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COMPARATIVE EFFECTS OF BLENDED AND E-LEARNING ON STUDENTS' ACADEMIC ACHIEVEMENT IN RESEARCH METHODOLOGY IN BASIC SCHOOLS OF NURSING IN ANAMBRA STATE

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ABSTRACT

The purpose of the study was to investigate the effect of blended, e- learning and lecture teaching methods on the academic performance of basic nursing students in research methodology. Four research questions and five null hypotheses guided the study. The quasi-experimental study structured on a 3×2×2 factorial design using pre-test, post-test, control group design is adopted for the study. The study was carried out in three basic schools of nursing in Anambra State. The target population for this study will comprise of all the2nd year basic nursing students in the three Schools of nursing with a total population of 147. The sample size for this study included a total of 147 basic nursing students. Stratified sample procedure was adopted to assign the experimental groups to the schools; each selected basic school of nursing will form a stratum. Data collection instruments in this study will include the following tools: A self-developed instrument using educational materials on research methodology course for assessing the efficacy e-learning and blended teaching methods. A questionnaire survey to be completed by the students to ascertain the perception of students on the various modes of instruction. The face and content validity of the instrument was carried out by three experts in School of Nursing Nnamdi Azikiwe University Teaching Hospital, Nnewi. To establish their reliability, the instruments were administered to 14 students of school of nursing, Adazi representing 10% of the sample. Data generated from the pilot test was computed by the statistician, to establish the consistency of the instrument. The reliability index is 0.8. Data collection procedure involved: Preparation for intervention package; Training and recruitment of research assistants; Training and recruitment of study participants; Activity observations. The mean and standard deviation were used to answer the research questions while analysis of Variance (ANOVA) was used for testing hypothesis at 0.05 significant levels. The findings of the study indicated that the blended teaching method has positive effects on the academic performance of post basic nursing students. Also, the academic performance of post basic nursing students was highest using blended teaching method, then followed by e-learning teaching method while the lecture teaching method was the least. Among others, it was recommended that the use of blended teaching method be included among the teaching methods in schools in Anambra State and Nigeria in general. This is with the intention to expose the students to most effective teaching method. Furthermore, efforts should be made by school managers to design appropriate on-the-job training for teacher to be proficient in the use of modern and more effective teaching methods for improved academic performance in schools.

Keywords: Comparative Effect; Blended Teaching Method, E-Learning Teaching Method, Students; Academic Achievement; Research Methodology; Basic Nursing.

Introduction

Nursing is one of the courses offered in School of Nursing in Nigeria. For one to graduate from the school one must offer research methodology to enable one write ones research project. This research work examines two methods for teaching research methods. The two methods includes blended method and e- learning teaching method. 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 etc. The choice of teaching method depends on educational philosophy, classroom demography, subject area(s) and school mission statement. For a particular teaching method to be appropriate and efficient it has to be in relation with the characteristic of the learner, the teacher, the environment and the type of learning it is supposed to bring about. There are different types of teaching methods which 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 method of teaching denotes a teacher-centered delivery of instruction to classes of students who are the receivers of information. It is old fashioned, widely and routinely used by teachers. In traditional method of teaching, teachers are the main authority; the student's role is to receive information (via lectures and direct instruction) with an end goal of testing and assessing them. (Donche, 2017). Examples are lecturing, dictation, teacher led discussion, explanation, demonstration methods of teaching etc.. 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; but the big problem is that many students in the class may not follow the theme. The above authors also emphasized that while 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. 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 deduce from above, it has its strong points and would be very difficult to replace entirely.

Modern method of teaching (student-centered approach to learning) is a learner centered and activity-based teaching which

get learners fully involved. This approach recognizes the learner as the primary reason for curriculum planning (Nigerian Educational Research and Development Council (NERDC, 2016). It is called a constructivist approach because it enables the learner to construct her/his knowledge and skills through active participation in the teaching-learning process. The teacher only acts as a guide, leading the learners to achieve the teaching objectives of the topics through the activities the learners are engaged in during classroom interactions. It encourages cooperation among the learners while reducing competition. While teachers are the authority figure in this model, teachers and students play an equally active role in the learning process. The teacher's primary role is to coach and facilitate students learning and overall comprehension of material (Moqaddam, 2016). The commonly used modern teaching method are blended and the e- learning teaching methods.

Blended method is an approach to education that combines online educational materials and opportunities for interaction with traditional classroom methods. It requires the physical presence of both teacher and student, with some elements of student control over time, place, or pace. While students still attend "brick-and-mortar" schools with a teacher present, face-to-face classroom practices are combined with computer-mediated activities regarding content and delivery (Graham, 2013). Blended learning can be defined as learning systems that combine face-to-face instruction with computer mediated instruction. It involves a combination of conventional face-to-face and online technology-based learning; the combination may involve mixing various event-based activities such as face-to-face classroom, live e-learning, self-paced learning, synchronous online conference and training, or asynchronous self-pace learning (Graham, 2013).

Poon (2013) added that it motivates students to learn on their own at their own pace and in their own time. If properly implemented, it is a promising alternative learning approach compared to conventional and e-learning approach, and can improve student success, satisfaction, and retention (University of Central Florida, 2015). In addition, Graham (2013) opined that blended learning will replace the traditional approach in education because it maximized the best advantages of face-to-face and e-learning approaches. In spite of these benefits of blended learning, Umoh and Akpan (2014) reported that non-availability, non-accessibility and inadequate students' ICT skills towards the utilization of blended learning tools for teaching and learning is a barrier to its adoption in educational institutions.

According to Siemens, Gasevic, and Dawson, (2015) e- learning is a learning system based on formalized teaching but with the help of electronic resources. It involves utilizing electronic technologies to access educational curriculum outside of a traditional classroom. In most cases, it refers to a course or program delivered completely online, and may be described as internet distance education, computerized electronic learning, internet learning and online learning. Moqaddam, (2016), defined e - learning as courses that are specifically delivered via the internet, to somewhere other than the classroom where the teacher is teaching. While teaching can be based in or out of the classrooms, the use of computers

and the Internet forms the major component of e-learning. As documented by Kalantzis and Cope (2015), e-learning can also be described as a network enabled transfer of skills and knowledge, through which the delivery of education is made to a large number of students at the same or different times. E-learning provides possibilities for devising new educational tools, for learning by interactivity, self-paced study and easy access. The human brain can easily remember and relate to what is seen and heard via moving pictures or videos and because visuals, apart from holding the attention of the student, are also retained by the brain for longer periods Moqaddam (2016). However, Siemens, Gasevic, and Dawson, (2015), noted that with the rapid progress in technology and the advancement in learning systems, it is now embraced by the masses. They emphasized that the introduction of computers was the basis for this revolution and with the passage of time, as new inventions such as smart phones, tablets, etc, are produced, these devices now have an important place in the classrooms for learning. Another benefit of e-learning for teaching nursing courses and other clinical sciences is that it can be delivered at any time and any place and can be tailored to individual learning needs. Modern learning encourages students to collaborate and therefore be more productive (Grieve, Padgett, Moffit (2016).

However, blended and e-learning teaching methods are not replacement for lecture method but as a complement, forming part of a blended learning strategy Siemens, Gasevic, and Dawson, (2015). On the other hand, e-learning which is more activity based may not have been mastered by many teachers as it involves active technical activities. Unless successfully planned and executed, blended learning could have disadvantages in technical aspects since it has a strong dependence on the technical resources or tools with which the blended learning experience is delivered. These tools need to be reliable, easy to use, and up to date, for them to have a meaningful impact on the learning experience. Technical illiteracy can serve as a significant barrier for both students and teachers attempting to get access to the course materials. There has been limited research on the appropriate use of blended and e- learning methods for nursing studies. 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. It is obvious and imperative as well as necessary to state that traditional and modern teaching methods are both necessary and useful in today's education, with most things, it's all about balance. We need to understand when a traditional method works best and when it's right to try new and innovative approaches or combine both. Hence the need to determine the effects of blended, e-learning and lecture methods of teaching on students' academic performance in schools of nursing South East Nigeria.

Statement of the Problem

Today's students represent the first generation to grow up with new technologies in 21st century, they spend most of their time on computers and its accessories such as videogames, digital music players, video cams, cell phones, and all the other tools of the digital age (Thomas, 2016). Many educational institutions face problems and

obstacles that require various teaching methods to overcome. These challenges require technological skills of applying different teaching methods in teaching today's nursing students to meet the needs of the society. As learning is considered a continuous process that entails rapid changes, educators need to examine their teaching methods frequently to continue to meet the needs of the students. This is because suboptimal academic performance by majority of the students at higher education level has been cited to be the result of ineffective teaching methods by educators (Gyaupfu, 2014). In view of the above, to achieve the desired goals in the nation's education system, adjustment must be made on the curriculum based on rational and investigative evidence. For instance, the problem created by COVID-19 pandemic lockdown on the educational system is still fresh in our memories as the e-learning system became the only option for teaching and learning activities. Therefore, to ensure that educational activities are not halted, diverse methods of teaching are required to encourage teaching and learning process and there is an urgent need to determine the effects of these methods on students' academic performance.

The choice of research methodology as a training package is based on the fact that it is one of the compulsory subjects that cut across all disciplines which advances the frontiers of knowledge. This course is designed to provide the student with adequate knowledge, attitude and skills required for carrying out research as it relates to nursing. Students must be taught and are expected to submit a complete project work before graduation. On the contrary, the researcher has observed that 80% of research studies carried out by nursing students in some schools of nursing are never published in journals (school records 2020). Moreover, from oral interview conducted by the researcher among the students, thirty-eight (38) out of fifty (50) students interviewed complained that research methodology is an abstract and vague course, which is not interesting, but time consuming. They claimed that it is an unnecessary burden, and most of the time, it is being rushed without covering the course work as specified in the curriculum hence, some of their written projects are poorly and horridly done. They were of the opinion that they write project to fulfill the N&MCN prerequisite to take the final qualifying examination and not to be part of their professional practice because according to the interview, they claimed not to understand nor learn anything from the course. Hence the problem of this study lie on the fact that suboptimal academic performance by majority of students at higher education level has largely been cited to be as a result of ineffective teaching methods by lecturers (Ganyaupfu, 2014). Hence this study sought to establish whether blended, e-learning and lecture methods of teaching offers effects on basic nursing student academic performance on research methodology. The questions begging for answers are; are there effective methods of teaching research methodology? What are their various effects on student performance on research methodology course? Which teaching method can be more effective for teaching nursing students? Can using different methods of teaching improve students' interest in learning research methodology? The question is; can blended, e- learning and lecture methods of instruction

affect students' performance on research method in nursing schools irrespective of gender? The present study will investigate the effect of blended, e- learning and lecture teaching methods on the academic performance of basic nursing students on research methodology South East Nigeria.

Research Questions

The following research questions are formulated to guide this study:

1. What is the effect of blended teaching method on the academic performance of post basic nursing students?
2. What is the effect of e-learning teaching method on the academic performance of posts basic nursing students?
3. What is the effect of lecture teaching method on the academic performance of post basic nursing students?
4. Which the teaching method that produced the best effect on the academic performance of post basic nursing students?

Research Hypotheses

The following null hypotheses were formulated to guide the study

(1)There will be no significant difference in the pre and post intervention level of knowledge of basic nursing students on research methodology.

(2)There will be no significance difference in basic nursing student's first and second post intervention level of knowledge on research methodology.

(3)There will be no significance difference in the level of knowledge of basic nursing students exposed to blended teaching method and those exposed to e-learning teaching method.

(4) There will be no significance difference in the level of knowledge of basic nursing students taught with blended method of teaching and those taught with lecture method of teaching.

(5) There will be no significance difference in the level of knowledge of basic nursing students exposed to e-learning method of teaching and those exposed to lecture method of teaching.

Research Method

Research Design: The quasi-experimental study structured on a 3×2×2 factorial design using pre-test, post-test, control group design is adopted for the study. **Area of the Study:** The study was carried out in three basic schools of Nursing in Anambra State. **Population:** The target population for this study will comprise of all the 2nd year basic nursing students in the three Schools of nursing with a total population of 147 (School Records 2023). **Sample Size Determination:** The sample size for this study included all the basic nursing students of the three schools of nursing in Anambra State, Nigeria. A total of 147 basic nursing students were included in the present study. **Sampling Procedure:** Stratified sample procedure will be adopted to assign the experimental groups to the schools; each selected basic school of nursing formed a stratum. **Instrument for Data Collection:**

Data collection instruments in this study included the following tools: (1) A self-developed instrument using educational materials on research methodology course for assessing the efficacy e-learning and blended teaching methods. It consists of fifty multiple choice questions to ascertain the level of knowledge on research methodology. (2) A questionnaire survey to be completed by the

students to ascertain the perception of students on the various modes of instruction. (3) The final assessment tool to be completed by the students to ascertain the strengths and weaknesses of the different teaching methods used for the groups. **Validation of the Instrument:** The face and content validation of the instrument was carried out by three experts in School of Nursing Nnamdi Azikiwe University Teaching Hospital, Nnewi. They examined the instrument in line with the purpose, objectives and hypotheses of the study and ensured that the researcher prepared educational intervention is in line with the specific items in the instrument as well as the goal of intervention. The recommendations by these experts were effected, and modifications were made where necessary. **Reliability of the Instrument:** After corrections and modifications of the instrument by experts were effected, a trial test of the instrument was carried out to establish the reliability of the instrument and also to identify problems and determine the consistency of the educational intervention treatment (questions), its instructions, suitability, correctness of the responses and time allotted to complete exercise. Pilot test was carried out with the students of School of Nursing Adazi Nursing School, Adazi. These students have similar characteristics with the selected groups of school of nursing students understudy. The instrument was administered to 14 students of school of nursing, Adazi representing 10% of the sample. Data generated from the pilot test was computed by the statistician, to establish the consistency of the instrument. The reliability index is 0.8. **Procedure for Data Collection:** Data collection procedure involve: (i) Preparation for intervention package; (ii) Training and recruitment of research assistants; (iii) Training and recruitment of study participants; (iv) Activity observations. **Preparation for intervention package:** The training package consisted of the planning phase, implementation phase and evaluation phase. The intervention package consisted of four modules. The first module focused on the overview, meaning and scope of research methodology. The second module is focused on nursing research. The third module focused on terms and steps in research while the fourth module focused on research problem and literature review. The experimental phase where the three teaching methods will be applied. At the evaluation phase, two post tests were administered to the experimental groups using questionnaire and their results were compared to indicate the differences in their scores. The post test was administered at the end of the training modules planned for the groups after four weeks of intervention, the same test for all the groups. **Method of Data Analysis:** Data collected through the experimental results of the groups were analyzed, compared and examined to see if there are some influences or effects on students' academic performance. The mean and standard deviation were used to describe the scores. Analysis of Variance (ANOVA) was used for testing hypothesis at 0.05 significant levels.

Presentation of Results

Research Question One: What is the effect of blended teaching method on the academic performance of post basic nursing students?

Table 1: Effect of blended teaching method on the academic performance of post 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

The mean score of the students before using teaching method was 43.70±9.20%. After using blended teaching method, the mean score of the students was 53.96±5.26%, which was 57.34±3.92% at second post-test.

Research Question Two: What is the effect of e-learning teaching method on the academic performance of posts basic nursing students?

Table 2: Effect of e-learning teaching method on the academic performance of post basic nursing students

Test	Mean Scores (n=46)	Standard deviation	95% Confidence Interval for Mean
Pre test	44.78	11.66	41.44 – 48.13
Post-test 1	51.63	1.22	49.17 – 54.10
Post-test 2	53.78	1.37	51.03 – 56.54

The mean score of the students before using teaching method was 44.78±11.66%. After using e-learning teaching method, the mean score of the students was 51.63±1.22%, which was 53.78±1.37% at second post-test.

Research Question Three: What is the effect of lecture teaching method on the academic performance of posts basic nursing students?

Table 3: Effect of lecture teaching method on the academic performance of post 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

The mean score of the students before using teaching method was 44.68±9.59%. After using lecture teaching method, the mean score of the students was 48.25±6.30%, which was 48.67±4.99% at second post-test.

Research Question Four: Which the teaching method that produced the best effect on the academic performance of post basic nursing students?

Table 4a: The teaching method that produced the best effect on the academic performance of post basic nursing students

Test	Blended (n=47)	e-learning (n=46)	Lecture (n=49)	F-ratio	P-value
Pre test	43.70±9.20	44.78±11.66	44.68±9.59	0.165	0.848
Post-test 1	53.96±5.26	51.63±1.22	48.25±6.30	8.784	<0.001
Post-test 2	57.34±3.92	53.78±1.37	48.67±4.99	21.989	<0.001

There was no significant difference in the academic performance of post basic nursing students at pre-test (P>0.05). However, at first post test, the academic performance of post basic nursing students was highest using blended teaching method (53.96±5.26%), then followed by e-learning teaching method (51.63±1.22%), lecture teaching method (48.25±6.30%) was the least (P<0.05). Also, at second post-test, the academic performance of post basic nursing students was highest using blended teaching method (57.34±3.92%), then followed by e-learning teaching method (53.78±1.37%), lecture teaching method (48.67±4.99) was the least (P<0.05).

Table 4b: Comparison of the teaching methods on the academic performance of post basic nursing students after the interventions

Test (I)	Test (J)	Mean Scores Difference (I – J)	P-value	95% C.I for Mean Difference
Post-test 1				
Blended method	e-learning method	2.33	0.097	-0.43 – 5.08
	Lecture method	5.71	<0.001	3.00 – 8.43
e-learning method	Lecture method	3.39	0.015	0.66 – 6.11
Post-test 2				
Blended method	e-learning method	3.56	0.009	0.92 – 6.20
	Lecture method	8.67	<0.001	6.07 – 11.27
e-learning method	Lecture method	5.11	<0.001	2.49 – 7.72

The pair comparison of the effect of the teaching methods on the academic performance of post basic nursing students after the interventions showed that at first post test, there is no significant difference in the academic performance of the post basic nursing students exposed to blended and e-learning teaching methods (P>0.05). However, those exposed to blended and e-learning teaching methods had significant higher academic performance than those exposed to lecture teaching method (P<0.05).

Also, at second post-test, those exposed to blended teaching method had significant higher academic performance than those exposed to e-learning and lecture teaching methods (P<0.05), while those exposed to e-learning teaching method had significant higher academic performance than those exposed to lecture teaching method (P<0.05).

Test of Hypotheses

Hypothesis 1: There will be no significant difference in the academic performance of post basic nursing students on research methodology exposed to blended teaching method, e-learning teaching method and lecture teaching method

Table 5: Analysis of significant difference in the academic performance of post basic nursing students on research methodology exposed to blended teaching method, e-learning teaching method and lecture teaching method

Test	Blended (n=47)	e-learning (n=46)	Lecture (n=49)	F-ratio	P-value
Post-test 1	53.96±5.26	51.63±1.22	48.25±6.30	8.784	<0.001
Post-test 2	57.34±3.92	53.78±1.37	48.67±4.99	21.989	<0.001

At first post test, the academic performance of post basic nursing students was highest using blended teaching method (53.96±5.26%), then followed by e-learning teaching method (51.63±1.22%), lecture teaching method (48.25±6.30%) was the least (P<0.05). Also, at second post-test, the academic performance of post basic nursing students was highest using blended teaching method (57.34±3.92%), then followed by e-learning teaching method (53.78±1.37%), lecture teaching method (48.67±4.99) was the least (P<0.05).

Hypothesis 2: There will be no significant difference in the academic performance of post basic nursing students on research methodology exposed to blended teaching method, and e-learning teaching method.

Table 6: Analysis of significant difference in the academic performance of post basic nursing students on research methodology exposed to blended teaching method, and e-learning teaching method.

Test	Blended (n=47)	e-learning (n=46)	Mean Scores Difference	t-test	P-value
Post-test 1	53.96±5.26	51.63±1.22	2.33	1.619	0.109
Post-test 2	57.34±3.92	53.78±1.37	3.56	2.419	0.018

There is no significant difference in the academic performance of post basic nursing students on research methodology exposed to blended teaching method and e-learning teaching method in the first post test (P>0.05). However, at second posttest, those exposed to blended teaching method had significant higher academic performance than those exposed to e-learning teaching method (P<0.05).

Hypothesis 3: There will be no significant difference in the academic performance of post basic nursing students on research methodology exposed to blended teaching method, and lecture teaching method

Table 7: Analysis of significant difference in the academic performance of post basic nursing students on research methodology exposed to blended teaching method, and lecture teaching method

Test	Blended (n=47)	Lecture (n=49)	Mean Score Difference	t-test	P-value
Post-test 1	53.96±5.26	48.25±6.30	5.71	4.810	<0.001
Post-test 2	57.34±3.92	48.67±4.99	8.67	9.434	<0.001

There is significant difference in the academic performance of post basic nursing students on research methodology exposed to blended teaching method and lecture teaching method in both first and posttests (P>0.05). This implies that those exposed to blended-teaching method had significant higher academic performance than those exposed to lecture teaching method.

Hypothesis 4: There will be no significant difference in the academic performance of post basic nursing students on research methodology exposed to e-learning teaching method and lecture teaching method

Table 8: Analysis of significant difference in the academic performance of post basic nursing students on research methodology exposed to e-learning teaching method and lecture teaching method

Test	e-learning (n=46)	Lecture (n=49)	Mean Scores Difference	F-ratio	P-value
Post-test 1	51.63±8.30	48.25±6.30	3.39	2.248	0.027
Post-test 2	53.78±9.27	48.67±4.99	5.11	3.374	<0.001

There is significant difference in the academic performance of post basic nursing students on research methodology exposed to e-learning teaching method and lecture teaching method in both first and posttests (P>0.05). This implies that those exposed to e-learning teaching method had significant

higher academic performance than those exposed to lecture teaching method.

Discussion of Findings

The findings of this study indicated that there is highest significant improvement in the academic performance of post basic nursing students in research methodology exposed to blended-teaching method. Those exposed to e-learning had significant higher academic performance in research methodology than those and lecture teaching methods. This means that, among the three methods studied, the blended method has the positive effect on academic performance of post basic nursing students in research methodology. The findings of this study are in agreement with those of Khoshhal, Algaidi, Heissam and Zolaly (2013), who found that blended learning is an effective teaching and learning strategy in clinical medicine involved as it has comparative advantage over other teaching methods.

Again, findings by Gambari, Shittu, Ogunlade and Osunlade (2017) showed that: (i) there was significant difference in the performance of the three groups in favour of experimental group 1 (Blended learning), (ii) there was no significant difference in the performance of male and female undergraduates taught with blended learning, (iii) similarly, no significant difference was found in the performance of male and female undergraduates exposed to e-learning mode of instruction. This implies that performance of undergraduates was enhanced when they are exposed to blended learning mode of instruction.

Summary of Findings

The summary of findings are as follows:

1. The blended teaching method has positive effects on the academic performance of post basic nursing students.
2. The e-learning teaching method has effect on the academic performance of posts basic nursing students.
3. The lecture teaching method has effect on the academic performance of post basic nursing students.
4. At first post test, the academic performance of post basic nursing students was highest using blended teaching method, then followed by e-learning teaching method, lecture teaching method was the least.
5. Also, at second post-test, the academic performance of post basic nursing students was highest using blended teaching method (57.34±3.92%), then followed by e-learning teaching method (53.78±1.37%), lecture teaching method (48.67±4.99) was the least (P<0.05).
6. The basic nursing students exposed to blended and e-learning teaching methods had significant higher academic performance than those exposed to lecture teaching method.
7. At second post-test, those exposed to blended teaching method had significant higher academic performance than those exposed to e-learning and lecture teaching methods, while those exposed to e-learning teaching method had significant higher academic performance than those exposed to lecture teaching method.

Conclusion

The conclusion of the study is that blended teaching method is more effective than e-learning and lecture teaching method.

Secondly, students exposed to e-learning performed better than those exposed to lecture teaching method. Thus, while the lecture teaching method is the least effective teaching method, the blended-teaching method is the most effective teaching method.

Recommendations

A number of recommendations that arose from this study are stated below:-

1. There is the need to include the use of blended teaching method among the teaching methods in schools in Anambra State and Nigeria in general. This is with the intention to expose the students to most effective teaching method.
2. The Anambra State Ministry of Education should organize seminars and workshops for teachers in the state on the use of blended teaching method in teaching the students.
3. Teachers in the state should be encouraged by government to enroll in in-service education programmes and should be provided with educational leaflets/information on blended teaching method.
4. Mass media campaigns on e-learning should be used and complemented with blended teaching method that have been found to be very efficacious in influencing knowledge and students performance.
5. The study has proved that lecture method has the least effect on students' performance. Efforts, therefore, should be made by school managers to design appropriate on-the-job training for teacher to be proficient in the use of modern and more effective teaching methods for improved academic performance in schools.

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REFERENCES

Barker, L.M. (2018). Teaching, speaking and learning: Beyond "Rock and Roll", English journal 106 (3), 87, https://scholar.google.com.

Dodge, J. (2017). 25 Quick form. Assess for a different classroom. 2nd Education: or https://www.scholastic.com.books.

Donche, V. (2013). "Differential use of learning strategies in First-year Higher Education: The impact of Personality, Academic Motivation, and Teaching Strategies". The British journal of Educational Psychology. 83:2

Dorgu, T.E. (2015). A Panacea for Effective Curriculum Implementation in the Classroom. *International Journal of*

Secondary Education. Special Issue: Teaching Methods and Learning Styles in Education. Vol. 3, No. 6-1, 2015, pp. 77-87. doi: 10.11648/j.ijsedu.s. 2015030601.13

French S, (2017), Reassessing the value of university lectures: Teaching in Higher education. https://www.tandfonline.com.

Friesen and Norms (2012). Defining Blended learning https://www.normsfrisen.info.

Friesen, N. (2014). *Report: Defining blended*, [online] Available:http://learningspaces.org/ papers/Defining_Blended_Learning_ NF.pdf.

Gambari, A. I., Shittu, A.T., Ogunlade, O.O. & Osunlade, O.R. (2017). Effectiveness of Blended learning and E-Learning modes of instruction on the performance of undergraduates in Kwara State, Nigeria. Malaysian online journal of Educational Sciences 2017.Vol. 5- Issue 1.

Graham, C. R. (2006). Blended learning systems: Definition, current trends, and future directions. *The Handbook of Blended Learning Global Perspectives, Local Designs*. (Ed: Bonk, C.J. & Graham, C.R.). Pfeiffer. San Francisco

Graham, C. R. (2013). *Emerging practice and research in blended learning.* Handbook of distance education 3.

Grieve, R, Padgett, C.R, Moffit, R.L. (2016). "The role of social presence and computer attitudes in student preferences for offline marking''. The journal of Internet and Higher Education. P: 28:8-16. https://dx.doi.org/10.1016/j.iheduc.2015.08.002.

Kalantzis, Mary & Bill cope (2015) New and productive Diversity in learning PP. 310-325 in Diversity. Newlearningonline.com.e-learning.

Khoshhal, A., Algaidi, S., Heissam, K., & Zolalyi, M.A. (2013). Blended Learning as an effective teaching and learning strategy in clinical medicine. International Journal of humanities and social science invention. Vol. 2. Page 29-35Microsoft Innovative Educator. (MIE).Programs :MIE, Microsoft In Education. 23 August 2016. MIES use Microsoft tools In classroom and have learned the fundamentals of applying technology education.

Moqaddam P.S (2016): Investigating the effect of modern teaching methods on students. https://www.mcser.org.

NUC (National University Commission, 2011). *Accredited programmes for Nigerian universities.* Abuja: NUC.

Poon, J. (2013). Blended learning: An institutional approach for enhancing students' learning experiences. *Journal of Online Learning and Teaching*, 9(2) Available http://jolt.merlot.org/vol9no2/poon_0613.htm

The University of Central Florida. (2015). benefits of blended learning, Available at http://blended.online.ucf.edu/about/benefits-of -blended-learning/

Umoh, J. B., & Akpan, E. T. (2014). Challenges of blended e-learning tools in mathematics: Students' perspectives University of Uyo.

Journal of Education and Learning, 3(4), 60-70.

Uwestru P. (2013) Role plays as a pedagogical method to prepare students. https://hogreutbildning.se

Vygotsky, L. S. (1978). *Mind in society: The development of higher mental processes*. Cambridge, MA: Harvard University Press

Wang, S. (2011). Benefit and challenges of e-learning: University students' perspectives. Retrieved July 3, 2013 from http://www.igi-global.com/chapter/benefits-challenges-learning/53285?camid.

Wicks, D. (2015) "An investigation into community of inquiry of blended classrooms by a faculty learning community''. The internet and higher education.

Yam, S. & Rossini, P. (2011). Online learning and blended learning: which is more effective? *17th Pacific Rim Real Estate Society Conference, 16-19 January 2011 - Gold Coast, Australia.*