

# UTILIZATION OF CLOUD COMPUTING TECHNOLOGY AMONGST ACADEMIC STAFF FOR TEACHING LEARNING PROCESS IN IGNATIUS AJURU UNIVERSITY OF EDUCATION, RUMUOLUMENI, PORT HARCOURT

*Eunice C. Victor-Ishikaku, Ph.D*

## **Abstract**

This study investigated at the commonly used cloud computing technology platforms and level of the utilization of cloud computing technology amongst academic staff of Ignatius Ajuru University of Education. This is on the premise that the language of teaching and learning today is Information and Communication Technology (ICT). ICT today is a common language spoken by the world that has broken down walls and barriers, and collapsed the world into a global village, hence a step to internationalization of education in Nigeria is by the use of cloud computing technology in the teaching-learning process. A 4-point likert scale questionnaire instrument titled Assessment of Cloud Computing Technology Utilization Questionnaire (ACCTUQ) was used for the study. Two hypotheses was formulated and tested at .05 alpha level. The questionnaire was validated and its reliability ascertained, and a coefficient of .70 was found. The findings showed that cloud computing technology is mostly used for personal purposes, (58.6%) and research (59.8%), such platforms as google, whatsapp, linkedin, facebook, email and instagram were not used for teaching-learning activities as the result showed (13.8%). This result paints a gloomy picture on the state of the use of cloud computing technology. To follow the trend of issues as to internationalize our education system differences that more efforts has to be made. The use of cloud computing technology can be enhanced by providing cloud computing technology facilities, training of staff through workshop and seminars and willingness and commitment to change by the staff. Based on the findings the following recommendations were made; that cloud computing technology facilities be provided, academic staff be given regular training on how to use cloud computing technology and ICT facilities for teaching-learning interaction so as to raising teachers who will be global in outlook needed by the 21<sup>st</sup> century digital age teachers.

Information and Communication Technology (ICT) has revolutionalized the world today and its influence is still unfolding each day. It has witnessed a tremendous development over the recent years, embracing new forms and strategies that are unprecedented (Ebo 2015). Gone are the days of carrying heaps of printed text materials that are probably obsolete. The new ICT technologies such as laptops, i-pads, smart phones, palm tops etc with high capacity memory cards that can carry information contained in a whole school library, has taken over. ICT today is the language of the 21<sup>st</sup> century. It is the common language that has brought the world together, spoken in every facet of life and human activities. It is the language that has brought every human activities into one entity such that every human activity today is seen from international perspective hence internationalization is the concept of the 21<sup>st</sup> century technologically driven society. ICT has redefined the process of classroom interaction and the roles of the teacher and the learner in the teaching-learning process is also being redefined. Most of these changes in the teaching-learning process are brought about by the Web 2.0

technology. Web 2.0 ICT have become part and parcel of our every life and transactions and has found its way into the classroom. Computing in the “cloud” is one aspect of this Web 2.0 technology that has literarily masterminded these transformations.

Cloud means mass of water droplets in the atmosphere. Though a climatic terminology, it is used in the ICT palace to mean a pool or group of computers that are interconnected so as to form a store of information or data bank which could be accessed by different individuals from different locations whenever needed. To compute on its own means to process, calculate, surf, etc. Cloud computing therefore could be said to be a mass of internet based activity or interconnected computers at different locations linked to process information and data centrally and allow individuals access to such information when needed through online devices. It is a form of internet based computing system where different services are delivered to individual devices online (Victor-Ishikaku 2016). Cloud computing could also be seen as social networking media or channel because they are web-based tools used for communication, information sharing and collaboration to promote community development. According to Potpott (2012), it is one of the most popular concepts talked about in higher institutions globally. Its usage cuts across all ages, race, profession, industry and practices, hence this study to look at its level of utilization in teacher education institutions in Nigeria.

Riman (2013) listed tools for cloud computing technologies as laptops, modem, ipads, iphones, smart phones etc and the sites or platforms are facebook, twitter, blogs, wikis, podcast, youtube, friendster, linkedin, whatsapp, skype, myspace etc. The benefits of cloud computing in the teaching-learning process cannot be overemphasized. It has great potential to change education both in online and or in traditional/convectional classroom. They are effective in; arousing learner’s interest and enthusiasm for learning, engaging the learner actively in the learning process, reducing the challenge of expensive textbooks, creating avenue for quality, up-to-date and current resource materials for the teachers, reducing the challenge of outdated and obsolete resource materials, eliminating the high cost of acquiring expensive hardware and software, is compatible with mobile devices, and create access to world libraries as the cloud is the knowledge reservoir or knowledge bank globally. Cloud computing devices are powerful tools and channels for teaching that education cannot overlook, though most learners use them for communication and entertainment, teachers can seize these avenues to transform and expand the learners learning experience. There is a strong movement today encouraging teachers to consider and incorporate not only traditional print-based text materials but also digital literatures to be shared through online services with learners (Olele 2014, Ebo, 2015, Palmer 2017).

The importance of the knowledge and competencies of the new technology cannot be overemphasized, hence the efforts and services offered by international agencies to developing countries to ensure ICT development in the education sectors especially. This also explains why the National Policy on Education (FRN, 2014) stated that the integration of ICT into education needs urgent attention as it play prominent role in advancing knowledge and skills necessary for effective functioning in the modern world that is knowledge and technology driven.

The ability of the teacher to use the ICT as strategy to carry out instruction delivery in the teaching-learning process is of utmost importance in the digitalized classroom of today. It provides the teacher the opportunity to network with other teachers globally and to make resources available at the peck and call of the teacher globally (Emenalo & Nwankwo, 2012).

Based on these benefits of ICT, the National Commission for Colleges of Education (NCCE) in collaboration with United Nations Education Scientific and Cultural Organization (UNESCO)

organized workshops in 2001/2002 academic year in Nigeria to enable teachers acquire skills in the application of computer competencies, several other seminars and workshops are organized to update teachers ICT knowledge and competencies such as Intel Teach Programme, Practical Training in Computer Operations (PTCO) by Intel, Advanced Digital Appreciation Programme (ADAPTI) for tertiary institutions by federal government etc. Computer and its accessories are supplied to tertiary institutions. ICT centres are established and traditional libraries converted into digital libraries in higher school to create easy access to online facilities for effective teaching and learning. It is on this premise that this work is being carried out to ascertain the level of the use of cloud computing technology tools for the teaching-learning process in teacher education programme which is the bedrock of the education system.

### **Statement of Problem**

ICT has introduced a new dimension to teaching and learning which is technologically based. Cloud computing is one of these new strategies. Institutions of higher learning have recognized the benefits of cloud computing technology (Inize, Utoware & Kre-Ikidi, 2013). It is said to have great potential for effective teaching and learning for the acquisition of relevant skills and information to function effectively in the society. Teacher training institutions needs to be at the forefront of its application in the teaching-learning process as it trains the young to be relevant in this technology era. More so, the world today have become a global village due to the impact of the new technology; for the teacher to fit into the world global village and to have an international outlooks demands that the teacher be equipped with these skills. One of the qualities of the 21<sup>st</sup> century teacher as pointed out by Viactor-Ishikaku & Nyenwe (2015) is the knowledge and skills of ICT as it prepares the teacher for an international and global outlook to be able to play multiple roles and be versatile as a teacher. It is therefore necessary that the teacher trainers should embrace this new cloud computing technology and incorporate it into their teaching process. Ignatius Ajuru University of Education has ICT centres and digital library which offers some free internet services, ICT department and other private owned cyber café at the disposal of the school community. Furthermore cloud computing platforms are part and parcel of our everyday life as individual subscribe personally for their private use. ICT has transformed the world into a global village, collapsing walls and borders. What this potent is that education is no longer localized to a country but cuts across borders such that graduates from any country should be able to fit into any environment or nation and function effectively. The question now is, has the Nigerian education system taken this outlook. How far are our higher institutions especially the teacher education institution taking steps to internationalize our education system? The question again arises? How many academic staff applies this technology in their teaching activities and how often do they use it? How prepared are the teachers to go into e-exam as being advocated for by the new school management so as to have the international outlook it desires. Ani & Esin (2005) cited in Ike, Adiala and Ohaka observed that higher institutions in Nigeria have still not imbibed the culture of using technology in academic activities. Against this backdrop the researcher wants to ascertain the level of cloud computing utilization by the academic staff of teacher training institutions for academic purposes with focus on Ignatius Ajuru University of Education.

### **Purpose of the Study**

The purpose of this study is to ascertain the extent of the utilization of cloud computing technology among the teaching staff of Ignatius Ajuru University of Education for teaching-learning purposes. Specifically, the study sought to;

- i. Ascertain the most commonly used cloud computing platform for teaching-learning process in Ignatius Ajuru University of Education.
- ii. Find out the extent of the use of cloud computing technology in the teaching-learning process by academic staff of the institution.
- iii. To find out how the use of cloud computing technology can be enhanced in the institution.

### **Research Question**

The following research questions guided this study;

1. What cloud computing technology platforms are commonly used amongst the academic staff of Ignatius Ajuru University of Education?
2. To what extent does academic staff of Ignatius Ajuru University of Education use cloud computing technology in the teaching-learning process?
3. What cloud computing technology platforms are popular with the male and female academic staff of the institutions?
4. How can the use of cloud computing technology be enhanced for academic purposes.

### **Hypotheses**

Two hypotheses were formulated for the study and were tested at .05 level of significance:

1. There is no significant difference between the extent of use of cloud computing technology for academic purposes between those that use and those that do not.
2. There is no significant difference in the mean usage score of cloud computing technology platforms by the males and the females academic staff of Ignatius Ajuru University of Education for academic purposes.

### **Methodology**

- i. Research Design: The descriptive survey design was used for the study.
- ii. Population for the Study: The population consisted of all the academic staff in the Faculty of Education in Ignatius Ajuru University of Education teaching regular under graduate degree programme.
- iii. Sample and Sampling Technique: The population of the academic staff in Faculty of Education was 87 so all of them were used for the study.

### **Instrument for Data Collection**

A structured researcher made questionnaire was used for the data collection. The 30 item questionnaire titled "Assessment of cloud computing technology utilization questionnaire (ACCTUQ)" was designed in two (2) sections A for personal data while B was based on the items for the study, structured on a modified likert-type four point rating scale as;

Strongly Agree (SA)	-	4pts	-	Always or regularly	
Agree	(A)	-	3pts	-	Often
Disagree	(D)	-	2pts	-	Rarely

Strongly Disagree (SD) - 1pt - Never

To get the criterion mean for scoring the questionnaire all the points of the alternative responses were added together and then divided by 4 (i.e. 4+3+2+1) ÷ 4

$$= \frac{10}{4} = 2.50$$

This therefore means that any mean value that is below 2.50 was disagree or rarely while 2.50 and above was regarded as agree or often.

### **Validation of Instrument**

The questionnaire was validated by three (3) experts in the field two (2) from education technology department and one (1) from measurement and evaluation. Their observations and comments were used to reverse and modify the instrument before administering it to the respondents. This ensured that the instrument measured the right items expected.

### **Reliability**

For the purpose of the reliability of the questionnaire the instrument was administered to ten (10) respondents which were not part of the sample group. After two (2) weeks the questionnaire was given to the same respondents again. The scores from the respondents were collated and computed using the pearson product moment correlation coefficient. The reliability coefficient index was .70. Thereafter the questionnaire was administered personally to the sample group individually and retrieved thereafter. About 80 were retrieved which showed about 91% return.

### **Method of Data Analysis**

The data collected was analyzed using descriptive statistics; mean ( $\bar{X}$ ), percentage (%) and frequency while the hypothesis were calculated using the t-test statistics at .05 level of significance.

### **Presentation of Result**

**Research Question 1:** What cloud computing technology platforms are commonly used amongst the academic staff of Ignatius Ajuru University of Education?

**Table 1: Simple Percentage Showing Cloud Computing Technology Platforms Commonly Used Amongst the Academic Staff of Ignatius Ajuru University of Education**

S/No	Items	Always F (%)	Often F (%)	Rarely F (%)	Never F (%)
1	Blog	-	-	70(80.5)	17(19.5)
2	Youtube	4(4.6)	15(17.2)	55(63.2)	13(14.9)
3	Chat	18(20.7)	10(11.5)	17(19.5)	42(48.3)
4	News group	6(6.9)	7(8.0)	57(65.5)	17(19.5)
5	Google	13(14.9)	52(59.8)	9(10.3)	13(14.9)
6	Facebook	54(59.8)	17(19.5)	18(20.7)	-
7	Firefox	10(11.5)	52(59.8)	14(16.1)	11(12.6)
8	Twitter	62(71.3)	4(4.6)	8(9.2)	13(14.9)
9	Email	52(59.8)	17(19.5)	18(20.7)	-
10	Internet	70(80.5)	10(11.5)	7(8.5)	-

11	Linkedin	18(20.7)	18(20.7)	27(31.0)	24(27.6)
12	Skype	18(20.7)	12(13.8)	23(26.4)	34(39.1)
13	Whatsapp	52(59.8)	18(20.7)	5(5.7)	12(13.8)
14	Instagram	18(20.7)	31(35.6)	17(19.5)	21(24.1)
15	Online forum	10(11.5)	8(9.2)	52(59.8)	17(19.5)

Table 1 above shows that 80.5% of academic staff rarely used blog, 19.5% never used it while for always and often no interest was indicated for its use. For Youtube 4.6% used it always, 17.2% often, 63.2% no rarely used while 14.9% never used it. For charting 20.7% indicated using it always, 11.5% often, 19.5% rarely and 48.3% never. Newsgroup: 6.9% agreed to using always, 8.0% often, 65.5% rarely and 19.5 never. Google: 14.9% indicated using always, 59.8% often, 10.3% rarely while 14.9% never used. Facebook: 59.8% used it always, 19.5% often and 20.7% rarely. Firefox: 11.5% used always, 59.8% often, 16.1% rarely while 12.6 never used. Twitter: 71.3% always used it, 4.6% often used, 9.2% rarely used while 14.9% never used it. Email: 59.8% used always; 19.5% often while 20.7% rarely. Internet: 80.5% used it always, 11.5% often, 8.5% rarely none indicated not familiar with it. Linkedin: 20.7% use it always, 20.7% often, while 31.0% and 27.6% indicated using it rarely and never respectively. Skype: 20.7% indicated using it always, 13.8% often, 26.4% rarely and 39.1% never used. Whatsapp: 59.8% indicated using it always, 20.7%, 5.7% rarely and 13.8% never. Instagram: 20.7% always used it, 35.6% often, 19.5 rarely and 24.1% never. Online forum: 11.5% used always, 9.2% often, 59.8% rarely and 19.5% never used.

**Research Question 2:** To what extent does academic staff of Ignatius Ajuru University of Education use cloud computing technology in the teaching-learning process?

**Table 2: Mean and Standard Deviation of the Usage of Cloud Computing Technology in the Teaching-Learning Process**

S/No	Items	Always F (%)	Often F(%)	Rarely F(%)	Never F(%)
1	Research purpose only	52(59.8)	17(19.5)	18(20.7)	-
2	Teaching my courses as a strategy	12(13.8)	24(27.6)	10(11.5)	41(47.1)
3	Receiving my students assignment only	-	10(11.5)	52(59.8)	25(28.7)
4	Personal issues	18(20.7)	51(58.6)	18(20.7)	-

Table 2 above shows that 59.8% of staff always use cloud computing technology for research purpose only, 19.5% often use for research purpose while 20.7 rarely use for same purpose. None indicated never used. 41.7% have never used cloud computing technology to teach their courses, 11.5% rarely use to teach their courses 27.6% often used while 13.8% of the respondents use cloud computing technology to teach their courses. Majority of the staff (59.8%) rarely use cloud computing technology to receive assignments, 28.7% never use while 11.5% often use cloud computing technology to receive assignments. None indicated always using cloud computing technology for receiving assignments. Most of the respondents agreed that they use cloud computing technology for their Personal issues only; 20.7% indicated always, 58.6% often, 20.7% rarely while none indicated never used.

**Research Question 3:** What cloud computing technology platforms are popular with the males and females of Ignatius Ajuru University of Education?

**Table 3: Mean and Standard Deviation showing Cloud Computing Technology Platforms Popularly Used by Males and Females**

S/No	Platform	Gender	Mean	Std. Dev
1	Blog	Male	1.81	0.39
		Female	1.78	0.41
2	Youtube	Male	2.00	0.67
		Female	2.30	0.72
3	Chat	Male	2.03	1.22
		Female	2.06	1.17
4	News group	Male	1.94	0.73
		Female	2.15	0.75
5	Google	Male	2.77	0.96
		Female	2.69	0.76
6	Facebook	Male	2.75	1.18
		Female	2.78	1.19
7	Firefox	Male	2.72	0.91
		Female	2.66	0.69
8	Twitter	Male	2.00	0.70
		Female	2.21	0.81
9	Email	Male	3.31	1.11
		Female	2.96	1.28
10	Internet	Male	2.97	1.28
		Female	2.30	1.11
11	Likendin	Male	2.37	1.08
		Female	2.30	1.13
12	Skype	Male	2.12	1.19
		Female	2.21	1.11
13	Whatsapp	Male	2.65	0.69
		Female	2.70	0.76
14	Instagram	Male	2.48	1.12
		Female	2.60	0.99
15	Online forum	Male	2.50	1.13
		Female	2.15	0.87

From the table above, result shows that the most commonly used platform among males and females include google, facebook, firefox, email and instagram. This is because their mean values are above the criterion mean of 2.50. On the use of the cloud computing technology on gender bases the table reveals as follows;

Blog: males had means value of 1.81 while females had 1.78 indicating that blog is not commonly used as it's mean value is below 2.50.

Youtube: males 2.00 and female 2.30 showing not commonly used.

Chat: males 2.03 and females 2.06 showing not commonly used.

Newsgroup: males 1.94 and females 2.15, not commonly used.

Google: males 2.77 and females 2.69 commonly used

Facebook: males 2.75 and females 2.78 popular with both males and females.

Firefox: males 2.72 and females 2.66 commonly used.  
Twitter: males 2.00 and females 2.21 not commonly used.  
Email: males 3.31 and females 2.96 popularly with both males and females.  
Internet: males 2.97 and females 2.30 very popular.  
Linkedin: males 2.37 and females 2.30 commonly used.  
Skype: males 2.12 and females 2.21 not common.  
Whatsapp: male 2.48 and females 2.60 showing more popularly with the females than the male.  
Instagram is more popular with the females with the mean of 2.60 and the males 2.48 while online forum is more popular with the males with the mean of 2.50 and the females 2.15.

Research Question 4: How can the use of cloud computing technology be enhanced in Ignatius Ajuru University of Education?

**Table 4: Mean and Standard Deviation Showing how the Use of Cloud Computing Technology can be Enhanced in Ignatius Ajuru University of Education**

S/No	Item	N	Mean	Std. dev	Decision
1	Provision of cloud computing facility by stakeholders will enhance its use	80	2.77	1.17	Agreed
2	Workshops and seminars is necessary for the enhancement of the use of cloud computing technology	80	3.68	0.46	Agreed
3	Willingness of staff to adapt to innovation is necessary for effective use of cloud computing technology	80	3.42	1.00	Agreed
4	Personal commitment and sacrifice by academic staff is require for effective use of cloud computing technology	80	3.19	0.39	Agreed
5	Using cloud computing technology will be enhanced if academic staff will make concerted efforts	80	3.39	0.81	Agreed

Table 4 shows how the use of cloud computing technology can be enhanced in Ignatius Ajuru University of Education. Furthermore, the result reveals that all the items listed are strategies of promoting the use of cloud computing technology in the institution.

HO<sub>1</sub>: There is no significant difference between the extent of use of cloud computing technology between those that use and those that do not use for academic purposes among academic staff

**Table 5: t-test Showing the Extent of Usage of Cloud Computing Technology Among Academic Staff for Academic Purpose**

Variable	N	Mean	Std. Deviation	df	t-cal	Sig	Decision
Those that use	28	2.03	0.24	85	3.78	0.00	S
Those that do not use	52	0.94	0.16				

Table 1 show that the calculated t-value is 3.78 while its corresponding table value (tcritical) is  $\pm 1.96$  at .05 alpha level. The calculated value is greater than the critical value. This means that there is a significant difference between those that use cloud computing technology and those that do not use among academic staff. Therefore, hypothesis is rejected.

HO<sub>2</sub>: There is no significant difference between male and female academic staff in the usage of cloud computing technology platform.

**Table 6: t-test Showing the Difference between Male and Female Academic Staff in the Usage of Cloud Computing Technology Platform for Academic Purposes**

Variable	N	Mean	Std. Deviation	Df	t-cal	Sig	Decision
Male	50	1.07	0.16	85	0.78	0.44	NS
Female	30	1.75	0.29				

Table 1 shows that the calculated t-value is 0.78 while its corresponding table value (t-critical) is  $\pm 1.96$  at 0.05 alpha level. The calculated value is less than the critical value. This means that there is no significant difference between male and female academic staff in the usage of cloud computing technology platform. Therefore, hypothesis 2 is not rejected.

### **Discussion of Findings**

The study investigated the level of the utilization of cloud computing technology amongst academic staff of Ignatius Ajuru University of Education for teaching-learning process. It looked at the commonly used cloud computing technology platforms, the extent of the use, preferred platform used by the males and females respectively and how the use of cloud computing technology for teaching-learning process can be enhanced in the institution. It is the belief of the researcher that the knowledge of this findings will help the stakeholders in the training of prospective teachers in the institution in providing the facilities and creating enabling environment that is e-learning compliant as to raise teachers who will be global in outlook to meet the needs of the 21<sup>st</sup> century digitalized teaching-learning environment (Victor-Ishikaku & Nyenwe 2015).

The result showed that academic staff of Ignatius Ajuru University of Education commonly use some cloud computing technology platforms such as whatsapp (59.8), facebook (59.8), email (59.8), internet (80.5), twitter (71.3), firefox (59.8), and google (59.8). These are platforms that are used mainly for personal issues and for downloading materials for research purposes as was also observed by Omeniyi, Agu & Odimegwu (2007) in Emenalo & Nwankwo (2012). This result reveal that the academic staff are very much aware of the potentials of cloud computing technology in sourcing for information and for learning, hence none indicated never using cloud computing technology for research purposes.

On the extent of use of the cloud computing technology platform for teaching-learning process, the study showed that they used these platforms for personal issues and for downloading materials for research work mainly. They are rarely used for teaching-learning activities. None indicated never used for research purposes. This could be informed by the findings of Okoyefi & Nzewi (2012), and Iroriteraye-Adjekpovu (2013) in their study of the assessment of the academic staff skills in the use of ICT facilities and devices in Nsukka, Enugu State and Ika, Delta State respectively. They found that academic staffs lack knowledge and requisite skills in the use of some ICT facilities and devices for teaching-learning activities as was observed by Ike, Adiala and Ohaka (2015). This could also suggest that some academic staff are slow to change due to fear of change. Despite series of trainings and workshops on ICT and its use for teaching-learning process, they are still clued to and

more comfortable with the conventional teaching-learning process which of course is said to be minimally effective compared to the new e-learning strategies. This could also be attributed to the fact that most institutions are ill-equipped with ICT facilities and knowledge for the application of ICT as revealed by Adeyomo (2012). Ezike 2015 & Okoro, Oruwari & Ndubisi (2011) cited in Ebizie & Ezike (2015) also noted this in their study on the availability and utilization of ICT in higher institutions. It was observed that mobile phones and e-mail were mainly used as other facilities are not readily available.

This finding is also a pointer to the fact that teachers' competence in the use of ICT facilities in teaching is a major hindering factor in its application in the teaching-learning process. In as much as getting information for personal research work is very important, using these platforms in the teaching learning process is very important as this will prepare the trainee teachers to be able to perform as teachers in the 21<sup>st</sup> century classroom. Failure to use them means the prospective teachers cannot acquire the skills and so will be ill-equipped to function as teachers. They need to effectively integrate these strategies as pedagogical tools for effective teaching and learning activities as stated by Emenalo & Nwankwo (2012). These suggest that academic activities in the institution are deficient in the current global e-learning skills and strategies. This is not in consonance with the vision of the National Policy on Education (NPE) of the Federal Government (2013) as stated in the national policy on education where the integration of ICT into teacher education is seen as key to building a globalized education system. None usage of these cloud computing technology platforms and strategies for teaching-learning activities suggest that the trainee-teacher will not be equipped with these skills and so will be ill-equipped to handle the new technology learning environment of our time. This implies that in theory we are preaching the message of the technology driven learner environment but in practice we are still practicing and maintaining the convectional teaching methods and so we are not making adequate move to translate into internationalizing the education system. In the view of Okure (2008) as cited in Emenalo & Nwankwo (2012), the university should be abreast with the innovative instructional strategies if Nigeria must overcome the present challenges to compete with the global knowledge driven economy of our time.

On the types of cloud computing technology platforms used by both male and female lecturers, findings revealed that both the male and female lecturers had flare for same platforms; google 2.77 and 2.69, facebook 2.75 and 2.78, firefox 2.72 and 2.66, email 3.31 and 2.96, LinkedIn 2.37 and 2.30 and instagram 2.48 and 2.60 respectively, while the other listed were minimally used. This is a pointer to the fact that lecturers both male and female use similar platforms that enhanced their personal relationship and for their personal research work. In as much as using the cloud computing technology for personal research work is very important; its important in e-learning cannot be overemphasized. To measure up with the education standard of the world global village, it is very necessary to apply these strategies in our teaching-learning process if we must produce teachers who will be fit for the global labour market.

On how the use of cloud computing technology can be enhanced for effective teaching-learning process it was agreed that provision of cloud computing technology facilities should be made available (2.77), regular workshops and seminars to educate lecturers on the application of cloud computing technology platforms for academic purposes (3.68) willingness of lectures to adjust to new innovations in teaching-learning process (3.42) and personal commitment and sacrifice by lecturers to train competent teachers (3.19). Putting these things in place by relevant stakeholder will create an

enabling environment for the use of cloud computing technology for effective teaching-learning activities.

### **Conclusion**

It is a truism that ICT with its great potential for e-learning has brought serious transformation into the teaching-learning process. Cloud computing technology specifically has brought a whole lot of transformation into information acquisition and communication which has made tremendous impact in the 21<sup>st</sup> century teaching-learning environment. Nations are keying in to tap this wealth of resources from ICT and its components to enable them achieve their goals economically, socially, scientifically, technologically and otherwise. Such investments are made especially in the education sector as it is the bedrock of the development of any nation. Teacher education institutions most especially ought to be in the fore front of accessing and using this ICT facilities especially cloud computing technology looking at the pivotal role they play in nation building. A situation where the lecturers cannot and do not utilize these facilities for teaching-learning process will amount to producing teachers who will fit into the global scene. Internationalizing education demands applying international best practices and facilities which ICT has brought into education.

### **Recommendations**

Based on the premise of the findings of this work, the following recommendations are made;

1. Lecturers need to make converted effort to embrace the change ICT has brought into the education system and be ready to make the necessary sacrifice to utilize them for teaching-learning process. This is necessary based on the fact that today the world has become a global village and the graduates we are producing from our institution should be trained with the mindset that they should be able to function all over the globe. Internationalizing education demands training and raising workers who have international standard and can function in any environment all over the globe.
2. Government and relevant stakeholders in teacher education should provide the necessary funds to provide the needed facilities for the use of the cloud computing technology in the teacher education institutions. Facilities such as regular power supply, internet services etc.
3. The university authorities should ensure that the facilities are functional and accessible to the users.
4. The university authorities should liaise with relevant bodies to provide regular training and workshops for lecturers on how to apply cloud computing technology facilities for effective teaching and learning. Refresher courses are necessary to keep the teachers abreast with new development and international best practices if education in Nigeria must be internationalized.
5. Government and university authorities should liaise with Internet Service Providers (ISP) to reduce or subsidize the cost of internet services to make it more accessible to lecturers for use.

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