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PERFORMANCE OF STUDENTS TAUGHT WITH AND WITHOUT INSTRUCTIONAL MATERIALS IN NURSING INSTITUTIONS IN IMO STATE

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ABSTRACT

This study determined the use of instructional materials and its influence on academic performance among nursing students in Imo State. The study employed both a descriptive survey and a quasi-experimental research design. The study was guided by four four research questions and two corresponding hypotheses. The review of literature was done under the following subheadings: conceptual framework, theoretical framework, empirical review and summary of literature review. The population of the study comprised 3795 student nurses and 123 nursing tutors in Imo State. a sample size of 397 student nurses and 103 nurse tutors were obtained for the study using taro Yamane formula and selected using stratified and random sampling techniques. Majority of the respondents agree that instructional material help to understand subject matter better (4.00), easy to understand (3.12), digital instructional materials are easy to access and use (3.85), help to improve grade (3.56), help to retain information better (4.00) and helps prepare for examinations (3.46) and students taught with instructional materials perform better than those taught with instructional materials at post-test. Based on the findings, the researcher recommends among others that nursing school authorities should provide instructional materials based on the factors that determine their use such as alignment with the curriculum.

KEYWORDS: Performance, students, instructional materials, nursing institutions.

INTRODUCTION

The influence of instructional materials in promoting students' teaching and learning in educational development is indisputable. Teaching at any level requires that the students be exposed to some form of simulation through the use of instructional materials. Instructional materials are anything that can assist the tutors in promoting teaching and learning. Thus, it arouses and sustains student's interest and gives all the students in a class the opportunity to share experiences necessary for new learning. It also makes learning more permanent; and is therefore known as tools used to impact knowledge to students.[1] Onwuka[2] indicated that instructional materials help the tutors to convey the intended message effectively and meaningfully to the learners so that the learner receive, understand, retain and apply the experience gained to reach an educational goal. Also Ilori[1] pin-pointed that instructional material are aids the tutors uses to arouse the interest of the learner there by enabling the learner to gain direct experience. Instructional materials are assumed to have being in place right from the primary school level but if not properly utilized, enhancement of learning is thwarted.

Instructional materials according to Abdullahi[3] are materials locally made or imported that help to facilitate the teaching and learning process. Obanga[4] viewed instructional materials as materials that could make tremendous enhancement of intellectual understanding of a subject matter

Academic achievement is a major aspect of school system. It has been conceived as the reflection of students' ability in academic work[5] which shows how well a student performs in test and examination.[6] Academic achievement of students is an area that is given wide research over the years. This is due to the poor achievements students observed in public and school examination.[7] Instructional materials therefore, are essential and significant tools needed for teaching and learning of school subjects to promote tutors " efficiency and improve students achievement".[8] This therefore, prompted the need of the research on influence of instructional materials on teaching and academic

achievements among nursing students in nursing Institutions in Imo State. The purpose of this study is to compare nursing students' performance visa-vis the use or lack of use of instructional materials in nursing institution in Imo State

RESEARCH METHODOLOGY

Research Design
A descriptive cross-sectional survey design and quasi experimental design was adopted for this study.

Study Area
The study was conducted in Imo State among the nursing students and nurse tutors in seven nursing training institutions.

Population of the Study
The target population of the study is 3795 student nurses and 123 tutors in the selected seven (7) Nursing institutions in Imo State.

Sample and Sampling Technique
Taro Yamane formula is commonly used in field of statistics to determine the sample size needed for a survey to achieve a desired level of precision. This is as follows:

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

Where;
n= sample size
N= population size
1 = constant
e = margin of error (0.05)

To find the sample size of students;

Total population of the student nurses was substituted in the Taro Yamane formula. For example, the sample size of nursing students is as follows: students population N=3795, margin of error=(0.05), constant=1

Thus $n = \frac{3795}{1+3795(0.05^2)}$

$n = \frac{3795}{1+(3795 \times 0.0025)}$ therefore sample size $n = \frac{3795}{1+9.5}$,

$n = \frac{3795}{10.5}$

Hence n= 361

For 10% attrition rate for sample size of 361, given: sample size(n=361) and attrition rate(a=10%=0.10) hence, number of students lost=*n* x *a,* therefore, 361 x 0.10=36

Hence lost number≈36

Finally, to account for attrition, We calculate the adjusted sample size by adding the lost number to the original sample size,

thus, *n*+ lost number, 361+36 = 397.

Then proportionate was used to get the actual sample size of each institution

Population of a particular school/ total population of the school X sample size

Hence, The sample size of the nursing students in each of the selected institutions were calculated as above and tabulated in table 3 below.

FOR THE TUTORS
The sample size used to select the tutors was based on Taro Yamane Formula

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

where;
n= sample size
N= population size
1 = constant
e = margin of error (0.05)

To find the sample size of students;

Total population of the nurse tutors was substituted in the Taro Yamane formula. For example, the sample size of nurse tutors is as follows: tutors population N=123, margin of error=(0.05),constant=1

Thus $n = \frac{123}{1+123(0.05^2)}$

$n = \frac{123}{1+(123 \times 0.0025)}$ therefore sample size $n = \frac{123}{1+0.31}$,

$n = \frac{123}{1.31}$

hence n= 94

for 10% attrition rate for sample size of 94, given : sample size(n=94) and attrition rate(a=10%=0.10)

hence, number of tutors lost=*n* x *a,* therefore, 94 x 0.10=9.4

hence lost number≈9

Finally, to account for attrition, We calculate the adjusted sample size by adding the lost number to the original sample size,

Thus, *n*+ lost number, 94+9 = 103.

Hence, the calculated sample size for tutors using proportionate formula was reflected in table 3.

Firstly, Stratified random sampling technique was used to divide population in Nine (9) strata. Seven(7) institutions were randomly selected based on the inclusion criteria.

Secondly, simple random sampling technique was used to select participant within each institution.

Stage one: A basket containing folded pieces of paper written Yes' or No' were reshuffled for the participant (student nurses) in each institution. Those who picked YES were selected as experimental group whereas those that picked NO were the control group.

Stage two: Using simple random sampling techniques, tutors from each of the nursing institutions under study were selected

The criteria for inclusion should be the following;
The institution must have been established for the past five (5) years
Nursing student in Imo State
Nursing students who are readily present at the time of the study
Nursing students who are willing to participate in the study
The tutor should be in any of the seven (7) nursing educational institutions under study

Tutors of all cadre irrespective of status or educational qualification must have taught for at least three (3) years. Full time lecturer in the selected institution under study.

The Exclusion Criteria include the following:
Nursing students who are Sick
Unwilling nursing students
Student nurses outside Imo State
Unwilling Nurse tutors

Instrument for data collection
The data collected were achieved through the use of questionnaire and checklist. The questionnaire was reviewed in line with relevant literature, and approved by the research supervisor. It was constructed to allow respondents choose and tick answers which they feel are most appropriate to their live experience.

The questionnaire is in two parts (I and II). Part I questionnaire is for the students and it contained four sections of A, B and C. Section A is demographic data containing five (4) items such as gender, age, level of study, and type of training institution. Section B contains sixteen (16) items on types of instructional materials. Section C contains seven (7) items on students' responses to the use of instructional materials. The checklist was used to enter the scores of test and assessments used to assess the influence of instructional materials on academic performance of student in nursing institutions in Imo State using both experimental and control group. It was formed in such a way that it contained two columns for both pre and post test for both control and experimental groups.

Part II is the questionnaire for the nurse tutors. It contains three sections. Section A is the demographic variables, section B contains test items on types of instructional materials that is used in the school. Section C contains items on factors that determine the use of instructional materials.

Validity of the instrument
The instrument for data collection was face validated to ensure that it measured what it intended to measure. This was done by giving the draft copy of the instrument to two experts in the department of Nursing Science, Faculty of Health science and One in Measurement and Evaluation, Faculty of Education all in IMSU. The experts were requested to check the face and content validity of the items to see if they actually achieve its aim. The experts will check the appropriateness of the items in terms of coverage, clarity of language, suitability and relevance. On the basis of the suggestions and recommendations of the expert, there may be corrections on the items in the instrument which was taken to their appropriate positions or deleted. Only the items accepted and validated were carefully considered and used for the study.

Reliability of the Instrument
The reliability of the instrument was established with a trial test administered to 20 students in College of Nursing Sciences, Federal Medical Centre (FMC) Umuahia Abia State. This was so because these respondents in FMC Umuahia Abia State have similar experience regarding the influence of instructional materials on teaching and academic achievement among nursing students and they are not part of the study. The reliability of the instruments were determined by using Cronbach's Alpha. The co-efficient alpha for the two sections for part I (student's questionnaire) were 0.710 and 0.820 respectively, which gave overall reliability mean of 0.765 This shows that the instrument is highly reliable. While the co-efficient alpha for the two sections for part II (tutors questionnaire) were 0.800 and 0.822 respectively, with the overall reliability mean of 0.811. This also shows that the instrument is highly reliable.

Method of Data Collection
The researcher administered the instrument through three research assistants who were selected from the nursing institutions and are familiar with the research environment. The research assistants were briefed on how to assist respondents for the purpose of the study. The three assistants helped in covering the nursing institutions. The researcher and her assistants did on the spot administration and retrieval of the instruments from respondents. In this process the researcher solicited for the cooperation of the school management and the students. Instructions were given on how to complete the questionnaire in order to safeguard errors. Respondents were encouraged to complete and return the questionnaire on the spot. All the distributed questionnaires (part I and Part II) were all retrieved and they were all valid.

For influence of instructional material on academic performance of students, the students from each of the selected schools were group into two (experimental and control group). The experimental group were taught with instructional materials and other group (control group) were taught without instructional materials. Pre-test was given to the selected students according to each of the institution, then the students were taught according to their group which at the end of the lesson in each institution, post-test/ assessment of the same question type was given to both groups. The answers from each institution were collected, scored and were used for the study.

Method of Data Analysis
Item by item simple descriptive analysis was done to illustrate the response frequency, percentages, standard deviation and mean of various categories of data. Data collected from the questionnaire were collated, tallied and presented in Tables. Statistical significance was set at $p \leq 0.05$. All statistics were done using SPSS/IBM software (Version 20.0).

Ethical Consideration

A letter of introduction was collected from the Head, Nursing Science Department of Imo State University, Orlu. The consent of each volunteered nursing student from each school visited was sought before they were used for the study thereby not infringing on their rights (as their participation was voluntary). The researcher ensured absolute confidentiality of all private information of the subjects as this was used only for the purpose of the study as the respondents' names were not included on the questionnaire. Equally, they retained the right to withdraw at any time.

In order to conform to the ethical and legal standards of a scientific investigation, the relevant authorities of the Nursing institutions scrutinized the proposal before granting permission for questionnaire administration. The participants had thorough explanation of the study and voluntarily agreed to participate in the study. The participants were ensured of confidentiality of any information given.

RESULTS

Table 1: Demographic data of respondents

Variable Students	Category	Frequency =397	Percentage (%)
Gender	Male	61	15.20
	Female	336	84.80
Age bracket (in years)	< 20	102	25.80
	20-24	194	49.00
	25-29	81	20.50
	30 and above	20	4.70
Level	100 level	95	24.00
	200 level	187	47.20
	300 level	91	23.00
	400 level	14	3.50
	500 level	10	2.30
Type of institution	Private	213	53.80
	Public	184	46.20
Tutors Gender		**Frequency= 103**	
	Male	11	10.70
	Female	92	89.30
Age in years	Below 30	16	15.50
	30-39	44	42.70
	40-49	23	22.30
	50-59	16	15.50
	60 and above	4	4.00
Education	OND/HND	0	0
	BNsc	30	29.10
	MSc	62	60.20
	Ph.D	11	10.70
years of teaching experience	1-3	32	31.10
	4-6	29	28.20
	7-9	28	27.20
	10 and above	14	13.50

Data on table 1 show the demographic characteristics of the respondents (students and tutors). Majority of the respondents are females (84.80%). The data also show that majority of the respondents are aged 20-24 years (49.00%). Also, the level of study with the largest respondents is 200 level (47.20%).

Data on the tutors show that majority of the tutors are females (89.30%); majority are aged 30-39 years (42.70%). Also, majority of the tutors are masters degree holders (60.20%) while majority have taught for 1-3 years (31.10%).

Table 2: extent of performance (mean performance scores) of students taught and not taught with instructional materials

Group	n	Pre-test mean	Standard deviation	Post-test mean	Standard deviation	% increase
Experimental group	198	48.27	5.67	74.72	8.25	36.06
Control group	199	47.10	2.56	62.33	2.30	29.35

Data on table 2 show the mean performance scores of the respondents in the experimental and control group. The mean performance scores of the students in the experimental and control group at pre-test are 48.27 and 47.10 respectively implying that both groups were at similar performance levels before the treatment procedure. At post-test, the experimental group had mean performance score of 74.72, indicating a 36.06% increase in their performance. On the other hand, students in the control group had an improved performance but by 29.35%. This implies that the students taught with instructional materials performed higher than those taught without instructional materials.

DISCUSSION
Findings from the study in research question 4 show that at post-test, the experimental group had mean performance score of 74.72, indicating a 36.06% increase in their performance. On the other hand, students in the control group had an improved performance but by 29.35% implying that the students taught with instructional materials performed higher than those taught without instructional materials. This finding gives credence to the previous finding in research question 3 where majority of the respondents agree that instructional materials help them to retain information better and improve their grades. The corresponding hypothesis reveals that the difference between the performances of students taught with instructional materials and those not taught is remarkably significant ($p<.05$).

Giving support to this finding are the findings of Nwike and Onyejegbu[9] who in their study on instructional materials use in nursing institutions in Orumba South LGA of Anambra, found out that students taught with instructional materials performed better than students taught without instructional material. Also in line with the findings above are those of Abdu-Raheem[10] who in a similar study recorded that students exposed to social studies using instructional materials outperformed their counterparts taught without instructional materials.

CONCLUSION
It is therefore on this premise that nursing tutors and students are encouraged to use instructional materials as this would help provide clarity to complex courses, aid retention among students and encourage active learning.

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