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Research Article

# Effects of Blended and Lecture Teaching Methods on Students' Academic Performance in Research Methodology in Two Basic Schools of Nursing in Enugu State, South East Nigeria

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# **ABSTRACT**

Teaching and learning process involves interaction between the teacher and the learner through various teaching methods which show what to teach, how to teach and the effects they will have on academic performance. This study investigated the effects of blended, and lecture teaching methods on students' academic performance in research methodology. This was a non-randomized control trial quasi-experimental study. Total population of 96 students from two basic nursing schools in Enugu State assigned to experimental (BTM) and control (LTM) groups participated in the study. The demographic information was obtained using self-developed demographic questions while validated achievement test on research methodology was administered before and after the intervention. Data analysis was carried out using Statistical Package for social sciences (SPSS) software version 25. BTM (pretest 43.70±9.20, 10.26% and 13.64%1st 2nd posttests, increase of 3.38% (P<0.05). LTM (pretest 44.68±9.59%, 48.25±6.30%, and 48.67±4.99% 1st 2nd posttests, increase of 0.43% (P>0.05). There was significant increase of 3.38% in the AP of basic nursing students after using blended teaching method in first and second posttests (P<0.05). There was increase of 0.43% in the AP after using LTM but not significant (P>0.05). There was statistically significant difference in the mean scores of pretests and posttests (P<0.05), of those exposed to BTM. BMT had a higher AP than LTM (P<0.05). BTM significantly improved AP while LTM showed least improvement on the AP of students in research methodology. BTM had positive effect in enhancing learning outcomes implying that students derive benefit from being taught using combined TMs.

**Keywords:** blended, lecture, teaching methods, nursing students, Academic performance, research methodology.

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## INTRODUCTION

Education is composed of two interrelated processes which are teaching and learning that involves active cooperation and interaction between the instructor and the student. Creating a background for learning and planning an effective learning environment is one of the responsibilities of the teacher and it is of prime importance in teaching (Newton and Philip, 2016). Improvement of educational quality has been considered in medical fields, and its importance is growing gradually (Sadeghi *et al* 2014). In this respect, one of the important responsibilities of nursing education systems is providing competent nurses that can provide patients with safe and high-quality care in the future. As a step toward that end, nurse

educators need to use new educational strategies to actively engage nursing students learning activities in academic and clinical services (Adam *et al.*, 2021). The high value placed on research methodology in higher institutions' curriculum, and the nature of the subject, informs the need for effective teaching methods. The traditional approach in nursing education is a well-established method of teaching, whereas blended and e-learning methods are relatively new, promising, technology-enhanced trend. A few of the problems affecting the teaching and learning of research are the meaningfulness of the content, the sustainability of the methods and, the teacher who handles both the content and methods (Gurung and Stoa, 2020). Nurse educators require a balance between developing the necessary skills and moulding adaptable and

agile teachers to specialize in different teaching methods that will enhance academic performance of students in research methodology (Ojo,and Adu 2018). They need to use teaching methods that will address the changing needs of teaching and learning activities set for the 21st century as it relates to teaching and improving the academic performance of students in research methodology. Choosing specific teaching methods that best achieves course objectives is one of the most important decisions a nurse educator faces (Karrim, 2021). To facilitate the process of knowledge transmission, teachers apply appropriate teaching methods that best suit specific objectives and learning outcomes, hence teaching methods and their relevant effects are prerequisites for student's academic performance (Ganyauppfu, 2013).

Vocabulary dictionary (2019) defined teaching methods as the general principles, instruction and management strategies used for classroom activities. They are patterns of teacher behavior that occur either simultaneously or in sequence in a verified way. Appropriate and efficient method depends on the characteristics of the learner, the teacher, the environment and the type of learning it is supposed to bring about, (Dorgu 2015). Teaching methods are many and varied, and could be used in different ways, considering the age of the learners, body configuration or physique of learners, (able or disabled learners), academic ability/intelligence of the learners, number of learners, the type of curriculum, teachers knowledge and ability to use a particular teaching method (McIver et al 2016) etc. Teaching methods can be broadly classified into traditional and modern teaching methods. The traditional (or conventional) teaching methods are teacher centered while modern or constructivist approach to teaching involves interactive methods (Dorge 2015).

Traditional (or conventional) method is old fashioned, teacher-centered, widely and routinely used by teachers with an end goal of testing and assessment (Donche, 2017). The most widely used traditional method of teaching is lecture method; it is one of the earliest and oldest methods of teaching which is still widely used in schools, colleges and universities. French and Siyakwazi (2017) noted that some of the problems associated with this method include grabbing the attention of students in classroom; many students in the class may not follow the theme, because in tertiary institutions, teachers use mainly the lecture method which is a teacher-centered method. The implication is that learners are passive and learning tends to be superficial. This method facilitates large-class communication, the lecturer must make constant and conscious effort to become aware of student problems and engage the students to give verbal feedback (Abdulbaki, 2018). The lecture method, which is one in which facts, concepts or principles are presented orally to groups of note taking students, seems to be most attractive where large classes of students are involved (Barker 2018). But, this method is among the most criticized and most abused yet, as can be deduced from above, it has its strong points and would be very difficult to replace entirely. Lecture method is greatly criticized and abused by current progressive educators, but its ability to survive the years has proven that the method has some unique strength and its strong points that would be very difficult to replace entirely (Kasambira (2018).

Modern (or constructivist) method enables the learner to construct knowledge and skills through active participation in the teaching-learning process. The teacher's primary role is to coach and facilitate student overall comprehension of material (Moqaddam, 2016). It encourages students to collaborate and be more productive. The commonly used modern teaching methods are blended and e-learning teaching methods.

Blended learning is a learning system that combines faceto-face instruction with computer mediated instruction (Graham, 2013). Its combination may involve mixing various event-based activities such as face-to-face classroom, live elearning, self-paced learning, online conference and training combines traditional face-to-face classrooms (synchronous learning activities) with e-learning activities (asynchronous learning activities) (Friesen, 2014). It requires the physical presence of both teacher and student, motivates students to learn on their own, at their own pace and at their own time (Poon, 2013). The use of ICT has been found to improve student attitudes towards learning. By incorporating technology into class projects, communication between lecturers and part-time students has improved, and students were able to better evaluate their understanding of course material via the use of computer-based qualitative and quantitative assessment modules (Gambari etal 2017). Blended learning also has the potential to reduce educational expenses, though some dispute that blended learning is inherently less expensive than traditional classroom learning. In spite of its benefits, Umoh and Akpan 2014) reported that non-availability, non-accessibility and inadequate students' ICT skills towards the utilization of blended learning is a barrier to its adoption in higher institutions in Nigeria.

There is need to understand when a traditional method works best and when it's right to try new and innovative approaches or combine both. Many nurse educators have continued to teach with lecture method, without determining its effects on academic performance of the students so as to know when a traditional method works best and when it is right to try new methods or combine both. In addition, it has been observed that little research has been devoted to exploring the effects of teaching methods that predict the academic performance of basic nursing students in research methodology irrespective of their gender differences. The need to extend the frontier of knowledge in order to help improve the unimpressive students' academic performance in research methodology necessitates experimenting different teaching methods that will significantly improve students' academic performance. However, there is a dearth of research on effects of blended (B) and lecture (L) teaching methods (TMs) on student's academic performance (AP) in research methodology in basic nursing schools. This study aimed to determine the effects of blended (B) and lecture (L) TMs on students (AP) in selected basic nursing schools in Enugu State. Specific objectives of the study were to: (i) Determine the preintervention effect of BTM, (ii) Determine the pre intervention effect of LTM on students AP in research methodology in basic nursing schools in Enugu State (iii) ascertain the posttest effect of BTM and LTM (iv) determine if a significant difference exists in the basic nursing students exposed to BTM and those exposed to LTM.

# MATERIALS AND METHODS

Research design: This study adopted a non-randomized control trial quasi-experimental design. Participants: Two groups of second year basic nursing students from two purposively selected government owned Basic Schools of Nursing in Enugu State, Southeast Nigeria participated in this study. Group 1 was taught with blended teaching method (experimental group) and group 2 was exposed to lecture teaching method (control group). A total of 96 students, made up of 47(group1) and 49 (group2) students were used for the study. The two groups were comparable in terms of academic performance test scores; the academic performance test scores distribution was very similar between the two groups.

Study protocol: Using basketball method, the selected schools was randomly assigned to intervention and control groups. The study began with the administration of a research achievement pre- test of fifty multiple choice objective items which was used to measure the students' baseline knowledge on research methodology. The experimental group was taught with blended teaching method, the students were taught using two primary components, namely; in-person classroom activities and online learning materials. The lesson note was e-mailed to the students' e-mail or class WhatsApp group. The control group was taught by the researcher face to face in the classroom. It involved oral presentation of information using white board and marker to write, microphone/ teaching aids to illustrate and explain facts on research methodology. Six training sessions were held. Session 1 covered the nature of the research, terms used in research, and the importance of research in nursing. Session 2 covered sources of human knowledge and classifications of research. Session 3 covered the characteristics of research, the purposes of research and research problems. Session 4 covered the research problems, sources of research problems, section 5 topic selection guidelines, and evaluation of research problems, and Session 6 covered the literature review. The study lasted for twelve weeks, each week; students spent 2 hours in the classroom, for a grand total of 12 hours. At the end of the twelve weeks posttest assessment was done with the achievement research test which composed of fifty (50) items to evaluate the students' learning outcomes and the effects of each teaching method used. It is important to know that, group 1(blended group) was taught with combination of e-learning and lecture teaching methods while students in group 2 received lecturebased teaching through face-to-face classroom interaction and the projected Power Point slides

**Data collection:** Data was collected using a self-administered questionnaire that was divided into two main parts. The first part included demographic characteristics such as: age, sex/ gender, marital status. The second part included validated self-developed achievement test on research methodology. The achievement test had 50 multiple choice items and each item worth two points for a total score of 100 percent. The instrument measured students' ability to remember research concepts at base line and post – intervention (blended, and lecture). The instrument was pilot tested among respondents with similar characteristics. Data

generated from pilot study were computed, split-half method was employed and Cronbach's Alpha was used to establish the consistency giving a reliability coefficient of 0.8. The internal reliability coefficient for items 1 to 13 was 0.812, for items 14 to 25 was 0.861, for items 26 to 50 was 0.877 and overall =865, was obtained. Data collection was carried out in three phases and lasted for 8weeks. The difference between pretest and post-test scores on research methodology questions determines the effects of the two teaching methods, on students' academic performance. The self-developed instrument for demographic characteristics comprised four items which included the name of the institution, age, gender, and marital status.

Ethical Considerations: Ethical approval for this study was obtained from Health Research Ethics Committee, University of Nigeria Teaching Hospital, Ituku/Ozalla with protocol number UNTH/HREC/2023/05/513. Administrative permit was also obtained from the school authorities and written consent was obtained from each participant after the purpose of the study had been explained by the researcher before data collection. The anonymity of the participants was maintained throughout the study. The participants were protected from bodily harm and undue exploitation throughout the study. Participation in the study was voluntary and participants had the right to decline participation or to withdraw from the study at any time if they so desired with no penalties or loss of benefits. All collected data were used only for approved academic purposes.

#### **RESULTS**

Table 1 shows the demographic characteristics of the students. 47 out of n= 96 (48.9%) nursing students were in the age group between 18-23years. Eighty 80(76.96%) were female and Sixteen 16 (23.4%) were male. Not less than 90% of the students under each method of teaching were single and not significantly difference among the two methods of teaching (P>0.05).

**Table 1:** Demographic characteristics of the students

Demographic	Blended	Lecture	χ2	P-
Characteristics	(n=47)	(n=49)		value
Age (years)				
18-23	20 (20.8%)	27 (28.1%)	6.122	0.191
24-29	22 (22.9%)	12 (12.5%)	15(30.6%	)
≥30	5 (5.2%)	4 (4.1%)	7 (14.3%)	)
Range	18 - 32	19 - 33	20 - 35	
Mean ±SD	24.6±3.5	23.1±4.1	24.1±4.8	
Gender				
Male	9 (19.1%)	7 (14.3%)	0.471	0.792
Female	38(80.9%)	42(85.7%)		
Marital Status	·			
Single	42(89.4%)	45(91.8%)	1.314*	0.521
Married	5 (10.6%)	4 (8.2%)		

<sup>\*</sup>Fisher's exact test used

There is no significant difference in the age distribution of the students among the two methods of learning (P>0.05). Also, more than 80% of the students under each method of learning were female and not significantly difference among the two methods of learning (P>0.05). More so, not less than 90% of the students under each method of learning were single and not significantly difference among the two methods of learning (P>0.05).

Table 2 shows that the pretest mean score before using BTM was  $43.70\pm9.20$ , at  $1^{\rm st}$  posttest was  $53.96\pm5.26\%$ , and  $57.34\pm3.92\%$  at  $2^{\rm nd}$  posttest. Then After using BTM, AP increased by 10.26% (P<0.05) at 1st post test, and 13.64% (P<0.05) at  $2^{\rm nd}$  posttest, there was a significant increase of 3.38% in the AP (P<0.05). (BTM pretest  $43.70\pm9.20$ , 10.26% and  $13.64\%1^{\rm st}2^{\rm nd}$  posttests, increase of 3.38% (P<0.05)).

Table 2
Effect of blended teaching method on the academic performance of basic nursing students

Test	Mean Scores (n=47)	Standard deviation	95% Confidence Interval for Mean
Pre test	43.70	9.20	41.00 - 46.40
Post test 1	53.96	5.26	52.41 - 55.50
Post test 2	57.34	3.92	56.19 - 58.49

**Table 2b:**Comparison of the effect of blended teaching method on the academic performance of basic nursing students before and after the interventions

Test (I)	Test (J)	Mean Scores Difference (I – J)	P- value	95% C.I for Mean Difference
Pre test	Post test 1	10.26	< 0.001	7.59 - 12.92
	Post test 2	13.64	< 0.001	10.98 – 16.30
Post test 1	Post test 2	3.38	0.013	0.72 - 6.05

**Table 3a:** Effect of lecture teaching method on the academic performance of basic nursing students

Test	Mean Scores (n=49)	Standard deviation	95% Confidence Interval for Mean
Pre test	44.68	9.59	41.92 - 47.43
Post test 1	48.25	6.30	46.43 - 50.01
Post test 2	48.67	4.99	47.24 - 50.11

**Table 3b:**Comparison of the effect of lecture teaching method on the academic performance of basic nursing students before and after the interventions

Test (I)	Test (J)	Mean Scores Difference (I – J)	P- value	95% C.I for Mean Difference
Pre test	Post test 1	3.57	0.016	0.68 - 6.45
	Post test 2	4.00	0.007	1.11 - 6.88
Post test 1	Post test 2	0.43	0.770	-2.46 – 3.31

Table 3 shows that the pretest mean score before using LTM was  $44.68\pm9.59\%$ . After at  $1^{\rm st}$  posttest it was  $48.25\pm6.30\%$ , and  $48.67\pm4.99\%$  at  $2^{\rm nd}$  posttest, AP after using LTM was significantly increased by 3.57% (P<0.05) at  $1^{\rm st}$  posttest, and

4.00% (P<0.05) at  $2^{nd}$  posttest there was increase of 0.43% in the AP after using LTM but not significant (P>0.05). (LTM pretest  $44.68\pm9.59\%$ ,  $48.25\pm6.30\%$ , and  $48.67\pm4.99\%$   $1^{st}$   $2^{nd}$  posttests, increase of 0.43% (P>0.05).

Table 4 shows that the mean score of the students before using BTM pretest score was  $43.70\pm9.20$ , at  $1^{st}$  posttest  $53.96\pm5.26$  and  $57.34\pm3.92$  at  $2^{nd}$  posttest and that of LTM pretest score was  $44.68\pm9.59$ , at  $1^{st}$  posttest  $48.25\pm6.30$  and  $48.25\pm6.30$  at  $2^{nd}$  posttest.

**Table 4:**Comparison of effect of blended and lecture teaching method on the academic performance of basic nursing students

Test	Blended	Lecture	t-test	<b>P-</b>
	(n=47)	(n=49)		value
Pre test	43.70±9.20	44.68±9.59	0.514	0.611
Post test 1	53.96±5.26	48.25±6.30	4.810	< 0.001
Post test 2	57.34±3.92	48.67±4.99	9.434	< 0.001

There was no significant effect of blended and lecture teaching methods on the academic performance of basic nursing students at pre test (P>0.05). However, there was significant effect of blended and lecture teaching methods on the academic performance of basic nursing students at first and second post tests (P<0.05). Those that were exposed to blended teaching method performed better than those exposed to lecture teaching method at first and second post tests.

#### **DISCUSSION**

On the age of the respondents, 20.8% and 28.1% of the respondents who were studied using blended and lecture methods respectively were between the ages of 18-23 years. Furthermore, 19.1% and 80.9% of the respondents taught with blended methods were male and female respectively, in the same way, 14.3% and 85.7% of the respondents taught with lecture were male and female respectively. In the same manner, 89.4%, and 91.8% of the respondents taught with blended method and lecture method respectively, were single while a total 10.66%, 4 and 8.2% of those taught with blended method and lecture methods respectively were married. Based on the above, it could be inferred that most of the respondents were in age 18-23 years whereas those of 30 years and above were the least.

The findings indicated that the academic performance of basic nursing students after using the blended teaching method increased significantly by 10.26% at the first post test and 13.64% at the second posttest. The import of above report is in line with the opinion of Siemens et al, (2015), which stated that student s' achievement was higher in blended learning experiences when compared to either fully online or fully face-to-face learning experience. Hence the increase of 3.38% in the academic performance of basic nursing students after using blended teaching method in the first post test and second post test. The above results turned out to be so because as documented by Grieve et al, (2016), modern learning encourages students to collaborate, reach their full potential and makes them more productive. The import of the forgoing is that blended teaching method had a positive effect on the academic performance of the students. The findings of this

study are supported by similar findings in literature. In support of this study, Sadeghi, (2019) found that blended learning was statistically significantly better than the traditional method of teaching in clinical medicine. Looking at the previous study and the current one, the researcher notes that the blended teaching method could be used to teach clinical medicine and basic nursing students. The findings of this study are also in agreement with those of Giannousi etal, (2014) that students taught using blended learning method were more successful academically than those taught using the traditional method of teaching.

The academic standing of the students at pre-test level was 44.68%. It was 48.25 after the first post test and 48.67 after the second posttest. As reported in Table 3b, the academic performance of the students was increased by 3.57% at the first post test and 4.00% at the second posttest. An insignificant increase of 0.43% was observed between the first post test and the second posttest. The mean gain score at first post test was 3.57%, while the mean gain score at the second posttest was 3.99%. The findings of this study have demonstrated why most teachers use this teaching method in teaching their students. The academic performance of the students taught using the lecture method increased as observed between pretest and posttests. This increase was not however sustained as the difference between the scores at first post test and second posttest was not significant.

The findings of this study do not agree with Ameh and Dantani(2014) who found that students taught chemistry using demonstration teaching method performed better than those taught chemistry using lecture method. This poor performance of students taught using lecture method when compared with other method is further buttressed by the insignificant difference between the first and second post tests of the current study.

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