ASSESSMENT OF ICT LITERACY NEEDS AND COMPETENCY LEVEL OF PRE-SERVICE TEACHERS IN UNIVERSITY OF LAGOS

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Abstract

The National Policy on Education has emphasized the use of Information and Communication Technology (ICT) for effective teaching and learning in schools. Therefore, in preparing teachers, there is the need for a certain level of literacy and competency in the use of ICT facilities for teaching and learning, which calls for this study on ICT literacy needs and competency level of pre-service teachers. The study is a descriptive study using the cross-sectional survey method. The study sample was drawn from pre-service teachers of faculty of education, university of Lagos. A total of 375 respondents were randomly selected for the study from a total of 1150 student in 300 Level who had successfully taken a prerequisite course which is ICT related. Two research questions were raised and answered. Mean was used to answer the research questions one and two. The study concluded that Pre-service teachers are literate and competent in the use of ICT tools to access, manage, integrate, evaluate, and create information needed in their field of study. More so, Pre-service teachers in University of Lagos have the ability of basic computer operations to startup/boot a computer and ability of making use of the internet to search for relevant information. The study recommends that school authorities should lay more emphases on the use of learning platform supports to learning in higher institutions which will also assist the pre-service teachers to be relevant in their chosen profession. Lecturers should also blend the use of ICT along with their methodology of teaching.

Keywords: Pre-service teachers, ICT, Literacy Needs, Competency

Introduction

Technology-enhanced instructional approaches are gradually taking the center stage in the drive to pervade student-centered instructions within the educational setting. Schools in Nigeria are gradually moving away from the conventional methods of teaching and learning to a more controlled environment that is learner centered and make teachers a facilitator with the integration of technology. In the recent years, emerging technologies are transfusing, enriching and facilitating teaching and learning with Information and Communication Technology (ICT). Information and communication technology (ICT) refer to technological tools and resources which are employed to communicate, create, disseminate and manage information (Nordin, Hamzah, Yunus & Embi, 2010). It is the range of technologies that are applied in the process of collecting, storing, editing, retrieving, and transfer of information in various forms (Olakulehin, 2007). It is a computer based tool used by people to work with information and communication processing needs of an organization (Yusuf & Balogun, 2011). ICT is often perceived as a catalyst for change, change in teaching styles, and change in learning approaches and in access to information (Watson, 2005).

The Federal Ministry of Education, Nigeria (2010) defines ICT as encompassing all equipment and tools (inclusive of traditional technologies of radio, video, and television to the newer technologies of computers, hardware, firm-ware and others as well as the methods, practices, processes, procedures, concepts, and principles that come into play in the conduct of the information and communication activities. The United Nations Educational, Scientific and Cultural Organization (UNESCO, 2013) stated that ICT can contribute to universal access to education, equity in education, the delivery of quality learning and teaching, teachers' professional development, efficient management, governance and administration. ICT as a tool of development affects every aspect of human activities because ICT is concerned with the knowledge, skills, tools and systems for locating facts, developing ideas, receiving and giving information as well as for modifying communication strategies. The use of ICT tools depends on the literacy level of individual.

The International ICT Literacy Panel (2001) defines ICT literacy as using digital technology, communications tools, and/or networks to access, manage, integrate, evaluate, and create information to function in a knowledge society. This definition is so important in that it lists five critical components of ICT literacy. The five components represent a set of skills and knowledge presented in a sequence that suggests increasing cognitive complexity. The kinds of tasks represented by each component are defined as access **(**knowing about and knowing how to collect and/or retrieve information), manage **(**applying an existing organizational or classification scheme), integrate **(**interpreting and representing information); evaluate **(**making judgments about the quality, relevance, usefulness, or efficiency of information), create **(**generating information by adapting, applying, and designing, inventing, or authoring information). According to the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA, 2005), ICT literacy is the ability of individuals to use information and communication technology appropriately to access, manage, integrate and evaluate information, develop new understandings, and communicates with others to participate effectively in society. The purpose of teaching and learning is to deliver a common experience to ensure that learners acquire skills, knowledge, and the ability to think critically and to identify interdisciplinary relationships. One of the goals of educational institutions is to make sure that graduates are information literate who can identify, locate and evaluate relevant information to satisfy their information needs (Oliver, 2002). The competency level in the use of Information and Communication Technology (ICT) determines how confidently an individual can perform faster in an operation.

Competency is the capability to apply or use a set of related knowledge, skills, and abilities required to successfully perform critical work functions or tasks in a defined work setting (Dave, 2010). Competency serve as the basis for skill standards that specify the level of knowledge, skills, and abilities required for success in the workplace as well as a potential measurement criterion for assessing competency attainment (Dave, 2010). Competency is a set of attributes covering knowledge, skills and attitudes for enabling one to effectively perform the activities of a given occupation or function to the standards expected in employment. Competency is the ability to combine and apply relevant attributes to tasks situations (Danner & Pessu, 2013). These attributes include high levels of knowledge, values, skill, personal dispositions, sensitivities and capabilities, and the ability to put those combinations into practice in an appropriate way.

ICT competency describes what a teacher should be able to do with technology in professional practice. The major ICT competencies required by teachers include competency in making personal use of ICT; mastery of a range of educational paradigms that make use of ICT; competency in making use of ICT as minds tools; competency in using ICT as tool for teaching, competency in mastering a range of assessment patterns which involves use of ICT; and competency in understanding the policy dimensions of the use of ICT for teaching and learning (Kirschner & Woperies, 2003). Pre-service teacher education should focus on the need for student-teachers to have ICT skills for their own use in the preparation of materials for teaching and learning activities; the need to facilitate the direct use of ICT in students' learning activities within the classroom situation; and the need for teachers to develop in their students a critical awareness of ICT applications and the social implications.

ICT is an innovation which can transform or bringing about drastic changes in our educational system which serves as the basic determinant of the future of pre-service teachers. One of the reforms needed in teacher education in Nigeria is in teacher ICT competencies. It will be very difficult for Nigeria to be among the countries of the world in enjoying the enormous benefits of ICT if the teachers who are supposed to develop and implement strategies for developing ICT competencies of the learners are not able to develop their own ICT competencies. Nigeria needs a new caliber of ICT literate teachers who can move the country to a knowledge society (Lilian & Eyiuche, 2007). This emphasizes the need to improve the ICT contents of teacher education programs in universities in developing nations (Yusuf & Balogun, 2011). Hence this study attempts to determine ICT literacy needs and competency level of pre-service teachers in University of Lagos.

Research Questions

1. What are the ICT literacy needs of pre-service teachers in University of Lagos?
2. What is the ICT competency level of pre-service teachers in University of Lagos?

Methodology

The study is a descriptive study using the cross-sectional survey method. The study sample was drawn from pre-service teachers of faculty of education, university of Lagos. A total of 375 respondents were randomly selected for the study from total of 1150 students in 300L during the 2016/2017 academic session who had successfully taken a prerequisite course Introduction to Educational Technology and ICT. A researcher designed questionnaire was used to collect data for the study. Two research questions were raised and answered. Mean score was used to answer the research questions one and two. Data collected were analyzed using mean. A bench mark of 2.5 was used for the mean rating.

Results

Research Question 1:

What are the ICT literacy needs of pre-service teachers in University of Lagos?

Table 1:
Pre-Service Teachers ICT Literacy Needs

SN	Item	Mean
1	gathering of appropriate learning resources	3.48
2	gather learning resource that are cost effective	3.06
3	organizing resource that are useful for learning	3.39
4	surfing the internet for information that are relevant to my field of study	3.34
5	have detail knowledge of search engines for surfing the internet	3.29
6	can select classified information that allows for learning	3.24
7	manage and construct classified information for learning	3.14
8	integration and recall information to meet my learning need	3.33
9	recognize and treat information for learning appropriately	3.24
10	follow security procedures when surfing through the internet	3.28
11	identify resources that meet all or nearly all the criteria	3.14
12	select resources that meet all or nearly all the criteria	3.15
13	recognize legal and ethical rights of information use	3.24
14	respect legal and ethical rights of information use	3.18

Table 1 reveals the need for pre-service teachers to be literate in using ICT tools for gathering of appropriate learning resources with a mean score of 3.48 organizing resource that are useful for learning (3.39), surfing the internet for information that are relevant to my field of study (3.34), integration and recall of information to meet anticipated need (3.33), have detail knowledge of search engines for surfing

the internet (3.29), recognize and follow security procedures when surfing through the internet (3.28) and establish criteria for judging the suitability of information relevant to my learning (3.28) respectively. The lowest mean score was 3.06 with the statement that pre-service teachers need to be literate in using ICT tools to select information resource that are cost effective for learning. It can therefore, be deduced that pre-service teachers need to gather appropriate learning resources, have detail knowledge of search engines for surfing the internet among others.

Research Question 2:

What is the ICT competency level of pre-service teachers in University of Lagos?

Table 2:

Pre-Service Teachers ICT Competency Level

SN	Item	Mean
A	Basic Computer Operations	
1	connect the computer system and its peripherals	3.41
2	startup/boot a computer	3.60
3	type fast on the keyboard without errors	3.85
4	locate and run an application package e.g. Microsoft Word, CorelDraw.	3.13
5	install a new application package	3.13
6	copy files from external storage (e.g. flash drive) effectively	3.33
7	organize document into folder	3.32
8	open a new document in a Microsoft Word	3.48
9	use simple editing skills e.g. justify, centralize, bold, and italic	3.42
10	use Microsoft excel package effectively	2.98
11	enter data and do simple calculation Microsoft excel	2.84
12	create a basic presentation package	2.85
13	import music, picture and time my presentation	3.19
14	search for relevant information via the search engines	3.49
15	download files from the internet	3.43
16	take pictures of my surrounding and upload it to the internet	3.32
17	send and receive messages through electronic mailing system e.g. Yahoo mail, Google mail, etc.	3.43
	Grand Mean (X)	3.24

From table 2 above, it could be noted that pre-service teachers have the ability of basic computer operations to startup/boot a computer which has the highest mean of 3.60 out of 4. This was followed by the ability of pre-service teachers to search for relevant information via the search engines (3.49), open a new document in a Microsoft Word (3.48), download files from the internet (3.43), send and receive messages through electronic mailing system e.g. Yahoo mail, Google mail, etc. (3.43), use simple editing skills e.g. justify, centralize, bold, and italic (3.42) and connect the computer system and its peripherals (3.41) respectively. It was revealed that pre-service teachers have challenges in entering data and doing simple calculation in Microsoft excel which has the lowest mean score 2.84. The grand mean score for ICT competency level of pre-service teachers was found to be 3.24. From the analysis done, the pre-service teachers are competent in the use of ICT for instruction, however, there is still room for improvement as modern ICT tools come into existence every day.

Discussion

This research studied the ICT literacy needs and competency level of pre-service teachers in the University of Lagos, Lagos state. The result obtained from data gathered and analyzed in this study indicated that pre-service teachers needs to be literate in using ICT tools to access, manage, integrate, evaluate, and create information. Spurlin (2007), Angadi, (2012) concluded that teachers' competency on

the use of ICT for teaching revealed that their literacy level is low and so teachers require to be literate in the use of ICT.

The report of Silica (2005) also support this study with the opinion that teachers' literacy need has to do with their ability to recognize needed ICT skills and ability to locate, access, evaluate and use information. More so, the literacy need deals with the ability to use computer database, word processing and presentation software in creating, storing, managing and presentation of information. The study also discovered that pre-service teachers have the ability of basic computer operations to open a new document in a Microsoft Word, use simple editing skills e.g. justify, centralize, bold, and italic, connect the computer system and its peripherals and ability of making use of the internet to search for relevant information via the search engines, download files from the internet, send and receive messages through electronic mailing system e.g. Yahoo mail, Google mail, etc. However, pre-service teachers have challenges in entering data and doing simple calculation in Microsoft excel. The report of this study also agrees with Mumtaz (2010) that competency level of the teacher is crucial in determining the successful integration of ICT in schools.

Conclusion

Teachers' competency toward the use and application of ICT in their educational practices depends on the teacher education and training. For teachers to use these technologies adequately, teachers not only need basic information and communication technologies (ICTs) skills and knowledge but they also need to know how to use them to improve their students learning.

Recommendations

Based on the findings of this study, it is recommended that school authorities should encourage the use of learning platform supports to learning in higher institutions. Lecturers should also blend the use of ICT along with their methodology of teaching. Government should give necessary supports to higher institutions on the procurement of ICT facilities to help pre-service teachers better in the world of ICT.

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