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USE OF ICTs IN AGRICULTURAL HIGHER EDUCATION: A CASE STUDY OF THE FACULTY OF AGRICULTURAL SCIENCES, UNIVERSITY OF GEZIRA, SUDAN

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ABSTRACT

The purpose of present study was to investigate the use of ICTs in agricultural education in University of Gezira, Sudan. Data were collected from 90 purposively selected teachers of university with the help of questionnaire administered through face to face interviews. Findings revealed that the majority of teachers used the ICT irregularly because of the lack of them in the majority of the class rooms, therefore they used instead of them the traditional boards such as blackboard and greenboard. It can be concluded that the Faculty of Agricultural Sciences, University of Gezira, Sudan is still using the conventional systems of higher education as in public universities in developing world. Thus, the faculty members should be motivated, empowered and supported in order to use the available ICTs in their teaching activities, the constraints which are facing the use of ICTs in the teaching and learning process in the faculty should be solved and integrating the use of ICTs into the faculty's strategies and policy planning.

Keywords: Information and Communication Technologies (ICTs), Education, Class room, Higher education.

INTRODUCTION

The Education is one of the most important sectors for economic and human capacity development. The conventional systems of higher education in public universities in developing countries are based in traditional libraries where the majority of agricultural books are imported from outside the countries; therefore these traditional libraries have no adequate stock of text and reference books due to financial problems (Zaman *et al*, 2012). The traditional tools such as blackboard and greenboard are widely used as teaching tools in educational set up in Sudan. In Organization for Economic Cooperation and Development (OECD) countries, research consensus holds that the most effective uses of ICTs are those in which the teacher, aided by ICTs, can challenge student's understanding and thinking, either through whole-class discussions and individual/small group work. ICTs can be seen as important tools to enable and support the move from traditional 'teacher-centric' teaching styles to more 'learner-centric' methods.

Jeanne (2010) mentioned that research has shown that when integrated into curriculum-based student-centred classroom activities, tools such as word processors, spreadsheets, databases, modelling and presentation software can promote the development of such contemporary century skills as communication, collaboration, and analytical thinking. The rapid growth of information and communication technologies (ICTs) offers a good opportunity to educational institutions worldwide to enhance the learning process at all levels of education which will help to produce positive outcomes. As in other sectors information and communication technologies (ICTs) are affected the way people teach and learn (Husseini *et al*, 2009). Talibian *et al*. (2014) reported that the use of ICTs in education has led to reform the learning and teaching processes. ICTs allows the academic institutions to reach disadvantaged groups and new educational markets worldwide. ICTs can fundamentally produce significant transformation in deferent sectors such as industry, agriculture, medicine, business and engineering (Toro, 2012). ICTs can help students in browsing contents through e-books, sample of previous examinations and articles in addition to easy access to resource persons, monitors, experts, professionals,

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researchers and peers-all over the world (Bora *et al.*, 2013). The main aim of this study was to determine the use of ICTs in agricultural education in the Faculty of Agricultural Sciences, University of Gezira, Sudan.

MATERIALS AND METHODS

This study was carried out in the Faculty of Agricultural Sciences, University of Gezira, Sudan in the academic year 2015. The number of the teachers of the faculty was estimated to be 90 using the full count method .All the population was used to determine the use of ICTs in the class rooms of the faculty. A questionnaire consisting of four questions was constructed and the personal interview technique was used to administer the questionnaire. The collected data were statistically analyzed and interpreted using percentage , frequency distribution and chi-square test. Chi-square with help of SPSS. test is given by:

$$\chi^2 = \sum_{r=1}^R \sum_{c=1}^C (O_{rc} - E_{rc})^2 / E_{rc}$$

With degrees of freedom (v) given by(R-1) (C-1), Where:

R: Rows of the contingency table

C: Columns of the contingency table

Orc: Observed frequency in row (r) and column (c)

Erc: Expected frequency in row (r) and column (c)

RESULTS AND DISCUSSION

Importance of using ICTs in teaching and learning process: Data depicted in table 1 showed that slightly greater than half (53.3%) of the respondents were of view that the ICTs are excellent tools in increasing understanding of students. Hennessy (2010) who described those teachers perceived ICT as very useful intervention which made educational process an easier and effective process.

Table 1. Percentage distribution of teachers according to importance of using ICTs in teaching and learning process.

Importance of using ICTs in teaching and learning process	Teachers	
	No.	%
Did not increasing understanding	02	02.4
Increasing understanding to some extent	13	14.4
Very good tools in increasing understanding	27	30.0
Excellent tools in increasing understanding	48	53.3
Total	90	100

Use of ICTs in the classrooms: The results portrayed in Table 2 showed that the majority of teachers (64.4%) reported that they used ICTs irregularly in the class rooms. On contrary, percentage of ICTs users in class room appeared poor (07,8%).Users were of the view that teachers often use their own laptops, mobiles, projectors and computers despite of inadequate infrastructure to foster educational process. In recent past, Siddiqi (2014) had reported lack of accessibility, computers and other presentation equipment’s in the

class rooms as a leading factor affecting the effectiveness of ICTs.

Pelgrum (cited in Jannet *et al.*, 2014) found that obstacles for ICT implementation include insufficient number of computer, teacher’s lack of ICT knowledge/skills, difficult to integrate ICT to instruction, scheduling computer time, insufficient peripherals, not enough copies of software, insufficient teacher time, not enough simultaneous access, , not enough supervision staff and lack of technical assistance.

Table 2. Percentage distribution of teachers according to their use of icts in the class rooms.

Use of ICTs in classroom	Teachers	
	No.	%
No	25	27.8
Irregularly	58	64.4
Regularly	07	07.8
Total	90	100

Kind of ICTs used in the class rooms: More than half (55.60%) of respondents reported that they used only the traditional boards (blackboard and greenboard) during class room proceeding, while (20%,15.5%,8.9%) of them reported that they used PowerPoint projector,

internet and computers in the class rooms respectively. This may due to many factors limiting the use of ICT in the faculty such inadequate fund directed to ICT to be available in the class rooms, lack of training in the use of ICT, lack of motivation and the need to adopt the use of

modern tools. Results are similar to those of Carnoy (2002) who described that in higher education in Ethiopia computers, network infrastructures and connections are not compatible to the size of enrolled students and existing demands. Teachers do lack the required skill to match the technology like computers and the internet with innovative pedagogies that benefit

students' learning. Many teachers do not have the necessary ICT skills and feel uncomfortable, nor do they have the specific training needed to be able to use the new resources in the classroom. Results are similar to those of Adeoye (2013) who described that in Nigeria low level of funding has resulted into inadequate ICT facilities in schools.

Table 3. Percentage distribution of teachers according to kind of ICTs used in the class rooms.

Kind of icts used in the class rooms	Teachers	
	No.	%
PowerPoint projector	18	20.0
Internet	14	15.50
Computer	08	8.90
Traditional boards	50	55.60
Total	90	100

Reasons for not using ICTs in education: According to data depicted in Table 4 the majority of teachers (80.2%) reported that the ICTs such as computers, laptops and smart boards are not available in the class rooms, while (06.6%) of them reported that they have no laptops and (03.3%) of them reported that they lack technical knowhow which will help them in the usage of ICTs in the class rooms. The rest of them (8.9%) reported that they have no motivation to use the ICTs (Table 4). This result is in agreement with the result reported by James (2013) who found that in universities

in South South Nigeria many constraints are being faced by teaching staff. The leading constraints highlighted were inadequate ICTs facilities, frequent electricity interruption and poor implementation of ICTs policies. Results are supported by Hennessy *et al.* (2010) who found that research indicates that in Sub- Saharan Africa until recently, training opportunities have remained limited in availability and consistent in quality which resulted demonstrably low proficiency in using ICTs and general lack of knowledge about technology in teaching and training.

Table 4. Percentage distribution of teachers according to reasons for not using ICTs in the class rooms.

Reasons for not using ICT in the class rooms	No.	%
Technical know how	03	03.3
I have no laptop	06	06.6
Not available in classes and labs	73	80.2
Have no motivation to use ICT	08.0	08.9
Total	90	100

Table 5. Chi-square test to test the association between use of ICTs and kind of them used in the class rooms.

Use of ICTs in class rooms	Kind of ICTs used in the class rooms					Significance
	Power Point	Internet	Computer	Traditional boards	Total	
No	06	03	07	09	25	
Occasionally	21	04	04	29	58	
Regularly	04	00	00	03	07	
Total	31	07	11	41	90	

Significance level 0.10 or less

Chi-square test: Chi-square test was used to determine the association between the kinds of ICTs and use of them in the class rooms. The result revealed that there was significant association between the kind of ICTs and

use of them in the class rooms (Table 5). This means that there was clear relationship between the availability of ICTs in the class rooms and their use by the teachers to enhance the learning process and the quality of

education. Availability of ICTs in the class rooms can be seen as the main factor limiting the use of ICTs tools.

CONCLUSION AND RECOMMENDATIONS

The paper reflected the use of ICTs in agricultural higher education, University of Gezira, Sudan in which there have been many factors affecting the use of ICT in the class rooms such inadequate budget directed to purchase ICTs, lack of training in the use of ICT, lack of motivation and the need to adopt the use of modern tools by the teachers.

Based on the findings of the study, the following recommendations are put forward:

- Suitable budget for purchasing ICTs should be secured. .
- Integrating the use of ICTs into the faculty`s strategy and policy planning.
- Capacity building programme should be well planned and designed to train the staff members on effective use of ICTs in the class rooms.

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