

**EFFECTIVENESS OF MODERN TEACHING METHODS ON ACADEMIC  
ACHIEVEMENT OF NURSING STUDENTS IN IMO STATE UNIVERSITY, OWERRI,  
IMO STATE**

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**ABSTRACT**

This study examined the influence of teaching methods on academic performance of nursing students in Imo State University. The study was carried out using a descriptive survey and experimental research designs, having six research questions and six hypotheses. The population of the study comprised 1408 nursing students in Imo State University from which a sample size of 343 students were drawn. This size was determined using the Taro Yamane formula. The instrument used for data collection was a questionnaire eliciting perceptions of students on their preferred choice of teaching methods and a general nursing test used for pre-test and post-test. The reliability of the test was established using Kuder Richardson which yielded coefficient of 0.70 while cronbach alpha was used to establish the reliability of the rating scale which yielded coefficient of 0.79. Modern teaching methods effectively increased the academic performance of the students by 25.10% and the difference in the pre-test and post-test scores of the students is statistically significant ( $p < .05$ ). The researcher recommends among others that nurse educators minimize their use of traditional teaching methods as students do not prefer that method.

**KEYWORDS:** Modern Teaching Methods, Academic Achievement, Nursing Students.

**INTRODUCTION**

Nursing education principally concentrates on transmitting nursing knowledge, and assisting nursing students to acquire the necessary skills and attitudes associated with nursing practice.<sup>[1]</sup> To meet the diverse needs of today's educational climate, nursing educators must develop an understanding of a variety of learning environments and skills in contemporary teaching strategies. Nurses must also maintain the ability of divergent thinking to solve the health problems of patients.<sup>[2]</sup> One way to enhance nursing education is to determine the effect of traditional methods on nursing student's achievements and teaching effectiveness at nursing colleges.<sup>[3]</sup> In this regard, the effectiveness of teaching methods in nursing education has been supported by numerous studies. These studies support the positive effect of delivering nursing education through active learning techniques and innovative teaching strategies on student's achievements and thinking abilities. Delivering nursing education through the traditional lecture format, on the other hand, is criticized for its emphasis on the learners' passive receipt of knowledge rather than learning to think critically.<sup>[4]</sup>

The relationship between teaching methods and academic performance of nursing has always been fascinated.<sup>[5]</sup> It is likely true that successful learning depends on various factors other than that of the teacher. The methods that a teacher uses continue to play an important role in students' learning and in their academic achievement.

The challenges that educators face in the 21st century are so diverse that using better teaching methods is more crucial now than ever before. In spite of the influence that teaching methods have in the improvement of teaching and learning, there seems to be no meaningful application of these techniques in nursing education instruction in most tertiary institutions.<sup>[6]</sup> Thus, students find this aspect of nursing education difficult to understand. There is, therefore, the need to seek ways of making the teaching in nursing education more effective in order to enhance students' academic performance. The purpose of this study is to evaluate the effectiveness of modern teaching methods, such as active learning and technology integration in improving the academic outcomes of nursing students in Imo State University, Orlu.

## RESEARCH METHODOLOGY

**Research Design:** An experimental research and descriptive designs were utilized to accomplish the purpose of this study.

**Study Area:** The study was conducted at the Department of Nursing Science, Imo State University Orlu, Imo State, Nigeria.

**Population of the Study:** The population for the study comprised of 1,408 Nursing Science students of Imo State University, Orlu. Information was obtained from the department secretary.

**Sample and Sampling Technique:** Since the entire nursing science students of Imo State University, Orlu cannot be studied; it is pertinent to sample the population to reduce the study to a set of students at a particular time so as to make the study less cumbersome. The sample size is determined using the Taro Yamane formula stated thus.

$$n = \frac{N}{1+N(e)^2}$$

Where:

$n$  = Sample Size

$N$  = Total Population (1,408)

$e$  = Sampling Error or the error margin (here, we allow for only 5% error margin)

Since:  $N = 1,408$

$e = 5\%$  or  $0.05$ ,

We substitute for  $N$  and  $e$  in the formula as follows:

$$n = \frac{1408}{1 + 1408(0.05)^2}$$

$$n = \frac{1408}{4.52}$$

$$n = 311.5 = 312$$

$$10\% \text{ attrition} = 10 \div 312 = 31.2 = 31$$

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So the sample size is  $312 \times 31 = 343$  which is 24.36% of the population.

**Table 1: Population and Sample Size of the Respondents**

S/N	Level	Population	Sample
1.	200 Level	402	98
2.	300 Level	360	88
3.	400 Level	330	80
4.	500 Level	316	77
	<b>Total</b>	<b>1,408</b>	<b>343</b>

**Instruments for Data Collection:** Stratified and simple random sampling techniques were employed which gave the respondents equal chance of being selected. The respondents were stratified into levels; 200 to 500 levels. Then simple random sampling was employed to select the sample size from each level. Small slips of paper were written 'Yes' or 'No'. The number of 'yes' slips corresponded to the desired sample size and the number of 'No' slips represented the rest of the population for each level (200-500). The 'yes' and 'No' slips were put inside a basket and were shuffled thoroughly to ensure randomness. The students in each level (200 – 500) were asked to dip their hands inside the basket to pick. Those that picked 'Yes' were selected for the study.

**Validation of the Instrument:** The research instruments along with the purpose of the study, research questions, hypotheses, test blue print and marking guide were face validated and content validated by two specialists, one from the field of Measurement and Evaluation, Imo State University and the supervisor. These specialists examined and assessed the content and test items and determined its face and content validity. They validated the items for clarity of instrument, clarity of language, appropriateness and adequacy of the items in measuring what they were meant to measure. However, from the validation report and corrections, the items were adequately reformed. Their useful and constructive suggestions were used to modify some items in the objective questions.

**Reliability of the Instrument:** The reliability coefficient of the instruments was determined using Kuder-Richardson (K-R 20) test.<sup>[7]</sup> The instruments were administered to one hundred level nursing students of the department of Nursing Science, Imo State University Owerri, which are within the study area. The level was excluded from the levels to be sampled for the study. The data collected were used to compute the reliability coefficient of the instrument using Statistical Package for Social Science (SPSS). Cronbach's Alpha was used to establish the reliability of the instruments. Hence the internal consistency was determined based on the closeness of the Cronbach's Alpha to 1. Any item that is closer to 1 is considered to have a higher internal consistency. A reliability index of 0.79 was obtained and is considered acceptable in line with Tavakol & Dennick<sup>[8]</sup>, who affirmed that any coefficient that is 0.70-0.95 is considered acceptable. The researcher decided to use this method because it helps to determine the internal consistency of the instrument. Hence, the following formula for calculating K-R 20 was used.

$$K-R 20 = \frac{n}{n-1} \left[ 1 - \frac{\sum pq}{sx^2} \right]$$

Where

$n$  = no of items in a test

$P$  = proportion of students who correctly answered an item

$q$  = proportion of students who incorrectly answered an item ( $q = 1 - p$ )

$p_q$  = Variance of a single item scored dichotomously (i.e. correct and wrong)

$s_x^2$  = P variance of the total test

$\Sigma$  = Summation sign showing that  $p_q$  is summed over all items.

**Method of Data Collection:** The direct method of data collection was accomplished through the pre-test and the post-test administration adopted by the researcher. The instrument was administered personally by the researcher with the help of an assistant who is also a nursing science student recruited by the researcher and trained on the task. It was administered over a period of two weeks. Four groups were sampled by the researchers from the levels (200-500 levels) under study. Each of the levels were grouped into four sections, section A, B, C and D. Group A was taught using traditional method of teaching, group B was taught using modern method of teaching, Group C was taught using practical hands on experience, while Group D was taught using individualized/personalized method of teaching. Each level had a different topic according to the curriculum but was taught using different teaching methods which lasted for a month (4 weeks). 200 level students were taught infection control and disease prevention using traditional method during the first week, 300 level students were taught anatomy and physiology of the heart using modern method during the second week, 400 level students were taught basic nutrition using practical hands- on experience during the third week, while 500 level students were taught principles of management and administration using individualized/personalized method in the fourth week.

At its conclusion, the researchers administered the post-test on the four groups. These activities were carried out simultaneously to avoid maturation effects.

**Pre-test:** This refers to the activities carried out by the researchers before treatment. The pretest was carried out to assess the measures given to participants before they can undergo some type of teaching as part of a research study. In this stage, the researchers identified the various teaching methods to be administered to the four groups. The researchers accessed the groups' curriculum from where the topics used were selected. The respondents were formerly sensitized and pretest administered. The pretest was given on the first day of the week for each of the levels.

**Post-test:** at the end of indebt teaching sessions, a post test was again administered on the respondents with the aim of evaluating their post teaching classroom performance in the four domains of learning. This was out on the last day of the week for each of the levels.

**Methods of Data Analysis:** The returned questionnaires were properly cross-checked for adequacy of information. Copies that do not have adequate responses were discarded. The responses were coded on computer coding sheets, thereafter the Statistical Package for the Social Sciences (SPSS) Batch System was employed in data analysis.

**Ethical Considerations:** Ethical approval was obtained from the ethical committee of College of Medicine and Health Sciences, Imo State University, Owerri, (IMSU) and informed consent given by the participant after explaining the purpose and importance of the study to them. Permission to conduct the study was obtained from the four different groups sampled for the study. Informed written consent was also obtained from the participants before questionnaire administration. All these were obtained before embarking on the study.

## RESULTS

**Table 2: Demographic data of respondents.**

Variable	Category	Frequency	Percentage (%)
Age (years)	Below 20	41	12.00
	20-24	199	58.00
	25-29	81	23.60
	30-34	22	6.40
	35 and above	0	0
Gender	Male	44	12.80
	Female	299	87.20
Marital status	Single	281	81.90
	Married	43	12.50
	Divorced	10	2.90
	Widowed	9	2.70
Level of study	200 level	88	25.70
	300 level	88	25.70
	400 level	80	23.30
	500 level	87	25.30

Table 2 shows the demographic characteristics of the respondents. From the table, it is seen that majority of the students are aged 20-24 years (58.00%). Majority of

the respondents are females (87.20%). The data also show that more of the respondents are single (81.90%) and the sample is distributed similarly across students'

levels i.e 200 level (25.70%), 300 level (25.70%), 400 level (23.30%) and 500 level (25.30%).

**Table 3: Effectiveness of modern teaching methods, such as active learning and technology integration in improving the academic outcomes of nursing students in Imo State University, Orlu.**

Group	N	Pre-test mean	SD	Post-test mean	SD	% increase
Modern teaching method	85	9.76	0.62	14.78	0.63	25.10%

Data on table 3 show the mean performance of the nursing students taught using modern teaching methods. At pre-test, the mean score of the nursing students is given as 9.76 while at post-test, it increased to 14.78.

The percentage increase is 25.10% which implies that modern teaching methods effectively increased the academic performance of the students by 25.10%.

**Table 4: Paired samples t-test of significant difference in the academic performance of students taught with modern teaching methods of teaching.**

Group	N	Pre-test mean score	Post-test mean score	t-stat	df	p-value
Modern teaching method	85	9.76	14.78	-39.76	84	.000*

P is significant at  $p < .05$

Data on table 4 show the significant difference in the performance of students taught with modern teaching methods. The paired samples t-test statistics is given as -39.76 and the p-value .000 which is less than .05. The null hypothesis is therefore rejected and it is concluded that there is a significant difference in the performance of students taught with modern teaching methods at pre-test and post-test.

## DISCUSSION

Findings from research question two reveal that modern teaching methods effectively increased the academic performance of the students by 25.10% and the difference in the pre-test and post-test scores of the students is statistically significant ( $p < .05$ ). The reason for this finding may not be farfetched given the fact that modern methods that integrate technology in teaching is very appealing to this generation of students who are tech savvy in nature. This finding is supported by the findings of Khan *et al* who checked the effect of computer tutorial and teaching methods on nursing students' academic achievement.<sup>[9]</sup> The use of computer tutored programmes which is a modern technology infused teaching method significantly increased the academic achievement of the respondents than that of the nursing students in the control group. In the same vein, Krishnamurthy *et al* carried out a research on the comparative effects of simulation games and brainstorming instructional strategies on students' achievement in nursing education in Nigeria and recorded a significant difference in the mean performance scores of nursing students taught using simulation games (technology infused modern method) and those taught with brainstorming, where the game simulation method produced higher mean performance.<sup>[10]</sup>

## CONCLUSION

Findings from research question two reveal that modern teaching methods effectively increased the academic performance of the students.

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