Digital Literacy as Predictors of Students' Attitude towards Basic Computer Operations in the National Open University of Nigeria

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Abstract

The research is on students' digital literacy as a predictor of their attitude towards basic computer operations in Lagos centres of the National Open University of Nigeria. The study employed a descriptive survey of correlation. A sample of 238 which comprised 139 females and 99 males from six National Open University of Nigeria study centres in Lagos state, Nigeria was used using purposive sampling techniques from CIT141 learners who participated in the study. The researcher developed and validated computer skill tests and basic computer operations are the main instruments used for data collection. The Pearson product-moment correlation to multiple regression analysis was used to determine the measure of the relationship between independent variables and dependent variables. The results revealed that students' gender and computer skills had a positive relationship with students' attitudes toward basic computer operations. The joint effect of students' gender and computer skills and attitude towards basic computer operations was significant. The relative contribution of students' computer skills to their attitude toward basic computer operations was significant. Students' computer skills predicted students' attitudes toward basic computer operations. It was recommended that students' computer skills should be taken into consideration when attitude towards basic computer operations is involved.

Keywords*:* Students' Gender, Computer Operations, National Open University of Nigeria.

Introduction

Digital literacy is essential practice for open and distance learners to meet the new challenges of designing and implementing assessment methods that go beyond conventional practices and record a broader repertoire of cognitive skills and knowledge. Computer skill is a factor that determines learners' activeness in using computer systems for instructions, especially the 100 and 200-level distance learners who oftentimes will engage in the use of computer systems for all their engagement both during registration and examinations in the university as posited by Adebanjo (2021). The approach put on by Open and Distance Learning (ODL) towards computers in the exploration, exploitation, and utilization of computer technology in maximizing learning is conjectured as important. Therefore, all ODLs irrespective of their discipline must at least know how to communicate with the computer system effectively. Computer skills mean the involvement and acquaintance with the capability to control data required in computer systems and to suitably use apparatuses and facilities to input, access, consolidate, incorporate, and evaluate computer

resources as well as to build new understanding, produce media expressions, and converse with other devices.

The acquired skills should be adequate to do day-to-day Microsoft word processing tasks such as typing letters, memoranda, and other formal office documents. Anyone skilled must have the ability to perform such basic skills as formatting, editing, and printing, and understand other functions such as document page setup. Any open and distance learners that possess these computer skills should be able to generate a new document, insert text, save, login, work on current documents, and retrieve stored information from the internet. He or she should be able to navigate documents, perform searches, select and/or move text, work with tabs, indent, code margins, list, break, space, control page, document appearance, print documents, envelope, and label. In other words, computer skills are the working knowledge that individuals must solve problems that arise with computers and how to assemble operating systems.

Computer skills are mandatory for every student studying at the National Open University of Nigeria, because of its mode of instructional delivery and response to the Tutor Marked Assignments, which are carried out with the use of computers that require that all students possess a level of computer literacy, positive attitude towards computer and requisite skills in computer application for use during the first and second year of their examinations in the university. For students to perform all of these, their computer skills and attitude towards computer knowledge need to be tested.

With the broad expansion of ICT in education during the last decade, many research studies have explored the attitudes of users (educators and students) towards the integration of ICT in education (Gasaymeh, 2009). Since the National Open University of Nigeria in conjunction with Open and Distance Learning (ODL) institutions rely on the use of computer technology for interaction with students, students' computer knowledge, attitude, and competencies go a long way to determining students' quality of learning and overall success in ODL programs. This is responsible for the introduction and teaching of basic computer operations in NOUN to improve students' computer skills.

Adebanjo (2009) stated that for distance learners to succeed in learning, they must be able to have a proper attitude to technological modes of learning. A person's attitude is influenced by a variety of aspects such as anxiety, comfort, and confidence. Nassoura (2012) noted that attitude is a positive or negative evaluation of a person. In other words, attitude may be based on direct

personal experience with an object or one's feelings or thinking. Student's attitudes towards computer skills are influenced by the quality and the level of student computer skills (Aixia & Wang, 2011). Attitude to computers as asserted by Adebanjo (2021) is a learning preposition to respond positively or negatively to the use of computers by males and females in their daily endeavors especially in academic environments.

Since computers have become frequently used most studies have revealed that females are deprived, because of the assumption that females do not exhibit their willingness towards the use of technology facilities as well as give the required dedication to on-line research Philips (2013). Yet, such assumptions have proved to be incorrect because further investigations have suggested that sex does not have a substantial influence on learners in online study functionality and that gender can't foretell if a learner is going to be able to effectively finish an online package. In reality, several of their instructional activities are better than their male counterparts, and reports indicate greater fulfilment in the online studying applications by both sexes. The tendency of things shifting nowadays based on science and technology has greatly deepened.

Gender has also been found to be important in ICT research (Philips, 2013). New ideas must be invented to allow better participation by giving the same opportunity to males and females in the usage of technology, a move which will afford all sexes better computer awareness. Indeed, instructors must know that there is connectivity to guarantee learners' comfort in the use of required programs and computer systems generally. According to Philips (2013), computer applications like word processing, obtaining information and finishing assignments, reports, and projects are presently being utilized by both male and female students in educational settings.

Dhindsa and Shahrizal-Emran (2011) discovered in their study that both sexes exhibit a solid conviction in computer studies hence, both genders have prowess in technological activities. The findings of Dhindsa et al (2011), however, discovered a gender gap in the use of technologies for learning among the sexes. Since computer classes are traditionally seen as the dominant action of the male folks it may look less appealing to the female counterparts; hence, women lose interest in the use of technologies for learning. Although females could be intrigued by computer usage for studying, many women do fear its use as compared to men as most females only see computers as attractive if it is presented in an easy method for them to work with.

The above has consistently documented gender differences in attitudes to computers. Therefore, to justify the findings of the numerous research positions on the gender issue, this study

attempted to find out if, in Open and Distance Learning, students' gender groups have the same attitude toward computer skills as well as the level of performance in computer science. Nassoura (2012) emphasized this, pointing out that many students had positive attitudes towards Basic computer operation. According to Mustafa, (2010), attitude contributes significantly to academic performance and that there was no significant correlation between achievement in programming and student attitude to computers. Furthermore, Hongwarittorrn and Krairit (2010) found that there was no statistically significant correlation between students' attitudes and students' examination scores. Mustafa (2013) reported that students with more positive attitudes toward the learning environment attained significantly higher learning achievements in computer programming.

University students in developing countries have varying attitudes towards e-learning, especially computers. (El-Gamal & El-Aziz, 2011). This was emphasized by Nassoura (2012) who pointed out that many students had positive attitudes towards e-learning because it had a positive impact on their motivation as well as self-esteem. Attitude to computers as defined by Arafeh, (2004) is a learning preposition to respond positively or negatively to certain objects, situations, concepts, or persons" Computers are all the time more general, influencing many aspects of our social and work lives, as well as several of our free time activities. As more responsibilities engage human-computer interaction, computer skills, and information have grown to be more positively related to both occupational and personal achievement (Silku, 2009). Silku, (2010) in his work indicated that primary third-grade pupils possess positive attitudes regarding all the treatment modes. This was attributed to the interactivity allowed by computers in which the content was delivered. As experienced in everyday life, music would pass unnoticed by pupils. The three treatments in this study stimulated the pupils' attention, provided new ways of delivering the lesson, and used new stimuli and strategies based on the cognitive theory of multimedia that assimilates the human brain in dealing with data processing (Wen & Shih, 2008).

According to Ogunleye (2010), the effective use of ICT tools for educational purposes depends on the attitude toward computer technology, and Abimbade (2010), believes that the successful use of computers in the classroom depends on the teachers' attitude towards the computer. Therefore, all ODL students irrespective of their discipline must at least know how to communicate with the computer system. Previous research has consistently documented gender and computer skills in Basic computer operation. Therefore, to justify the findings of numerous researchers' positions on gender and computer skills, this study will also find out if the students'

gender and Computer skills will predict undergraduates' attitudes towards basic computer operations in the National Open University of Nigeria.

Essentially, the Open and Distance Learning movement has opened the horizon for reshaping how students learn, how accessible learning is with computer systems, especially to those in rural areas, and what propels them to learn. Despite the advantages of the ODL movement, certain problems have been identified to be associated with its practice such as a lack of computer skills and motivation due to the use of Information and Communication Technology (ICT) coupled with the gender frequent usage of computer systems which could form a barrier to successful distance learning. Also, negative attitudes of students towards basic computer operation form part of the factors. Based on this, this study will determine gender and Computer skills as predictors of undergraduates' attitudes toward basic computer operations at the National Open University of Nigeria.

Purpose of the Study

The purpose of this study therefore is to examine students' gender and computer skills as predictors of their attitude towards basic computer operations in Lagos centres of the National Open University of Nigeria. The specific objectives are:

i. To examine the relationship between students' gender and computer skills and students' attitude towards basic computer operations
ii. To determine the composite effect of students' gender and computer skills on students' attitudes toward basic computer operations
iii. To investigate the relative contribution of students' gender and computer skills on students towards basic computer operations.
iv. To find out which of the students' gender and computer skills will predict students' attitudes towards basic computer operations?

Research Questions

To guide this study, the following research questions were formulated.

i. What is the relationship between students' gender and computer skills and students' attitudes towards basic computer operations?
ii. What is the composite effect of students' gender and computer skills on students' attitudes towards basic computer operations?

iii. What is the relative contribution of students' gender and computer skills on students' attitudes toward basic computer operations?

iv. Which of the students' gender and computer skills will predict students' attitudes towards basic computer operations?

Methodology

For this study, a descriptive survey with a correlation focus was chosen as the research design. The study includes all students taking the CIT141 course at the National Open University of Nigeria (NOUN). There are a total of six NOUN study centres located in Lagos. For this study, all first-semester students enrolled in the CIT 141 course from each of these six study centres were selected. The study included a total of 238 undergraduate computer science students, consisting of 99 males and 139 females. Two instruments were used in this study. These are two scales NOUN Students' Basic Computer Operation Attitude Scale (SBCOAS) and NOUN Student's Computer Skills Test (SCST). The SBCOAS was designed by the researcher to measure the open and distance learning students' attitudes toward basic computer operation. It is a Likert-type instrument with two sections. Section A sought information from the respondents in terms of name, level of entry, course of study, school of the student, study centre, and gender. Section B consists of 25 items with 4 points Likert scale, Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) with scores of 4, 3, 2, and 1 for positively worded items and reversed for negatively worded items.

Validation Students' Basic Computer Operation Attitude Scale (SBCOAS). 30 items were developed by the researcher following the attitudinal pattern. The services of experts in computer science were employed to review the content, relevance, scope of coverage, language of presentation, clarity, and overall adequacy. Based on their comments, some items were modified while some were removed. 25 items survived the scrutiny. The 25 items of instruments were then administered to (40) 100-level students at the Abeokuta study centre which is outside the sample. The reliability coefficient of the instrument was calculated using Cronbach's Alpha and a scale reliability of 0.86 was obtained which indicates that it is reliable.

NOUN Student's Computer Skill Test (SCST) comprised a 30-item structured questionnaire developed by a researcher to measure the level of skills acquired by the students in basic computer operation. It has two sections. Section A contains instructions and demographic data such as sex, course of study, age, and study centre. Section B consists of 25 multiple-choice items that cover

the psychomotor trait of the student in basic computer operation. The respondents were to indicate the extent of their agreement with each level of basic computer operation skills acquisition by choosing one correct answer which is the key and three distracters from the basic computer skills questionnaire ranging from knowledge of the computer, operating the computer, usage of the computer and identifying of physical parts as well as how they can be used for communication. Each item has four options, A to D. The instrument was given to experts in computer science to review in terms of content, relevance, scope of coverage, language clarity, and overall adequacy. Based on their recommendation, comments, and critiques, some items were modified while some were to be expunged. The 25 items that survived the experts' scrutiny were tried out on 20 students from the Abeokuta study centre which is not part of the sample to be used in the study. The test was administered twice with a time lag of two weeks and the reliability coefficient of the instrument was calculated using the test-retest method the results yielded a reliability index of 0.84 considered high.

The procedure for data collection involves the researcher's writing a letter to the Vice Chancellor of the National Open University of Nigeria seeking the institution's cooperation and the approval of means for carrying out the research across six study centres in Lagos state. Directors of the respective study centres were carried along as the research progressed. Notice was also issued to participants to be in their centres via their student's portal where the instruments were administered in the form of a Tutor Marked Assignment. Six research assistants were also employed to help administer the questionnaire with the desk officer for the faculty of sciences in each of the six centres. Data collected was analyzed using Pearson Product Moment Correlation to Multiple Regression Analysis to determine the measure of the relationship between independent variables and dependent variables. Multiple Regression was used to determine the joint contribution of independent to dependent variables and determine which of the variables predicted students" attitudes towards Basic computer operations.

Results

Research Question 1: What is the relationship between students' gender and computer skills and students' attitudes towards basic computer operations?

Table 1: The correlation between students' gender and computer skills, attitudes and basic computer operations

	Mean	SD	r	P value	Remark
Gender & student's basic computer operations	22.29	5.248	0.450	0.010	Significant
Students' attitude & basic computer operations	32.49	21.840	0.730	0.012	Significant
Computer skills & student's basic computer operations	27.34	19.03	0.083	0.052	Significant

*Denotes correlation at 0.05 level of significant

Table 1 shows a significant positive between gender & student's basic computer operations (r = 0.450, P<0.05); Students' attitude & basic computer operations (r = 0.730, P<0.05) and Computer skill & student's basic computer operations (r = 0.083, p<0.05). This implies that student's basic computer operations had a significant positive relationship with gender and students' attitudes and computer skills.

Research Question 2: What is the composite effect of students' gender and computer skills on basic computer operations?

Table 2: Multiple Regression Analysis showing the composite contribution of the independent variables on the dependent variable

Model	Sum of squares	Df	Means Square	F	Sig.
Regression	17665.514	2	8832.757	13.093	0.000*
Residual	268054.404	238			
Total	285719.918				

R = 0.249 R^2 = 0.062 Adjusted R^2 = 0.057 Std. Error of the Estimate = 21.20744

*Denotes significant at P<0.05

Table 2 shows the composite contribution of the independent variables **(**students' gender and computer skills) toward basic computer operations. The significance of the composite contribution was tested at P<0.05. The results show that the analysis of variance (ANOVA) for the regression yielded a F-ratio of 13.093 (P<0.05). This implies that the composite contribution of the independent variables to the dependent variable was significant. The Table further revealed a coefficient of multiple correlation (R = .249) and a multiple regression adjusted R^2 of 0.057. This means that 5.7% of the variance was accounted for by the independent variables when taken

together and that other variables not included in this model may have accounted for the remaining variance.

Research Question 3: What is the relative contribution of students' gender and computer skills on ODLs 'attitudes toward basic computer operations?

Table 3: Multiple Regressions showing the Relative Contribution of learners' gender and computer skills on basic computer operations

Model	Unstandardized Coefficients		Standardized Coefficients	Rank	t	Sig.
	B (β)	Std. Error	Beta (β)			
(Constant)	85.487	18.006			4.748	.000
Computer skill	.708	.166	.170	1st	4.260	.000*
Gender	-1.057	.299	-.143	2rd	-3.530	.060

*Denotes significant at P<0.05

Table 3. reveals the relative contributions of each of the independent variables to Basic computer operation. The relative contributions of Computer skill (β = 0.170; t = 4.260; P<0.05) and gender (β = -0.143; t = -3.350; P<0.05) to Basic computer operation were significant. Thus, Computer skills significantly contribute to Basic computer operation. The table shows the relative contributions of each of the independent variables at different levels and ranks based on the t values as shown as Computer skills (t = 4.260; P<0.05) >gender (t = 3.539; P<0.05). Thus, Computer skills strongly predicted students' attitudes to Basic computer operation.

Discussion of findings

The findings of this study have shown that Basic computer operations are better taught taking into consideration the computer skills of the students in instructional delivery of computer education and their gender. The findings show that computer skills were found to have a significant effect on NOUN students' attitudes towards basic computer operations. The finding aligned with the findings of Norziani, Hasmawati, and Hanafi (2011) which agreed that learner's attitudes played a role in predicting e-mentoring. Hong and Tan (2008), as well as Selim (2007), also reported that students' attitudes and behaviours toward learning computer technology are critical to their learning readiness and acceptance. Similarly, this result is in agreement with the findings of Nassoura (2012) who pointed out that many students had positive attitudes toward e-learning

because it had a positive impact on their computer skills, motivation as well as self-esteem. On the other hand, it fails to agree with the findings of Hew and Cheung (2014) which confirmed that the student's approach to computer learning instilled a positive student attitude. Talking in agreement with the result of the study, the finding of Adedamola (2015) showed that no significant difference existed in the students' attitudes toward computer usage. Whereas, in the contrary, the study of Ogunkola and Olatoye (2009) revealed that there is a significant relationship between computer attitudes and computer literacy of science teachers. Based on the findings of this study, it was established that Computer skills were more effective at improving National Open University students' attitude to basic computer operations. There is equally improved male and female learners' attitude towards basic computer operations.

Conclusion

This study explored the relationship between gender, attitude, computer skills, and basic computer operations. The findings revealed a significant correlation between these variables, highlighting the importance of considering gender, attitude, and computer skills when assessing individuals' proficiency in basic computer operations. The study provides valuable insights into the factors that influence computer literacy and suggests that interventions targeting attitude and computer skill development can enhance individuals' performance in basic computer operations.

Recommendations

Based on the study findings, the following recommendations are proposed:

1. The university Authority should develop targeted training programs that improve computer skills, particularly for individuals with limited experience or lower proficiency. These programs should be designed to address specific areas of weakness identified in the study, such as file management, software navigation, or basic troubleshooting.
2. The university authority should increase awareness about the importance of computer skills and promote a positive attitude towards technology among individuals of all genders. This can be achieved through educational campaigns, workshops, and seminars that emphasize the benefits of computer literacy for personal, academic, and professional development.
3. The lecturers and the management should recognize and address any gender disparities in computer skills and basic computer operations. Implement strategies that encourage equal

participation and engagement in technology-related activities, ensuring that individuals of all genders have equal access to training and resources.

4. The university should regularly assess individuals' computer skills and basic computer operations to identify areas for improvement and track progress over time. This will help in tailoring interventions and ensuring that individuals' skill development aligns with the evolving technological landscape.
5. They should encourage further research to explore the underlying factors influencing the observed correlations between gender, attitude, computer skills, and basic computer operations. Foster collaboration between academia, industry, and policymakers to develop comprehensive strategies that promote computer literacy and bridge any existing gaps.

By implementing these recommendations, individuals can enhance their computer skills, regardless of gender, while fostering a positive attitude towards technology. This can ultimately lead to improved performance in basic computer operations, empowering individuals to effectively utilize computers in various personal, educational, and professional contexts.

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