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CHALLENGES AND PROSPECTS OF TEACHING AND LEARNING OF AGRICULTURAL SCIENCE VIA E-LEARNING IN A POST COVID-19 NIGERIAN SCHOOL ENVIRONMENT

By

LILIAN OKWUNDU UNIGWE
Department of Agricultural Education,
Federal College of Education (Technical) Umunze, Anambra State

And

CHARLES N. ANYACHOR
Department of Agricultural Education
Federal College of Education (Technical) Umunze, Anambra State

Abstract

The purpose of this study was to determine the challenges and prospects of teaching and learning of agricultural science via e-learning in a post covid-19 Nigerian school environment. The researchers tried to picture the excruciating handicaps encountered in teaching and learning globally during the covid-19 pandemic which led to the shutting down of schools in most countries of the world including Nigeria. The lessons of the crumbling of teaching and learning dictated by the incapacitation of academic activities due to lack of alternatives to the traditional means of learning led the researchers to propose a post covid-19 Nigerian e-learning environment especially in agricultural science. This is simply using electronic means in teaching and learning of agricultural science in all ramification to ensure continuous quality teaching and learning and food security in the face of any type of global emergency. The researchers approached the study by the explication of the concept of e-learning, impact of e-learning in teaching and learning of agricultural science, challenges of teaching and learning of agriculture in an emergency situation, prospects of teaching and learning of agricultural science via e-learning in a post covid-19 Nigerian environment. The researchers concluded by recommending among other things for government to equip all schools with current internet facilities to help the teachers and students have access electronically to current information in Agricultural science anytime anywhere; finally, lecturers that are used to traditional methods of teaching should be exposed to e-learning facilities through seminars and workshops to be organized periodically by the various institutions of learning.

Keywords: Covid-19, E-Learning, Pandemic, Food Security, Post Covid-19, Internet.

Introduction

The covid-19 pandemic also known as corona virus pandemic is an ongoing pandemic of corona virus disease 2019 (covid-19) caused by severe acute respiratory syndrome corona virus 2(SARS-CoV-2). The outbreak was identified in Wuhan, China in December 2019. The world health Organization (WHO) declared the outbreak a public health emergency of international concern on 30th January, 2020 and a pandemic on 11th March, 2020(Gumbrecht and Howard 2020). There is now a digital revolution going beyond a simple adoption of Information and Technology which agriculture is no exception. Today a drastic change in all aspect of life is being witnessed due to Covid-19 pandemic and educational system is not left out. E-learning is the trending way of learning in this recent time. The world in this 21st century has gone wide into technology. The technological development and attainment is more or less in the developed nations of the world. It is like the saying that the wind has blown and exposed a lot. Nigeria being a country that is named giant of our Continent Africa cannot boast of easy access to e-learning in this period when the students are confined in their various homes for fear of contracting Covid-19. The Covid-19 pandemic held the whole world to a standstill since the end of 2019 which Nigeria is part of. This made it necessary to adopt e-learning as to stop the spread of the virus by staying at home. E-learning changes the way people meet and communicate. E-learning can be used in teaching and learning all subjects and even a practical oriented courses like agriculture. Agriculture can be taught online but without practice, the knowledge will not be so in-depth and practicing it will be half hazard. There is need to put to practice theoretical works in Agricultural.

The Concept of E-Learning

E-learning is the use of electronics in teaching and learning. The letter E stands for electronics then e-learning is electronic learning. E-learning is technology-based learning such as computer-based learning, web-based learning, virtual classroom and digital collaboration (Tsai and Machado, 2002).

E-learning is a system of formalized teaching using electronic resources. The e-learning and teaching is based on the use of computers and internet which are the major components. The use of internet cannot be done except with network because with e-

learning, skills & knowledge and the delivery of education is made possible. The use of e-learning in teaching and learning is mostly observed in developed countries of the world. E-learning was not fully accepted earlier due to the fact that it lacked the human element required in learning. However, with advancement in technology, people are now shifting from hardcopy books and handwriting to electronics educational material. E-learning has proved to be very effective in teaching and learning since it is visual because it holds the attention of students and is also retained by the brain for longer period. Agriculture and various other sectors are now adapting to the concept of e-learning which helps in the progress of the nations where it is practiced. E-learning is the use of new multimedia technologies and the internet to increase learning quality by easing access to facilities and services as well as distant exchanges and collaborations. Arkorful and Abaidoo (2015) defined e-learning as using of information and communication technologies to enable the access to online learning/teaching resources. Internet has become one of the vital ways to make available resources for research and learning for both teachers and students to share and acquire information (Richard and Haya, 2009). Rossi (2009) stated that e-learning as a concept covers a range of applications, learning methods and processes. The new environment for learning that is centered on electronic networks has allowed learner in universities to receive individualized support and also to have learning schedules that is more suitable to them as well as separate from other learners (Tao, Yeh and Sun 2006). This facilitates a high interaction and collaboration level between instructors or teachers and peers than traditional environment for learning. E- learning in academics which is characterized by the use of multimedia constructs made the process of e-learning more active, interesting and enjoyable (Liaw and Huang,2003). Gotschal (2000) argues that the concept of e-learning is proposed based on distance learning, thus a transmission of lectures to distance locations by way of video presentations.

Impact of Application of E-Learning in Teaching and Learning of Agricultural Science

E-learning plays a leading role in the development of agricultural education. This is because through e-learning, farmers learn the new techniques of increasing crop yields and methods of agriculture productivity online. ICTs have the potential to accelerate, enrich

and deepen skills, to motivate and engage students, to help relate school experience to work, practice, create economic viability for tomorrow's workers, as well as strengthen teaching and helping schools change. The Economic Commission for Africa has indicated that the ability to access and use information is no longer luxury, rather a necessity for development. Unfortunately, many developing countries especially in Africa, are still low in ICT application and use. A lot of potentials are being prophesied of e-learning or ICT but it is not a tool among others in actual science classrooms because teachers must have problems to introduce them in their practices. E-learning shape the students' understanding and are profitable to students in learning. E-learning in agriculture related fields is still very new and is in the early phase of adoption, but is being implemented more now than ever (Valsamidi, Kazanidas, Petasakas and Karakas 2011). Extension professionals and agricultural educators express an increasing desire to inform farmers about improved management practices and other issues through internet. As stated by Glory Akridge, Whipker (2002), modern communication strategies such as computers, e-mail and the internet, were less preferred by the farmer. These e-learning are made successful in assisting farmers with knowledge and technology adoption by the help of the extension officers who serves as a bridge between farmers demonstrates a greater appreciation for modern sources of information (Hall, Denkelberger, Ferreira, Prevatt and Martin 2003). Additional education and training methods are needed for agricultural producers to remain competitive, since the field of agriculture is affected immensely by global market change (Drew, 2008).

Valsamidis et al. (2011) proposes a framework for applying e-learning in agriculture as (I) Development of an innovative e-learning platform that shall be adequate for farmer's characteristics while at the same time provides all the necessary features and tools for educators in agricultural domain. (ii) Development and delivery of life-long learning courses in agricultural domain. (iii) Platform and courses evaluation.

After studying the framework, Valsimidis et al (2011) discovered that ICTs are not widely spread to the target group. Many farmers still do not have access to a personal computer and are not familiar with internet. There is also possibility of novice students finding the educational content difficult while on the other hand, the experienced users find

it useless and boring. ICTs promote and distribute new and existing farming information and knowledge which is communicated within the agricultural sector since information is essential for facilitating agricultural and rural development and bringing about social and economic changes (Swanson & Rajalahti,2010)

Challenges of Teaching and Learning of Agricultural Science via E-Learning in an Emergency Situation

According to Nelson, in agriculture, farmers feed six million people today, though some 800 million people go to bed hungry every night and 166 million children are malnourished. Meanwhile, current agricultural practices are responsible for dead zones at the mouths of the world's rivers and rapid species extinctions. By 2050, the human population will grow by two to three billion. The challenge for Agriculture is not only producing more food but producing it in a sustainable manner while raising living standards for the poor, many of whom live and work in rural areas. All this must be done while dealing with the uncertain consequences of global warming and geopolitics. Solution to these includes new policies, new technologies and new production practices (Nelson, 2006). The pace of technological change, adaptability and availability affects teaching and learning of agriculture via e-learning. The technological changes which can be shared through internet may not be accessible due to unavailability of internet and electronic facilities.

"E-learning can benefit every agricultural community around the world, from research scientists in American universities to the poor subsistence farmers in developing countries. It can benefit persons of all ages, all locations and bridge the gaps created by mountains, deserts, oceans, wars and political boundaries. E-learning in agriculture can assemble resources and knowledge from distant places that may otherwise be unobtainable. It can connect farmers with far away researchers and experts. It can also dramatically increase the numbers of farmers who can be reached by single training programs" (Leary and Berge, 2006). Despite all these exciting approaches, e-learning adoption is still slow to take off. According to Abdon, Raab and Ninamiya (2008), a quick internet search will yield remarkably few results with e-learning opportunities related to agriculture. The mostly available links found are primarily position and research papers on pilot efforts and

a few online degree programs from agricultural universities – primarily in Western countries predominantly in the United States. Almost nothing can be found on e-learning developed or delivered by developing country organization or targeting developing country learner. They also stated that looking closely at the major international agricultural development entities like the United Nations Food and Agriculture Organization (FAO) and the Consultative Group on International Agricultural Research (CGIAR), it is clear that the development and delivery of e-learning targeting agricultural producers or knowledge intermediaries is limited. Although a considerable and increasing amount of agricultural information is being made available through the internet, online education is not.

Another reality is the issue of availability of power supply at the time it is needed. Students and researchers have poor access to power. Social media is the future of e-learning, where people could study online through the use of social media platforms. Many developed countries have advanced in developing and accessing technologies and platforms for e-learning (Reddy and Naresh, 2015) as compared to developing countries like Nigeria. Adzovie et al (2020), identified some challenges Covid-19 brought on teaching and learning in Nigeria as inaccessibility of internet in some parts of the country, costly nature of internet data, as well as lack of access to network devices such as smart mobile phone/computers. Nawaz (2013), states that finding e-learning solutions for higher education institution is a situation that hunts all institutions of higher learning irrespective of jurisdiction. Institutions are looking for solutions through e-learning at their own pace. This piece meal rolls out changed drastically, with the outbreak of corona virus pandemic (Hatsu and Asamoah, 2020). UNESCO (2015) stated that the usefulness of e-learning in the 21st century cannot be overemphasized. Since the outbreak of Covid-19 pandemic, to the point where the world health organization (WHO) declared it a global pandemic (Gumbrecht & Howard ,2020), many nations have had to adjust and re-adjust.

Prospects of Teaching and Learning of Agricultural Science via E-Learning in a Post Covid-19 Environment.

The entire countries of the world, both developed and developing, learnt their different lessons in a hard way during the covid-19 pandemic era. The lock-down that

followed the covid-19 pandemic halted and devastated the economy of most countries and shattered the academic calendar of most country especially Nigeria. There was fear of food insecurity in most of the countries of the world. Education was brought to a halt due to the fact that Nigeria was not used to the alternative system of education which e-learning packages was offering to most countries of the world and which was the only alternative during the lockdown. Consequently, teaching and learning suffered a great setback but not without some lessons.

It is however expected that in a post covid-19 environment teaching and learning will be better harnessed to withstand any type of global emergency by incorporating the gains of e-learning packages. This is very relevant in the teaching and learning of agricultural science in all levels of education in Nigeria. Hence, if all the teachers of agricultural science are exposed to all the electronic equipment and gadgets of international standard for teaching any aspect of agricultural science both theory and practice, there must be an improvement in their teaching delivery. It is also expected that government should equip all the schools, at whatever level, with all the necessary electronic and mechanical equipment and gadgets to enable the teachers learn fast and adapt to the actual method of teaching via e-learning that is in vogue in most developed countries of the world. When our institutions of learning are equipped with modern electronic, mechanical gadgets and equipment to teaching which teachers are familiar with, there is expected to be a great difference in skill acquisition and outputs of graduate of agricultural science in Nigeria.

The skills students will acquire through e-learning will definitely help increase production and ensure food security in a post covid-19 environment. It is also expected that graduates of agricultural science that benefitted in an improved teaching and learning environment will come up with new ideas which when put into practice will lead to bumper harvest through improved approach to crop agronomy.

The combination of our hitherto traditional method of teaching and learning of agricultural science and e-learning will broaden the skills and knowledge of our students. This could lead to improved mechanization of different kinds of agricultural farm industry of different sizes in both small, medium and large scale. This will definitely boost

productivity, food security and create employment opportunities to Nigerian citizens and finally put Nigeria in a better footing for exporting a lot of her agricultural products to international communities across the globe.

Conclusion

The outbreak of corona virus has brought changes in the way a lot of things are done. This is because of the way the virus spread. Schools that practice traditional or campus based teaching and learning came to a halt because of fear of the spread of the disease. That made teaching and learning ineffective because people are confined in their homes. It is completely different in developed countries that have e-learning facilities.

This is a very big challenge in Nigeria because of lack of e-learning facilities. The lesson of the absence of e-learning facilities in this time of global emergency precipitated by covid-19 should open the eyes of the Nigerian government to doing the needful. It is expected that government should equip schools at every level with e-learning facilities to withstand this type of emergency in the future. If the institutions are equipped with e-learning facilities, quality and effective teaching and learning will be guaranteed. Consequently, appropriate use of e-learning in agricultural education will help to produce skilled graduates in Agricultural Science that will help to increase productivity of agricultural products and ensure food security in Nigeria. This should also lead to Nigeria involving herself in exporting her produce in the post covid-19 environment and thereby reducing unemployment to the barest minimum.

Recommendations

Having assessed the challenges and prospects of teaching and learning of Agricultural Science via e-learning in a post covid-19 Nigerian environment, the researchers made the following recommendations:

1. Government should be able to equip all schools with current internet facilities to help the teachers and students have access electronically to current information in Agricultural Science anytime, anywhere.

2. Lecturers that are used to traditional methods of teaching should be exposed to e-learning facilities through seminars and workshops to be organized periodically by the institution of learning.

3. Teachers should be equipped by the institutions with private electronic devices that will enable them access and interact with their students online.

4. Government should ensure that adequate mechanical and electronic devices are available in schools for practical experiences of students to enable them follow adequately in e-learning interactions with their lecturers.

5. Government should from time to time make funds available for the maintenance of electronic devices given to lecturers for e-learning teaching.

6. Power supply should also be made available by government to reduce cost of purchasing fuel for schools and lecturers.

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