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Perception to Computer Based Test Professional Nursing Examination among Nursing Students and Nurse Educators in Imo State

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Abstract

This research work will be carried out to ascertain the perception, attitude and constraints to computer-based test professional nursing examination among nursing students and nurse educators in Imo State. The study will also pinpoint on the various ways of limiting the constraints to CBT. A sample size of 18.99% of students and a sample size of 86.6% of teachers will be collected by means of balloting without replacement and simple random sampling technique will be used to draw samples from the seven (7) nursing institutions in Imo State. The research Instrument that will be used for this study will be a well-structured questionnaire which will be validated by the researcher's supervisor and the data collected will be analyzed using a descriptive statistical method (SPSS) ISM software (Version 20.2). On the type of training received by the students, 220 (60.43%) are basic nursing/basic midwifery students; 101 (27.74%) are post basic nursing/midwifery students; 32 (8.79%) are refresher course students while 11 (3.02%) are foreign training course students. 30 (30.93%) of the nurse educators are males while 67 (69.07%) of the nurse educators are females. Among the nurse educators, 7 (7.22%) have ND/HND; 43 (44.33%) have B.Sc/BNSc; 32 (32.98%) have M.Sc while 15 (15.46%) have Ph.D. The need for every individual to be abreast with computer related applications cannot be over emphasised. This is because, the 21st century is a largely digitalised century and use of computer applications have become imminent to improve quality and quantity of work in various spheres of life.

INTRODUCTION

Computer-based test, also known as CBT test, refers to delivering assessments with computers as an alternative to using the pen-paper method. Such a test can be conducted online using the internet or a computer-aided facility. Usually, this test or examination is carried out by organizations to evaluate or analyze a candidate's performance, skill, or capability.[1] With the integration of features like multiple-choice questions, descriptive answers, analytics-based questionnaires, etc., the CBT online test simplifies the evaluation task of teachers. The faculty can be assured of the knowledge-level of students based on the tests mapping & final results. The availability of additional features such as auto-grading and section-wise feedback makes it favorable to educational institute.[1]

The most common type of CBT is the linear CBT which is a fixed-length computerized assessment that presents the same number of items to each examinee in a specified order and the score usually depends on the number of items answered

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correctly. Evidently, linear CBT imitates a Paper-based test that is presented in a digital format and pays little or no attention to the ability of each individual examinee. Also computerized adaptive testing (CAT) is a special type of computer-based test. Each examinee takes a unique test that is tailored to his/her ability level.[2]

Research Methodology

Research Design

A descriptive survey research design was adopted for this study.

Study area

This study was conducted in Imo State using the student nurses and educators in the seven nursing training institutions.

Population of Study

The target population for the study is made up of 1918 nursing students and 112 teachers. Inclusion Criteria

- Schools that have used CBT to write their nursing professional examinations or internal examination were selected.
- All the students of each of the seven schools that have been sensitized to CBT and those that have written their final nursing professional examination or internal examination with CBT were selected.
- Nursing educators that have taught for at least one year and must have in vigilated the CBT examinations in the seven nursing institutions were selected.

Exclusion Criteria

- Schools that their students are yet to be exposed to CBT and have not written professional nursing examinations or internal examination using CBT.
- Students that were not sensitized to CBT were excluded from the study.
- Teachers that have not been exposed to CBT.
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Sample Size and Sampling Technique

The study targeted full time lectures and final year students in the six-nursing institution.
Taro Yamane (1967) calculation of the sample size at5%significantlevelwasused.

Sample size was calculated as follows:

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

where;-

n= Sample Size

N = Population Size
(0.05)=error term level of significant

Sample size of the students with 10% attrition is 364; this makes 18.98% of the population.
Sample size of the teachers with 10% attrition is 97; this makes 86.61% of the population.

Sampling Technique

The sample was drawn using stratified sampling procedure.

Stage One: Seven Schools were purposefully selected out of nine nursing institutions in Imo State; this is because the two schools that were excluded are yet to sit for professional nursing examinations.

Stage Two: The samples were arranged into 7 strata and each stratum represented the total population.
Stage Three: Balloting without replacement and simple random sampling were used to select samples from each of the 7 strata. The technique involves a lucky dip without replacement, "Yes" and "No" options were written on pieces of paper and those that picked "yes" were selected for the study.

Method of Data Collection

A letter was written to the Head of Institutions of the different schools for permission to carry on the research. The instrument was made without the respondent's name in order to ensure anonymity and confidentiality. The respondents' consent was obtained after some explanation about the nature and purpose of the study. Consequently, the researcher administered the copies of the questionnaire to the consenting respondents on the spot in their classrooms. The teacher's questionnaires were equally administered to them in their respective offices and were completed at their convenience. All copies of the questionnaires were retrieved by hand same day. It took
the researchers one month for distribution and retrieval of the questionnaires from sampled schools.

Method of Data Analysis

Data were collected and tallied before presenting using tables and percentages. A descriptive statistical method (SPSS)/IBM software (version 20.0) was used in analyzing the data. Hypotheses were tested using non parametric statistics of chi-square.

Ethical Consideration

A letter of introduction was obtained from the Department of Nursing Science, Imo State University Orlu, and ethical consideration was approved from Imo State research ethical committee.

Results

Table 1: Demographic data of respondents

Variable	Category	Frequency	Percentage (%)
School	**Students**	**364**	
	SON Emekuku	31	8.51
	SON, Mbano	33	9.07
	SON Umulogho	40	10.98
	SON, Amaigbo	31	8.51
	DON, IMSU	134	36.81
	ICON, Orlu	59	16.21
	SON, Ezeala	36	9.89
	Teachers	**97**	
	SON Emekuku	12	12.37
	SON, Mbano	11	11.34
	SON Umulogho	15	15.46
	SON, Amaigbo	13	13.40
	DON, IMSU	19	19.58
	ICON, Orlu	15	15.46
	SON, Ezeala	12	12.37
Age (years)	**Students**	**364**	
	15-19	54	14.83
	20-24	189	51.92
	25-29	98	26.92
	30 years and above	23	6.31
	Nurse educators	**97**	
	20-29	29	29.89
	30-39	37	38.14
	40-49	25	25.77
	60-69	6	6.18
Type of training	**For students only**		
	Basic nursing/Basic midwifery	220	60.43
	Post basic nursing/midwifery	101	27.74
	Refresher course	32	8.79
	Foreign training course	11	3.02
Gender	**For nurse educators only**		
	Male	30	30.93
	Female	67	69.07

Highest professional qualification	**For nurse educators only**		
	ND/HND	7	7.22
	B.Sc/BNSc	43	44.33
	M.Sc	32	32.98
	Ph.D	15	15.46

Data on table 1 show the demographic characteristics of the respondents (nurse educators and students). It is shown that 31 (8.51%) of the students and 12 (12.37%) of the educators are from SON Emekuku; 33 (9.07%) of the students and 11 (11.34%) of the teachers are from SON Mbano; 40 (10,98%) of the students and 15 (15.46%) of the nurse educators are from SON Umulogho; 31 (8.51%) of the students and 13 (13.40%) of the teachers are from SON Amaigbo; 134 (36.81%) of the students and 19 (19.58%) of the teachers are from DON IMSU; 59 (16.21%) of the students and 15 (15.46%) of the nurse educators are from SON Orlu while 36 (9.89%) of the students and 12 (12.37%) of the teachers are from SON Ezeala.

54 (14.83%) of the students are aged 15-19 years; 189 (51.92%) are aged 20-24 years; 98 (26.92%) are aged 25-29 years while 23 (6.31%) are aged 30 years and above. On the other hand, 29 (29.89%) of the nurse educators are aged 20-29 years; 37 (38.14%) are aged 30-39 years; 25 (25.77%) of the nurse educators are aged 40- 49 years while 6 (6.18%) are aged 60-69 years.

On the type of training received by the students, 220 (60.43%) are basic nursing/basic midwifery students; 101 (27.74%) are post basic nursing/midwifery students; 32 (8.79%) are refresher course students while 11 (3.02%) are foreign training course students. 30 (30.93%) of the nurse educators are males while 67 (69.07%) of the nurse educators are females. Among the nurse educators, 7 (7.22%) have ND/HND; 43 (44.33%) have B.Sc/BNSc; 32 (32.98%) have M.Sc while 15 (15.46%) have Ph.D

Table 2: Perception of students and nurse educators on computer-based test in nursing institutions

S/N	Statements	Students' mean	Remark	Nurse educators' mean	Remark
1.	CBT gives room for computer literacy	2.77	Good	3.35	Good
2.	CBT eliminates malpractices	2.67	Good	2.56	Good
3.	CBT ensures timely release of results	2.81	Good	2.81	Good
4.	CBT ensures multiple short and reliable assessment	2.71	Good	3.22	Good
5.	CBT encourages independent work	2.90	Good	2.56	Good
6	CBT eliminates missing script	2.63	Good	2.61	Good

7	CBT ensures immediate grading	2.81	Good	3.55	Good
8	Marking is more accurate	2.73	Good	3.32	Good
9	CBT ensures immediate feedback	2.81	Good	2.56	Good
10	CBT ensures assessment of many test items	2.71	Good	2.61	Good
11	CBT enhances analysis of students' performance	2.20	Poor	3.55	Good
	Cumulative mean	**2.70**		**2.93**	

Data on table 2 show the mean responses of nursing students and nurse educators on perception of computer-based test. The mean responses of the nursing students on items 1- 10 in the questionnaire are above 2.50 which is the mean mark for a 4-point likert scale. Only item 11 has a mean response of 2.20 which is below 2.50. The cumulative mean for the students is given as 2.70. This implies that majority of the students have good perception of computer-based test. Also, the alternate column shows the mean responses of the nurse educators on their perception of computer-based test. Item 2 has a mean response of 2.10 which is below the 2.50 mean mark. This implies that majority of the nurse educators do not believe that CBT eliminates malpractice. However, all other items for the nurse educators have their mean responses above 2.50 and the cumulative mean is given as 2.93 (also greater than 2.50). This implies that majority of the nurses educators have good perception of computer based test.

Table 3: Overall perception of nursing students and nurse educators on use of CBT for professional nursing examinations

Perception	Good perception	Poor perception	Total
Nursing students	316 (86.81)	48 (13.19)	364
Nurse Educators	60 (61.86)	37 (38.14)	97

NB: Based on individual scores on the perception questionnaire

Data on table 3 show the overall perception of nursing students and nurse educators on the use of CBT for professional nursing examinations. 316 (86.61%) of the nursing students have good perception of the use of CBT for professional examinations while 48 (13.19%) have poor perception of use of CBT. On the other hand, 60 (61.86%) of the nurse educators have good perception of use of CBT for professional examinations while 37 (38.14%) have poor perception of the use of CBT for professional examinations.

Discussion

Findings from research question 1 revealed that the cumulative mean for the nursing students on their perception of use of CBT for professional nursing examinations is given as 2.70. This implies that majority of the students have good perception of computer-based test. Also, the cumulative mean for nurse educators' perception of the use is given as 2.93 (also greater than 2.50). This implies that majority of the nurses educators have good perception of computer based test. Generally, 316 (86.61%) of the nursing students have good perception of the use of CBT for professional examinations while 48 (13.19%) have poor perception of use of CBT. On the other

hand, 60 (61.86%) of the nurse educators have good perception of use of CBT for professional examinations while 37 (38.14%) have poor perception of the use of CBT for professional examinations.

The reason for this finding could be directly linked to the fact that the prospects of using computer-based test for examinations have been emphasised greatly and has come to stay in this 21st century. It is also expected that individuals in this generation are digital natives and as such, should warm up to the use of CBT, hence the high level of good perception among nursing students and nurse educators. This finding is in line with the findings of Jimoh *et al.* [3], who in their study on students' perception of CBT for undergraduate chemistry courses in University of Illorin, recorded positive perception of CBT test among 95.8% of the respondents. Also supporting this finding is that of Ogunlade and Olafare [4], who in their study on lecturers' perceptions and attitudes towards the use of computer-based test in Nigerian universities, reported that65% of the sampled lecturers had good perception of the use of CBT in Nigerian universities.

Conclusion

The need for every individual to be abreast with computer related applications cannot be over emphasised. This is because, the 21st century is a largely digitalised century and use of computer applications have become imminent to improve quality and quantity of work in various spheres of life. The education sector is not left out. The introduction of computer-based tests has greatly improved the speed at which tests are administered and results received. It also relieves the test administrator the tedious job of marking and grading of scripts.

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