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Assessment and Students' Perceptions of Computer Self-Efficacy and General Self-Efficacy: A Case Study of the National Open University of Nigeria

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Abstract

The National Open University of Nigeria (NOUN) in response to the challenges of 'Paper and Pen' Assessment of students learning outcomes migrated to 'eAssessment' - application of Information and Communication Technology (ICT) in assessment. Although eAssessment is a field of growing importance globally in this 21" century, it is still very new in Nigeria and little is known about students' perceptions of their Computer Self-Efficacy and General Self-Efficacy which are important variables in eAssessment. The study aimed to investigate NOUN returning students' perception of Computer Self- Efficacy in relation to eExamination. It explored the relationship between returning students' perception of Computer Self-Efficacy and their General Self-Efficacy. Three research questions guided the study. Survey research design was adopted. The population consists of all NOUN returning students who had previously sat for eExamination offered by NOUN in Lagos State. Sixty five (65) students were randomly selected as sample from one of the two study centres within the population. Three basic research instruments were used to collect data. The Computer Self-Efficacy Scale (Askarand Umang, 2001), the General Self-Efficacy Scale (Schwarzer and Jerusalem, 1995), and a survey questionnaire designed to obtain personal information and previous computer experience from participants. The data were analysed with the use of descriptive statistics - frequencies, percentages, mean, standard deviation and correlation analysis. The results indicate that ICT has bright prospects in learners' assessment in the 21"century. However, there are some problems militating against its successful utilisation. Viable recommendations were made for improvement and for regional development.

Keywords: Self-efficacy, students. perceptions, e-assessment, e-examination

Introduction

Nigeria, having realised that "education is the most important instrument of change in any society" and that "any fundamental change in the intellectual and social outlook of any society has to be preceded by an educational revolution" (NPE, 1977), established the National Open University of Nigeria (NOUN) to revolutionalise education in the country. NOUN is an equal opportunity institution, providing access to qualitative education for those whose aspiration for higher education is not met by the conventional systems and or those who preferred the open and distance learning mode of instructional delivery due to their peculiar circumstances. However, NOUN was challenged in the conduct of meaningful assessment of students learning outcomes and release of quality result from inception (Okonkwo and Ikpe,2008). The hurdle appeared tough and long-lasting. Several attempts to scale through the hurdle as well as answer to various calls to rethink and restructure assessment system via effective deployment of technology (Okonkwo,2010a) and the revelation that technology can effectively be used in assessment of students learning outcomes (Reju and Adesina, 2008; Prasad and Xavier. 2006). resulted in the deployment of technology in the assessment of students learning outcomes in NOUN. That is, a migration from the 'paper and pen' era of assessment to 'eAssessment' era. NOUN was saddled with the assessment of large classes in the 'paper and pen' assessment era (Okonkwo, 2010b) which was a big burden from inception. NOUN introduced the use of computers in learner assessment in order to affectively manage the assessment of large classes without undermining the quality of learning as innovative strategy for sustainability and quality assurance. This innovative strategy was introduced to transform the university from the worrisome examination challenges and to enhance the operational efficiencies of the institution (Okonkwo, 2010b). She deliberately imbibed the use of technology as best practice for sustainability of the institution and to enhance quality assurance of her products and services to her stakeholders.

According to Martell and Calderon (2005), assessment is an ongoing process that involves planning, discussion, consensus building, reflection, measuring, analysing, and improving based on the data and the artifacts gathered about a learning objective. Assessment encompasses a range of

activities including testing, performances, project ratings, and observations (Orlich, Harder, Callahan and Gibson,2004).

Objectives/Purpose of the Study

The objectives of the study are to investigate the students' computer and general self-efficacies necessary for their success and continuity in their various ODL programmes in NOUN. And to sensitize the ODL community and practitioners on the need to provide and include basic computer literacy course as a fundamental 'general study course' to be taken by every ODL student to adequately prepare them for effective participation in the digital future which requires IT skills not just for assessment of their learning outcomes but also for their effective study as modern days ODL learners in this digital age. This calls for reform in educational assessment which is also needed for regional development. Therefore, this study investigated the computer self-efficacy of NOUN returning students with regards to different variables such as gender, frequency of use of computers, and their computer experience. Also, the study examined the relationship between the computer self-efficacy perceptions and general self-efficacy perceptions of the NOUN returning students.

Study Questions

The following research questions guided the study:

1. What are the computer self-efficacy and general self-efficacy perceptions of NOUN returning students?
2. Is there a difference between the computer self-efficacy perceptions of NOUN returning students and their gender, computer ownership, computer experience and their frequency of computer use?
3. Is there a correlation between computer self-efficacy perceptions and general self-efficacy perceptions?

Theoretical Framework

A number of reports released in the mid-1980s charged higher education to focus on student learning (Old Dominion University, 2006). During that time, the first formal assessment group was established, the American

Association for Higher Education (AAHE) Assessment Forum, formed in 1987.In 1992, accrediting agencies were required to consider learning outcomes as a condition for accreditation following a 1992 Department of Education mandate (Ewell and Steen, 2006). Haken (2006) explained that assessment is an integral piece to assure that an educational institution achieves its learning goals, as well as a crucial means of providing the essential evidence necessary for seeking and maintraining accreditation. Hersh (2004) advocated the position that assessment of students learning should be considered an integral part of the teaching and learning processes as well as part of the feedback loop that serves to enhance institutional effectiveness. Good assessment serves multiple objectives (Swearington,n,d) and benefits a number of stakeholders (Love and Cooper, 2004).According to Dietal, Herman and Knuth (1991) assessment provides an accurate measure of students' performance to enable teachers, educators, and other key decision makers to make effective decisions. As a result, Kellough and Kellough (1999) identified seven purposes of assessment which are to:

i. improve student learning
ii. identify students ‘strengths and weaknesses
iii. review, assess, and improve the effectiveness of different teaching strategies
iv. review, assess and improve curricular programmes
V. improve teaching effectiveness
vi. provide useful administrative data that will expedite decision making; and
vii. communicate with stakeholders.

Assessment exists in a complex dynamic relationship with curriculum, pedagogy, and the needs and demands of the world outside the schools; therefore, a better understanding is needed about ICT's role in 21s century skills acquired. For example, open and distance learning worldwide is technology driven and the modern trend is towards its use in assessment of students learning outcomes. It has also been observed that beyond the world of formal education, ICT now sits at the leading edges of all the sciences and humanities as well as popular culture, where informal lifelong learning thrives(Webb and Gibson, 2011). The major shift of the information age towards ICT in learning also necessitates change in assessment process along

with an understanding of the impact of ICT on assessment. That new technologies can support both formative and summative assessment and technological advances are no longer new. Students can be assessed through simulations, e-portfolios and interactive games (Clarke and Dede, 2010;Gibson (in press); Gibson, Cheong, Stuit, Annetta and Nolte, 2009;Quellmalz, Timms and Schneider, 2009). Although many of the technical challenges of enabling development of e-assessment are being overcome, there are still many barriers to the widespread use of e-assessment for high-stakes testing at school level (Craven, 2010).

Generally, assessment system is rightly viewed as part of the teaching - learning process. Every instructional process involves a strategic assessment for a complete learning - cycle. Learners' assessments are very critical in any instructional programme, NOUN ascribes much importance to this. But NOUN has been saddled with assessment burden from inception due to the large classes involved in the 'paper and pen' assessment. She migrated to eAssessment to effectively manage the assessment of the large classes without undermining the quality of learning. NOUN introduced the computers in learners' assessment as innovative strategy for sustainability and quality assurance. This innovative strategy (deployment of technology in assessment of students' learning outcomes) was introduced to transform the university from the worrisome examination challenges via eAssessment to enhance the operational efficiency of the Institution. The operational efficiency of NOUN is a critical system wide initiative that can translate to the institution being in business or closing down. NOUN eAssessment operational efficiency deals with minimisation of delays and other challenges of the 'paper and pen' examination era that was engrossed by waste of time and resources while maximising the resource capabilities (Okonkwo, 2010b). It deliberately imbibed the use of technology as best practice for sustainability of the Institution and quality assurance of her productand services.

NOUN and eExamination

In NOUN, there was a unique commitment between the University Management, schools, study centres and the Directorate of Examination and Assessment (DEA). This entailed a dynamic network including learners

academia, ICT staff, non academic staff, study centre staff, DEA staff and management staff. In fact, the strength of computers in learners' assessment in NOUN has been rewarding. It has changed the way NOUN operates in big ways. But this is not without frustrations, since frustrations are associated, with many changes to the usual way of doing things.IT is an ongoing process for beginners and experts alike. It is important to maintain the institution's enthusiasm and encourage the professional colleagues to think big, not necessarily in terms of large amount of money, but in terms of new, creative ideas. Despite the laudable land mark which NOUN has achieved in the assessment of students' learning outcomes via effective deployment of computers (Okonkwo, 2010b), not much has been done in the area of providing IT support for learners who should be at the centre of the teaching/learning process to adequately equip them with the necessary skills required by them for effective participation in the eExamination.

Literature Review

All over the world, ODL is technologically driven. The recent trend is the use of technology provisions for the assessment of learning outcomes (Okonkwo, 2010a). For information and communication technology (ICT)to produce the anticipated education transformation, educators must consider which assessment techniques permit students to utilise the affordance of technology (Downes, Fluck, Gibbsons, Leonard, Matthews, Oliver, Vickers and Williams, 2001; Finger, Russell, Jamieson-Procter and Russell, 2007).Curriculum transformation occurs as a result of rigorous or standardised assessment which is made possible by a suitable computer- based way of conducting examinations. This is necessary because assessment is a major determinant in teaching (Ainley and Searle, 2007). eExamination can be developed to use open source software developments. It involves the creation of a set of tools for candidates to use their own personal computers under examination conditions (Fluck, Pollen and Harper, 2009). In many cases, online assessment is conducted using an Institutional Learning Management System (LMS) such as Blackboard, WebCT, or an in house product (Pullen and Cusack, 2007; 2008). Online assessment is mostly used for quizzes, forums and digital assignment drop boxes (Fluck, Pollen and Harper, 2009). In NOUN, online assessment is used for the assessment of tutor- marked assignments which is a form of continuous assessment. The NOUN online

assessment provides instant feedback to the learners and removes the burden of marking from the academic staff. Other advantages of online assessments recorded in literature are:

- time analysis of responses to the question level to better discriminate between candidates (Gvozdenko and Chambers,2007)
- use of video in questions particularly for scenarios in authentic assessment
- adaptive testing, where the next question to be posed is determined by prior response(s)
- question banks and randomisation of questions and response orders to reduce cheating
- automated analysis of results from entire candidate cohorts; and
- immediate feedback can be given (Fluck, Pollen and Harper, 2009, p.510).

Some of the assessment software already used in assessment are WebCT™ (UTCL,2006) and Learning Content Management Systems (LCMS) (Reju and Adesina, 2008). Others are ATutor and Integrated Learning Management System (iLMS) (Okonkwo, 2010a); EDUTEST, Question Mark, Web4Test (Galadima and Adesina, 2012). eExamination can also be developed to use open-source software developments. It involves the creation of a set of tools for candidates to use their own personal computers under examination conditions. In the National Open University of Nigeria, IT has become the assessment development tool. The use of IT in NOUN learners' assessments is rewarding and it has the potential for helping to resolve development issues in learner's assessments experienced from the inception of the university. It should be noted that IT is not an end in itself but a tool to help in accomplishing an organisational goal towards sustainable development. The main goal of deployment of computers in assessment of students learning outcomes in NOUN, to harness the benefits of ICT in overcoming the challenges of numbers associated in 'paper and pen ‘examination era of the open and distance learning institution has been achieved. IT has also helped to actualise peoples need for exposure to basic IT principles and concepts necessary for the sustainability of the institution. It has led to training of staff so they now feel comfortable with the Internet

and understand its potentials. This is achieved by the creation of an action plan that defined how the Internet will further the goals; then implementation of the plan; periodic review of what has been done, how well it was done so far and decision on where the institution should head in the future.

At the commencement of eExamination in NOUN, most of the candidates were computer illiterate and ignorant on the use and capabilities of computers. They had little or no knowledge of how to operate the computer systems. Consequently, they found the use of computers in assessment very challenging and difficult and in the process made a lot of mistakes during the examination which they could have done better ifit were to be 'paper and pen'assessment as was the earlier practice (Okonkwo, 2010c). One of the many challenges and risks undertaken by NOUN in the process was the use of Laptop as Server. The Server always hung because it was not robust enough for the number of candidates taking the eExamination and the traffic in the course of writing one paper. This led to frequent transfer of candidates from one computer system to another. The resulting several attempts to write a given paper using different computer systems limited the candidates chance of making good grades since the grades were in bits. Usually, the system did not automatically accumulate the several bits of scores for a course (Okonkwo,2010c). The use of computers for assessment in NOUN generally involved new technology and hence needs more technical personnel because when there were too many complaints, the instructors were not able to attend to all at the same time. Despite the delay, the candidates' time on task continued to count. Hence, their actual time on task was drastically reduced.

Analysis of frameworks for 21st century skills across the globe (Voogt,2010) showed strong agreement on the need for skills in the areas of communication, collaboration, ICT literacy, and social/cultural awareness. The skills and knowledge needed to make use of new technologies for learning and participating fully in the knowledge society have been discussed extensively in recent years and various new literacies have been defined. Examples of these new literacies were ICT literacy, information literacy, digital literacy, media literacy (Webb and Gibson, 2011). According to Webb and Gibson (2011), the International Association for Evaluation of Educational Achievement (IEA)is planning a cross country study of students computer and information literacy (CIL). Where CIL refers to an individual's

ability to use computers to investigate, create, and communicate in order to participate effectively at home, at school, in workplace, and in the community. The results of this study will enhance the application of technology in assessment.

Self-efficacy

Self-efficacy is a psychological construct first proposed by Bandura in 1977and was described as “a belief about one's own capability to organise and complete a course of action required to accomplish a specific task" (Eggen and Kauchak, 2007: 310). But, a generalised sense of self-efficacy can be defined as "situation-independent competence belief'. That is, a global confidence in one's abilities in different situations, has been conceptualized (Scherbaum,2006:1048) and several psychometric studies have proved tat it is a unidimensional, universal and measurable construct (Sherer et al.,1982; Schwarzer and Jerusalem, 1995; Chen et al., 2001; Scholtz et al., 2002and Scherbaum, 2006). Computer self-efficacy is also based on Bandura's self-efficacy theory. It is defined as “a judgement of one's capability to use computer” (Compeau and Higgins, 1995: 192). It is generally believed that people who have high self-efficacy in the use of computers will invest more time and be more willing to learn and do new things with computers (Kinzie,Delcourt and Powers, 1994). As the pedagogical effectiveness of using computers is widely recognised, teachers and learners are expected to use them widely in the classrooms as teaching and learning tools. To do this, there should be willingness to use them. Earlier studies investigated the relationship between teachers' use of computer technologies and different variables such as self-efficacy beliefs, attitudes towards and knowledge about computer technologies, perceptions of computers as educational tools among others and have revealed that there is a significant correlation between all these variables (Koç, 2005). This implies that the acceptance of computers and their use in the teaching and learning processes as a tool is largely determined by beliefs, perceptions, and attitudes of teachers (Bitner and Bitner, 2002; Aşkar and Umay, 2001; Milbrath and Kinzie, 2000; Albion,1999). Topkaya (2010) surmised that not only should all these psychological constructs be investigated closely but also ways to improve them should be sought.

Advances in computer technology in recent years have given way to its use as an instructional tool in educational setting. The successful use of technologies in the classroom depends on several factors such as funding, dynamic lesson plans, decision concerning hardware, software, and so forth (Bitner and Bitner,2002:95). Therefore, if teachers and learners are expected to be effective users of computer technologies, it is essential that they have positive attitudes and high self-efficacy perceptions in using them. Several carlier studies have focused on teachers perceptions of computer self-efficacy and general self-efficacy (Topkaya, 2010) whereas this study focused on students computer self-efficacy and general self-efficacy. The present study analysed the 'General Self-Efficacy and the Computer Self-Efficacy' of NOUN returning students who have been exposed to the use of computers in assessment. Since positive self-efficacy of oneself is very necessary in coping with the challenges associated with the deployment of computer in assessment of students' learning outcomes and has a lot of implications for their success and continuity in the ODL programme.

Study Design and Method

This study employed survey research design. The data for the study was collected by using three basic research instruments. The computer self-efficacy (CSE) scale was created by Aşkar and Umay in 2001 and has 18items with Cronbach- alpha Coefficient 0.71. It is designed as a 5-point Likent scale with response categories of: always, *usually, sometimes, rarely; and never*. While the second instrument, the general self-efficacy (GSE)scale was developed by Schwarzer and Jerusalem in 1995 in German and translated into different languages and tested in populations across the world. Scholz et al. (2002) found that the GSE was configurally equivalent across cultures. They confirmed that GSE corresponds to only one global consistent underlying dimension. The scale measured beliefs in one's capability of different tasks in a variety of different situations (Topkaya, 2010). The items on the original GSE scale were rated on a 4-point scale with the anchors *not* at *all true to exactly true*. However, for the purpose of this study, a 5-point Likert scale with the anchors*: exactly true, true, sometimes true, not true, and not* at *all true* which has reliability coefficient using Cronbach-alpha of 0.8S (Topkaya, 2010) pointing to a higher reliability (Büyüköztürk, 2002) was adopted.

The third instrument was a survey questionnaire designed by the researcher to obtain personal information and previous computer experience from the participants. This section was used as classificatory factor in the analysis. It consists of demographic information such as gender, school, educational qualification and age range as well as information on previous computer experiences (possession of computer, frequency of computer use). The information obtained from this third instrument was merely used for categorisation to case data analysis and assimilation of results.

Population and Sample

The population from which the samples were drawn consisted of returning students of the National Open University of Nigeria Special Study Centre Apapa who had previously sat for eExamination in NOUN. The samples consisted of both male and female students in the five (5) schools and one(1)centre for lifelong learning and workplace training of the university. The distributions of the participants are: School of Science and Technology (SST)(13);School of Education (SOE) (5); School of Management Sciences (SMS) (18); School of Arts and Social Sciences (SASS) (13); School of Law (SOL) (12) and Centre for Lifelong Learning and Workplace Training (CLLWT) (4). These participants were drawn by using stratified random sampling to ensure that each school and the centre were adequately represented. Out of the sixty five (65) questionnaires administered, sixty two (62) were returned while three (3), two (2) from SOE and one (1) from CLLWT were not returned. Hence, only the sixty two (62) participants questionnaires returned were used for the final analyses.

The Analyses of Data

The data obtained by administering the three research instruments were anaysed with the use of SPSS 16. The analyses consist of descriptive analysis, correlational analysis and one-way ANOVA. These analyses were conducted to investigate the research questions. The boundaries of each response in the 5-point Likert scales from 1 to 5 were calculated by dividing the serial width 4 by the number of responses 5 and found to be 0.S(Topkaya,2010). This value was used in interpreting the mean values. Thus, depending on this calculation, the accepted boundaries for each response are presented

Below:

$$1 = 1 + 0.5 = 1.8$$
$$2 = 1.8 + 0.8 = 2.6$$
$$3 = 2.6 + 0.8 = 3.4$$
$$4 = 3.4 \div 0.8 = 4.2$$
$$5 = 4.2 + 0.8 = 5.0$$

A score of 3.4 and above on the scale was taken as the indicator of moderate efficacy perception while 4.2 and above a high one. Any score below 3.4 was taken as an indicator of low efficacy perception.

Interpretation and Discussion of Results

Research Question 1

Computer self-efficacy and general self-efficacy perceptions of NOUN returning students

The analysis of data obtained through the Computer Self-Efficacy Scale: indicated that the total mean of NOUN returning students Computer Self Efficacy perceptions was 2.84(SD:0.50) (see Tables 1 & 2).This finding indicates that NOUN returning students already exposed to eAssessment did not have high Computer Self-Efficacy. However, a more detailed analysis through the Computer Self-Efficacy Scale reveal the highest and the Lowest Means obtained

Table 1: Distribution of Answers Given to the Computer Self-Efficacy Scale

S/No	Items	N	Mean	Standard Deviation
7.	I surf in the computers and make new Discoveries	62	3.77	1.247
4.	I think I can use computers efficiently	62	3.69	1.236
16.	If I try hard, I can solve the problems related to computers	62	3.50	1.225

11.	It is easy for me to write all kinds of things on the computer	62	3.47	1.251
9.	I feel competent when computers are concerned	62	3.42	1.397
10.	I know what to do when I meet a new thing while working with computers	62	3.19	1.239
2.	I think of computers almost as part of me	62	3.15	1.171
17.	At the moment solutions to challenges while working with computers are enough for me	62	3.15	1.252
14.	I believe that I have a special talent towards using computers	62	3.10	1.327
13.	I am talented about computers	62	3.03	1.471
6.	I believe that I master computer terminologies and concepts	62	3.00	1.343
12.	I have believed that it is possible for me to master computers totally	62	2.50	1.479
15.	I panic when a problem occurs while working with computers	62	2.34	1.200
3.	I fear that I might do something wrong while working with computers	62	2.26	1.267
1.	I use computers while planning my day	62	2.11	0.925
18.	I feel nervous while working with computers	62	2.03	1.254
5.	Computers fail me	62	1.85	1.099
8.	Most part of the time I spend with computers is a waste	62	1.47	0.900
	Computer Self-Efficacy	**62**	**2.84**	**0.498**

from the scale. It was seen that although NOUN returning students' self-efficacy perceptions related to computers were not so high but to some extent, they believed that they are skillful users of computers. Specifically, the mean values of items 8 & 5 (mean =1.47, mean =1.85 respectively) indicate that the students are not comfortable with computer technology. Similarly, the mean values of items 7, 4, 16, 11 & 9 (mean=3.77, mean=3.69, mean=3.50, mean=3.47, mean=3.42 respectively) support the idea that students had moderate self-efficacy perceptions with regard to computers. However, when the fact that none of the mean values of the items above is over 4 is considered, it can be inferred that computers do not have a huge impact in the NOUN returning students 'lives.

Likewise, the mean value of item 1 (mean = 2.11) supports the idea that computers are not an integral part of the NOUN returning students' lives. Similar conclusions were drawn by Topkaya (2010) as well. Hence, the need to integrate course/s that will enhance learners' computer/IT skills in their programmes cannot be overemphasised. Since, it is generally believed that people who have high self-efficacy in the use of computers will invest more time and be more willing to learn and do new things with computers (Kinzic, Delcourt & Powers, 1994).

Table 2 indicates that NOUN returning students have high General Self-Efficacy as shown by the scale. The total mean was 3.74 (SD:.81). A detailed analysis reveals the highest and lowest means obtained from the scale. It was seen that NOUN returning students' general self-efficacy were so high ranging from mean 3.39 to mean 4.31, and they believed in their general self-efficacy. This to a large extent must have positive influence in their computer self-efficacy and their successful participation in NOUN eExaminations (Okonkwo,2010b) of students learning outcomes. Since they believe in their capability to organise and complete a course of action in this case (use of computers) required to accomplish a specific task as earlier highlighted by Eggenand Kauchak (2007).

Research Question 2

NOUN returning students' demographic and computer-related characteristics and their levels of computer self-efficacy perceptions

The distribution of the sample in relation to gender, school, educational qualification and age range as well as their perceived mean scores in relation to their computer self-efficacy is given in Table 3.

The students' population is more in the core disciplines: Science and Technology ($F = 13$, %=21.0, Mean=2.71,SD=0.555);Management $Sciences(F = 16, \% =$ 25.8,Mean=2.89,SD=0.486);Arts and Social Sciences(F=13,%=21.0,Mean=2.85,SD=0.524);Law(F=11,%=17.7,Mean= 2.96,SD=0.492) and the Centre for Lifelong Learning and Work Place Training (F=1, %=1.6, Mean =3.22). This information shows the

ODL that

Table 2: Distribution of answers given to the General Self-Efficacy Scale

S/No	Items	N	Mean	Standard Deviation
3.	I am certain that I can accomplish my goals	62	4.31	0.898
9	If I am in trouble, I can think of a good solution	62	3.92	1.029
6	I can solve most problems if I invest the necessary effort	62	3.85	1.329
8	When I am confronted with a problem, I can find several solutions	62	3.84	0.995
1	I can always manage to solve difficult problems if I try hard enough	62	3.68	1.156
2	If someone opposes me, I can find the ways and means to get what I want	62	3.65	1.057
4	I am confident that I could deal efficiently with unexpected events	62	3.60	0.914
10.	I can handle whatever comes my way	62	3.58	1.064
7.	because I can rely on my coping abilities	62	3.56	1.288
5	Thanks to my resourcefulness, I can handle unforeseen situations	62	3.39	1.233
	General Self-Efficacy	**62**	**3.74**	**0.805**

students are determined to make a living from their enrollment in these various programmes. The strength of female enrollment (females=24,38.7%; males = 32,51.6%) in the university based on this study is encouraging. Also, their mean computer self-efficacy is comparable. This indicates that ODL can effectively be used to take care of women education which is now a global issue.

The distribution of the participants in terms of qualification reveals that most of the students in the university are still fresh from the secondary school level of education (Senior School Certificate = 24, 38.7%, Mean =3.02,SD=0.521;General Certificate of Education = 12,19.4%, Mean = 2.90, SD=0.435; and Ordinary National Diploma=10,16.1%,Mean=2.79, SD=0.382).This confirms the literature assertion that NOUN was established as

an educational revolution in Nigeria as a weapon to eradicate mass illiteracy and to take care of youths who cannot readily gain access to tertiary education. Although NOUN and ODL providers globally are targeting adult learner who mix-out on the opportunity of tertiary education at an early age, this study revealed that most of the learners are still youths and are dominantly between the ages of 20 and 35 years (20-25 years=19,30.6%;26 - 30 years = 15,24.2%; and 31-35 years=13,21.0%). Therefore, open and distance learning in Nigeria is a serious business and has to be taken as such. Hence, since IT skills are essential in successful participation of students in ODL especially in assessment, effort must be made to ensure that the learners are provided with the opportunity to enhance their IT skills.

The participants used for the study were also asked to answer other survey questions to reveal their relationship to computers. Table 4 provides information that describes the NOUN returning students' computer experience, frequency of access to computer and ownership of computers.

The answers given to questions relating to computer experience revealed that only 9 (14.5%, Mean=3.01, SD=0.338) and 12 (19.4%, Mean=3.33,SD=0.380) of the NOUN returning students had 'quite a lot of experience' and 'a lot of experience' respectively. This showed as expected that the majority of the NOUN returning students may not have had adequate exposure to computers before the commencement of eExaminations in the institution. The result showed that 8(12.9, Mean=2.76, SD=0.597) had 'no experience at all, 11(17.7%, Mean=2.64, SD=0.557) had 'limited experience' while 20(32.3%, Mean = 2.64, SD = 0.347) had 'some experience.' Even their mean computer self-efficacy scores are not impressive.

To the question about the frequency of use of computers, the NOUN returning students' answers were in line with their earlier computer experience. Only 14 (22.6%, Mean =2.48, SD = 0.483) of the participants use computer' everyday continuously';10(16.1%, Mean=2.9, SD=0.0483) use computers ‘a couple of hours a day.'

The other participants, the second category of computer users do not use computers adequately. In this category, 14(22.6%, Mean=2.48, SD=0.483)

use computers 'a couple of hours a month'; 18 (29.0%, Mean =2.86, SD=0.395) use computers 'a couple of days a week'; while 3 (4.8%, Mean=2.94, SD=0.242) use computers 'a couple of hours a week.' This second category of computer users were placed at disadvantaged position in the eAssessment because they were assumed to have been assessed using the same parameters as the other participants who were used to computers where they were not.

Table 3: Demographic Information about the Participants and their Frequency, Percentage, Mean score Values and Standard Deviation in relation to their Perceived Computer Self-Efficacy Scale

S/no	Category	Level	Frequency	Percentage	Mean	Standard deviation
1	Gender	No response	6	9.7	2.47	0.451
		Male	32	51.6	2.95	0.557
		Female	24	38.7	2.78	0.376
		Total	**62**	**100**	**2.84**	**0.498**
2		No response	6	9.7	2.60	0.384
		School of science and Technology	13	21.0	2.71	0.555
		School of Education	2	3.2	2.89	0.707
		School of management science	16	25.8	2.89	0.486
		School of Arts and social science	13	21.0	2.85	0.524
		School of Law	11	17.7	2.96	0.492
		Centre for lifelong learning and workplace	1	1.6	3.22	
		Total	**62**	**100**	**2.84**	**0.498**

3	Educational Qualification	No response	7	11.3	2.27	0.320
		Senior school certificate	24	38.7	3.02	0.521
		General certificate of Education	12	19.4	2.90	0.435
		Ordinary National Diploma	10	16.1	2.79	0.382
2	Age Range	No response	3	4.8	2.83	0.338
		Less than 20 years	8	12.9	3.10	0.437
		20-25 years	19	30.6	2.85	0.408
		26-30 years	15	24.2	2.68	0.545
		31-35 years	13	21.0	2.91	0.524
		36-40 years	1	1.6	3.72	.
		41-45 years	3	4.8	2.20	0.274
		Total	**62**	**100**	**2.84**	**0.498**

Contrary to earlier research findings (Topkaya, 2010), the difference between female and male participants perceptions is not significant in this study when compared with computer self-efficacy. The male mean=2.95while that of females is mean=2.78(Table 3).

This study did not reveal any significant difference between owning and not owning computer. Although owning computer would have indicated spending more time with the computers which could lead to greater experience. The mean =2.91 for 'Yes' owning a computer is slightly higher than mean= 2.72 for 'No' not owning a computer (Table 4). Hence, NOUN returning students are not adequately prepared for eAssessment by providing opportunities for to improve on their computer skills before actually being assessed with the computers. But generally, most NOUN students are believed to be computer illiterate (Okonkwo, 2010c) and as such lack the necessary IT skills before the commencement of eAssessment in the institution. However, the eExamination sensitised them and those who can afford computers started possessing it as necessary tool for their efficient and successful studies. Acquiring the necessary computer skills will go a long

way in ensuring that their performance is not hindered by unforeseen computer challenges.

Table 4: Participants' Characteristics in Terms of Frequency, Percentage, Mean Values and Standard Deviation in relation to Computer and to their Perceived Computer Self-Efficacy Scale

S/No	Category	Level	Frequency	Percentage	Mean	Standard Deviation
1.	Possessing computer	No response	2	3.2	2.64	0.039
		Yes	37	59.7	2.91	0.491
		No	23	37.1	2.72	0.517
		Total	62	100	2.84	0.498
2.	Computer Experience	No response	2	3.2	2.47	0.196
		No experience at all	8	12.9	2.76	0.597
		Limited experience	11	17.7	2.64	0.557
		Some experience	20	32.3	2.64	0.347
		Quite a lot Of experience	9	14.5	3.01	0.338
		A lot of experience	12	19.4	**3.33**	0.380
		Total	**62**	**100**	**2.84**	**0.0498**
3	Frequency Of Computer use	No response	3	4.8	2.48	0.540
		A couple of hour a month	14	22.6	2.48	0.483
		A couple of days a week	18	29.0	2.86	0.395
		A couple of hour a weeks	3	4.8	2.94	0.242
		A couple of hours a day	10	16.1	2.90	0.483
		Everyday continuously	14	22.6	3.16	0.471
		Total	**62**	**100**	**2.84**	**0.498**

Table 5: One-way Analysis of Variance (ANOVA) for Computer Self-. Efficacy in relation to Gender

Computer Self-Efficacy					
Source of Variation	**Sum of Squares**	**df**	**Mean Square**		***Sig***
Between Groups	1.264	2	.632	F 2.685	.077
Within Groups	13.884	59	.235		
Total	15.148	61			

Not significant; p>.05;i.e..077>.05

Computer experience was also considered in this study. Table 4 reveals the mean values for computer self-efficacy perceptions of the participants reporting in computer experience. As expected, the participants' computer self-efficacy perceptions rise as they have more quality experience with computers. The gradual development in computer self-efficacy in relation to experience was evident in this study (Table 4) as well as in earlier studies reported by Topkaya (2010).

Table 4 illustrates that those students who reported to using computers everyday either continuously or a couple of hours a day appeared to have higher perceptions of computer self-efficacy (Mean=3.16,SD= 0.471; Mean=2.90,SD=0.483 respectively).Still these mean values are below the accepted bench mark mean scores that will indicate moderate self-efficacy perception (Mean =3.4). To further detect whether the differences in mean scores observed at different levels were significant, one-way ANOVA test together with Post Hoc Tukey HSD test were carried out (Table 8).

The ANOVA test revealed a significant difference between the computer self-efficacy perceptions of NOUN returning students and their frequency of computer use ($p < 0.05$). The Post Hoc Turkey HSD, similarly revealed significant relationship between different frequency levels of computer use. As expected, the findings support that no significant change was observed ($p > 0.05$) between those NOUN returning students who reported to us computers 'a couple of hours a day' and 'everyday continuously.'

Table 6: One-Way Analysis of Variance (ANOVA) for Computer Self-**Efficacy in relation to Possessing a computer**

Computer Self-Efficacy					
Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.590	2	.295	1.196	.310
Within Groups	14.558	59	.247		
Total	15.148	61			

Not significant; p>.05; i.e..310>.05

Table 7: One-Way Analysis of Variance (ANOVA) for Computer Self-Efficacy in relation to Computer Experience

Computer Self Efficacy					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.717	5	.943	5.065	.001
Within Groups	10.431	56	.186		
Total	15.148	61			

Significant; p<.05;i.e..001<.05

Table 7 indicates that both the ANOVA test and the Post Hoc Tukey HSD showed statistically significant differences between these variables (p<.05). Significant differences were found (p<.05 between 'Limited experience' and 'a lot of experience' (.004 < .05) and between 'some experience' and 'a lot of experience' (.001 < .05). In other words, the computer self-efficacy perception is also dependent on computer experience.

Table 8: Post Hoc Tests-Tukey HSD

Computer Self-Efficacy						
		Mean			95% Confidence Interval	
(1) Computer Experience	(J)Computer Experience	Difference (I J)	- Std. Error	Sig	Lower . Bound	Upper Bound
No response	No experience at all	-.29167	.34119	.955	-1.2984	.7151
	Limited experience	-.16414	.33176	.996	-1.1430	.8148
	Some experience	-.16389	.32007	.996	-1.1083	.7805
	Quite a lot of experience	-.53395	.33738	.613	-1.5294	.4615
	A lot of experience	-.85648	.32962	.115	-1.8291	.1161
No experience at all	No response	.29167	.34119	.955	-.7151	1.2984
	Limited experience	.12753	.20054	.988	-.4642	.7192
	Some experience	.12778	.18054	.980	-.4049	.6605
	Quite a lot of experience	-.24228	.20971	.856	-.8611	.3765
	A lot of experience	-.56481	.19699	.061	-1.1461	.0164
Limited experience	No response	.16414	.33176	.996	-.8148	1.1430
	No experience at all	-.12753	.20054	.988	-.7192	.4642
	Some experience	.00025	.16200	1.000	-4778	.4783
	Quite a lot of experience	-.36981	.19398	.409	-.9422	.2026
	A lot of experience	-.69234	.18015	.004	-1.2239	-.1608
Some experience	No response	.16389	.32007	.996	-.7805	1.1083
	No experience at all	-.12778	.18054	.980	-.6605	.4049
	Limited experience	-00025	.16200	1.000	-.4783	.4778
	Quite a lot of experience	-37006	.17323	.284	-.8812	.1411
	A lot of experience	-.69259°	.15759	.001	-1.1576	-.2276

Quite a lot of experience	No response	.53395	.33738	.613	-.4615	1.5294
	No experience at all	.24228	.20971	.856	-3765	.8611
	Limited experience	.36981	.19398	.409	-2026	.9422
	Some experience	.37006	.17323	.284	-.1411	.8812
	A lot of experience	-.32253	.19031	.541	-.8841	.2390
A lot of experience	No response	.85648	.32962	.115	-.1161	1.8291
	No experience at all	.56481	.19699	.061	-.0164	1.1461
	Limited experience	.69234	.18015	.004	.1608	1.2239
	Some experience	.69259	.15759	.001	.2276	1.1576
	Quite a lot of experience	.32253	.19031	.541	-.2390	.8841

*. The mean difference is significant at the .05 level.

Table 9: One-way Analysis of Variance (ANOVA) for Computer Self-efficacy in relation to Frequency of Computer Use

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.774	5	.755	3.717	.006
Within Groups	11.374	56	.203		
Total	15.148	61			

Significant; p <.05;i.e..006<.05

Computer experience was also considered in this study. Table 4 reveals the mean values for computer self-efficacy perceptions of the participants reporting in computer experience. As expected, the participants' computer self-efficacy perceptions rise as they have more quality experience with computers. The gradual development in computer self-efficacy in relation to experience was evident in this study (Table 4) as well as in earlier studies reported by Topkaya (2010).

Table 4 illustrates that those students who reported to using computers everyday either continuously or a couple of hours a day appeared to ha higher perceptions of computer self-efficacy (Mean =3.16,SD=0.47 Mean=2.90,SD=0.483 respectively).Still these mean values are below the accepted bench mark mean scores that will indicate moderate self-efficacy perception (Mean=3.4).To further detect whether the differences in me scores observed at different levels were significant, one-way ANOVAI together with Post Hoc Tukey HSD test were carried out(Table 8).

The ANOVA test revealed a significant difference between the computer- self-efficacy perceptions of NOUN returning students and their frequency of computer use ($p < 0.05$). The Post Hoc Turkey HSD, similarly revealed significant relationship between different frequency levels of computer use. As expected, the findings support that no significant change was observed;>0.05) between those NOUN returning students who reported to use computers 'a couple of hours a day' and 'everyday continuously.'

Research Question 3

Computer self-efficacy perceptions and general self-efficacy Perceptions

This research seeks to look into the general self-efficacy of NOUN returning students and to investigate whether it had a correlation with computer self-efficacy. To this, first, overall self-efficacy was analysed and found out to be at a moderate leve1 (Mean=3.74, SD=0.805) but higher than computer self-efficacy (Mean =2.84, SD= 0.498) as previously given in Tables 4 and 3respectively.As reflected on Table 11, the correlational analysis on the other hand, revealed a positive correlation between these two variables(r=0.134).

Table 6:*One-Way Analysis of Variance (ANOVA) for Computer Self-Efficacy in Relataion to Processing a Computer

Computer Self-Efficacy					
Source of Variables	Sum of Squares	Df	Mean Squre	F	Sig.
Between Groups	.590	2	.295	1.196	.310
Within Groups	14.558	59	.247		
Total	15.148	61			

Not Significant; p >.05; i.e. .310>.05Table 7: One-Way Analysis of Variance (ANOVA) for Computer Self-Efficacy in relation to Computer Experience

Computer Self-Efficacy					
	Sum of Squares	Df	Mean Squre	F	Sig.
Between Groups	4.717	5	.943	5.065	.001
Within Groups	10.431	56	.186		
Total	15.148	61			

Significant; p <.05;i.e. .001<.05

Table 7 indicates that both ANOVA test and the Post Hoc Tukey HSD showed statistically significant differences between these variables (p<.05). Significant differences were found (p<.05 between 'Limited experience' and 'a lot of experience' (.004<.05) and between 'some experience' and 'a lot of experience' (.001<.05). In other words, the computer self-efficacy perception is also dependent on computer experience.

Table 8: Post Hoc Test – Tukey HSD

Computer Self-Efficacy						
(I)Computer	**(J)Computer**	**Mean Difference**	**(I-Std.**		**95% Confidence Interval**	
Experience	**Experience**	**J)**	**Error**	**Sig.**	**Bound**	
No response	No experience at all	-.29167	.34119	**.955**	-1.2984	
	Limited experience	-1.6414	.33176	**.996**	-1.1430	
	Some experience	-.1.6389	.32007	**.996**	-1.1083	
	Quite a lot of experience	-.5.3395	,33738	**.613**	-1.5294	
	A lot of experience	-.85648	.32962	**.115**	-1.8291	
No experience at all	No response	**.29167**	.34119	**.995**	-.7151	
	Limited experience	**.12753**	.20054	**.988**	-.4642	
	Some experience	**.12778**	.18054	**.980**	-.4049	
	Quiet a lot of experience	**-.24228**	.20971	**.856**	-.8611	
	A lot of experience	**-.56481**	.19699	**.061**	-1.1461	
Limited experience	No response	**.16414**	.33176	**.996**	-.8148	
	No experience at all	**-.127533**	.20054	**.988**	-.7192	
	Some experience	**.00025**	.16200	**1.000**	-.4778	
	Quiet a lot of experience	**-,36981**	.19398	**.409**	-.9422	.2026
	A lot of experience	**-.69234**	.18015	**.004**	-1.2239	-.1608

Some experience	No response	**.16389**	.32007	**.996**	-.7805	1.1083
	No experience at all	**.12778**	.18054	**.980**	-.6605	.4049
	Limited experience	**.00025**	.16200	**1.000**	-.4783	.4778
	Quiet a lot of experience	**.37006**	.17323	**.284**	-.8812	.1411
	A lot of experience	**.69259**	.15759	**.001**	-1.1576	.2276
Quite a lot of experience	No response	**.53395**	.33738	**.613**	-.4615	1.5294
	No experience at all	**.24228**	.20971	**.856**	-.3465	.8611
	Limited experience	**.36981**	.19398	**.409**	-,2026	.9422
	Some experience	**.37006**	.17323	**.284**	-.1411	.8812 .2390
	A lot of experience	**.32253**	.19031	**.541**	-.8841	1.8291
A lot of experience	No response	**.85648**	.32962	**.115**	-.1161	1.8291
	No experience at all	**.56481**	.19699	**.061**	-.0164	1.1461
	Limited experience	**.69234**	.18015	**.004**	.1608	1.2239
	Some experience	**.69259**	.15759	**.001**	.2276	1.1576
	Quite a lot of experience	**.32253**	.19031	**.541**	-.2390	.8841

- The mean difference is significant at the .05 level.

Table 9: One-way Analysis of Variance (ANOVA) for Computer Self-efficacy in relation to Frequency of Computer Use

Sum of Squares					
	Squares	**Df**	**Mean Square**	F	sig
Between Groups	3.774	5	.755	3.717	.006
Within Groups	11.374	56	.203		
Total	15.148	61			
Significant; p<.05; i.e. .006<.05					

On the contrary, between those who reported frequent use 'everyday continuously' and less frequent use 'a couple of hours a month', a statistical difference was found ($p < .05$ i.e. $002 < .05$)/ This implies that the more the time NOUN returning students spend with computers, the more self-efficacious they feel. Similarly, earlier researchers (Albion, 2001:321; Topkaya, 2010:151); in their studies found that "the amount of time spent using computers was the factor that contributed most to the variance in self-efficacy for computer use. "Therefore, one can confidently imply from the result of this study that one of the major factors affecting the sense of computer self-efficacy appears to be frequency of use.

Research Question 3

Computer self-efficacy perceptions and general self-efficacy Perceptions

The research seeks to look into the general self-efficacy of NOUN returning students and to investigate whether it had a correlation with computer self-efficacy. To this, first, overall self-efficacy was analysed and found out to be at a moderate level (mean=3.74, SD=0.805) but higher than computer self-efficacy (Mean=2.84, SD=0.498) as previously given in Tables 4 and 3 respectively. As reflected on Table 11, the correlational analysis on the other hand, revealed a positive correlation between these two variables (r=0.134).

Table 10: Post Hoc Test-Tukey HSD

Computer Self-Efficacy

	Mean			95% Confidence Interval	
(I) Computer Usage	(J) Computer Usage	J) Difference (I-Std. Error	Sig.	Lower Bound	Upper Bound
No response	A couple of hours a month	.00529	.28672	1.000	-.8407	.8513
	A couple of days a week	-.38272	.28104	.749	-1.2120	.4465
	A couple of hours a week	-.46296	.36797	.806	-1.5487	.6228
	A couple of hours a day	-.41852	.29667	.720	-1.2939	.4568
	Everyday continuously	-68122	.28672	.1S2	-1.5272	.1648

A couple of hours a month	No response	-.00529	.28672	1.000	-.8513	.8407
	A couple of days a week	-.38801	.16059	.168	-.8619	.0859
	A couple of hours a week	-.46825	.28672	.581	-1.3143	.3778
	A couple of hours a day	-.42381	.18659	.223	-.9744	.1268
	Everyday continuously	-.68651	.17034	**.002**	-1.1891	-.1839
A couple of days a week	No response	.38272	.28104	.749	-.4465	1.2120
	A couple of hours a month	.38801	.16059	.168	-.0859	.8619
	A couple of hours a week	-.08025	.28104	1.000	-.9095	.7490
	A couple of hours a day	-.3580	.17775	1.000	-.5603	.4887
	Everyday continuously	-.29850	.16059	.438	-.7724	.1754
A couple of hours a week	No response	.46296	.36797	.806	-.6228	1.5487
	A couple of hours a month	.46825	.28672	.581	-.3778	1.3143
	A couple of hours a week	.08025	.28104	1.000	-.7490	.9095
	A couple of hours a day	.04444	.29667	1.000	-.8309	.9198
	Everyday continuously	-.21825	.28672	.973	-1.0643	.6278
A couple of hours a day	No response	.41852	.29667	.720	-.4568	1.2939
	A couple of hours a month	.42381	.18659	.223	-.1268	.9744
	A couple of days a week	.03580	.17775	1.000	-.4887	.5603
	A couple of hours a week	-.04444	.29667	1.000	-.9198	.8309
	Everyday continuously	-.26270	.18659	.722	-.8133	.2879
Everyday continuously	No response	.68122	.28672	.182	-.1648	1.5272
	A couple of hours a month	.68651	.17034	**.002**	.1839	1.1891
	A couple of hours a week	.29850	.16059	.438	-.1754	.7724
		.	.			

	A couple of hours a week	21825	28672	.973	-.6278	1.0643
	A couple of hours a day	.26270	.18659	.722	-.2879	.8133

* The mean difference is significant at the .05 level

Conclusion

The study investigated computer self-efficacy perceptions of NOUN returning students who had previously been involved in eAssessment in relation to gender, possessing computers, computer experience, frequency of computer use and their general self-efficacy perceptions.

The findings of the study already discussed in the relevant sections are mostly consistent with the results of previous research studies on computer self-efficacy and general self-efficacy. Whereas the earlier studies focused on teachers, this study dwelt on learners because they too need IT skills to function effectively in ODL institutions

Table 11: Pearson Product-Moment Correlation between Computer Self-efficacy and General Self-efficacy Perceptions

		Computer Self-Efficacy	General Self-Efficacy
Computer Self-Efficacy	Pearson Correlation	1	.134
	Sig.(1-tailed)		.150
	Sig.(2-tailed)		.299
General Self-Efficacy	Pearson Correlation	.134	1
	Sig.(1-tailed)	.150	
	Sig.(2-tailed)	.299	

a. Listwise n=62

which are technologically driven nowadays and the modern trend is in the use of computers in the assessment of students learning outcomes. Therefore, it is necessary for modern day learners, especially in ODL settings to exhibit high computer self-efficacy and general self-efficacy since studies have shown that relationship between teachers' use of computer technologies and

different variables such as self-efficacy beliefs, attitudes and knowledge about computer technologies, perceptions of computers as educational tools among others have significant correlation between these variables (Koç,2005). This study has also shown that learners also need to spend more engaging time with computers in order to have high computer self-efficacy. Learners who are not adequately exposed to the use of computers before engaging them in eAssessment are therefore placed at a disadvantage with their peers in the assessment of their learning outcomes. Since, it is generally believed that people who have high self-efficacy in the use of computers will invest more time and be more willing to learn and do new things with computers (Kinzie, Delcourt and Power, 1994). Acquiring the necessary IT skills will enhance their potentials and attitude towards eAssessment. This will in tum have positive effect on their performance.

Recommendations

It is therefore recommended that a deliberate course of study involving the practical use of computers should be introduced for every ODL student to enable them acquire the necessary skills required to function creditably in the digital age brought about by ODL environment globally. Those specific courses that equip the students with knowledge, skills and confidence regarding computer use should be considered in the light of this research findings. More research in line should be encouraged. Content and procedural renovations could be made, implemented and followed by research to determine whether the intended behavioural, cognitive and affective changes are actually taking place.

It is worthy of note that self-efficacy is closely related to motivation, success and is a predictor of future behavior. Hence, ODL practitioners who operate in IT global village need very high level of computer self-efficacy to function at their optimum level.

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