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LEVEL OF USAGE AND ACCESSIBILITY OF ICT TOOLS AMONG NURSE EDUCATORS AND NURSING STUDENTS IN IMO STATE UNIVERSITY, OWERRI

Oluchi Anthonia Onyemekara¹, C.C.N. Vincent¹, Nkiru Okoroafor¹, Emmanuel Ifeanyi Obeagu*², Adanma Nwagwu Solomon¹, Anthonia Emesowum¹, Josephine Egbuchelem¹ and Clementina Ezenwuba¹

¹Department of Nursing Science, Faculty of Health Sciences, Imo State University, Owerri, Imo State, Nigeria. ²Department of Biomedical and Laboratory Science, Africa University, Zimbabwe.



Corresponding Author: Emmanuel Ifeanyi Obeagu

Department of Nursing Science, Faculty of Health Sciences, Imo State University, Owerri, Imo State, Nigeria.

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ABSTRACT

This study, ascertained the attitudes and challenges of ICT use and its influence on academic performance of students in department of nursing (DON) IMSU, Orlu campus. The study was a descriptive survey and quasi-experimental research design, having four research questions and three hypotheses. The population of the study comprised 319 nursing students and 25 nurse educators in DON IMSU. The sample size determined by Taro Yamane formula was 195 students and 25 nurse educators. Consequently, the researcher used a pre-test and posttest for checking academic performance. The research questions were answered using mean scores, frequency counts and percentages while the hypotheses were tested using independent samples t-test and simple linear regression on SPSS 26. The major findings are that ICT usage and accessibility level for nursing students was high while the nurse educators were low. And most importantly, that there was a positive influence in the application and integration of ICT in teaching and learning, which definitely translated to improved academic achievement of nursing students.

KEYWORDS: usage and accessibility of ict, nurse educators, nursing students.

INTRODUCTION

Teaching and learning are continually being redefined and the methods used to deliver these teaching and learning are ever evolving, including an increase use of Information and Communication Technology (ICT). The term ICT simply means any technology that has to do with information and communication. Information can come in many forms such as sound, video, text and images.^[1] The technology that produces these aspects of information is mobile phones, digital cameras, video camera etc. Over the past few decades, the rapid advancement and integration of Information and Communication Technology (ICT) have revolutionized various aspects of our lives, and education is no exception.^[2] The impact of ICT in education has been profound, reshaping traditional learning approaches and empowering educators and learners with innovative tools and resources.^[2] Through the seamless integration of computers, the internet, mobile devices, and other digital technologies, ICT has opened up boundless opportunities to enhance the teaching and learning experience.^[2] This transformative shift has fostered personalized learning, improved accessibility, encouraged collaboration, and ignited a newfound enthusiasm for education, propelling students and educators into an era of limitless

possibilities.^[2] As ICT continues to evolve, its role in education will undoubtedly continue to shape the future of learning and equip learners with the skills and knowledge necessary to thrive in the digital age. According to Ratheeswari^[3], on one hand, technology offers nurse educators opportunities for creating new and enhanced educational experiences for their students; on the other hand, ICTs present nurse educators with many challenges that go above and beyond mere technical aspects. Consequently, the internet has been a vital tool to the present information society, and a world without the internet is unimaginable.^[4] According to UNESCO, Information and communication technology (ICT) is defined as a technological and engineering discipline that scientific and management techniques uses in information handling.^[3] Hence, it uses different technologies to capture, communicate, collect, analyse, store and distribute the information needed to perform a specific task faster.^[5] It is imperative to note that the outbreak of the Covid-19 Pandemic forced several higher institutions of learning in developing countries to adopt digital technology for the learning process.^[6]

ICT allows us to access information and communication effectively. Moreover, it enables one to communicate

effectively and efficiently, Nurse Educators have an excellent opportunity to contribute to innovation and knowledge by using them to enhance teaching and learning. Schools use diverse sets of ICT tools to communicate, create, dissemble, store and manage information.^[7] In Imo State, the use of ICT by learners and educators in nursing institution is undoubtedly a sine-qua-non to teaching and learning considering its end gains.^[7] This should be encouraged and promoted without any reservations. The purpose of the study is to determine the accessibility and usability of ICT resources in nursing education, in DON.IMSU, Orlu considering factors such as infrastructure, technical support, and user-friendliness.

RESEARCH METHODOLOGY

Research design: A descriptive survey and quasiexperimental design were adopted for the study.

Study Area: This study was conducted in Orlu at department of nursing science, IMSU Orlu among nursing students and nurse educators.

Population of the study: The study focuses on the attitudes and challenges of ICT use and its influence on academic performance of nursing students in department of nursing science (DON), Imo State University (IMSU), Orlu. The DON, IMSU, Orlu has entire student population of 796 students (from departmental records, June 2024). The breakdown of the total population are as follows; 100L = 172 students, 200L = 172 students, 300L = 170 students, 400L = 149 students, 500L = 133 students (from departmental records, June 2024).

Sample size and sampling Technique: The study sample size was determined using a sample size formular by Taro Yamane for cross sectional studies.

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

Where

n = Sample size of nursing students in 300 plus 400 level in the department of nursing in IMSU, Nigeria.

N = Population of nursing students in 300 and 400 level in the department of nursing in IMSU, Nigeria

e = signifies the margin of error (it could be 0.10, 0.05 or 0.01)

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

No of students in $300L = +\frac{170}{133}$

No of students in 400L = Total= 319

$$=\frac{319}{1+319+(e)^2}$$

$$=\frac{319}{1+0.7975}$$
$$=\frac{319}{1+(319\times 0.0025)}$$

= 177 nursing students

$$\frac{10}{100} \times \frac{177}{1} = 17.7$$
 approximately 18
So the sample size is 177+18

$$n = 195 \ \frac{195}{319} \times \frac{100}{1} = 61\%$$

This represents 61% of the population, However, sample size of 195 respondents out of the entire population of 319 students in 300 and 400 level were therefore be considered for convenience.

Consequently considering the variation in the population sizes of the two levels, the number to be selected in each level in thus;

For 300l, we should select

$$\frac{170}{319} \times \frac{195}{1} = 104 \text{ respondents}$$

For 4001, $\frac{149}{319} \times \frac{195}{1} = 91$ respondents

Specifically, 52 respondents each were used both for experimental and control groups for 300l.

Similarly, for 400l, 46 and 45 respondents were used for experimental and control groups respectively.

For the nurse educators: The twenty-five consented nurse tutors were all used for the study.

Inclusion criteria: This study is restricted to the following.

A) Only nursing students of 300L and 400L of department of nursing (DON) IMSU, Orlu.

B) Respondents that gave their consent and interest to the study.

C) Recruitment for the study is absolutely voluntary.

Exclusion criteria: The following are not recruited for the study.

A) Subjects that are not in 300 and 400 level of department of nursing (DON) IMSU, Orlu.

B) Subjects that neither consented nor showed interest to the study.

Instrument for data collection: The instrument used for data collection in this study was questionnaire developed by the researcher for the selected DON IMSU nursing students (among 300L and 400L) and 25 nurse educators considering their number, consent and interest. The questions were constructed in accordance with the specifications of research objectives for the influence of ICT use on academic performance. The researcher adopted a pre and posttest administration of test items to the two different groups (experimental and control). The structured questionnaire were arranged in two parts which are part 1(one) for students and part 2 (two) for nurse educator. Five sections were used for part 1 while four sections served for part 2. Section A contains Respondents 'demographic data, B examines the accessibility and usability of ICT resources in nursing education, C explores perceptions and attitudes of Nurse educators and students on ICT use and D contained

questions on challenges encountered by nurse educators and students on ICT use, while section E contained test items to get the influence on academic performance.

Validation of the instrument: The copies of the questionnaire were presented to the project supervisor for proper vetting in order to ensure the face and content validity of the instrument. After the corrections, the supervisor approved the instrument before administration to the respondents.

Method of data collection: Students were approached, the purpose and duration of the study were explained by the principal investigator, who was not involved in the education of those students and a study information leaflet was provided. Participation in this study was voluntary and required signing an informed consent form before partaking in the exercise proper.

The intervention focused on determining the influence of ICT use on academic performance. The intervention consisted of nursing students' use or not use of ICT tools example laptops, phones and projectors during teaching and learning. The students were grouped into two; experimental group (those that use ICT example phones, laptops and projectors) and control group (those without the use of ICT tools). Questionnaires were self-completed by students before and after the intervention which allowed measurement of influence of ICT use on academic performance.

Two teaching and learning sessions were conducted on alternate Saturdays for two hours (10:30-12:30pm) for each of the selected levels (300 and 400 levels) respectively in Nov/ Dec, 2024. The period for this teaching and learning intervention was weekends to accommodate the students' learning needs.

The intervention was executed using blended learning approaches, which included face to face interactive

sessions plus classroom presentations using the prescribed and adopted ICT tools for the experimental groups (group one). On the other hand, the control group (group two) was taught with the traditional (whiteboard) method of teaching devoid of any ICT tools application.

At the start of the session, a pre- test (all the questionnaires) were administered to each of the levels (3001 and 4001) at their appropriate days. The each level was subsequently split into two groups (group 1(one) being the experimental) and group 2 (two) being the control). The different groups were handled appropriately which are.

Group one (experimental group) was taught with ICT eg Laptop and projector, while group two (control group) was taught using traditional method of teaching which is white board.

Again, A post-test comprising only the questionnaire to access the influence of ICT on academic performance was distributed. Finally, the questionnaires were collected, paired and stapled for further analysis.

METHODS OF DATA ANALYSIS

Data collated were organized and analyzed by using SPSS version 25. Parametric statistics like mean, standard deviation were used to answer research questions while the hypothesis was using t-test.

Initial data analysis involved construction of frequency distribution tables, to be expressed as percentage of the distribution. All tests were performed at 5% significant level and probability value (P) was used to establish significance.

Bases of decision is P-valve whereby if it is more than 0.05 you do not reject but if it is less, you reject the Null hypothesis.

RESULTS

Table 1:	Demographic	data of	respondents.
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Variable Students	Category	Frequency students=195	Percentage (%)	
	16-20	31	15.90	
	21-25	100	51.30	
Age (years)	26-30	40	20.50	
	31-35	16	8.20	
	36 and above	8	4.10	
Candan	Male	32	16.40	
Gender	Female	163	83.60	
	Single	161	82.60	
Marital status	Married	24	12.30	
Maritar status	Divorced	4	2.10	
	Widowed	6	3.00	
Lavel of study	300 level	104	53.30	
Level of study	400 level	91	46.70	
Nurse educators		Frequency= 25		
	16-20	0	0	
Age (years)	21-25	0	0	

	26-30	0	0
	31-35	8	32.00
	36 and above	17	68.00
Conder	Male	9	36.00
Gender	Female	16	64.00
	Single	4	16.70
Marital status	Married	18	72.00
Warnar status	Divorced	0	0
	Widowed	3	11.30
I anoth of alinical	0-5 years	8	32.00
teaching experience	6-10 years	10	40.00
teaching experience	10 years and above	7	28.00

Data on table 1 show the demographic characteristics of the respondents (nurse educators and students). The data show that majority of the students are aged 21-25 years (51.30%). Majority of the students are females (83.60%). Furthermore, 82.60% which makes up the bulk of the respondents are single.

Data on the nurse educators show that majority of them (68.00%) are aged 36 years and above. Majority are females (64%). Also, a majority of the nurse educators are married (72.00%). Finally, many of the nurse educators have 6-10years clinical teaching experience (40.00%).

Table 2: Level of use and accessibility o	of ICT resources among studen	t nurses and nurse educators.
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S/N	Statements	Students' mean	SD	Remark	Nurse educators' mean	SD	Remark
1.	Low usage and reliance on hard copy textbooks and physical libraries	2.77	0.56	High	2.55	0.12	High
2.	Accessing educational websites, online libraries, research papers and multimedia content, enriching understanding of subjects beyond what is covered in textbooks.	2.81	0.89	High	2.61	0.72	High
3.	Assessment of variety of knowledge resources	3.22	0.55	High	2.71	0.88	High
4.	Use of personalized learning/teaching experience tailored to individual needs and learning/teaching styles.	2.90	0.63	High	2.56	0.74	High
5.	Using ICT to deliver/learn content at the right pace, matching the individual needs of each student/teacher.	2.63	0.81	High	2.31	0.61	Low
6	Teach/learn at one's convenience using ICT	2.81	0.32	High	2.11	0.71	Low
	Cumulative mean	2.85			2.47		

Data on table 2 show the mean responses of nursing students and nurse educators on level of use and accessibility of ICT. The data show that the mean responses of the nursing students on items 1- 6 in the questionnaire are above 2.50 which is the mean mark for a 4-point likert scale. The cumulative mean is given as 2.85 for the students. This implies that majority of the student's access and use ICT tools to a high extent. On the other hand, the mean responses of the educators on

items 1-4 are all above 2.50, indicating high acceptance of statements 1-4. However, items 5 and 6 have low mean scores viz: 2.31 and 2.11 respectively which means that majority of the teachers do not use ICT tools to deliver content at the right pace and do not use ICT to teach at their convenience. The cumulative mean for nurse educators is 2.47, indicating low level of use and accessibility of ICT among the teachers.

 Table 3: Independent samples t-test of significant difference between student nurses and nurse educators' use of ICT.

Group	Ν	Mean usage/accessibility	t-stat	df	p-value
Students	195	2.85	10 479	222	.032
Teachers	25	2.47	10.478 2	223	

P is significant at p<.05

Data on table 3 show the t-test of significant difference between students' and teachers' level of ICT use. The mean score for students' ICT use is 2.85 while that of teachers is 2.47. The p-value is given as .032 which is less than .05 and the t-statistics value is given as 10.478. The null hypothesis is therefore rejected and it is concluded that there is a statistically significant difference in the usage and accessibility of ICT tools between student nurses and nurse educators.

DISCUSSION

From the findings of the study, it is shown that the cumulative mean for nursing students on level of accessibility and usability of ICT tools is given as 2.85. implying high level of ICT tools usage among students while that of nurse educators is given as 2.47, indicating low level of use and accessibility of ICT among the teachers. The corresponding hypothesis shows that the difference in the means of teachers and students is statistically significant (p<.05). The reason for the finding may not be farfetched given the fact that as digital natives in the 21st century, use and mastery of computer and computer related applications have become a norm for students while some lecturers who are older, have some sort of catch up to do with digitalisation. This finding coincides with the findings of Reserve^[8] who in a study on knowledge, accessibility and use of ICT among students and teachers in the Department of Nursing Sciences, University of Nigeria, Enugu Campus discovered that majority of the students 346 (80.5%) had knowledge usage and access to ICT.

The studies above are however debunked by the findings of Esewe *et al.*^[9] who explored how nurse educators use ICT to enhance the learning experiences of nursing students in Edo State and recorded an extremely high level of ICT usage and accessibility by the nurse educators.

CONCLUSION

The integration of ICT in teaching and learning has greatly improved the speed at which teachers deliver their instruction and also the speed with which students learn. ICT not only has speed implications but also engages learners actively in any teaching and learning circle.

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