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## AN ANALYSIS OF COMPUTER LITERACY LEVELS AMONG PRE-SERVICE TEACHERS IN THE UNIVERSITY OF IBADAN OPEN DISTANCE LEARNING (ODL) PROGRAMME

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### ABSTRACT

*Teacher certification is a core concern for educational planners and employers of labour in Nigeria with the adoption of the National policy on education in 1981 that made the Nigeria Certificate in Education (NCE), least teaching qualification. Employers have sought ways of improving teacher qualifications while planners have sought ways of increasing teacher production to meet rising demands. Distance education adopted by the University of Ibadan utilizes Information Communication Technology (Computers, laptops, smartphones and the internet). Distance education adopts high computer literacy skills to ensure students competence in their studies. This paper investigated computer literacy levels among pre-service teachers in the University of Ibadan ODL using the survey research design. The study population consisted of students in the 8 Departments of the Faculty of Education involved in the ODL using the disproportionate stratified random sampling technique to select 500 respondents. A researcher developed instrument 'Pre-service Teachers Computer Literacy Level Assessment Questionnaire (PTCLLAQ  $r=0.85$ ) was adopted for the study. Findings indicated that a significant positive relationship  $r=0.025$ ;  $p<0.05$  existed between computer literacy level and ODL programme at the University hence the study recommended that the centre should find ways to sustain the current trend.*

**Key words:** Computer Literacy, Pre-service Teachers, Open Distance Learning

### INTRODUCTION

Distance education has become popular than it used to be due to several reasons and it is worth noting that the popularity of distance education has continued to gain prominence as the days go by. Reasons for the growing popularity of the Open Distance Learning mode according to Okunade (2012) and Ajadi (2012) include the fact that this mode of instruction does not preclude its recipient from engaging in other ventures and in a simple language it involves studying and working as well. Again, its method of lesson delivery is not traditional as the conventional face to face type but has broken down boundaries, middle walls and now uses technology as the internet hence no matter the distance, students can always key into the resources of those institutions that provide this type of education.

In another study on distance education, Emunemu, Isah and Isuku (2014), found that in the Southwestern part of Nigeria, only very few institutions are accredited by the National Universities Commission (NUC) to provide distance education and these few institutions includes the Universities of Ibadan, Lagos, Obafemi Awolowo University and National Open University of Nigeria (NOUN). Reasons for the NUC accrediting Distance education are not far-fetched. A major single reason is to sustain quality assurance and its control of the programme.

With the introduction of information and communication technology (ICT) into distance education, its reach can be imagined. It simply implies that student's location can no longer be a barrier to access to available instruction. Teacher and students locations are no longer factors to be

considered in providing education. Again, in institutions providing distance education, core facilities are required. A visit to the recently established University of Ibadan Unit shows that the institution has available and has in its control well over 6,000 computers including a server and a retinue of staff that provides its numerous students worldwide courses of instruction 24hr daily online through blogs etc.

In the study of Emunemu et al (2014), ICT equipment commonly used by students were identified to include but not limited to; internet enable mobile telephones, telephones, internet enabled computers, digital cameras, video phones, scanners, radio, television, interactive multimedia computer programs and audio-visual aids. In recent times, new equipment that allow interactions have been added and these include; Whatsapp, blogs and other Apps under the Social Network Media.

From the foregoing, it can be inferred that much studies have been carried out on the possibilities inherent in the adoption of Distance Education and the use of ICT but how students utilize these facilities is yet to be fully explored hence this area is being explored. Over the years, there have been many arguments by scholars on several aspects of the ICT utilization locally and internationally. Specifically, Hergitai (2006), in the USA carried a research to find out to what extent of significance gender plays as a factor in the discuss on the ICT divide as some scholars opined that gender played a prominent role in the ability to utilize ICT equipment. The study found no significant relationship between gender and the utilization of ICT equipment. In another study, Isah (2012), tried to find out if there was any significant relationship between ownership of ICT equipment and utilization of the same among Nigerian university lecturers and students. The study found out that a significant relationship existed between ownership of ICT equipment and its utilization.

The Nigerian national policy on education (FRN, 2004), emphasized the importance of teacher education stressing that no nation can grow beyond the capacity of its teachers and in essence emphasized the need to train and retrain teachers especially on skills which are considered novel or relevant to new education pedagogies worldwide. Among new skills emerging in the 21<sup>st</sup> century is the ICT. New or complying teacher education institutions are beginning to take the inclusion of ICT in pre-service teacher's curriculum very important as recommended in Isah (2014). The Distance learning centre of the University of

Ibadan has in the last three decades been involved in high profile teacher production for Nigeria with its collaboration with the faculty of Education of the same University. In this regard, it has become pertinent to stress that the University of Ibadan Distance Learning Center (UIDLC) is involved in high level technical manpower production (Akangbou, 1985) in education for the nation and such its capacity, possibilities and prospects cannot go out of the purview of scholars. The essence of good teacher production and equipment was the subject in Isah (2009). In that study, it was observed that the social status of teachers made it impossible for pre-service teachers to appreciate their roles in social engineering. The study drew perceptions from South Africa and Nigeria. In another survey by Adewuyi (2003), it was observed that pre-service teachers did not love their profession. 59% of the selected sample indicated that they were in the profession as there was no other placetheir certificates could place. For the foregoing reasons, it is not out of place to equip pre-service teachers with the pedagogy required in the 21<sup>st</sup> century for effectiveness with service delivery that involves ICT. If this is so, to what extent are such pre-service teachers computer literate? This could form the basis of this study.

Why must pre-service teachers be computer literate in the 21<sup>st</sup> century? ICT has changed the way things are done especially with teaching and learning and the use of e-learning, e-library etc. The way things are done is not unconnected with the adoption of the internet in most activities hence service delivery is now at the speed of light (Electronic) in nano-seconds (Isah and Suleiman, 2016). Edesson (1997), explained that students and teachers that have access to ICT and are proficient on the utilization of the internet will definitely get more information than any other person on any subject hence while the distance learning gets pre-service teachers engage in on-line activities, it is also exposing them to renewable information on their area of specialization world-wide and from the perception of this study, in no distance time, instead of sending teachers to workshops and seminars organized by local ministries of education, local ministries will require that such teachers search for relevant workshops which will be paid for locally and they attend such workshop or conferences virtually.

Aduwa-Ogieagben and Iyamu (2005), explained that there was difference among scholars on what computer literacy entailed. While some scholars saw computer literacy as ability to use basic items on the computer, the others saw it in functional terms which involved ability to

efficiently use the computer. Among basic items expected include; knowledge of basic issues such as initializing the computer, search engines, identification of icons on your system while functional literacy transcends into the use of applications and from there to the use of the internet in operations. It is expected that one with functional literacy should be able to use such items as word processor, spread sheets, graphics, internet and browsers etc. To this end, Adekunle (2005) agreed that the term computer literacy is very broad and from this perception, the University of Ibadan Distant Learning Centre (UIDLC), is interested in both basic and functional literacy for its pre-service teachers. Since the outreach of the UIDLC could far outweigh the reach of our tradition/conventional educational universities, a study of this nature become extremely imperative to ascertain quality assurance and control, investigate the extent of knowledge of our pre-service teachers on the use of modern pedagogical skills and the ICT and further find out if any relationship could exist between computer literacy levels and ICT utilization among pre-service teachers. Such a study will assist us in projecting the future and determining the sustainability of the venture in terms of investments.

It cannot be over emphasized that a study of this nature is extremely important to educational planners and policy makers in that it will serve as an eye opener and further enable proper channelization of resources.

#### STATEMENT OF THE PROBLEM

The teaching profession has been accepted by scholars in all works of life as the most important in all professions knowing that it is the fore runner of all other professions but attitudes of providers and recipients have gone a long way in denigrating the profession despite its potentials. Another major problem is the production of teachers to meet the ever rising world population and consequent demand for teachers across the world. The emergence of the Distance Education has come to the rescue as it becomes impossible to provide enough classrooms and teachers to provide this all important venture. It is established that modern ODL thrives on ICT. ICT replaces the classroom teacher and guarantees continuous interaction between teacher and learner. The University of Ibadan has keyed into this concept to provide teachers for the world. However, with the problem of the internet and ICT in Nigeria, it becomes questionable to find out how efficient this programme is running especially in the area of quality assurance hence this study investigate the

levels of computer literacy of pre-service teachers in the University of Ibadan Open Distance Learning (ODL) programme. Inability to use the ICT or being a computer illiterate at this time will defeat the essence of teacher production and the huge cost which the university has incurred in trying to make teachers available. The findings of this research will be extremely useful to policy makers and potential investors in ICT equipment in Nigeria and beyond.

#### RESEARCH QUESTIONS

The following research questions have been formulated to guide this study;

1. What is the computer literacy level of pre-service teachers in the university of Ibadan Open Distance Learning programme?
2. What is the attitude to ICT for academic studies among pre-service teachers at the University of Ibadan Open Distance Learning programme?
3. Which ICT equipment is most commonly used by pre-service teaches in their studies in the University of Ibadan Open Distance Learning programme?
4. Which other routine activities do pre-service teachers at the University of Ibadan Open Distant Learning Centre engage in using ICT to display prowess and expertise in ICT utilization?

#### Hypothesis

- 1: There is no significant difference in computer literacy level and ICT utilization among pre-service teachers in the University of Ibadan Open Distant Learning programme

#### METHODOLOGY

This study is adopting the descriptive survey research design of the 'ex post facto' type as the researcher does not have the power to manipulate the variables. Students to be used are already on the programme and such will be interviewed on issues that have occurred. The population for the study consist of all eight departments in the faculty of education currently involved in the ODL programme at the University of Ibadan. Students have been purposively selected from the Departments of Social works, Adult, Teacher, Guidance and Couselling, Special, Management, Health and Library studies. All students in this category as they progress towards fulfillment of the requirements for a Bachelors in Education degree are referred to as pre-service teachers. 50 students have been randomly selected from each department giving a total of 400 respondents in all.

A researcher developed instrument titled 'Pre-service Teachers Computer Literacy

Questionnaire' (PTCLQ:  $r=0.085$ ) which utilized the Guttman Split-Half Coefficient was used to establish its reliability using similar subjects outside the original respondents. The face and content validity was established through colleagues and the Department of Educational Management of the University of Ibadan and experts in test construction from the Institute of Education of the same University of Ibadan. The responses were constructed using the Likert scale type of 1-4.

The research was guided by 4 research questions and 1 hypothesis. The research questions were answered using simple descriptive statistics and the hypothesis was tested using the t-test statistic for difference.

**Table 1:** Computer Literacy level of pre-service teachers at the University of Ibadan ODL programme

S/N	Test Items	Strongly Agree	Agree	Disagree	Strongly Disagree	No Response	Mean	Standard Deviation	Remarks
1.	Microsoft excel is not used for word processing	52 (14)%	23 (6.2)%	156 (42)%	133 (35.8)%	-	1.9	0.5	Low
2.	Ctrl+P is not used for saving documents	148 (39.9)%	81 (21.8)%	84 (22.6)%	43 (11.6)%	15(4)	2.9	0.71	High
3.	A keyboard is used for typing documents	191(51.5)%	157 (42.3)%	16 (4.3)%	-	7 (1.9)%	3.5	0.88	Very High
4.	Ctrl+B is used to type bold text	165(44.5)%	183 (49.3)%	8 (2.2)%	-	15(4)	3.4	0.85	Very High
5.	A browser is used to access the world wide web (www)	222 (59.9)%	135 (36.1)%	8 (2.2)%	-	7 (1.9)	3.6	0.90	Very High
6.	A monitor is a hardware	172 (46.4)%	161 (43.5)%	31 (8.4)%	-	7 (1.9)	3.4	0.85	Very High
7.	Google is a search engine	189 (50.9)%	175 (47.2)%	-	-	7 (1.9)	3.5	0.87	Very High
8.	An Operating system (OS) is a software	146 (39.4)%	210 (56.6)%	8 (2.2)%	-	7 (1.9)	3.4	0.85	Very High
9.	A scanner is an input Device	140 (37.7)%	187 (50.4)%	30 (8.1)%	7 (1.9)%	7 (1.9)	3.3	0.83	Very High
10.	A short cut way on the key board for cut is CTRL X	170 (45.8)%	141 (38)%	7 (1.9)%	23 (6.2)%	30 (8.1)	3.3	0.83	Very High
11.	Microsoft Excel is a tool for numeric operations	167 (45)%	181 (48.8)%	8 (2.2)%	8 (2.2)%	7 (1.9)	3.3	0.83	Very High
12.	Microsoft power-point is a tool used for classroom presentations	139 (37.5)%	172 (46.4)%	37 (10)%	8 (2.2)%	15 (4)%	3.3	0.83	Very High

**Note:** Mean 0-2.0 =low, 2.5 = average, 2.6-2.9 =high while 3.0 – 4.0 = Very High

### Research Question 2

What is the attitude to ICT for academic studies among pre-service teachers at the University of Ibadan Open Distance Learning programme?

## Results

### Research Question 1

What is the computer literacy level of pre-service teachers in the university of Ibadan Open Distance Learning programme?

This research question will reveal the extent to which pre-service teachers understand the concept and operations of a computer and the extent they can operate unaided on the computer system and the internet.

### Explanations

The research question is designed to see the attitudes of pre-service teachers in the utilization of ICT in their studies hence these questions were presented to the candidates.

**Table 2:** Pre-service Teachers ICT attitudes for studies

S/N	Test Items	Strongly Agree	Agree	Disagree	Strongly Disagree	No Response	Mean	Std Deviation	Remarks
1.	I enjoy using the computer in my studies	227 (61.2)%	120 (32.3)%	24 (6.5)%	-	-	3.5	0.09	+ve
2.	I can operate the computer on my own	169 (45.6)%	172 (46.4)%	30 (8.1)%	-	-	3.4	0.85	+ve
3.	I prefer doing my assignments on computer	80 (21.6)%	171 (46.1)%	82 (22.1)%	23 (6.2)%	15 (4)%	2.9	0.73	+ve
4.	I now do my class work with computer	36 (9.7)%	73 (19.7)%	158 (42.6)%	96 (25.9)%	8 (2.2)%	1.1	0.28	-ve
5.	Using ICT has launched me into new teaching and learning environments	150 (40.4)%	197 (53.1)%	16 (4.3)%	51 (13.7)%	-	3.2	0.8	+ve
6.	ICT deployment has greatly assisted me in personal studies hence I keyed into it fully	242 (65.2)%	114 (30.7)%	8 (2.2)%	7 (1.9)%	-	3.6	0.9	+ve
7.	I observed that the more I use ICT, the more I became proficient in its use.	206 (55.5)%	142 (38.3)%	23 (6.2)%	-	-	3.4	0.9	+ve
8.	I feel confident that at this rate, I will be able to keep pace with ICT deployment and utilization after training elapses	199 (53.6)%	156 (42)%	16 (4.3)%	-	-	3.5	0.9	+ve
9.	I have observed that with my present skills, I can present materials better than when I use a Cyber café or business centre for work	129 (34.8)%	234 (63.1)%	8 (2.2)%	-	-	3.3	0.8	+ve

Note: Mean (0-2) =Low and -ve while 2-4 =High and +ve

### Research Question 3

Which ICT equipment is most commonly used by pre-service teachers in their studies in the University of Ibadan Open Distance Learning programme?

### Explanation

This question actually seeks to test on-line, ICT skill acquisition and utilization by pre-service teachers at the UIODL. The following test items generated the responses below

**Table 3:** ICT Utilization by Pre-service Teachers in UIODL Programme

S/N	Test Items	Very often	Often	Rarely	I don't Know	No response	Mean	Standard Deviation	Remark	Rank
1.	Desktop computer	103 (27.8)%	186 (50.1)%	75 (20.2)%	-	7 (1.9)%	3.1	0.8	Great Extent	4
2.	Internet	175 (47.1)%	159 (42.2)%	22 (5.9)%	8 (2.2)%	7 (1.9)%	3.4	0.9	Very Great Extent	2
3.	Laptop computer	182 (49.1)%	136 (36.7)%	15 (4)%	31 (8.4)%	7 (1.9)%	3.3	0.8	Great Extent	3
4.	Printers	139 (37.5)%	89 (24)%	44 (11.9)%	84 (22.6)%	-	3.5	0.9	Very Great Extent	1
5.	Projector	37 (10)%	66 (17.8)%	88 (23.7)%	173 (46.6)%	7 (1.9)%	1.9	0.5	Low Extent	6
6.	Digital Satellite TV	28 (7.5)%	60 (16.2)%	172 (46.4)%	104 (28)%	7 (1.9)%	2.0	0.5	Low Extent	5

Note: Mean from 0-2.0 = Low extent, 2.1-2.5=Average, 2.5-2.9=Great Extent, 3.0-4.0=Very Great Extent

**Research Question 4**

Which other routine activities do pre-service teachers at the University of Ibadan Open Distant

Learning Centre engage in using ICT to display prowess and expertise in ICT utilization?

**Table 4:** ICT Utilization confidence by UIDLC Pre-service teacher in ODL

S/N	Items	Strongly Agree	Agree	Disagree	Strongly Disagree	No Response	Mean	Std Dev	Remark	Rank
1.	Assignments	148 (39.9)%	200 (53.9)%	74 (19.9)%	-	15 (4)%	3.4	0.8	Very Often	2
2.	Research	214 (57.7)%	127 (34.3)%	15 (4)%	-	15 (4)%	3.6	0.9	Very Often	1
3.	emails	162 (43.7)%	179 (48.2)%	8(2.2)%	-	22 (5.9)%	3.4	0.8	Very Often	3
4.	Presentations	139 (37.5)%	128 (34.5)%	74 (19.9)%	-	15 (4)%	3.6	0.9	Very Often	1
5.	Playing Games	86 (23.2)%	69 (18.6)%	134 (36.1)%	60 (16.2)%	22 (5.9)%	2.5	0.6	Often	4

**Note:** Mean from 0-2.0 = Not Often, 2.1-2.4=Rarely, 2.5-2.9=Often, 3.0-4.0=Very Often

**Hypotheses**

**H<sub>01</sub>:** There is no significant difference in computer literacy level and ICT utilization among pre-service teachers in the University of Ibadan Open Distant Learning programme

**Table 5:** Relationship between Computer Literacy level and ICT Utilization among UIDLC Pre-service Teachers

Variables	Items	Mean	Standard Deviation	r	p	Remarks
Computer Literacy Levels	341	46.82	7.84	0.123	0.026	significant
Utilization of ICT	334	16.66	4.74			

$p < 0.05$  level of significance

**DISCUSSION OF FINDINGS**

The following findings were observed

**Computer Literacy Levels of Pre-service Teacher in UIDLC ODL Programme**

Table 1 showed that the level of computer literacy among ODL students is very high because out of 12 test items listed for respondents, only 1 scored low while 1 also scored high. All other 10 test items scored very high. The test items were technically selected to show how proficient the pre-service teachers were in using computer applications. The results in Table 1 indicated that most teachers were very highly literate. Reasons for these were not far-fetched. They include the fact that without the acquisition of such skills, students will not be able to perform any operation

and could drop out of the programme as students continuous assessment and examinations are done using computer based testing (CBT). The importance of the finding corroborates with Emunemu et al (2014) in which study among southwest Nigeria Universities using ODL found that most of the students were working hard towards proficiency in the use of ICT. From this study, it is clear that pre-service teachers in the UIDLC-ODL programme can use word processing, spread sheets, browsers, search engines etc. The future for education and teachers who pass through the UI-ODL programme in the light of Nigeria's new education policy on ICT is bright.

**ICT Skill Acquisition and Utilization**

The study revealed that ICT skill acquisition is also very high. In the study by Emunemu et al



(2014), it was observed that ODL students generally were more conversant with the use of smartphones which was explained as being handy in terms of size, access to internet service providers etc. Isah and Fabunmi (2011), observed that generally, ownership of computer systems was quite expensive among University teachers and lecturers. However, a new wave of smartphones such as Techno, Microsoft etc which makes computer applications available to users appear to have aided skill acquisition and availability of ICT applications hence the high indicators. The future of this noble work being carried out by the UIDLC is futuristic as the sole hypothesis indicated that a significant relationship existed between computer literacy among UIDLC pre-service teachers and the utilization of ICT equipment. Attitudes of the pre-service teachers to ICT which is quite commendable agrees with previous studies which agree that a person's attitude towards computer anxiety and comfort could determine his/her ability to utilize same (Bandalos & Benson, 1990; Dick & Smither, 1999) and Brosnam and Lee (1998).

#### **Educational Policy Implications for Educational Management**

The following policy implications are here with identified by this study

1. The UIDLC has opened a door that will for a long time be very useful as it is clear from research that teachers trained in UIODL programme acquire more than basic education in their area of specialization as it includes skills acquisition and utilization in ICT.
2. Policy makers should make a point of duty to encourage other organizations to under study the UIDLC to apply these laudable strides in their programmes and those who have not done so to do same.
3. Teachers trained in the UIODL will be useful to their employers in other endeavors.

#### **CONCLUSION**

This study examined computer literacy levels among University of Ibadan pre-service teachers in the ODL programme with the objective of finding out if the would be teachers are proficient in the adoption of ICT in their studies. The objective was vigorously pursued using pre-service teachers in the Faculty of Education of the University involved in ODL. The results indicated a high level of compliance and compatibility with ICT worth emulating by similar institutions.

#### **RECOMMENDATIONS**

The following recommendations are herewith presented to the University and other stakeholders interested in ODL.

1. The UIDLC is advised by this author to continue the computer proficiency programme for all students.
2. The CBT platform should be used along with other platforms but should not be discarded
3. The Smartphone (Tablets) which was purchased for students went a long way in assisting students to be ICT-literate. It is advised that this should be sustained.
4. Quality assurance in admission criteria should also be sustained.
5. There should be improved training for staff and facilitators

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