AN ASSESSMENT OF THE COMPUTER LITERACY LEVEL OF OPEN AND DISTANCE LEARNING STUDENTS IN LAGOS STATE, NIGERIA

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ABSTRACT

Nigeria has embraced the Open and Distance Learning (ODL) mode of education in order to make education affordable and to reach the teaming population of qualified citizens yearning to have quality education but are left out of it. Most universities in the country run the single mode conventional system of education; some run the dual mode while two institutions run the single mode distance education. The groundswell of interest is how computers can best be used to improve the efficiency and effectiveness of the ODL system of education in the country. This led to the assessment of the computer literacy level of the distance learning students who are the beneficiaries of the ODL system in Lagos state. A sample of 858 ODL students from University of Lagos, National Teachers Institute (NTI) and National Open University of Nigeria (NOUN) were used for the study. A self- developed questionnaire, made up of 15 items was administered to the respondents. The data collected were used to answer four research questions and test one hypothesis. It was found that 54.20% are computer literate; there exists gender differences in the computer literacy with 23.78% female and 30.42% male. There are also age differences. Some of the problems include lack of access to computers, inadequate electricity supply, slow broadband and high cost of internet access. The research hypothesis that there is no significant difference between the observed and the expected computer literacy level of the ODL students in Lagos state was rejected. Based on the results some conclusions and recommendations were made.

Keywords: Computer, literacy, assessment, open and distance learning, students.

INTRODUCTION

Today, throughout the whole world, computer literacy is the first step for any individual who wants to do anything with computer. From all works of life, there is hardly any area where computer knowledge is not important.

This is very correct, especially in the ODL system of education where computer literacy plays great roles from the beginning to the end of the educational structure. Today, computer literacy has really drawn the attentions of millions of people. This is because of the fact that virtually all human terrain now requires the knowledge of the computer.

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This is evident mostly in the areas of employment of labour all over the globe where every vacant position requires computer literacy as an addition. In fact, it is a very important requirement. According to Lucky (2008), some researches have shown that by the year 2025 about 85% of the world population will be able to acquire a household computer just like television in families all over the world.

Computer has really made huge changes in the way we live our lives. Life is simpler and more flexible with it, quick decisions are made where necessary, and above all the whole world has been made a global village. All these are made possible by peoples curious minds with the help of computer literacy. The question is: 'what is computer literacy?'

To this question, Webopedia (2009), says it is the level of expertise and familiarity some one has with computers. It generally refers to the ability to use applications rather than to programme. Individuals who are computer literate are called power users. Lombardi (1983), says computer literacy is a two buzz word of our time. This two- word concept appears in popular magazines, catalogs of our educational institutions and in the learned columns of professional journals. It can mean anything. To the elementary school teachers and parents it means familiarity with the computer and the ability to turn it on and off without damaging the machine. For a computer science teacher in a university, computer literacy may mean the ability to programme in at least three computer languages, understand the elements of computer architecture and the fundamentals of Boolean logic. Computer literacy is all of these things and every other thing in between. It starts with computer appreciation which starts from knowing the common things of the computer, like its components, central processing units, visual display unit, key board, mouse, speakers, etc; switching it on and off, working around with the packages like Microsoft- word, excel, outlook, etc; power point and other basic knowledge; work and produce out puts or results–typing, browsing, sending mails, etc. The next question is: 'Computer literacy for what purpose?', for whom?

For the purpose of this investigation, it is for the purpose of using the computer in ODL system. Therefore, it is for adults and those who are not actually adults but who have graduated from the secondary schools and colleges, and those who have interest in using the computer for the purpose of removing the physical distance out of distance education.

Computer literacy means the ability to recognize problems for which the computer may be a useful part of the solution. ODL students who are computer literate should be able to identify appropriate computer resources for a wide range of tasks in their studies. They should know how to use the computer in solving a lot of problems, especially those relating to resource materials

These days of e- commerce, e- government, e- transaction, e- payment, e-mail, e-examination, e- assessment, e- everything, ODL students should become computer literate enough to know what these machines can do and when they should be avoided or they will have to continue to pretend that it does not matter. But it does matter.

This is because if they do not understand how to use computers, somebody else will have to be making many decisions for them in name of computer. These decisions will include writing examinations, registrations, on-line counseling and even typing their assignments. Computer is a marvelously complex and mysterious machine, but it is not as difficult to understand as a car. For instance, we do not need to know much about mechanical engineering in order to understand what cars can do and how to make them do it.

We do not need to understand the intricacies of a petroleum or gasoline engine in order to know that automobiles have changed our lives, rearranged our landscape and captured significant parts of our income. If we need not understand cars well enough to have an opinion about what to do with them, why not same with the computers? Computer literacy equips you to approach the computer in the same way. The most important thing is to get a computer and make it do what you want it to do for you.

For ODL students who as of a necessity should be interested, the computer can be valuable, not for narrow job training but as a medium for developing problem- solving skills. It can be a medium for developing independence. This is because not every student will be doing the same programme or project or assignment at the same time. According to Harvey (1983) computer literacy implies some skills or knowledge which is necessary for every person to be able to cope with the computer- centred society. This implication leads to certain policy decisions about computer education. For instance, governments (federal, state and local) should make it possible for computers to be easily available to all the government or public schools throughout the country so that a very large number of students should have access to computers. This will make those students who are interested, especially the ODL students to have opportunity to pursue their interest in most meaningful way.

Computer literacy, the ability to use computers to perform a variety of tasks, is becoming fundamental to the learning process. The twentieth century was regarded as the information age, but the next century has been described as the information processing age. It means that a wide variety of computer skills is useful and in most cases required as an essential part of our education, learning and employment for most individuals.

This is why Sharma (2008) thinks we are living in a fast paced world where our needs move fast, our technological solutions move fast and our education has to move with them. That is the essence of ODL and it is the essence of providing access to learning for development. That is why we must encourage computer literacy amongst our ODL students. According to Burnett (2008) while great progress is being made in education for all, an acceleration of progress is needed in the area of computer literacy. This is an optimistic time but not a time to relax. This is why Gourley (2008) says this is a period of new technologies and new possibilities for reaching the unreached. Computer literacy is required by every student of ODL, especially now that the only single mode ODL University in Nigeria- National Open University of Nigeria (NOUN) is preparing to introduce e- examinations for her students. The question is how prepared are the students to face the e- examination? Are the students literate enough in computer skills to write the e- examinations? The rest of the paper is an investigation of the level of computer literacy amongst ODL students in Lagos state of Nigeria.

STATEMENT OF PROBLEM

Technology has been described as the main definer of Open and Distance Learning. ODL is mediated by some technology forces. When the developed countries of the West talk about technology for ODL, they imply the predominant use of computer and therefore the adoption of on-line teaching and learning. On- line teaching and leaning may have many implications and descriptions to different people, but for the purpose of this study, it is web- based. In order to access the web, especially for the e- examination, the ODL students need to understand how to operate the computer and how to use it to communicate through the web. This is the main problem of interest in this study. What level of computer literacy do the ODL students in Lagos state have as to manipulate the computer in order to write their e- examinations themselves?

ODL is technology- dependent. It is not like the conventional system of education where students depend mostly on lectures from the teacher through face to face interaction. ODL is more mediated by technology and particularly the computer.

To be successful therefore the students should be computer literate. They should be able to operate the computer, use basic applications such as words, be familiar with the internet even if at the basic level in order to send, receive, read e- mails, browse the net, to participate in on- line chats and above all be able to write and submit assignments and examinations on- line.

The major purpose of this study therefore is to find out the extent to which ODL students in Lagos state are computer literate.

Research Questions

In trying to find out the level of computer literacy of ODL students in Lagos state, some questions have been asked.

> ➢ What percentages of students are computer literate?
> ➢ Are there gender differences in computer literacy among the students?
> ➢ Are there age differences in the level of computer literacy?
> ➢ Are there problems militating against acquisition of computer- literacy amongst the ODL in Lagos state.

Research Hypothesis

One research hypothesis has been proposed to guide the investigation.
There is no significant difference between the observed and the expected level of computer literacy amongst the ODL students. ($p=0.05$)

Research Design

This study is basically a descriptive survey. The intention is to survey the literacy level of the ODL students in Lagos state in relation to the use of computer.

Research Instrument

The research instrument is a self- constructed questionnaire crafted to cover the main aspects of focus in this study. The instrument passed through expert validation to ascertain content validity and usability. It was trial-tested on a group of ODL students from the National Open University of Nigeria, who were not part of the respondents for the study. This was done to ascertain the readability and consistency.

Population and Sampling

All students studying through the ODL mode in Lagos State form the target population. Three institutions were identified as having students studying through the distance education system. These are the National Open University of Nigeria, (NOUN), which is a single mode ODL university; the University of Lagos,(UNILAG), which is a dual mode university running both conventional and distance education system; and the National Teachers' Institute (NTI) Kaduna, which is a single mode distance education institution for the training of teachers, and having centres in all states of the federation including Lagos. Four tutorial facilitation centres were identified and used as follows; "Methodist Boys' High school, Victoria Island, Lagos and C.M.S. Grammar School Bariga for NOUN; Faculty of education, University of Lagos , for UNILAG; and Bolade secondary school Oshodi, for NTI. Availability sampling was used and a total of 858 students responded to the questionnaire instrument as follows:

NOUN students from Methodist Boys High School= 225
NOUN students from C.M.S. Grammar School   =230
UNILAG students from UNILAG   =210
NTI students from Bolade Secondary school   =193
A total of 12 questionnaires were not recovered.

DATA ANALYSIS AND RESULTS

The responses of the ODL students in Lagos State were analysed in phases. The first phase was to find out the percentage of these students who are computer literate. The second phase was analysed in relation to gender. Out of 858 respondents, 462 were females and 396 were male students. The third phase was in relation to age. From age 20--- 30 years=122, 31---40years=304, 41--- 50 years=310, and 51 and above=132. The fourth phase was to see if there is a significant difference between the observed and the expected computer literacy levels. The administration of the instrument was done personally by the researcher. This guaranteed the high return of the questionnaires (858 out of 870) from the students, and that provided the data for analyses. Research questions 1 to 3 were answered using simple percentages, while the hypothesis was tested at 0.05 level of significance using the chi-square test statistics. The results are presented below.

Table: 1
Percentage responses of the subjects

S. No.	ITEM	YES	NO
A	COMPUTER LITERACY		
1	I can put on and off the computer	619, 72.14%	239, 27.86%
2	I can type words with computer	614, 71.56%	244, 28.44%
3	I have no e- mail address	307, 35.78%	551, 64.22%
4	I have never surfed the internet	299, 34.85%	559, 65.15%
5	I can easily get resources from the internet	612, 71.33%	246, 28.68%
6	I have never participated in on- line chat	423, 49.31%	435, 50.69%
7	I can easily take my examinations on-line using computer.	603, 70.28%	255, 29.72%
8	I am familiar with on-line learning.	593, 69.11%	265, 30.89%
9	I have sound knowledge of different search engines.	433, 56.47%	425, 43.53%
10	I have knowledge of Excel, MS Word, and Power point	401, 46.74%	457, 53.26%
B.	PROBLEMS.		
1	I have no computer	711, 82.85%	147, 17.13%
2	I am not computer literate.	393, 45.80%	465, 54.20%
3	Often there is no electricity to use the computers	804, 93.71%	54, 6.29%
4	The broad band is too slow.	753, 87.76%	105, 12.24%
5	Charges at the cyber cafes are too high.	691, 80.54%	167, 19.46%

Research Question One

What percentage of the students is computer literate? A look at table 1, shows that 619 or 72.14% of the students can switch on and off the computer. 71.56% or 614 students can actually type words with computer; 64.22% or 551 students have e- mail addresses, while 65.15% or 559 browsed the internet or know how to surf the internet. Also, 603 students or 70.28% are ready to take their examinations on- line, while 593 students or 69.11% are familiar with on- line learning. 433 students or 56.47% have sound knowledge of different search engines, while 401 students or 46.74 have knowledge of Excel, MS Word and Power-point.   look at item 2 section B, reveals that only 465 students or 54.20% are actually computer literate. The age wise comparism in computer literacy also shows that the mean percentage of computer literate students is 54.58% (see Table: 3).

Table: 2
Gender differences in computer literacy

GENDER	FEMALE	MALE
NUMBER (N)	462	396
n	204	261
%age	44.46%	65.91%
%age of total number	23.78%	30.42%

Research Question Two

Are there gender differences in computer literacy of the students? Altogether, there are 462 female students. But only 204 students or 44.46% of the female students are computer literate. This is the same as 23.78% of all the respondents. A total of 396 students are males. Out of this number, 261 or 65.915 of them are computer literate. This implies that 30.42% of all the respondents are male students who are computer literate.

Table: 3
Age differences in computer literacy

AGE	20--30	31--40	41--50	51--ABOVE
NUMBER(N)	122	304	310	132
n	120	208	101	25
%age	98.36%	68.42%	32.58%	18.94%
%age of the total	13.94%	24.24%	11.77%	02.91%

Mean=54.58% (N=total number, n= number of students out of the total number N)

Research Question Three

Are there age differences in the computer literacy of the students? Table 3 shows that from age 20- 30 years are 122 in number. 120 or 98.36% of them or 13.99% of the respondents are computer literate. From age 31- 40 years which are 304 in number, out of which 208 or 68.42% of them or 24.24% of the total respondents are computer literate. From age 41- 50 years are 310 in number. Out of this101 or 32.58% which is 11.77% of the respondents are computer literate. While from age 51 and above are 132 in number, out of which 25 of them or 18.94%, which is 02.91% of the whole respondents are computer literate.

Research Question Four

Are there problems militating against the acquisition of computer literacy amongst ODL students in Lagos State? Table: 1.

Section B, shows some of the problems. 711 or 82.85% of the students do not have computers of their own. 804 or 93.71% of the students agreed that most of the times there is no electricity to use the computers. 753 or 87.76% of the respondents said the broadband is too slow. While 691 or 80.54% of them agreed that the charges at the cybercafés are two high. These are the problems.

Research Hypothesis

There is no significant difference between the observed and the expected level of computer literacy of the ODL students in Lagos state.

Table: 4
Chi- square result for the hypothesis

N	Chi-square cal.	Chi- square tab. At 0.05	df	Decision
858	742.04	16.919	9	Not significant

Table: 4 above shows that the chi- square calculated is 742.04. With number=858, degree of freedom=9, and alpha level=0.05, the critical chi- square value is 16.919. Since the chi- square calculated is greater than the critical value or chi- square value on the table, we accept that there is a significant difference between the observed and the expected level of computer literacy amongst the ODL students in Lagos State.

DISCUSSION

Research question one investigated the percentage of the ODL students that are computer literate in Lagos State. The results presented show some levels of computer literacy amongst the students. But the actual percentage level of computer literacy is 54.20%. This means that many more students need to acquire computer literacy in order to function effectively in the ODL system. More so, to participate in the proposed e- examination planned by NOUN, these students must be computer literate.

This is consistent with the suggestion made by Burnett (2008), that an acceleration of progress is needed in the area of computer literacy. According to Gourley (2008), this is a period of new technologies and new possibilities for reaching the unreached. If these students do not become computer literate, it means that Lombardi's (1983) statement that someone else will have to be making many decisions for them in the name of computer will be true in their own case. These students reside in a metropolitan state. They should be more computer literate than their counterparts' residing in the rural areas. They should be exception to the result of the study by Jegede (2009:7) which says "In Nigeria, for example, about 60% of the population does not know what a computer is, let alone the means to acquire and use it". Ivowi (2008) agrees to this by regretting that in this age of Information and Communication Technology (ICT), computers and associated gadgets are commonly found in schools, and if at all there are some, they are mainly found in the principals' offices serving more as objects of decoration than tools for facilitating communication and data processing.

As regards research question two, which investigated whether there are gender differences in the level of computer literacy of the ODL students in Lagos State,(let us refer to table 2). It will be noticed that 44.46% of the female students and 23.78% of all the respondents are computer literate. 65.91% of the male students making 30.42% of the respondents are male students who are computer literate. It implies that the male students are more computer literate than the females.

The reasons for the differences may be attributed to what Bolarin (2006) describes as the derogatory cultural practices and ideologies on the status, capability and roles of women which make the Nigerian woman psychologically tuned to looking forward to herself as a home- keeper and mother of children. According to Bolarin (2006: 14),

"all these traditional beliefs and practices put a lot of barriers in the way of female education and that the Nigerian women can only have equal access to education generally, and science and technology- related education in particular, if and only if the current traditional practices are phased out or reduced."

Agreeing with this result, Mlama (2006) listed other studies to buttress the fact that women's computer literacy level is below that of men and said that computer literacy amongst the women is also negatively affected by cultural norms, biased curricular and negative environment that gradually prevent the women from acquiring proficiency in the use of computer and other ICTs.

Research question three enquired whether there are age differences in the computer literacy of the students. A look at table 3 indicates that there differences in the computer literacy of the students in relation to the age ranges. The age range of 20- 30 has the highest percentage of 98.36% which is equivalent of 13.99% of the total respondents. As the age increases the percentage level decreases. 31- 40 has 68.42%, 41- 50 has 32.58% and 51and above has 18.94%. This result is consistent with the that of the investigation by Mlama (2006), who stated that Open Universities provide opportunities for people, but when they are studying at home and not in a university environment, they still have to shoulder house hold responsibilities. This makes it difficult to concentrate on their studies. The guess is that the more elderly the students, the more house hold responsibilities and the more it becomes difficult to have time to acquire computer literacy.

Research question four sought to find out whether there are problems militating against acquisition of computer literacy amongst ODL students in Lagos. The major problems are highlighted in section B, table 1.These problems range from having no computer=82.85%, no electricity= 93.71%, broadband too slow=87.76% and charges at the cybercafés or business centres too high= 80.54%. On the problem that most students do not have computers, Mlama's (2006) investigation corroborates this result by reporting that computers and internet access are a distant dream for most people living in poverty. Jegede (2009) agrees with this and accuses the developed world of developing and determining the usage of computers in particular and ICTs in general in any sphere of national economy and offload them to the developing economies at generally unaffordable prices. How then can we expect these students to own computers when the prices are not affordable to them? On the problem of electricity, Mlama's (2006) investigation shows that it is very important for ODL practitioners to examine the practicalities of ODL. This is because most areas in the African countries do not have electricity. The question is how can you access the internet or use the computer without electricity.

The Nigerian situation is worst. This is a country where no particular town or city can boast of twelve hours of constant electricity in a day. If this is true of most urban towns, what will the situation be in the rural areas? Government needs to address this infrastructural issue. The result of a related study carried out by Okunamiri (2007) shows that the educational institutions sampled for the study had inadequate number of computers. The computers available were not in use because of non- availability of electricity. Okunamiri (2007) wonders how the graduates of these institutions would cope in the labour market without the knowledge of computer which is basic to effective performance on the job.

On the problem of slow broadband or band width, and high charges for internet access, Jegede (2009) supports the results of this study by drawing inference between the developed countries and the developing countries which include

Nigeria. From his report the United States of America with a population of 305 million people has 245 million of them or 80.5% having easy access to internet. China has a population of 1330 millions, out of which 266 millions or 20.9% have internet access. India with a population of 1150 millions has 179 million people or 15.6% having internet access. United Kingdom has a population of 61 million people out of which 46 million or 75.2% has internet access. Brazil with a population of 191 million people has 29 millions or 15.3 of them having internet access.

But Nigeria, the giant of Africa, with a population of 140 millions has only 13 million people or 9.0% having access to internet. Jegede (2009) agrees that band width is slow and continues to be priced out of the reach of our poor nations, organizations and individuals, including the ODL students, thus stifling the growth and uptake of technology for educational purposes.

The research hypothesis, that there is no significant difference between the observed and the expected computer literacy level of the ODL students in Lagos was rejected based on the fact that the chi- square calculated is greater than the chi- square on the table. This means that there is significant difference between the observed and the expected. From this result, it means that much more efforts should be made to encourage the students to be computer literate so as to benefit meaningfully in the ODL situation. The expectation was that majority of the students in ODL should have their own computers and of course should be computer literate. With the introduction of e- examination, the implication is that those who do not have computers and are not computer literate will require the services of cybercafés or the business centres. This will automatically increase the cost and bring about other challenges, such as abuse, authenticity and validity of the examination results.

CONCLUSION

Based on the result of this study, it is obvious that there is a deep digital divide between the ODL students in Lagos State. Many more students than the expected are not computer literate and are therefore not ready for the e- examinations. The recommendations therefore are:

> ➢ The government should liberalize and subsidize the importation of computers to make them available and affordable to the students.
> ➢ Computer literacy studies should be introduced at the general studies level in order to make every student of ODL computer literate.
> ➢ Government should as a matter of policy, make the generation of regular electricity its priority.

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