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Assessment of National Open University of Nigeria (NOUN) Students' Use of Computers for Electronic Examination in South-west, Nigeria

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Abstract

This study assessed students' use of computer for electronic examination in the National Open University of Nigeria (NOUN). Simple random sampling techniques was employed to draw a sample size of nine hundred (900) distance learners from 100 and 200 levels respectively in Ogun, Ekiti and Oyo State NOUN study centres. Data collection was done by means of a structured questionnaire which was subjected for face and content validating using Cronbach's alpha test. The results yielded reliability coefficient of 0.76 and above. The data collected were analysed using frequency counts, percentage distribution, means, standard deviations and students t-test. The result showed significant difference in online computer use between male and female students, and that there was significant difference in NOUN students' on the use of computer for electronic examination based on their faculties (Law, Education, Management Sciences, Science and Technology and Arts and Social Sciences). The study therefore recommended that all students of NOUN should be encouraged to procure mobile technologies such laptops, Ipad, internet enabled mobile phones compulsorily for easy access and effective preparation for e-exams. Intensive seminars, trainings and workshops should be organised for students on how to harmonize the use digital technologies for improved performance via e-examination platforms.

Keywords: Student Use of computer, Electronic examinations, Open and distance learning, Gender

Abstrait

Cette étude a évalué l'utilisation de l'ordinateur par les étudiants pour l'examen électronique à ***National Open University of Nigeria*** *(NOUN). Des techniques d'échantillonnage aléatoire simples ont été utilisées pour tirer un échantillon de neuf cents (900) apprenants à distance des 1er et 2eme niveaux respectivement dans les centres d'étude NOUN d'Ogun, d'Ekiti et d'Oyo. La collecte des données a été effectuée au moyen d'un questionnaire structuré qui a été soumis pour validation du visage et du contenu à l'aide du test alpha de Cronbach. Les résultats ont donné un coefficient de fiabilité de 0,76 et plus. Les données recueillies ont été analysées à l'aide des comptages de fréquence, de la distribution en pourcentage, des moyennes, des écarts-types et du test t d'étudiants. Le résultat a montré une différence significative dans l'utilisation de l'ordinateur en ligne entre les étudiants masculins et féminins, et qu'il y avait une différence significative dans l'utilisation de l'ordinateur par les étudiants de NOUN pour les examens électroniques en fonction de leurs facultés (Droit, éducation, sciences de Gestion, Sciences et Technologie et Arts et Sciences Sociales). L'étude a donc recommandé que tous les étudiants de NOUN soient encouragés à se procurer obligatoirement des technologies mobiles telles que des ordinateurs portables, des Ipad, des téléphones mobiles compatibles Internet pour un accès facile et une préparation efficace aux examens électroniques. Des séminaires intensifs, des formations et des ateliers devraient être organisés pour les étudiants sur la manière d'harmoniser l'utilisation des technologies numériques pour améliorer les performances via les plateformes d'examen en ligne.*

Mots-clés: Utilisation de l'ordinateur par les Etudiants, Examens Electroniques, Enseignement Ouvert et à Distance, Genre

Introduction

The avid thirst for knowledge and provision of equal access to education by all and sundry made both the developed and developing nations of the world clamour for Open and Distance Learning (ODL) mode of delivery. Musingafi, Mapuranga, Chiwanza and Zebron (2015) attested to accessibility, affordability, flexibility and life based pedagogic opportunities as the benefits derived from learning via Open and Distance Learning strategy. Hence, the introduction of ODL coupled with the rapid growth in Information and Communication Technology

(ICT) in facilitating access and dissemination of knowledge mandated every learner to be ICT compliant to enhance improved performance academically and professionally (Ogunlela & Ogunleye, 2014; Ogunleye & Apata, 2018). The United Nations Educational, Scientific and Cultural Organization (2004) further reiterated that ODL has been translated into a paramount global strategy of providing solutions to the related challenges confronting equal access to education and providing instantaneous feedback to the users via electronic platforms. This position was corroborated by Okopi and Ogunleye (2016) who documented the importance of the open and distance education to its recipients and the society at large. According to Kamau (2007) as cited in Musingafi, Mapuranga, Chiwanza and Zebron (2015), the use of electronic examinations in Open and Distance Learning provides timely feedback on individual student achievement. The author observed that technical competence in the use of ICT is one of the challenges confronting distance learners in the developing countries. The related technical competences are skills needed to operate ICT hardware and software, skills for networking systems and to access and disseminate information (Ogunleye, 2010). As a result of the increased emphasis on customized teaching packages in Nigerian education system, computers have gained popularity in the country in recent years. With the availability of internet-connected microcomputers in schools, students and teachers are opportune to perform more multifaceted teaching and learning tasks with the aid of computer. Students now have access to online education resources, which allows them to freely compete in the global academic competition while also making it easier for them to publish their work, independent of the field in which they are studying.

According to Olusegun and Adesoji (2017), ICT competencies encompasses dexterity, skills, ability and knowledge in computer or web in-depth comprehension and application of basic knowledge on surfing and dissemination of information. However, inadequate possession of these skills may pose serious digital and human challenges to productivity of job and academic performance irrespective of gender.

Globally, vis-à-vis diverse professions and opportunities, there seems to be inherent gender role differences, which has resulted in what is often referred to as gender inequality among gender equality advocates as a

result of this (Nathaniel & Adedoja, 2017). Onasanya, Nathaniel, Sofoluwe and Onasanya (2014) discovered that female students were more interested in the usage of electronic resources and online services than their male counterparts. However, Adebanjo (2004) found out that the female students show higher capacity for use of computer. Seybert (2007) found out that male often uses computers and the internet facilities than their female counterparts, thereby having considerable degree of basic computer skills more than their female counterparts. Adebanjo (2017) concluded that men are more competent and having wide opportunities for employment than their female counterparts in computer related jobs. The use of ICT for instructional and evaluation purpose is influenced by demographic factors, expertise in the use of technology (Ogunleye & Afolabi, 2007), training received, enhancement of intellectual property, and desirable environment for the use of technology (Ogunleye, 2007; Ogunleye, 2009).

According to Osang (2012), e-examination was intentionally introduced to solve some series of examination variances and challenges encountered like human errors, examination malpractices, during compilation of answer scripts which could lead to missing of the scripts, leakages of questions as a result of conveying examination papers to and fro the examination venue. However, electronic examination is conducted through the internet which affords quick access to students' results after examination. E-examination is computer-based examination whereby the institution prepared their examination question to be uploaded to the designated computers at different dedicated examination centres. In preparation for e-examination in National Open University of Nigeria (NOUN), lecturer-in-charge or course coordinators are expected to set examination questions and upload them online using the internet facilities for access and response by the students during examination. Students of NOUN need to be competent and literate in the use of computer because instructions are provided with procedural steps to follow vis-à-vis e-examination been display as soon as the student login.

In Nigeria, the National Open University of Nigeria considered paradigm shift of conducting e-examination to pen and paper examinations that was employed since inception due to lack of capacity to handle the teeming population of the students, human and

infrastructural challenges.

Statement of the Problem

There is no doubt that the use of computers has made teaching and learning much easier when compared with what is obtainable in the past. The appreciation for adoption of e-examination has made the authorities of the National Open University of Nigeria to conduct e-examination for their diverse student population. However, there is a dearth of literature on students' use of computers to provide feedback to the lecturers. Based on this premise, the current study investigated students' use of computers for electronic examination at the National Open University of Nigeria (NOUN)

Purpose of the Study

The main purpose of this study is to examine students' use of computer for electronic examinations at the National Open University of Nigeria (NOUN). This is with a view to contribute to general body of knowledge in the area of open distance learning education.

Research Questions

The following research questions guided this study:

1. What is the level of students' use of computer for electronic examination at the National Open University of Nigeria (NOUN)?
2. What differences exist between male and female NOUN students' use of computer for electronic examination?
3. How different is NOUN students' use of computer for electronic examination based on the faculty?

Hypotheses

The following hypotheses were tested:

Ho_1: There is no significant difference between male and female NOUN students' use of computer for electronic examination.

Ho_2: There is no significant difference in NOUN students' use of computer for electronic examination based on the faculty.

Methodology

This study was a descriptive research. The population for this study

consisted of nine hundred from 100 and 200 level students of the National Open University of Nigeria, from the South Western states of Nigeria. These levels of students were chosen based on the fact that they were new in the programme and they use electronic platform to write their examinations Three states (Ekiti, Ogun and Oyo) were randomly selected out six (Lagos, Ekiti, Ondo, Ogun, Osun and Oyo) states in the south-western states of Nigeria. Simple random sampling techniques was employed to draw 300 respondents each from 100 to 300 levels making a total of nine hundred (900) distance learner students respectively in Ogun, Ekiti and Oyo State NOUN study centres. The total number of respondents drawn those study centres were nine hundred (900) distance learner students.

A researcher-designed questionnaire was employed entitled "Students' Online Computer use Questionnaire (SOCUQ)" to collect the required data used for the research. The instrument was pilot tested on 50 NOUN students in 100 and 200 at Apapa Study centre, Lagos State. The validated instrument yielded a reliability coefficient of 0.76 using Kuder-Richardson 20 in determining the internal consistency. The face and content validity of the instrument was ensured. The instrument had sections A and B. Section contained the demographic information of the respondents while section B contained 60 items on computer use. The Likert-type rating scale used range from moderately used, used and highly used. competent and highly competent were collapsed as competence, while moderately competent was interpreted as incompetence. The instrument was administered on the respondents through the help of research assistants. The data collected were analysed to answer the research questions using appropriate descriptive and inferential statistics such as frequency counts, percentage distribution, means, standard deviations and student t-test. This was done by means of statistical package for social sciences version (SPSS) 21.

Results

Research Questions 1: What is the level of students' use of computer for electronic examination at the National Open University of Nigeria (NOUN)?

Table 1: NOUN Students' Use of Computer

Moderately use		use		Highly use	
Freq.	%	Freq.	%	Freq.	%
163	37.8	83	19.2	186	43.0
136	29.1	118	25.2	214	45.7
37	37.4	24	24.2	38	38.4
24	13.3	74	41.1	82	45.6
14	7.7	83	45.3	86	47.0
26	11.6	87	38.6	112	49.8
34	14.0	86	40.4	93	45.6

Note: Moderately use means incompetence; Competent and Highly use means competence

Table 1 shows the analysis of NOUN students' use of computers for electronic examinations. The Likert rating scale used range from moderately used, competent and highly used. Competent and highly competent were collapsed as competence; while moderately competent was interpreted as incompetence. The mean score for students that are not competent in using computers for electronic examination was 62 while the collapsed of competent and highly competent was 97.571. This implies that majority of the NOUN students are competent in using computers for electronic examination in the various study centres.

Research Questions 2: What differences exist between male and female students' use of computer for electronic examination?

Table 2 NOUN Students' Use of Computer based on Gender N=

Gender	Freq.	Percentage	Mean	Std. Deviation
Male	432	48.0	51.35	15.134
Female	468	52.0	48.94	14.847
Total	900	100		

Table 2 showed data collected on the male and female students' use of computer for electronic examination. The mean scores for male and female students were 51.35 and 48.94, respectively. The standard deviations are 15.134 and 14.847 for male and female, respectively. The high mean and standard deviations scores for male students revealed that male students are more skilful and competent in using computers for electronic examinations than their female counterparts.

Research Questions 3: How different is NOUN students' use of computer for electronic examination based on the faculty?

Table 3: Students' Competency Levels on the Use of Computer Based on Faculty
N=

Students' Faculty	**Moderately use**		use		Highly use		**Use**	
	Freq.	**%**	Freq.	%	Freq.	%	**Freq.**	**%**
Law	**37**	**37.4**	24	24.2	38	38.4	**62**	**8.10**
Education	**24**	**13.3**	74	41.1	82	45.6	**156**	**20.39**
Management Sciences	**14**	**7.7**	83	45.3	86	47.0	**169**	**22.09**
Science and Technology	**26**	**11.6**	87	38.6	112	49.8	**199**	**26.01**
Arts and Social Sciences	**34**	**14.0**	86	40.4	93	45.6	**179**	**23.40**

Table 3 shows students' use of computer for electronic examination based on faculty (Law, Education, Management Sciences, Science and technology and Arts and Social Sciences). The Likert rating scale used was moderately competent, competent and highly competent. Competent and highly competent were collapsed as used; while moderately competent was interpreted as incompetence. The frequency counts of students that are not competent in using computers for electronic examination was 37 (37.4%), 24 (13.3%), 14 (7.7%), 26 (11.6%), and 34 (14.0%) for faculty of Law, Education, Management science, science and Technology, and Art and Social Sciences, respectively. For students that are competent in using computers for electronic examination, 62 (8.10%), 156 (20.39%), 169 (22.09%), 199 (26.01%), and 179 (23.40%) for faculty of Law, Education, Management science, science and Technology, and Art and Social Sciences, respectively. This implies that majority of the NOUN students that are competent in using computers for electronic examination comes from faculty of science and technology, followed by arts and social sciences, Management Science and Education, with faculty of law having the lowest percentage.

Hypotheses Testing

Ho_1: There is no significant difference between male and female NOUN students' use of computer for electronic examination.

Table 4: Independent t-test of NOUN students' use of computer
N=

Gender	N	Mean	Df	Std. Dev.	Std. Error	T	P	Remark
Male	432	51.35	898	15.134	0.728	2.419	.016 *	Rejected
Female	468	48.94		14.847	0.686			
Total	900							

*=Significant at P<0.05

Table 4 showed that $t_{(898)} = 2.419$, $p = 0.016$ ($p<0.05$). That is, the result of the t-value of 2.419 resulting in 0.016 significance value which was less than 0.05 alpha value. Therefore, the stated null hypothesis was rejected. This also implies that .016 is considered for the sig.(2-tailed) of the independent t-test for equality which shows that there was significant difference in the mean scores (since sig. (2-tailed) is less than .05). This implies that there was significant difference between male and female NOUN students' use of computer for electronic examination.

Ho_2: There is no significant difference in NOUN students' use of computer for electronic examination based on the faculty.

Table 5: ANOVA of NOUN students' use of computer Based on Faculties
N=

	Sum of squares	Df	Mean Squares	F	Sig.	Remark
Between Groups	10763.071	4	2690.768	12.529	0.00	
Within Groups	192211.5	895	214.761			Rejected
Total	202974.6	900				

The analysis in Table 5 shows $F(4, 895) = 12.529$, $p=0.00$ ($p<0.05$) for NOUN students' use of computer for electronic examination on their faculties (Law, Education, Management Sciences, Science and technology and Arts and Social Sciences). This shows that the significant value (0.00) was less than the alpha value (0.05) and was found to be significant. Thus, the stated null hypothesis was rejected. By implication, the null hypothesis was established as: There was significant difference in NOUN students' use of computer for electronic examination based on the faculty.

Since it was established that there was significant difference in NOUN students' use of computer for electronic examination based on the faculty; Sidak Post Hoc analysis was further conducted to locate the direction of significance among the NOUN students' faculties. Table 6 shows the results of the analysis on Sidak Post Hoc Test and the mean difference.

Table 6: Sidak Post Hoc Test of Significant Differences on NOUN Students' Faculties

(I)Faculty	(J) Faculties	Mean Difference(I-J)	Std. Error	Sig.
Law	Education	-11.909*	1.834	.000
	Management Sciences	-6.920*	1.828	.002
	Science and Technology	-9.8168*	1.767	.000
	Arts and Sciences	-6.041*	1.783	.007
Education	Law	11.9098*	1.834	.000
	Management Sciences	4.989*	1.538	.012
	Science and Technology	2.093	1.465	.811
	Arts and Social Sciences	5.869*	1.484	.001

Table 6 revealed that there was significant difference in NOUN students' use of computer for electronic examination based on the faculty when the result was subjected to Sidak Post Hoc tests. Significant difference in students' use of computer for electronic examination was noticed between students from Faculty of Law and Education; Law and Science and Technology; Education and Management Sciences; Students from Faculty of Education and Arts and Social Sciences. However, there was no mean difference between students from Faculty of Education and Science and Technology.

Discussions of Findings

The study revealed that majority of the NOUN students are competent in using computers for electronic examinations across the study centres investigated. This might be as a result of the frequent usage of computers or internet facilities in carrying out most of the learning and teaching activities in the institution. This finding concurs with the opinion of Ogunlela and Ogunleye (2014) who believed that in facilitating access and dissemination of knowledge every learner is mandated to be ICT compliant. The findings revealed that there is difference between male and female students' use of computers for electronic examination which

goes in favour of the male students'. This could be as a result of the inquisitiveness of male which might have made them more exposed to computer than their female counterparts. This finding contradicts the opinion of Onasanya, Nathaniel, Sofoluwe & Onasanya (2014), and Adebanjo (2004) who concluded that the female students show higher capacity for use of computer than their male counterparts. The finding of the study concurs with Seybert (2007), who found out that male often uses computers and the internet facilities than their female counterparts, thereby having considerable degree of basic computer skills more than their female counterparts.

The study also found difference in NOUN use of computers for electronic examination based on faculty. Students from the faculty of Science and Technology were found to have higher frequency of competent students who use computer for electronic examinations than every other faculty. This could be due to their level of exposure to science and technology or computer science courses which are the basis for the design and usage of computer system.

Conclusion

It was concluded based on the findings of the study that most students of NOUN are competent users of computer for electronic examination. Based on the findings of this study, the followings are hereby recommended:

1. Seminars, trainings and workshops should be organised for students on how to wisely use mobile technologies for improved computer skills, competency and development via e-examination platform irrespective of their gender and faculty of study.
2. Female students should be encouraged on the use of computer frequently for electronic examinations and other related pedagogic experiences that will facilitate skills and competency development irrespective of their faculty of study.
3. All students should be encouraged to cultivate interest on computer skills and competency developments irrespective of their gender and faculty of study

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