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Extent of utilization of computer aided instruction by adult learners in national Open University of Nigeria, Anambra State

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Abstract
The study explored the extent of utilization of computer aided instruction by adult learners in National Open University of Nigeria, Anambra State. Three research questions guided the study. The study adopted descriptive survey research design. The population of the study consisted of all the adult learners in National Open University of Nigeria, Anambra State study centre. The sample of the study consisted of 285 adult learners selected through purposive sampling technique. Questionnaire developed by the researchers and validated by two experts, one in the Department of Adult and Continuing Education and the other in the Department of Educational Foundation (Measurement and Evaluation Option), all from Nnamdi Azikiwe University, Awka, Anambra State, Nigeria was used for data collection. Data collected was analyzed with mean. The findings of the study include that learners use computer aided instruction to a low extent in NOUN study centre, Anambra State, the constraints experienced by learners in utilizing computer aided instruction methods in NOUN are poor power supply, lack of adequate skill, high cost of purchase of computer, among others. It was also found that stable power supply, training learners on the use of computer aided instruction, recruitment of skilled manpower by government, among others are the strategies for enhancing learners' use of computer aided instruction methods in NOUN study centre, Anambra State. Based on the findings of the study, it was recommended among others that government should make adequate provisions for different types of computer aided instruction tools for use in NOUN study centres.

Key words: extent of utilization, computer aided instruction, adult learners

Introduction

The challenge of providing educational opportunities for mature students and other people who are place bound brought about the concept of open and distance learning. According to Fagbamiye (2000), the challenge of the Nigerian higher education system to accommodate all those seeking university admission gave birth to open and distance learning which started with rapid results of College, Wesley Hall and Benneth College as correspondence institutions in the 1950s and 1960s. With respect to the above issue, National Open University of Nigeria (NOUN, 2008) observed that as far back as the early 1960s, there had been a rising commitment to strengthening the delivery system of education in Nigeria.

Furthermore, it noted that in the process of getting to the root of the education problems in Nigeria, it became clear to the federal government that the colonial education strategy which targeted only a few privileged people in selected regions of the country did not quite understand the need for a newly independent Nigeria. NOUN also stated that the government realized that there was the need to create opportunities for those who have received some form of formal education to update their knowledge and ultimately improve their productive capacity.

In the same vein, Osuji (2004) [18] noted that the Universities in Nigeria cannot admit up to 15% of the qualified JAMB applicants of over 1.5 million. Even so, the institutions are stretched in facilities and personnel. According to Terhemba (2007) [19], the year 1983 marked a turning point in the history of open and distance education in Nigeria. The University Act which subsists in the law of the Federation of Nigeria Volume xvii, consequently came into effect on July 22, 1983. Other events prior to this Act both singular and jointly became a watershed for the establishment of Open University. Furthermore, Terhemba observed that to shift from the mainstream campus-based education to self-learning mode, the National Policy on Education emphatically stressed that the education system would be structured to develop the practice of self-learning.

In addition, Ipaye (n.d) stated that the National Open University of Nigeria sprang from the ashes of the defunt National Open University, which was abruptly closed down by a military government in April, 1984, barely one year after its establishment. According to Aramide and Bolarinwa (2010) [3], the re-establishment of Open University in 2002 was sequel to the Open University establishment in 1983 by the former president Shehu Shagari in order to bring education closer to the people. According to the Federal Ministry of Education (2002), in the year 2000, after an international workshop co-hosted by the Commonwealth of Learning (COL) and the Nigerian Federal Government, the year 2001 – 2010 were declared a decade of open and distance learning in Nigeria. Thereafter, a time-line was drawn for series of activities and implementation strategies. One of the strategies was the resuscitation of the defunct Open University which in 2002 was renamed National Open University of Nigeria (NOUN).

Open and distance education can be seen as the mode of teaching in which learners are removed in time and space from the teacher.

It uses a variety of media and technologies to provide and improve access to good quality education for large number of learners wherever they may be. In the same vein, Adu, Eze, Salako and Nyangechi (2013) [1] defined open and distance education as a system of education characterized by physical separation between the teacher and the learners in which instructions is delivered through a variety of media, including print and other information and communication technologies to the learner who may either have missed or denied face-to-face formal education due to socio-economic, career, family and other circumstances. Furthermore, Jegede (2003) [13] saw open and distance education as education provided by a mode other than the conventional face-to-face method whose goals are similar to the noble and practical on-campus fulltime, face-to-face education.

The National Policy on Education (2004) stated that the concept of open and distance education should be all-inclusive contact, no contact and part-time education. It asserted that the goals of open and distance education in Nigeria are to: provide access to quality education and equity in educational opportunities for those who otherwise would have been denied; meet special needs of employers by mounting special certificate courses for their employees at their workplace; encourage internationalization, especially for tertiary education curricula; and ameliorate the effect of internal and external brain drain in tertiary institution by utilizing Nigerian experts as teachers regardless of their locations or places of work.

In other to achieve its goals, open and distance education must depend heavily on Computer Aided-Instruction (CAI). In line with this fact, Hedge and Hayward (2004) defined CAI as an interactive instructional technique whereby a computer is used to present the instructional material and monitor the learning that takes place. According to Bonk and Graham (2006) [4], CAI is a self-learning technique usually offline/online involving interaction of the learner which programmes instructional materials. CAI uses a combination of text, graphics, sound and video in enhancing the learning process. The computer has many purposes in the classroom and it can be utilized to help a learner in all areas of the curriculum. Computer programmes use tutorials, drill and practice, simulation and problem-solving approaches to present topics, and they test the learner's understanding. In addition, Computer Aided Instruction provides text or multimedia content; multiple choice questions; problems, immediate feedback; notes on incorrect response, summarizes learners' performance; exercises for practice; and worksheets and tests.

The contribution of CAI in open and distance education cannot be overemphasized. According to Bonk and Graham (2006) [4], CAI promotes one-to-one interaction; freedom to experiment with different options; instantaneous response/immediate feedback to the answers elicited, it allows learners to proceed at their own pace; enables tutor to devote more time to individual learners; help the shy and slow learner to learn; helps to learn difficult concepts through multi-sensory approach; and enables a learner to decide when, where and what to learn. In this, Jegede (2008) [14] observed that the National Open University of Nigeria dedicates itself to preparing professionals in various disciplines through the distance learning mode. It offers an individual a choice of qualification from certificate to degree and stand-alone in self-development courses through flexible delivery, allowing learners the convenience to choose time, place and what to study. NOUN (2004) also noted that the demand for higher education in Nigeria, therefore, predicated the revitalization of the NOUN which has the mandate to: ensure equity and equality of opportunities in education but specifically in university education; provide a wider access to education generally but specifically university education; enhance Education For All (EFA) and lifelong learning; enhance the entrenchment of a global culture, provide educational resources via an intensive use of information and communication technologies; provide flexible and qualitative education; and reduce the cost, inconvenience and hassles of education delivery.

In order to achieve their laudable objectives, NOUN uses blended learning. Blended learning is the learning system used in the National Open University of Nigeria. Blended learning is the combination of face-to-face teaching and online learning. The term blended learning refers to combining interest-based distance learning with face-to-face tuition. It is also used to describe combing offline ICT-based materials with more traditional materials, such as books, audiocassettes and videocassettes. According to Bonk and Graham (2006) [4], blended learning is learning system that combines face-to-face instruction with computer mediated instruction. Freisen (2012) noted that blended learning mostly involves combining internet and digital media with established classroom forms that require the physical presence of teacher and students. The author noted that blended learning can generally be classified into six models as follows: Face to face driver – where the teacher drives the instruction and augments with digital tools, Rotation - students cycles through a schedule of independent online study and face-to-face classroom time; Flex – Most of the curriculum is delivered via a digital platform and teachers are available for face-to-face consultation and support; Labs – The entire curriculum is delivered via a digital platform but in a consistent physical location. Students usually take traditional classes in this model as well; Self-Blend – Students choose to augment their traditional learning with online course work; and Online Driver – All curriculum and teaching is delivered via a digital platform and face-to-face meetings are scheduled or made available if necessary.

Three models of blended learning are practiced in NOUN and these are the face-to-face driver model, rotation model and self-blend model. Face-to-face driver is a blended learning model in which teachers deliver most of the curriculum. Teachers lead the class in a lecture following an established protocol taking precedence and technology being a secondary thought. However, they also produce online resources to supplement or revise course materials which students can study at home, in the classroom or in a technology laboratory. In the rotation model of blended learning, a student rotates on fixed schedule between learning online in a one-to-one, self-placed environment and sitting in a classroom with a traditional face-to-face teacher. The self-blend model is a fully individualized approach that allows students to choose to take one or more course online to supplement their traditional school's catalogue. Maximum part of the learning is done online, but the student will still attend face-to-face classes.

Unfortunately, the utilization of computer aided instruction by students in NOUN was to a low extent because they still don't have full access to computer in spite of the government provision of computers in education industry. It was observed that students still depend on conventional methods of learning instead of

complementing learning with technologies. Should it be attributed to inadequate computers in their learning centre or that they are not trained by their educators to utilize the computers. It is possible that if adequate strategies are employed, the issue of non-utilization will be reversed so that students become computer literate in this information age. The researchers, therefore, seek to determine the extent of utilization of computer aided instruction by adult learners in NOUN, Abagana Study Centre, Anambra State, Nigeria.

Purpose of the Study

The main purpose of this study was to determine the extent of utilization of Computer Aided Instruction by adult learners in National Open University of Nigeria, Anambra State's study centre. Specifically, the study sought to:

1. Find out the extent to which Computer Aided Instruction activities are utilized by learners in NOUN study centre, Anambra state.
2. Find out the constraints experienced by the learners in utilizing Computer Aided Instruction in NOUN study centre, Anambra State.
3. Find out strategies that could be used to enhance learners' use of Computer Aided Instruction in NOUN study Centre, Anambra State.

Research Questions

The following research questions guided the study:

1. To what extent are Computer Aided Instruction activities utilized by learners in NOUN study Centre, Anambra State?
2. What are the constraints experienced by learners in utilizing computer Aided Instruction in NOUN study Centre, Anambra State?
3. What strategies could be used to enhance learners' use of Computer Aided Instruction in NOUN study Centre, Anambra?

Materials and Methods

The descriptive survey design was adopted for this study. The population of the study comprised of all the auld learners/students in National Open University of Nigeria, Abagana Study Centre, Anambra State. The sample consisted of 285 adult learners selected through purposive sampling technique. A self-structured questionnaire titled "Extent of Utilization of Computer Aided Instruction Questionnaire (EUCAIQ) was used for data collection. The instrument was validated by two experts, one from the Department of Adult and Continuing Education and the other, who specialized in Measurement and Evaluation from the Department of Educational Foundations, all from Faculty of Education, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria. Comments and recommendations of the experts were effected in the final construction of the instruments by the researchers. The reliability coefficient of the instrument was ascertained using Cronbach Alpha and 0.76 was obtained and adjudged adequate for the study. The data collected was analyzed with mean. Decision rule was based on 4 – point numerical values on the response modes assigned: Very High Extent (VHE) -4 points, High Extent (HE) – 3 point, Low Extent (LE) – 2 points and Very Low Extent (VLE_ - 1 point for research question one. For research questions two and three, the same 4 points numerical values on different response modes were assigned: Strongly Agree (SA) – 4 points, Agree (A) – 3 points, Disagree (D) – 2 points and Strongly Disagree (SD) 1 point.A criterion mean of 2.5 was adopted.

This means that any mean score in research question one that is up to 2.5 and above was regarded as high extent while mean scores below 2.5 were regarded as low extent. Also, any mean score in research questions two and three that is up to 2.5 and above was regarded as agree while mean scores below 2.5 were regarded as disagree.

Results

Research Question One

To what extent are Computer Aided Instruction activities used by learners/students in NOUN study Centre, Anambra State?

Table 1: Mean scores of the respondents on the extent to which computer aided instruction activities are used in NOUN study Centre, Anambra State.

	Items	Mean	Decision
1	Drill and Practice	2.52	High Extent
2	Tutorial	2.60	High Extent
3	Problem Solving	1.87	Low Extent
4	Games	2.21	Low Extent
5	Simulations	2.34	Low Extent
6	Discovery	2.51	High Extent
	Grand Mean	2.34	Low Extent

The result in table one showed that items 1,2 and 6 were regarded by the respondents as high extent because their means scores were greater than the criterion mean of 2.50 while items 3,4 and 5, including grand mean were regarded by the respondents as low extent because their mean scores were lower than the criterion mean of 2.50. This showed that learners use computer aided instruction to a low extent in NOUN study centre, Anambra State.

Research Question Two

What are the constraints experienced by the learners/students in utilizing Computer Aided Instruction in NOUN study Centre, Anambra State?

Table 2: Mean scores of the respondents on the constraints experienced on their use of computer aided instruction in NOUN study Centre, Anambra State.

	Items	Mean	Decision
7	Poor power supply	3.52	Agree
8	Lack of adequate skill by learners to use computer resources	2.67	Agree
9	High cost of purchasing computers	3.34	Agree
10	Shortage of skilled manpower to maintain computer	2.75	Agree
11	Lack of adequate guide to learners on accessing computer	2.86	Agree
12	Poor attitude of learners towards self-learning	2.54	Agree
13	Inadequate supply of computers	2.83	Agree
	Grand Mean	2.93	Agree

Table 2 showed that all the items 7 – 13, including the grand mean were regarded by the respondents as agree because their mean scores were greater than the criterion mean of 2.50. This showed that all the items were the constrains experienced by the learners in NOUN study centre, Anambra State.

Research Question Three

What strategies could be used to enhance learners'/students' use of Computer Aided Instruction Methods in NOUN study Centre, Anambra State?

Table 3: Mean scores of the respondents on the strategies that could be used to enhance their use of Computer Aided Instruction in NOUN study Centre, Anambra State.

	Items	Mean	Decision
14	Stable power supply by power holding authority.	3.62	Agree
15	Training of learners on the use of computer aided instruction in their academic activities.	2.94	Agree
16	Making computer aided instruction affordable for learners.	3.01	Agree
17	Making computer literacy compulsory at all levels of education by government.	2.52	Agree
18	Recruitment of skilled manpower by government to maintain computer aided instruction.	2.87	Agree
19	Making provision for adequate computers by NOUN management	3.31	Agree
	Grand Mean	3.05	Agree

Table 3 showed that all the items 14 – 19, including the grand mean were regarded by the respondents as agree because their mean scores were greater than the criterion mean of 2.50. This showed that all the items were strategies that could be used to enhance their use of computer aided instruction in NOUN study centre, Anambra State.

Discussion

The result of research question one showed that computer aided instruction tools were used to a low extent in the study centre. The respondents agreed that computer aided instruction tools such as problem solving, games, simulation and discovery methods were used to a low extent in the study centre. This result agrees with the assertion of Wisdom and Dankaro (2012) that teacher/educators could not access ICT resources for instructional development purpose. This might be as a result of some challenges. The result was further supported by Damilola (2013) [15] who concluded that utilization of Computer Aided Instruction in National Open University of Nigeria was still at low level, may be as a result of the nation's poor growth in advanced technology. As a result of lack of political will of the leaders to alleviate the nation's educational problems through proper planning and implementation, the technical infrastructure in Nigeria is not highly developed. There are cases of malfunctioning computers and poor internet connectivity experienced by learners, especially during Computer-Based-Test (CBT) form of examination. The findings of research question two indicated that many factors affected effective use of computer aided instruction. The factors include, poor power supply, lack of adequate skills to use computer aided instruction, high cost of purchase of computer aided instruction materials, shortage of adequate guide to learners and inadequate access to computer aided instruction. This is in agreement with Hennessey, Harison and Wamakote (2010) [11] who pointed out that one of the barriers to ICT use by teachers in the Sub-Saharan Africa range from physical and cultural factors to lack of reliable access to electricity and limited technology infrastructure which is as a result of lack of political will to alleviate the situation through proper planning. Adu *et al* (2013) [1] corroborate with the findings when they listed some obstacles militating against the effective use of Computer Aided Instruction in Nigeria as: incessant power supply; shortage of skilled manpower, high cost of acquiring and installing the gadgets required for e-learning is very high, existing telecommunication infrastructure is in very poor condition; and computer technology illiteracy among the students from the primary school level. In support of the result, Aduwa-Ogiegbaen and Iyamu (2005) [2] were emphatic that in Nigeria, a formidable obstacle to the use of information and communication technology is infrastructure deficiencies. Mac-Ikemejima (2005) observed that there is inadequate ICT infrastructure, including computer hardware and software, and bandwidth access; lack of skilled manpower to manage available systems and inadequate training facilities for ICT education at the tertiary level. In corroboration, Folorunso, Ogunseye and Sharma (2006) [9] observed that mass unawareness, low computer literacy level and cost were identified as critical factors affecting the acceptability of Computer Aided Instruction by students and lecturers of Nigerian Unversities., The findings in research question three showed that many strategies can be adopted to enhance usage of Computer Aided Instruction materials for the purpose of instructional delivery in open and distance education. These include adequate power supply, recruitment of trained personnel, making computers affordable, among others. This is in agreement with Damile (2013) that it is imperative that government makes adequate provision of different types of electronic information resources for use at NOUN study centres. Damilola suggests that there is an urgent need to improve infrastructure in the country, particularly electronic supply, I.T, telecommunication items such as cellular phone, computer, fax machine, telephone, television, radio and internet service provider. The author added that there is need for government policy to make computer literacy compulsory, irrespective of the level and course of study. Thus, screening for admission in distance education should include practical demonstration of ICT/computer literacy skill by the prospective students. Aramide and Bolarinwa (2010) [3] agree to this when they recommended that infrastructure, including adequate power supply, for the effective application of audio visual and electronic resources at NOUN should be put in place and should not be limited to urban areas. This will enable distance learners in rural areas to benefit from modern technology. The authors suggest training of NOUN students on the use and application of audiovisual and electronic resources in their academic activities. This will enable them to use the opinion that government and other policy makers should explore, encourage and promote the development and use of emerging modern audiovisual and electronic resources at all levels of education. The authors equally recommended that the cost of audiovisual and electronic resources must be made affordable for students. They argue that universities can always find ways to make distance education technologies available to staff, but students must also be considered in the cost equation and the cost of e-learning resources must be considered when selecting technologies to support distance education.

Conclusion

From the foregoing, it has been evidenced that, even though, computer aided instruction is the best tool for open and distance learning, the study revealed that some computer aided instruction tools were utilized to a low extent in National Open University of Nigeria, Anambra State Study Centre. The study also revealed

some constraints to effective utilization of computer aided instruction tools. The study, therefore; suggested some strategies which could be used to address the constraints to the utilization of computer aided instruction tools in NOUN, Anambra State Study Centre.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Government should make adequate provisions for different types of computer aided instruction tools for use in NOUN study centres.
2. There is need to adequately train learners on the use and application of computer aided instruction tools in their academic activities. This will enable them to use computer aided instruction tools in carrying out their academic activities, including research.
3. Government and policy makers should explore, encourage and promote the development and use of emerging modern computer aided instruction tools at all levels of education. There is the need also for government to make computer literacy compulsory, irrespective of the level and course of study. Thus, screening for admission in open and distance education should include practical demonstration of ICT/computer literacy skills by the prospective learners.
4. To make open and distance education possible, the learning system and those who manage them should train the staff and students to work with the new technologies competently and confidently.

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