
ICT Utilisation in the Delivery Process of Agricultural Education in Colleges of Education in Nigeria

by

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Abstract

The world of today is technology driven; it is required that students acquire digital skills to be able to fit into the changing world. Information and communication technology (ICT) has become a more systematic concept in the educational field. Considering the role of ICT in improving teaching and promoting quality learning, disseminating knowledge, facilitating feedback between teachers and students, the utilization of ICT in the delivery process of agricultural education in colleges of education is still not effective due to the fact that some teachers still make use of the traditional method of teaching students. This paper identifies ICT devices, ICT in teaching and learning, use of ICT in Agricultural education, challenges in using ICT in teaching and learning agricultural education. This paper also reviewed the various steps that can be taken to integrate the use of ICT in the delivery process of agricultural education in Colleges of education in Nigeria and came to a conclusion that the use of ICT in teaching and learning can help bridge the gap that exist between students and teachers, bring the students closer to authentic learning materials and in general improve the result gotten from the teaching and learning process. This paper recommends that policies should be made by the government to further enhance the utilization of ICT, the improvement of the knowledge of ICT among lecturers in colleges of education by organizing seminars, training and workshop and also government should ensure that colleges of education are properly funded with ICT devices and ensure that management staffs of ICT are employed to keep ICT centres running.

Keywords: *ICT, ICT devices, ICT in teaching, learning, Agricultural education.*

Introduction

ICT means information communication technology. Oye, Shallsuku and A-lahad (2012) defined ICT as forms of technology that are used to transmit, store, create, share or exchange information. It is defined by (Tamilselvan, Sivakumar & Sevukan, 2012) as the use and integration of telecommunication devices which gives the users access to create, store, transmit and manipulate information. It is a broad field that encompasses the use of information and technological devices such as laptops, computers, the internet and various software which helps in the processing and communication of information (Freeman & Hasnaoui, 2010). In the context of this study, ICT are electronic devices that enable access to

information as well as aiding the communication of information. Technology in today's world has increasingly become a vital element for firms to compete and develop. Future lecturers need to equip and acquaint themselves with knowledge and skills in ICT to meet changes brought about by technology (Philip, Oluwagbemi, Oluwaranti, 2010; Voogt, 2010). ICT is considered as one of the pillars upon which quality education for all can become a reality because of its unique capacity to bring the world together (Ndongfact, 2010).

The expansion of technology across a wide range of areas including educational institutions, schools and universities came with the main intention of improving the teaching and learning environment (Al-Qahtani &

Higgins, 2013). According to Voogt (2010) and Voogt, Fisser, Pareja, Toudeur and Van Braak, (2013), the implementation of ICT in education was to transform the teaching and learning process from the traditional teacher-centred to a learner-centred approach with active participation of the learner. These researchers emphasized that the teacher's job is to organise the classroom and give students more opportunities and control over learning. ICT has brought changes to the life of many people in different aspect with consideration to various disciplines like medicine, tourism, travel, business, law, banking, engineering and architecture.

Information and communication technology (ICT) is an indispensable component of the contemporary world. Presently, culture and society have to be adjusted to meet the challenges of the information age. Moreover, most institutions of learning especially in the developed world use ICT for teaching and learning whereas colleges of education in Nigeria have not utilized ICT in the delivery process of Agricultural education in Nigeria. Agricultural education according to Osinem (2008) emphasizes skill development in all aspects of agricultural business such as planning, management, safety finance and leadership. Okonzie and Olaitan (2010) defined agricultural education as a field of vocational and technical educations that deals with the teaching, training and equipping of students with the necessary skills needed to succeed in agriculture. In this study, agricultural education is the training of students to equip them with the necessary technical skills needed to succeed in a given agricultural field. This training can only be effective with the use of technologies prevalent in the 21st century.

Colleges of education in Nigeria has not harnessed ICT effectively especially in the delivery of agricultural education to students. Agricultural education has always being taught through the conventional method in Colleges of Education through the use of white marker board, printed materials and textbooks making teaching to be a one sided activity. In addition, the participation of agricultural education students in practical aspect has being low as a

result of teachers not connecting students to those practical aspects that was not able to be done in the classroom through ICT. . Research has indicated that majority of teachers do not take advantage of the potentials of ICT to promote the quality of learning even though they have a favourable attitude towards it (Alharbi, 2012). However, there are some colleges of education that uses ICT but not frequently due to the challenges associated with its integration in the delivery process of agricultural education in Nigeria. The use of ICT has being seen as an effective means for teaching and learning in higher institutions. Therefore this paper focused on Information and Communication Technology devices, its use in teaching and learning of agricultural education, the challenges faced in its utilization and approaches to solving the stated challenges. Despite the benefits of ICT, there is limited use of ICT in teaching and learning of agricultural education in colleges of Education in Nigeria, hence this study focuses on the utilization of ICT in the delivery process of agricultural education in colleges of education in Nigeria.

Information and Communication Technology Devices

ICT devices/tools include such technologies as television, radio, DVD, projector, satellite systems, computer and network hardware and software; as well as the equipment and services associated with these technologies such as video conferencing and electronic mail (Oye et al, 2012). This widespread patronage of ICT tools has totally redefined the concept of learning from being linear to sequential where the teacher is no longer needed to be the primary source of information. The role has shifted from knowledge transmitter and primary source of information to learning facilitator, knowledge navigator and co-learner cum adopter. Also the role of students has also shifted from being a passive recipient of information to active participant in the learning process, producing knowledge and learning collaboratively (Resta & Patru, 2010). With the advent of ICT tools, the information and the sources of information are in abundance depending upon the

preference, usage, skill, access and expertise (Oduwole, 2004).

ICT in Teaching and Learning

The use of ICT in teaching is necessary because for decades, course materials were designed around textbooks. Teachers taught the content through lecture method and the activities were designed to enforce the content knowledge (Angadi, 2014). According to Shamsideen (2016), “education is the primary agent of transformation towards sustainable development since it increases people’s capacities to transform their visions into reality”. The author further said that “education not only provides scientific and technical skills, it also provides the motivation, justification, and social support for pursuing and applying them”. The present day curricular provide aptitude and performance of the information rather than factual knowledge. Information and communication technology facilitates the transfer of knowledge effective in accordance to the curriculum. The use of ICT in teaching will give students opportunities to showcase their skills, ideas, boost their knowledge as well as to be creative. It will also give opportunity for collaborative learning among students.

When teachers are digitally literate and trained to use ICT, their expertise can lead to higher order thinking skills, provide creative and individualized options for students to express their understandings, and leave students better prepared to deal with on-going technological change in society and the workplace (Goodwin, 2012). With the

application of ICT in teaching, students can independently master teaching materials, choose the pace of work, repeat the material that is not sufficiently clear and track their progress. Interactive multimedia content provides a great advantage of modern learning over traditional learning. ICT application in teaching and learning also facilitate feedback between the teacher and the student (Bakare & Olaniyi, 2017). Multimedia as a powerful device of ICT assists students in their thinking activities and also helps them to share and express their knowledge.

Software application like databases, and excel sheets help students in understanding the concept by doing. It also develops an independent approach towards problem solving hence computers help student in developing high order thinking (McMahon, 2009). As shown in figure 1 teacher shares information with students depending upon the time constraints which may not be in depth in knowledge. From the knowledge delivered, the student had to assess the need of obtaining the knowledge. If the need is perceived then the student would develop interest and would learn further. However in the use of ICT, student and teacher would be in line with various stages of information, under such scenario based upon the need, the student can solicit information and the teacher could participate in enabling the student to obtain the right kind of information (Anandaraja, Swaminathan, & Sivabalan, 2015).

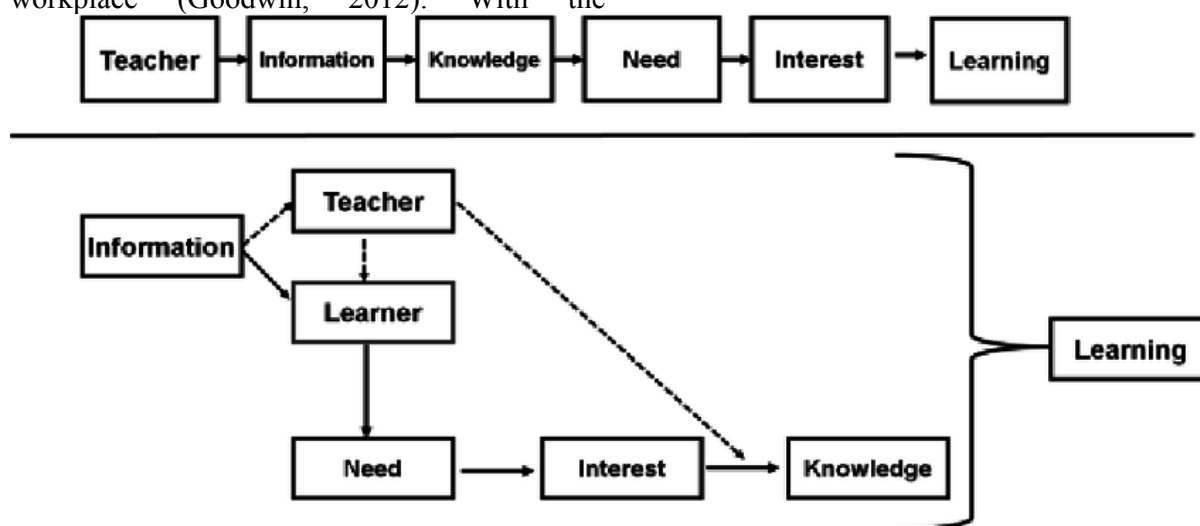


Figure 1. Evolutionary Change in Classroom Teaching and Learning (CTL).

Source: Anandaraja, Swaminathan, and Sivabalan, 2015 (Adopted).

ICT facilitates learning. Learners learn better when learning experiences and activities are illustrated with use of ICT materials (Etiubong, 2011). The use of ICT in learning helps students in communicating their ideas and has access to expertise in their field. Students also share their learning experiences which enable them to express themselves and contemplate on their learning. The use of ICT can boost the learner motivation and involvement by providing the opportunity to gain basic learning skills. Multimedia computer software can be used to provide audio-visual effect which help to create interest and engage students in the learning process (Bindu, 2016).

Use of ICT in Agricultural Education

Integrating ICT into delivery process of agricultural education can increase the effectiveness and also broaden knowledge and ensure retention of skills. Gusen (2007) emphasized that agricultural education requires the use of ICT to find, store, explore, access and analyse creatively. The use of ICT in teaching agricultural education in colleges of education give students the opportunity to put into practice the knowledge gotten from the information they accessed through technologies. This will make learning to be active and produce professional in the field of agricultural education. According to McFarlane and Sakellariou (2010) the use of ICT in agricultural education will enable lecturers to expose students to those practical aspects that will not be possible in the classroom. New Media Consortium (2007) states that present day education system insists on research, critical thinking and evaluation skills since students have access to large variety of sources to get information.

Agricultural education is a practical and dynamic course. Its scope or extent cannot be limited to a specific area of study. It is extremely inter-disciplinary and the concept as

well as the approaches of one domain is to be interlinked with the other domain, for instance, pest management cannot be understood without the knowledge of physiology of a crop which goes in hand with the cultivation practices and soil fertility which in turn is determined by the social or economic characteristics of a farmer. Field trials in agricultural education are as important as field visits and field documentations. It is more important that trials in laboratory get transferred to the field (Anandaraja et.al, 2015).

The use of ICT in teaching agricultural education in colleges of education will enable lecturers and students to have access to other experts worldwide. This will help to establish a discussion session between teachers, students and experts through electronic means like video conferencing. According to Egunjobi (2015), the use of ICT in agricultural education saves time as teachers will still be able to deliver their lessons to students even when they are absent. In addition, the use of ICT in agricultural education exposes teachers to various methods that will be most effective in teaching particular course content. The National Policy on Education (Federal Republic of Nigeria, 2004) remarked that the teaching and learning of agriculture emphasize acquisition of appropriate knowledge, competencies and skills which will make for proficiency in agricultural occupations. ICT will improve the quality of teaching and learning for greater impact on agricultural workforce.

Challenges in Using ICT in Teaching and Learning

The integration of ICT into teaching and learning is a complex process which may be association with different challenges. The following are some of the challenges faced in the use of ICT in teaching and learning as pointed out by some authors:

I. Limited accessibility and network connection

The inaccessibility of ICT resources is not always merely due to the non-availability of the hardware and software or other ICT materials within the school. It may be factors

such as poor resource organisation, poor quality hardware, inappropriate software or lack of personal access for teachers (Beta, 2004).

II. Lack of effective training

Lack of training is a hindrance to the use of ICT due to the fact that lecturers without deep knowledge on ICT cannot utilize it properly. According to Becta (2004), the issue of training is certainly complex because it is important to consider several components to ensure training effectiveness such as time for training, pedagogical training, skills training and use of ICT training.

III. Limited time

The problem of lack of time exists for teachers in many aspect of their work as it affects their ability to complete tasks, with some of the participant teachers stating which aspects of ICT require more time. These include the time needed to locate internet, prepare lessons, explore and practise using the technology, deal with technical problems and receive adequate training (Becta, 2004).

Yusuf et al (2013) also summarized the various constraints to ICT utilization in Nigeria as follows: Inadequate computer trained and certified teachers; poor funding; Irregular power supply; Cost of equipment; Lack of Relevant Software. Kwacha (2007) also noted that the most common problems associated with the effective implementation of ICT are lack of qualified ICT personnel, cost of equipment, management attitudes, inconsistent electric power supply, inadequate telephone lines, particularly in rural areas and non-inclusion of ICT programmes in teacher's training curricula.

Solutions to the Challenges in ICT Utilization in the Delivery process of Agricultural Education in Colleges of Education in Nigeria

The solutions to the challenges facing the use of ICT in agricultural education delivery

process in Nigerian Colleges of Education according to Diabuah and Oyana (2016) includes: the provision of ICT devices and ICT enabled environment by the government and prominent stakeholder, continuous training of lecturers in the use of ICT for teaching so as to get in-depth knowledge through organizing classes, seminars and conferences and the provision of finances by the government for the purchase and servicing of ICT devices. According to Giwa (2011), lecturers' need training in personal skills in use of ICT, professional skills and competence in ICT, such as understanding the relevance of ICT in education, importance of ICT in teaching and learning, and how to apply ICT for teaching and learning across the curriculum, and managing ICT in the classroom.

Provision of research based on the usage of ICT devices, provision of good ICT infrastructure, good and affordable internet connectivity and implementation of appropriate ICT policies would help integrate the usage of ICT in the teaching and learning of Agricultural Education in Colleges of Education (Saidu, Clarkson, Adamu, Mohammed & Jibo, 2017).

In addition to the above solutions, ICT technicians/personnel should be employed to help cater for technical problem for effective use, provision of current accessible software needed for teaching and learning as well as the inclusion of ICT as an integral part of student-teacher curriculum in colleges of education. Proper funding and management of ICT centres to ensure the smooth use of ICT. Also, colleges of education should be provided with stable electric power for smooth running of computers and Wi-Fi for lecturers and students

Conclusion

In this era of technology, the use of ICT in agricultural education delivery in colleges of education is vital because colleges of education are responsible for training students to become prospective school teachers. The world of today requires students to develop all the necessary skills needed in the digitalized economy. Hence they need to shift focus from the traditional method of delivering agricultural education to a more technological method using ICT in order

to improve the quality of education being delivered. Students should be taught with modern educational gadgets which will improve the skills of students and enable them to carry out research and other academic activities in agricultural fields. The use of multimedia in colleges of education will improve learning and also motivate the interest of students. It will bridge the gap existing between teachers and learners as it will improve the level of interaction process. However, the effective use of ICT in delivery process of agricultural education in colleges of education in Nigeria will enable students to be well prepared for the competitive world and also help the colleges of education to meet the goals of education.

Recommendation

This paper recommends that TVET policy makers and government should

1. Ensure that set policy on the use of ICT are translated into reality in order to improve the delivery process of TVET courses in Colleges of Education.
2. Efforts should be made to improve the knowledge of Agricultural education teachers in colleges of education on ICT through seminars, training and workshop.
3. Ensure that colleges of education are properly funded with ICT devices and ensure that management staffs of ICT are employed to keep ICT centres running.

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