

The Impact of Educational Technology on Career Building in Agriculture: A Synergy for Gainful Employment and Sustainable Development

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Abstract

This research investigated the impact of educational technology in career building in agriculture: A synergy for gainful employment and reliable sustainability. The study employed a descriptive survey research design with the use of structured questionnaire as instrument for data collection and pearson product moment correlation was used to determine the degree of linear relationship between the two set of scores and the reliability coefficient of 0.52 was obtained. The population of the study comprises of all lecturers in four tertiary institutions offering agricultural science as a course in Oyo metropolis. Frequency distribution and mean were used as statistical tools for data analysis. Findings revealed that modern teaching aids and utilization of modern farm technologies in teaching and learning agriculture will equip learners with modern skills for farming as well as motivate farming among upcoming generations thereby leading to reduction in unemployment and sustainable practices. It was therefore recommended among others that training and re-training of teachers and learners with modern technologies will boost agricultural outputs, employability and agricultural sustainability in Nigeria.

Keywords: Educational technology, Career building, Agriculture, Employability and Sustainability.

Introduction

As media technology has progressed in society, so has its use in the classroom. Across each generation and form of technology, issues such as purpose, usefulness, and educational appropriateness in the classroom arose (Cuban, 2016). Media technologies such as filmstrip and radio are examples of educational technologies introduced and

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phased out of classrooms since the early 1900s (Cuban, 2017). Despite the issues, television and computer, have remained in the classroom and flourished since their introductions. Currently, educational technology has many purposes and can take the form of hardware or software, but the use of nearly all educational technology today hinges upon connecting to the internet.

Three primary and repeated obstacles to implementing educational technology in the classroom emerged from the aggregate of literature: a lack of funding, low teacher self-efficacy, and a lack of professional development focusing on technology integration in the classroom (Raven Welton, 2019; Cuban A. T., 2016; Wang, Ertmer, & Newby, 2004; Schrader, 2016; Johnson, Levine, Smith, & Haywood, 2010; Stewart, Antonenko, Robinson, & Mwavita, 2013; Burke, 2018). Continuous advancements in technology create price barriers to access, a hurdle for many school districts as the newest technology is often the highest in cost and the more cost-conscious technology seems outdated in a matter of years, sometimes sooner (Schrader, 2017; Jones, 2017). As technology at-large and educational technology are constantly changing, this often causes inexperience on the part of teachers and thus, form a low self-efficacy related to that educational technology use in their classroom (Raven & Welton, 2019; Hastings, 2009; Koehler & Mishra, 2009; Stewart, Antonenko, Robinson, & Mwavita, 2013). Low teacher self-efficacy related to the use of educational technology could result in the teacher avoiding the technology in their classroom, which evolves into a disadvantage to both the teacher and the students.

A portion of the problem with effective use of educational technology lies in the lack of teacher education and professional development focusing on technology and its application in learning (Dormody & Torres, 2002; Johnson, et al., 2010; Burke, 2018). The most influential factor affecting a teacher's choice to use educational technology in the classroom is their ability to use the technology themselves (Burke, 2018). Agricultural technology can be used in all aspects of agriculture, such as the application of herbicides, pesticides, fertilizers and seeds. Over the years, technology has proven very useful in the agricultural field. Currently, farmers can plant where they think plants would not grow, but this can only be

achieved through agricultural biotechnology. For example, genetic engineering makes it possible to introduce certain sequences into other genes in crops or animals. The project improves the resistance of crops to pests, diseases and drought. Through technology, farmers can electrify all processes to achieve higher efficiency and higher yields.

There are restrictions on how to speed up the use and adoption of modern technology in agriculture, this can be associated with the fact that the acceleration of this concept contains a lot of knowledge and understanding of certain factors that influence farmers' decision to use modern technology in agriculture. Institutions, society, and economy are some of the factors that affect the speed or inertia of using agricultural technology. Land area, technology costs and benefits are some of the economic factors that determine the pace of agricultural technology adoption. Education level, age, social group and gender of farmers are social factors that affect the possibility of farmers using modern agricultural technology.

This research work investigated the impact of adoption of technology into teaching and practice of agriculture, Specifically, the study sought to determine the impact of educational technology in career building in agriculture, the benefit of career building in agriculture and the importance of vocational education and training.

Statement of the Problem

The impact for both students and teachers when incorporating educational technology, which emerged through varied empirical inquiry are numerous and diverse. Cuban (2016) and Raven & Welton (1989) provided consistent evidence of issues that discourage teachers from all disciplines to refuse educational technology integration into studies. Examples are high price and lack of funding for educational technology, low teacher self-efficacy and lack of professional development.

It is clear within the literature that simply handing out devices to students and teachers will not result in the effective use of educational technology among teachers and students. Additionally, due to the technological demands of the agricultural industry, it is imperative for youth to effectively use technology in their

educational development (Philips, 2008). That imprint could happen in part, through their agricultural education classrooms. Therefore, it is necessary to look deeper into the self-efficacy of teachers regarding their ability to integrate educational technology in their classrooms and the influences on those perceptions. Therefore, this researcher aims to fill this gap in research by inquiring about the impact of educational technology in agriculture.

Research Questions

The following research questions guided the study:

1. What is the impacts of educational technology in career building in agriculture?
2. What is the benefits of career building in agriculture?
3. What is the importance of vocational education and training to?

Significance of the Study

The findings of this study will expose the farmers to the impact of educational technology in farming system through vocational education and training programs, which could either, be positive or negative. Additionally, it will improve the quality of students of educational technology in agriculture, which could serve as a route to earning additional means living in the future. Lastly, the findings of this study will be of importance to the school (administrators) and lecturers as it intends to provide solutions to the raging problem of poor academic performance of students in agricultural science.

Methodology

Research Design

This study adopts descriptive survey research design. A descriptive research provides information about naturally occurring status, behaviour, attitude or other characteristics of a particular group.

Population of the Study

The population of the study comprises all lecturers in the four tertiary institutions offering Agricultural Science as a Course in Oyo and its environs.

Sample and Sampling Techniques

Forty (40) respondents were selected from the four tertiary institutions offering Agricultural Science as a course in Oyo and its environs. The four selected schools are:

- a. Ekiti State University, in affiliation with Emmanuel Alayande College of Education, Oyo
- b. Ajayi Crowder University
- c. Federal College of Education, (Special) Oyo
- d. Atiba University, Oyo.

The respondents comprises lecturers from the four schools aforementioned. This group of people were required to supply their perception on the Impact of educational technology in farming system: A synergy for gainful employment and reliable sustainability. However, the researchers applied stratified random sampling techniques in the sense that respondents were drawn randomly from each stratum (zone) in such that the relative proportions of the strata (Population) in the resultant sample are the same as exists in the population.

Research Instrument

The instrument used for the purpose of this study was a questionnaire on the Impact of educational technology in agriculture: A synergy for gainful employment and reliable sustainability. The questionnaire was drawn to collect the necessary data which can clarify the issue about the Impact of educational technology in farming agriculture. The structured questionnaire comprises of two sections A and B. Section A was for personal information of respondents while Section B consists of statements related to the study where the responses based on four likert scale rating from SA- Strongly Agree (4), A- Agree (3), D- Disagree (2), SD- Strongly Disagree (1).

Validity of Instrument

The instrument developed for this study was subjected to face validation by three experts from departments of Agricultural Science and Test and Measurement, University of Ado Ekiti.

Reliability of the Instrument

A test retest study was carried out to determine the reliability of research instruments. This was done by selecting two (2) lecturers in each selected tertiary institutions. The administration was done after the interval of two (2) weeks. Pearson product moment correlation was used to determine the degree of linear relationship between the two set of scores and the reliability coefficient of 0.52 was obtained. This value was considered evidence of reliability in line with Abonyi (2011) who posited that any figure above 0.50 is an acceptable reliability value.

Procedure for Data Collection

The researcher distributed forty (40) copies of the questionnaire to the lecturers personally. The questionnaires were filled out and collected immediately to avoid misplacement.

Method of Data Analysis

The data collected was analysed using descriptive statistics. The research question was analysed by using mean and standard deviation for data representation. In order to analyse the research questions, any mean of items from 2.50 and above are considered as Agreed while a mean below 2.50 are considered as Disagreed.

Results and Discussion

Table 1: Social- Demographic Characteristics of Respondents

S/ N	SOCIAL DEMOGRAPHIC CHARACTERIST ICS	OPTIONS	FREQUE NCY	PERCENTAG E (%)
1	AGE	31 – 40 years	14	35
		old	10	25
		41 – 50 years	10	25
		old	6	15
		51 – 60 years		
2	SEX	old		
		61 – 70 years		
		old		
2	SEX	Male	30	75
		Female	10	25
3	EDUCATIONAL QUALIFICATIO NS	Bachelor's	5	12.5
		Degree	20	50
		Master's	15	37.5
		Degree		
		Doctorate		
		Degree		

Source: Field Survey

Table 2: Perception of Respondents Based on Effective Teaching and Learning For Career Building in Agriculture

S/N	QUESTION	RESPONSE				MEAN (\bar{x})
		SA	A	D	SD	
1	Learning with modern teaching aid provides in-depth knowledge of career building in agriculture.	37	3	-	-	3.93
2	Update students' on handling of farm tools & equipment makes students knows modern skills of agriculture.	23	13	3	1	3.45
3	Workshop practice will adequately improve career in agriculture.	13	25	1	1	3.25

4	Laboratory experiences are part of career building in agriculture.	10	25	3	2	3.08
5	Classroom work alone is not sufficient for career building in agriculture.	24	10	4	-	3.35

Source: Field Survey

Table 3: Perception of Respondents on Benefit of Career Building in Agriculture.

S/N	QUESTION	RESPONSE				MEAN (\bar{x})
		SA	A	D	SD	
1	Career building in agriculture will tackle the problem of unemployment among youth.	32	5	2	1	3.70
2	Career building in agriculture will tackle the problem of food scarcity in Nigeria.	23	15	2	-	3.53
3	Career building in agriculture is the part towards industrialization in Nigeria.	20	17	1	2	3.38
4	Career building in agriculture is the bedrock of self-sufficiency and national development.	25	13	-	2	3.53
5	Career building in agriculture will increase Nigeria internal generated revenue.	26	8	4	2	3.45

Source: Field Survey

Table 4: Perception of Respondent on Importance of Vocational Education and Training.

S/N	QUESTION	RESPONSE				MEAN (\bar{x})
		SA	A	D	SD	
1	Vocational education is the bedrock of technology.	14	24	2	-	3.30
2	Vocational education inspires innovation and creativity.	20	18	-	2	3.40

3	Vocational education can only be achieved through efficient educational policy.	31	8	1	-	3.75
4	Vocational education eradicates poverty of a nation.	11	29	-	-	3.28
5	Vocational education eradicates unemployment of a nation.	20	18	-	2	3.40

Source: Field Survey

Discussion

The social demographic characteristics of the respondents show that majority of the agriculture lecturers are male with master’s degree and still at a productive age. Also, the research shows that the use of modern teachings aids give in-depth knowledge of career building in agriculture and this will make the graduates of agriculture to be more productive than students whose learning is limited to classroom-work only. Similarly, the use and handling of farm tools and equipment in practical work will also improve their productivity while the use of workshops and laboratories will give the graduates of agriculture strong career building for rational growth and development. However, Burke (2018) states that low funding and low teacher self-efficacy could make these achievements unattainable.

Conclusion

The study shows that the utilization of modern farm technologies in teaching and learning agriculture will not only equip learners with modern skills for farming but also create motivation for farming among younger generation as a source of employment. Since choosing agriculture as a career among students is dwindling, the use of modern farming technology could serve as a medium of arousing student’s interest in agriculture as a career. The agricultural sector can be a major contributor to the economic development of a nation and there is a need to attract the young generation through modern education to see the need for agricultural practices.

Recommendations

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

1. There should be training and re-training among teachers and students of agricultural science on handling modern agricultural technology for teaching and learning in schools to boost employability and food sustainability.
2. Government should provide necessary inputs and farm machineries for teaching and learning agricultural science.
3. Schools should ensure the establishment of farm for demonstration in order to encourage practical work and imbibe farming experience among students.
4. Agricultural science students should go for field-trips and excursion in technology-oriented farms to enhance to further boost their motivation from agriculture.
5. Government should fund and invest in agricultural programmes in higher institutions so as to equip student-teachers of agriculture.

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