outside the study area. To analyse data collected, Means and standard deviation were used to answer the three research questions that guided the study, while the null hypotheses were tested using Analysis of Covariance (ANCOVA) at 0.05 level of significance. The study found that blended learning strategy is more effective than lecture method in improving academic achievement and retention. Based on the findings of the study it was therefore concluded that blended instructional method is better than lecture methods.*

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**Keyword:** Blended learning, academic achievement and knowledge retention of students in Word Processing

## Introduction

The integration of Information and Communication Technologies (ICT) in teaching and learning process is reshaping the way and manner teachers interact with their students beyond the physical walls of a classroom environment. Teachers now use the technologies to blend the classroom traditional learning approach to deliver lessons through blended learning approach. Blended learning is a way of teaching and learning which integrates e-learning with traditional learning under a unified form. According to Husain, (2011), blended learning is an approach which combines the best elements of online learning and face-to-face learning.

Blended learning represents an educational method that converts the curriculum into computerized topics and multimedia facilities with infrastructure such as animations, text images and sounds to make the educational process more effective and valuable to the learners (Almasaeid 2014). Baker (2019) further stated that in the blended method, e-learning tools such as software, computer facilities and the internet are merged with regular tutorials in which tutors meet with the learners' face to face. Essentially blended learning is a kind of hybrid learning which combines the best features of traditional schooling with the advantages of online learning to deliver personalized, differentiated instruction across a group of learners (Powell, Watson, Staley, & Horn, 2015). Since most learners hardly get satisfied by a single method or strategy used in teaching and learning, Amadu, (2015) contended that no content can be taught using a single method or strategy if the teacher wants the students to fully internalise the concepts taught without blending various teaching methods particularly in colleges of education because of the specialties in teacher education programmes.

Colleges of education are institutions with post-secondary school status which major objective is to train teachers who will teach at the primary and secondary schools. According to Phoebe (2017), colleges of education are tertiary institutions in Nigeria established to provide training for those who aspire to become teachers. Colleges of education provide training in arts, sciences, and vocational practices and are committed to creating an inclusive learning environment that values and promotes diversity in all areas of teacher training (business education as an area of specialization inclusive). Osuala (2009) in Phoebe (2017) stated that the objective of business education is to produce qualified and competent Nigerian Certificate in Education (NCE) teachers in business subjects who

will be able to teach business subjects in secondary and other related educational institutions. Business education is that part of vocational and technical education which aims at producing teachers that will equip students with competencies to establish, operate and manage business enterprises with official training in accounting, commerce, shorthand and typing in order to develop commercially useful skills.

Business education is an essential part of the preparation of youths for life and living. According to Phoebe (2017), business education is a programme of instruction which consists of two parts (1) Office education - a vocational programme of office careers through initial, refresher and upgrading education and (2) General business education - a programme to provide students with information and competences which are needed by all in managing personal business affairs and initial and upgrading education. Business education is that aspect of educational training that helps the individual to acquire relevant skills needed for a living (Ajisafe, Bolarinwa & Tuke, 2015). Business education prepares individuals for careers in business and also to become intelligent consumers of economic goods and services (Ado, 2015).

Business education can thus be described as that part of education process which helps learners to acquire relevant skills necessary for work in business, educational and other organizations in order to live a very good life as individuals.

Therefore, business education students are trained in colleges from the dictate of the curriculum that contains the core concept of word processing as a course which is taught in Nigerian colleges of education as BED 217 = Word Processing I. The concept of the course covers alphabetic sentence drills, procedures and layout of business letters, personal and official letters and memos, manuscript, inset matters, roman numerals and speed and accuracy development. Word processing is a skill-based approach that is used to key- in texts or typeset, edit and format text-based documents received or create on a computer related device. Problems of low academic achievement and retention in Word-Processing recorded by business education students and teachers in Yobe State colleges of education are alarming. This is evident in the results of the student's achievement obtained from the two colleges of education in Yobe state. Word processing according to Bridges (2016) is the act of using a word processor to complete specified written assignments. Furthermore, Grace, Ekpereka and Augusta, (2019) described words processing as any activity that involves the creation of texts using a word processor,

which permits users to draft letters, write books and create other word centric documents on a computer. Word processing, therefore, is the use of word processing software to write text, edit, format and print it as processed document which need to be taught using well organized processes and based on the dictate of the curriculum in question to move learners' academic achievement and retention.

The students' success and mastery of the concepts taught is expected to be measured by the teacher in order to observe both the academic achievement and retention level from the available teaching and learning methods or strategies adopted during the instructional delivery. Does, Achiever and Scholer (2010) submitted that academic achievement is the level at which a task is accomplished through efforts, courage and skills. Phoebe (2017), also indicated that academic achievement is the degree of success reached or attained in some generals or specific area of study, and it includes; students' performance as seen in the academic pursuit, behaviour, skills, punctuality, assertiveness and social skills among others.

Retention, on the other hand, refers to the act or power of remembering things. Retention is the ability to reproduce the learned concept when the need arises (Ado, 2015). Therefore, retention is the ability to remember past learning experiences. Retention plays a vital role in the understanding and application of conceptual skills. Retention involves the ability to recall the content that has been given within a specific period of time. Al Lahham (2016), observed that the use of concrete objects for illustration in learning create better retention of information and development of favourable attitude towards knowledge, that facilitate students' understanding and retention. The lecturers' knowledge level, and understanding of the instructional approaches are factors considered essential in influencing students' learning and retention (Entwistle, 2013). Teaching method adopted by the lecturer could either enhance or undermine students' achievement in any subject (Yusuf & Afolabi, 2010). Therefore, lecturers' persistent use of teaching methodologies that cannot support appropriate learning of the students to become active learners, other than being passive learners, should be encouraged in order to promote retention and improve academic achievement. Aside the teaching methods adopted by a lecturer, researchers are of the opinion that factors such as gender and student's ability level also interact in the students' achievement and retention.

Gender goes beyond biological sexual orientation but is socially defined. Gender according to Amadu (2015) is the socially defined capabilities and attributes assigned to a person on the basis of their alleged sexual characteristics. It concerns all the sexual and cultural difference that distinguishes men from women. Gender is therefore one of the attributes that differentiate masculine from feminine features.

Ideally, instructional delivery for the teaching and learning of word processing in business education is done in a learner centred approach. This approach gives students the freedom to participate in the process because of the practical nature of the course, and also requires the teacher to carry the students in a self-directed and participatory mode known as blended learning.

Students in a well blend-to-learn education settings use part of their convenient hours to connect, learn and send feedback to the host tutor and amongst member groups. The learners also have the benefit of face-to-face instruction and supervision to maximize their learning and to best fit their own needs. Keengwe and Kang (2013) stated that blended learning includes a course that combines online and face-to-face learning and involves the systematic combination of face-to-face and interactions mediated by technologies between students, teachers, and learning resources. Blended learning has been considered as an important alternative approach to overcome various limitations of both face-to-face and online learning, because the blended learning approach adopts the advantages of both types of learning (Schlager et al. 2002).

Accordingly, various studies have been conducted to ascertain the effects of blended learning in teaching and learning process and how it facilitates students' academic achievement and retention. For instance, Ates, (2012) in his study on instructional technologies and material design course evaluation through lecturers and students' responses mentioned possible inequalities in b-learning implementation since there are students who have no personal computers (PC) and/or Internet access and computer skills that need to be considered before implementation. But Osguthorpeve Graham (2013) who carried out research on blended learning environments: definitions and directions found that blended learning helps students to get prepared before lessons, review materials and further investigate the content and self-evaluate themselves. El-Deghaidy and Nouby (2018) in their research on effectiveness of blended e-learning cooperative approach in an Egyptian teacher education programme found out that many results

about blended learning effects on academic achievement and retention towards lessons are remarkable and positively affect lesson attitudes while some showed no significant effect on academic success and attitudes (Delialioğlu & Yıldırım, 2017). Never-the-less, Ateş, Turalı, and Güneyce (2018) in their study on using blended learning model in teacher education found that many studies revealed students' positive perceptions and views on b-

### **Statement of the problem**

The integration of ICTs makes it possible for teachers and students to share knowledge and information. The shift also helps teachers to establish a meeting forum where students would be meeting occasionally on software packages such as Instagram, WhatsApp, LinkedIn, YouTube, Facebook, skype, google among others which enable them to address problems that hinders instructional activities particularly of Word Processing students of business education departments in Colleges of Education in Yobe state.

However, the problem of low academic achievement and retention in Word-Processing recorded by business education students and teachers in Yobe State colleges of education cannot be over emphasized. This evident from the results of the student's achievement obtained from the two colleges of education in Yobe state. This situation is rather worrisome and as such has become a matter of concern to many stakeholders such as business educators, employers of labour, parents and teachers. Lecturers' pedagogies, strategies and tools used in teaching students may have been defeated as shown through the students' poor performance because most colleges of education lecturers in Yobe State are used to the traditional (chalk-talk) method of teaching which renders students' passive listeners and make teaching ineffective, consequently affecting the students' performance in word processing particularly.

On the other hand, the state of knowledge explosion, increase in student-teacher ratio which gives a heavy workload to the teachers as well as the current state of Boko Haram insurgency in both Yobe and Borno, conventional classroom instruction alone does not in most cases bring out the desired goals from the teaching and learning process, this causes some drawbacks in student performance in word processing. Therefore, there is need for an instructional strategy that could help students to learn better, and to acquire skills in word processing and become better prepared for work in the industry. However, it is still not quite certain as to whether it is

learning. Also, Salameh (2005) in his study on the natural development of eLearning found that blended learning is the acceptable alternative of e-Learning, as it creates higher returns and requires lower costs and is the most developed modern learning method. Moreover, the current situation of intolerable failure in some difficult-to-comprehend courses is so alarming and this has therefore made the study on blended learning relevant.

effective in achieving better learning outcome in word processing as well as enhancing students' achievement and retention. Thus, the question; what is the effect of blended learning instructional strategy on students' academic achievement and retention in word processing in Yobe State Colleges of Education State, Nigeria?

### **Purpose of the study**

The general purpose of the study was to determine the effects of blended learning on business education students' academic achievement in word processing in colleges of education in Yobe State. Specifically, therefore, the study determined:

1. the mean achievement scores of students taught word processing using blended learning method and those taught using lecture methods in colleges of education Yobe State.
2. the mean retention score of students taught word processing using blended learning methods and those taught using lecture methods in colleges of education Yobe State.
3. the mean achievement scores of male and female students taught word processing using blended learning method in colleges of education Yobe State.

### **Research questions**

1. What is the mean achievement score of students taught word processing using blended learning method and those taught using lecture method in colleges of education Yobe State?
2. What is the mean retention score of students taught word processing using blended learning methods and those taught using lecture methods in colleges of education Yobe State?
3. What is the mean achievement score of male and female students taught word processing using blended learning method in colleges of education Yobe State?

### **Hypothesis**

The following null hypothesis was tested at 0.05 level of significance:

**H<sub>01</sub>:** There is no significant difference between the mean achievement scores of students taught word processing using blended learning and those and those taught using lecture methods in colleges of education Yobe State.

Experimental Group O1 X O2 O3  
 \_\_\_\_\_  
 Control Group O1 .....O2 O3

**Method**

The study adopted the quasi-experimental research design. Quasi-experimental design, according to Kimko (2010) is a research design which uses non-randomized group and these options occur when the researcher cannot randomly sample and assign the subjects and, in this case, intact or pre-existing group will be used.

*Area of the Study*

The study was conducted in the two colleges of education in Yobe State. Federal College of Education (Technical) Potiskum, and College of Education Gashua Yobe State. Yobe State shares borders with Borno State on the East, Bauchi on the West, Gombe State on the South and Niger Republic on the North.

*Population of the Study*

The population of the study was 127 business education students in 200 level in the two Colleges of Education in Yobe State. That is 70 students from Federal College of Education (Technical) Potiskum out of which 45 were males and 25 were females, and 57 students from College of Education Gashua out of which 35 were males and 22 females.

*Instrument for Data Collection*

The instrument used for data collection was Word Processing Achievement Test (WPAT) and Word Processing Retention Test (WPRT). Both WPAT and WPRT were 40 items multiple choice objective questions with options of A, B, C, and D with only one option as the correct answer. In order to ascertain the reliability of the research instrument, a trial testing was conducted at the Department of Business Education, Tatari Ali Polytechnic Bauchi State which is outside the study area. To analyse data collected, Means and standard deviation were used to answer the six research questions that guided the study, while the null hypotheses were tested using t-test statistics and Analysis of Covariance (ANCOVA) at 0.05 level of significance.

**Results**

**Research question 1:** What is the mean achievement score of students taught Word Processing using blended learning method and those that were taught using lecture method?

**Table 1:pre-test and post-test Mean Achievement scores of students taught word Processing using blended instructional approach and those taught using lecture methods.**

Groups	Pre-test			Post-test		Mean Gain (M <sub>g</sub> )
	N	$\bar{x}$	SD	$\bar{x}$	SD	
Experimental	57	32.18	9.15	80.11	13.47	47.93
Control	70	30.60	8.86	62.81	14.02	32.21

The result presented in Table 1 show that students taught word processing using blended learning instructional delivery had pre-test achievement mean score of 32.18, post-test mean achievement score of 80.11 and mean achievement

gain score of 47.93. On the other hand, students taught word processing with lecture method had pre-test mean achievement score of 30.60, post-test mean achievement score of 62.81 with the mean achievement gain of 32.21.

Based on this finding, the Table indicates that teaching word processing using blended learning instructional delivery with lecture method increases academic achievement of the students than those taught with only lecture method.

**Research Question 2:** What is the mean retention score of students taught Word processing using blended learning methods and those taught using lecture method?

Data for answering research question two is presented on Table 2.

**Table 2: Mean retention scores of students taught word processing using instructional approach and those taught using lecture method.**

Groups	Pre-test			Post-test		Mean Gain ( $M_g$ )
	N	$\bar{x}$	SD	$\bar{x}$	SD	
Experimental	57	80.11	13.47	83.63	10.65	3.52
Control	70	30.60	8.86	66.14	9.71	35.54

The results presented in Table 2 show that students taught word processing using blended learning instructional delivery had pre-test mean score of 80.11, post-test mean score of 83.63 making a mean gain score of 3.52. On the other hand, students taught word processing using lecture method had pre-test mean score of 30.60, post-test mean score of 66.14 with the mean gain of 35.54. This result indicates that, students taught with lecture

method made higher retention than the group taught with blended learning method.

**Research Question 3:** What is the mean achievement score of male and female students taught word processing using blended learning method?

Data for answering research question three is presented on Table 3

**Table 3: Means and standard Deviation of Pre-test and Post-test Scores of the male and female students in the achievement test in word processing.**

Treatment	Gender	Pre-test			Post-test		Mean Gain ( $M_g$ )
		N	$\bar{x}$	SD	$\bar{x}$	SD	
Experimental	Male	35	35.57	9.58	83.37	9.57	47.80
	Female	22	32.18	9.16	74.91	18.39	42.73

Data presented in Table 3 shows the mean and standard deviation of male and female students of experimental group on pre-test and post-test scores. The male students have a pre-test mean score of 33.57 and standard deviation of 9.58 and a post-test mean score of 83.37 and standard deviation of 9.57 respectively, making mean gain of 47.80 in favour of post-test, while the female experimental class have a pre-test mean score of 32.18 and standard deviation of 9.16 and post-test mean score of 74.91 and standard deviation of 18.39, making mean gain of 42.73 in favour of post-test. With these results, male students taught word processing using

blended methods had a higher post-test means scores than female students in achievement test.

**Hypothesis One:**

**H<sub>01</sub>:** There is no significant difference between the mean achievement scores of students taught word processing using blended learning and those taught using lecture method.

Pre-test of control and experimental groups and post-test of the two groups were compared separately to determine the effect of the treatment

on students' performance. The results of the analysis are presented in Table 7.

**Table 4: t-test Comparisons of the Pre-test and Post-test Mean Achievement Scores of Experimental and Control Groups**

Group	N	Mean (x)	SD	Df	t-Value	p-Value	Decision
<b>Blended</b> (Pre-test)	57	32.18	9.15	125	.999	0.327	NS
<b>Lecture</b> (Pre-test)	70	30.60	8.86				
<b>Blended</b> (Post-test)	57	80.11	13.47	125	7.03	.000	S
<b>Lecture</b> (Post-test)	70	62.81	14.02				

Significant at  $P < 0.05$

Table 4 shows the t- test of the pre-test and post-test means achievement scores of those taught word processing using both blended and lecture group. At pre-test stage, the Lecture group score is statistically not different from the experimental group achievement scores when both are examined using WPAT at ( $t_{cal} = .999$ ,  $df = 125$ ,  $p = 0.327$ ). This implies that, the control and experimental groups are of similar knowledge level before the study. At the post stage, the experimental group achievement score is significantly higher than the control group with ( $t_{cal} = 7.03$ ,  $df = 125$ ,  $p = 0.000$ ). This implies that the control and experimental groups never performed equally during the word processing achievement test.

**Findings**

1. Blended learning method improves students' academic achievement in word processing than lecture method. In other words, teaching word processing using blended learning method proved to be more effective. After the post test, it was found out that there was significant difference in the mean achievement score of students taught word processing using blended learning method and those taught using lecture methods.
2. Students taught with lecture method made higher retention scores than the group taught with blended learning method. Hence, lecture method is more effective than using blended learning method on the student's academic retention in word processing. There was a significant difference in the mean retention scores of students taught word processing using blended learning method and lecture method.
3. Learning word processing using blended learning method improved male students' academic achievement in word processing more

than that of their female counterpart. In other words, teaching word processing using blended learning method proved more effective for male students than for female.

**Discussion of findings**

The findings of the study are organized and discussed according to the research questions answered and hypotheses tested.

The findings of this study showed that the effect of blended learning instructional method on students' academic achievement in word processing were significantly higher than the effect of lecture method. This finding is in line with earlier findings of Khader Khader (2016) whose findings revealed that there is no significant difference between the arithmetic means of the students' performance in the achievement in science as a whole due to the teaching method and gender and the interaction between them.

The findings of the second research questions showed that lecture method improved students' retention in word processing more than blended method. In other words, teaching word processing using blended method proved more effective than blended method approach. This finding is in agreement with findings of Sluaiman (2016) who found on the effects of blended learning on performance and retention of senior secondary school students in English language, in Kaduna state, Nigeria. The result of the study showed that students taught with conventional method had higher mean retention score than the students taught with blended method.

The findings of the study also showed that learning word processing using blended learning instructional approach improved male students' academic achievement in word processing than their

female counterpart. In other words, teaching word processing using blended learning instructional approach proved to be more effective in male students. The findings of the study also showed that there was no significant difference in the mean achievement scores of male and female NCE11 students taught word processing using blended learning instructional approach. This finding corroborated the work of Ogbianigene (2014) who conducted a study on the effect of gender on student academic achievement in secondary school social studies. The result of the study has shown the mean and standard deviation of male students to be higher than that of the females, and concluded that males have higher achievement than females.

### Conclusion

Based on the findings, it was therefore concluded that blended learning methods is more effective than lecture method in improving student's achievement in word processing. It was also found the students taught using blended methods have

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higher retention levels than students taught with lecture methods. It was also recommended that the NCCE should consider curriculum review such that it can integrate blending of teaching methods.

### Recommendations

Based on the findings of this study, it is recommended that:

1. Business Education Lecturers should make effective use of blended learning strategy in teaching the concept of Business Education courses.
2. Curriculum planners should ensure the incorporation of these strategies in the teaching and learning of Business Education courses as this will help to concretize learning thereby, facilitating academic performance of students.
3. Government in conjunction with other professional bodies like NUC should endeavour to organize and sponsor regular workshops, seminars and conferences to train Science teachers on the use of blended learning teaching strategy.

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