

# Proficiency of Vocational Teacher Educators and Availability of Information and Communication Technology Resources for Effective Instruction in Colleges of Education, South-South, Nigeria

ALFRED, Sabastine Bamidele (PhD)<sup>1</sup>, EKHOVBIYE, Michael Osayame<sup>2</sup>

<sup>1</sup>Department of Agricultural Education, College of Education, Igueben, Edo State, Nigeria

<sup>2</sup>Department of Business Education, College of Education, Igueben, Edo State, Nigeria

**Abstract:** Teacher educators in Colleges of Education in Nigeria are expected to be proficient in using ICT resources available in their colleges to facilitate and enhance their students learning and creativity. However, there is no indication that vocational teacher educators (VTEs) are equipped with the necessary ICT competencies and resources for effective delivery of instruction to vocational teacher trainees. Therefore, the main purpose of this study was to determine the proficiency of Agriculture and Business teacher educators (ABTEs) on ICT competency standard of instruction and the availability of ICT resources for effective instruction delivery in Colleges of Education in South-South Nigeria. To achieve this goal, 2 research questions were generated and 1 null hypothesis was formulated. The study adopted a Descriptive design using the survey method. The population for the study was 298 made up of 145 agriculture and 153 Business teacher educators from Colleges of Education in South-South Nigeria. All the ABTEs were studied as no sampling was done. A 76-item structured questionnaire was used for data collection. A total of 268 (89.9%) copies of the questionnaire were correctly filled and analyzed, using mean to answer the research questions and t-test for testing the hypothesis. Results showed that the ABTEs expressed moderate proficiency ( $M=3.11$ ;  $SD=0.98$ ) in all the 54 ICT competency standards. ICT resources such as television, microcomputer and radio were available, while ICT resources such as interactive television, electronic drawing system and different software were unavailable for instruction delivery. This paper concluded that the moderate proficiency in ICT competency standards of instruction expressed by the ABTEs is indicative of their readiness and capability to use ICT resources for effective instruction if the resources are made generally available in the classrooms. This paper recommended that the management of the various Colleges of Education in South-South Nigeria and relevant agencies involved in teacher educators' capacity building such as TETFund, NCC should organize in-service training programmes and workshops for ABTEs to acquire the requisite proficiency on ICT competency standards of instruction based on the identified proficiency gaps.

**Keywords:** Proficiency; Vocational teacher educators; Information and communication technology resources; Availability; Effective instruction

## I. INTRODUCTION

The level of preparedness of Youths for the world of work is a function of the quality and relevance of education given to them. That is why the challenge of school system all over the world today is how to provide quality and effective education to in-school youths which will prepare them for work and global competitiveness (Jabaka&Danbata, n:d). In spite of this, the South-South states of Nigeria, namely Bayelsa, Rivers, Akwa-Ibom; Cross River, Edo and Delta states (also known as Niger-Delta Region) is bedeviled with numerous problems such as Youth restiveness, armed banditry and kidnapping due to a large army of unemployed or unskilled youths (Egbule, 2012). These challenges can be attributed to a yawning gap between the poor instructional delivery strategies employed by the education system and the inculcation of useful skills needed for the world of work (Robinson & Garton, 2008).

The Niger-Delta region is located between the South-west and south-East regions in Southern Nigeria. The strategic location of this region, coupled with the human resources, climatic and edaphic factors give it a comparative advantage and stands it out as a region with great potential for high agriculture, trade and industrial activities. According to Adavbiele (2016), the leaders of this region recognized the need for quality education as a critical factor in human capital development to drive the agriculture, commerce and industrial development of the region, hence the need to provide quality and effective education to in-school youths in the region, to prepare them adequately for the world of work through effective instruction in schools.

Effective instruction is the ability of a learner to purposely access information from different sources, analyze, evaluate and integrate the information to construct a worthwhile knowledge (Osawaru&Okome, 2009). Effective instruction can be achieved in classroom instructional process through information and communication technology (ICT) resources' utilization. United Nation Educational, scientific and Cultural Organization (UNESCO, 2008), recommended the use of ICT in the classroom to bring about quality

improvement and transformation in instruction delivery. Accordingly, Olafare, Adeyanju and Fakorede (2017) described ICT as a tool that can be used to transform the teaching and learning process in the classroom and thus enhance effective learning by students.

ICT resources in education are defined by Makgato (2014) as Multimedia tools used for the delivery of instruction such as the learning of concepts; investigation; exploration, reasoning and solving problems in the classroom. ICT resources can be used to facilitate and enhance the delivery of instruction in vocational and technical education (Eyovwunu, 2016). The Institute for Information Technologies in Education (IITE, 2003) outlined different types of Audio-visual aids such as overhead Projector; television; video cassette recorder; video projector; digital cameras; scanners; Radio; tape recorder; computer; CD player; internet; slide projector; two-way video satellites and interactive television that can be utilized to maximize learning outcome in Vocational and Technical Education. Also, application software such as productivity software; word processing; integrated software; spreadsheet; graphic software; discipline-specific programmes and authoring software were listed by IITE (2003) to be very useful and should be utilized by Vocational and technical education teachers for classroom instruction.

The use of ICT resources for classroom instruction has engendered a paradigm shift from the traditional teacher-centred pedagogy to a modern learner-centred pedagogy (Makgato, 2014). ICT resources' utilization for instruction helps to resolve the shortcomings of the traditional teacher-centred approaches to teaching and add value to the quality of classroom instruction (Adeleke, 2018). It also motivates and encourages students to become active and independent learners as well as take full responsibility for their learning (Eyovwunu, 2016) as a result of which learning become more of the individual learner's responsibility rather than that of the teacher. UNESCO (2008) posited that the traditional approaches to teaching do not enable the students to acquire relevant skills needed for employment and to function effectively in the 21<sup>st</sup> century workplace. Therefore, the traditional approaches to teaching are not effective when individuals are being trained to perform jobs requiring specific skills such as in vocational and technical education (Sullivan, 1995 in Alfred, 2014).

According to the National Commission for Colleges of Education (NCCE, 2012), Vocational and Technical Education programmes in Colleges of Education are expected to produce competent teachers who would be able to transfer knowledge and skills to in-school youths which is necessary for skills development and productivity. The use of ICT is one of the recommended modes of instruction delivery for Vocational and Technical Education in the minimum standards (Curriculum) for Colleges of Education in Nigeria (NCCE, 2012). The use of ICT resources for instruction in Colleges of Education will help to transform and improve the quality of teaching as well as engender the development of the

students innate scientific inquiry mind and critical thinking abilities (Onasanya, Shehu, Oduwaiye&Shehu, 2010). It is therefore pertinent to use ICT resources for instruction in Colleges of Education.

Colleges of Education are Teacher education institutions (TEIs) in Nigeria saddled with the responsibility of training teachers to obtain non-degree but qualitative professional Nigeria Certificate in Education (NCE) which is the basic requirement for teaching at Basic Education level (Primary and junior secondary schools). Colleges of Education are faced with the challenge of producing new generation of ICT literate NCE teachers that will be able to teach effectively with ICT resources to surmount current problems faced by teachers in the classroom (Olafare et al., 2017). In the NCE Curriculum, the acquisition of basic ICT competencies for instruction is mandatory for vocational teachers' trainee (NCCE, 2012). Vocational teacher educators who are lecturers in Colleges of Education, responsible for the transmission of knowledge, skills and attitude to pre-service and in-service teachers of vocational education, are therefore expected to integrate ICT resources into their classroom activities in order for the vocational teachers' trainee to learn how to use ICT resources for classroom instruction when they later become professional teachers (Tella, 2011). Empirical study (Collins & Jung, 2003) has shown that teachers are more likely to integrate ICT into their teaching if they initially acquired ICT competencies as learners.

The National Commission for Colleges of Education (NCCE), the regulatory agency for Basic teacher education and training in Nigeria, in recognition of the role of teacher educators in Colleges of Education as key players in engendering the use of ICT resources for effective classroom instruction developed ICT competency standards of instruction for teacher educators in Colleges of Education with an implementation framework. NCCE in these documents emphasized that teacher educators should be proficient in the use of ICT facilities available in the Colleges to facilitate students' learning, creativity and innovation in both face to face and visual environment (NCCE, 2012a, 2010b). This is implicated in the fact that proficiency of teacher educators and the availability of ICT resources are major determinants of ICT resources' utilization for effective instruction in Colleges of Education.

Proficiency is the ability of someone to perform a task very well based on training or practice. Yusuf and Balogun (2011) posited that ICT resource utilization for classroom instruction is largely dependent on teachers' proficiency on ICT. ICT proficiency is defined by Buabeng-Andoh (2012) as the ability of the teacher to use a variety of computer application for effective delivery of instruction. According to UNESCO (2008), proficiency in the use of ICT for instruction is defined by ICT competency standards of instruction. ICT competency standards of instruction consist of ICT related skills which are very important in improving communication and effectiveness in classroom instructional process. ICT competency standards of instruction go beyond

mere literacy on ICT to include the deepening and creation of knowledge (UNESCO, 2008). Drent and Meelisen (2008) observed that teachers' proficiency on ICT competency standards of instruction is the major and most important barrier to a successful use of ICT resources for classroom instruction in developing countries such as Nigeria. Gulbahar (2008) emphasized that without ICT proficient teacher educators, it would be difficult to integrate ICT usage into classroom activities in Colleges of Education. It is therefore expedient for vocational teacher educators to be proficient on ICT competency standards of instruction before they can successfully and effectively model the use of ICT resources for instruction in the classroom of vocational teachers' trainee (Tella, 2011).

Availability of ICT resources is another major predictor of a successful use of ICT for instruction by teachers. Availability has to do with the provision and sufficiency of ICT resources for classroom instruction. Availability of ICT resources in schools is a serious issue in ICT resource utilization for classroom instruction. Osakwe (2012) cited in Eyovwunu (2016) reported that unavailability of ICT facilities in most schools is one of the challenges facing the application of ICT for teaching-learning process in schools. Ololube (2006) stated that there is serious limitation to what teachers can do with ICT when ICT resources are not available in schools. Therefore, ICT resources must be available before ICT can be integrated into classroom instructional process (Gulbahar, 2008).

#### *Statement of the Problem*

The goal of the National Commission for Colleges of Education (NCCE) is to ensure that teacher educators are proficient in using ICT resources available in their Colleges to facilitate and enhance the delivery of quality instruction to teachers' trainee in order to produce competent NCE teachers who would be able to transfer knowledge and skills to in-school youths. Unfortunately, the use of ICT for classroom instruction is not given precedence by vocational agriculture and business teacher educators in Colleges of Education in Nigeria. The vocational agriculture and business teacher educators are still engaged in the use of traditional approaches to teaching and learning.

The inability of vocational agriculture and business teacher educators to utilize ICT resources for instruction delivery would have serious consequences for effective delivery of instruction and the acquisition of quality agricultural and business knowledge and skills by teachers' trainee, thereby leading to the production of incompetent agricultural science and business study teachers for the basic education sector. Therefore, the researchers would want to find out: How proficiency are Agriculture and Business Teacher Educators (ABTEs) on ICT competency standards of instruction and which of the ICT resources is available in Colleges of Education in south-South Nigeria for effective instruction delivery?.

#### *Purpose of the Study*

The main purpose of this study was to determine the proficiency of Agriculture and Business teacher educators on ICT competency standards of instruction and the availability of ICT resources for effective instruction delivery in Colleges of Education in South-South Nigeria.

#### *Research Questions*

The following research questions guided the study:

1. How proficient are vocational agriculture and business teacher educators in Colleges of Education in South-South Nigeria, on the stipulated ICT competency standards of instruction?
2. Which of the ICT resources is available for effective instruction in Colleges of Education in South-South Nigeria?

#### *Hypothesis*

The following Null hypothesis was tested at ( $p > 0.05$ ) level of significance:

$H_{01}$ : There is no significant difference in mean perceptions of agriculture and business teacher educators on self-perceived proficiency in ICT competency standards of instruction in Colleges of Education in South-South Nigeria.

## II. METHODS AND PROCEDURE

This study adopted a Descriptive design using survey method. The study was carried out in eleven Colleges of Education across the South-South Geo-political zone of Nigeria. The population for the study was 298 consisting of 145 Agriculture teacher educators and 153 Business teacher educators. The entire population was studied due to the manageable size. A structured questionnaire titled "Proficiency of Vocational Teacher Educators and availability of information and Communication Technology Resources Perception Questionnaire (PVTEAICTRPQ) was developed by the researchers based on established procedure and literature reviewed. The instrument consisted of two sections (A and B). The two sections contained a total of 76 question items which the respondents were required to respond to. Section A of the instrument comprised 54 items on ICT competency standards of instruction which were assigned 5-point Likert scale graded as : very proficient (VP)=5; proficient (P)= 4; moderately proficient (MP)=3; unproficient (U)=2 and very unproficient (VU)=1. Sections B of the instrument consisted of a list of 22 ICT resources for effective instruction. The respondents were required to rate the extent of availability of each of the ICT resources in their institutions on a 5-point Likert type scale as follows: Generally Available (GA) = 5; Available (A)= 4; Moderately Available (MA) =3; Unavailable (U) = 2 and Generally Unavailable (GU) = 1.

The questionnaire items were face validated by 3 professors. Two professors from the Department of Vocational Education (Agric. Unit) and 1 professor from the Department of Business Education, Delta State University,

Abraka. The reliability of the instrument was established using Crombach Alpha to determine the inter-item consistency which yielded a coefficient of 0.81. A total of 298 copies of the questionnaire (145 for ATEs and 153 for BTEs) were administered through the Heads of Department of Agricultural and Business Education. The researchers retrieved and collated 268 duly completed questionnaire from the Heads of Department (128 for ATEs and 140 for BTEs) given return rates of 88.3% and 91.5% respectively with an overall return rate of 89.9%.

The data generated from the study were analysed with statistical package for Social Sciences (SPSS) version 20. Mean and standard deviation were employed for the research questions while t-test was used to test the hypothesis. Any item with a mean value ranging from 3.00 – 5.00 was regarded as proficient and available while others with a mean value below or less than 3.00 were regarded as unproficient and unavailable as perceived by the respondents.

### III. FINDINGS/RESULTS

#### Research question one

Research question one sought to know how proficient Vocational agriculture and business teacher educators (VABTEs) are on the stipulated ICT competency standards of instruction in Colleges of Education in South-South Nigeria. Table 1 show that the mean values of VABTEs perceived proficiency in the stipulated ICT competency standards of instruction ranged from 2.05 to 4.49. Standard deviation ranged from 0.72 to 1.17. The VABTEs perceived themselves as being proficient in 30 out of the 54 competency standards. Three competency standards in which they were most proficient included: follow suggested procedure to turn on/off a computer (M= 4.49; SD =0.72); open and close documents (M=4.21, SD=0.88) and search for files on a computer system (M=4.14; SD=0.88). The least two competency standards which they perceived their inability to perform included: create e-learning materials for teaching students (M=2.05; SD=0.94) and use interactive e-learning tools (M=2.06; SD=0.94). The overall average of the mean scores and standard deviation was (M=3.11; SD=0.98), an indication that VABTEs are moderately proficient on the stipulated ICT competency standards of instruction.

Table 1: Mean And Standard Deviation Of Vabtes' Self-Perceived Proficiency On ICT Competency Standards Of Instruction (N=268)

S/N	Competency Standards	M	SD	Remark
1	Follow suggested procedures to turn on/off a computer	4.49	0.72	Proficient
2	Open and close documents	4.21	0.88	Proficient
3	Search for files on a computer system	4.14	0.88	Proficient
4	Identify keys and functions of a keyboard	4.13	0.91	Proficient
5	Identify and select software based on its appropriateness	4.08	0.97	Proficient
6	Use selected software for planning and delivering instruction	4.06	0.94	Proficient

7	Save and edit documents	4.05	0.98	Proficient
8	Upload software form a CD-ROM	4.04	0.98	Proficient
9	Copy and paste materials in documents	4.01	0.93	Proficient
10	Send and receive e-mail messages	4.00	0.97	Proficient
11	Enter and update data in a data base	3.89	0.91	Proficient
12	Access information on CD/DVD	3.88	0.99	Proficient
13	Use microcomputer for word processing	3.81	0.87	Proficient
14	Develop spreadsheet template	3.75	1.02	Proficient
15	Use computer to access online data base	3.73	1.09	Proficient
16	Use of web search enquires e.g. Google	3.72	1.03	Proficient
17	Attach files to outgoing e-mails	3.71	1.07	Proficient
18	Perform internet searches to develop materials for classroom instruction	3.70	0.99	Proficient
19	Chatting on the internet using instant messaging tools (yahoo, MSN, Skype etc)	3.68	1.08	Proficient
20	Use spreadsheet package like excel	3.66	1.16	Proficient
21	Understanding the health and safety issues relating to the computing environment	3.59	1.06	Proficient
22	Understanding the security, legal, ethical, cultural and social issues relating to ICT	3.51	0.97	Proficient
23	Set up and use multimedia projector	3.44	1.17	Proficient
24	Conduct search for information materials on online data base	3.42	0.92	Proficient
25	Evaluate quality of internet based material for effective instruction	3.35	1.01	Proficient
26	Utilize materials for database classroom assignments	3.29	0.92	Proficient
27	Apply ICT tools to evaluate students achievement	3.22	0.91	Proficient
28	Use of content specific tools e.g. software, simulation package, web tools to support learning and research	3.17	0.94	Proficient
29	Access relevant content from virtual libraries	3.14	1.05	Proficient
30	Prepare and use power point for presentation	3.01	1.14	Proficient
31	Use of ICT resources to increase productivity	2.73	0.99	Unproficient
32	Use of ICT to present visual educational materials to students	2.73	0.94	Unproficient
33	Use of ICT resources to facilitate academic learning	2.67	1.03	Unproficient
34	Develop ICT based activities for classroom instruction	2.60	1.05	Unproficient
35	Use of web authoring tools	2.49	1.07	Unproficient
36	Use of productivity tools to construct technology-enhanced models and other creative works	2.42	0.90	Unproficient
37	Integrate and adopt curriculum content in ICT environment	2.41	0.96	Unproficient



38	Engage students in exploring real world issues	2.41	1.07	Unproficient
39	Use of ICT to enhance both individual and group/cooperative learning in students	2.37	0.94	Unproficient
40	Promote project-based learning in a one-on-one ICT environment	2.33	0.89	Unproficient
41	Use of ICT to demonstrate skills of facilitator rather than an instructor	2.33	0.85	Unproficient
42	Apply bloom's digital taxonomy in selecting and stating appropriate learning/behavioural outcome.	2.32	0.90	Unproficient
43	Adopt computerized supervised occupational experience record	2.28	0.87	Unproficient
44	Use ICT to teach and organize youth leadership development programme in vocational education	2.27	0.96	Unproficient
45	Facilitate knowledge construction and creativity in students using ICT resources	2.26	0.96	Unproficient
46	Use of ICT resources to facilitate problem solving skills in students	2.25	0.91	Unproficient
47	Solve authentic problems using digital tools and resources	2.23	0.97	Unproficient
48	Develop follow-up survey template	2.22	0.92	Unproficient
49	Use computer programmes for decision aids in vocational education	2.21	1.00	Unproficient
50	Use teacher online communities for collaboration and sharing with peers and colleagues	2.20	0.83	Unproficient
51	Write a computer programme	2.15	0.98	Unproficient
52	Use of ICT resources to facilitate critical thinking skills in students	2.07	0.98	Unproficient
53	Use interactive e-learning tools	2.06	0.94	Unproficient
54	Create e-learning materials for teaching students	2.05	0.94	Unproficient
	Overall mean/Standard Deviation	3.11	0.98	Moderately proficient

### Research Question Two

Research question two sought to determine the ICT resource which is available for instruction in Colleges of Education in South-South Nigeria. Table 2 shows that mean values of VABTEs' responses on the availability of ICT resources for effective instruction ranged from 2.47 to 3.45. Standard deviation ranged from 1.06 to 1.35. The respondents perceived nine ICT resources: Television (M=3.45; SD=1.31); microcomputer (M=3.40; SD= 1.25); radio (M=3.38; SD=1.35), micro computer modem (M=3.27; SD= 1.22); word processing spreadsheet (M=3.21; SD=1.20); CD player (M=3.19; SD=1.29); video projector (M=3.14; SD=1.06); video (M=3.07; SD= 1.28) and Database applications (M=3.02; SD=1.18) as being available for instruction in

Colleges of Education in South-South Nigeria. The remaining 13 ICT resources were perceived to be unavailable.

Table 2: Mean and Standard Deviation of ICT Resources Available instruction as perceived by VABTEs (N=268)

S/N	ICT Resources	M	SD	Remark
1	Television	3.45	1.31	Available
2	Micro computer	3.40	1.25	Available
3	Radio	3.38	1.35	Available
4	Micro computer modem	3.27	1.22	Available
5	Word processing spreadsheet	3.21	1.20	Available
6	CD player	3.19	1.29	Available
7	Video projector	3.14	1.06	Available
8	Video	3.07	1.28	Available
9	Database applications	3.02	1.18	Available
10	Video cassette recorder	2.96	1.30	Unavailable
11	Digital camera	2.85	1.29	Unavailable
12	Overhead projector	2.80	1.17	Unavailable
13	Interactive television	2.73	1.32	Unavailable
14	Productivity software	2.70	1.17	Unavailable
15	Internet connectivity	2.69	1.21	Unavailable
16	Authoring software	2.67	1.18	Unavailable
17	Integrated software	2.66	1.14	Unavailable
18	Graphic software	2.65	1.16	Unavailable
19	Simulation software	2.64	1.16	Unavailable
20	Discipline specific software	2.57	1.13	Unavailable
21	One or two way video satellites	2.53	1.21	Unavailable
22	Electronic drawing system	2.47	1.17	Unavailable

### Hypothesis

The null hypothesis sought to know if there is significant difference in mean perceptions of Agriculture and Business teacher educators on self-perceived proficiency in ICT competency standards of instruction in Colleges of Education in South-South Nigeria. Table 3 shows a t-value of -0.171 and a p-value of 0.864. Testing at an alpha level of 0.05, the p value is greater than the alpha level, so the null hypothesis which states that there is no significant difference between the mean ratings of Agriculture and business teacher educators on self-perceived proficiency in ICT competency standards of instruction in Colleges of Education in South-South Nigeria is retained. The result of this test suggests that the difference between the mean perceptions of ATEs and BTEs is not statistically different. It can therefore be concluded that there is no significant difference between the mean perceptions of the two groups of respondents on their self-perceived proficiency in ICT competency standards of instruction in Colleges of Education in South-South Nigeria as displayed in Table 3.

Table 3: t-test of Difference in Mean Perceptions of ATEs and BTEs on Proficiency in ICT Competency Standards of Instruction

	Respondents	N	Mean	Std. Dev	t	Sig. (2-tailed)	Decision
	ATEs	128	167.992	17.183	-0.171	0.864	Accept
Proficiency	BTEs	140	168.385	20.204			Ho

$\alpha = 0.05$

#### IV. DISCUSSION AND CONCLUSION

The result of the study showed that the respondents perceived themselves as being moderately proficient (overall average mean value of 3.11 and standard deviation of 0.98) in the stipulated ICT competency standards of instruction. The Agriculture and Business Teacher Educators (ABTEs) were proficient in 30 out of 54 competency standards. This is inconsistent with the finding of Tella (2011). Tella (2011) found that most of the lecturers in Colleges of Education in South-West Nigeria, lack ICT competence. The result also showed that three competency standards in which ABTEs perceived themselves to be most proficient include: follow suggested procedure to turn on/off computer; open and close documents and search for files on a computer system. The result also showed that the three competencies in which they perceived themselves to be least unproficient were create e-learning materials for teaching students; use interactive e-learning tools and use ICT resources to facilitate critical thinking skills in students. The implication of this finding is that the ABTEs are proficient in ICT literacy skills and bereft of the necessary ICT pedagogical competence to use ICT resources for classroom instruction. This corroborates the findings of Gulbahar (2008); Makgato (2014), Williams, Boone and Kingsley (2004). Gulbahar (2008) found that over ninety percent (90%) of academic staff in a Turkish University used computer for communication, preparing examination and research in internet, while less than fifty percent (50%) of them could use computer as an instructional media and integrated it into the classroom instructional process.

Makgato (2014) also found that over seventy five percent (75%) of public secondary school teachers around Pretoria in South Africa can use MS-Excel spreadsheets; are skillful in PowerPoint presentation; have the skill to print and use data projectors but over seventy nine (79%) of the teachers do not have the ability to use ICT resources for classroom instruction. Similarly, Williams, Boone and Kingsley (2004) found that many teachers lacked the technical and pedagogical skills to incorporate software effectively into their teaching.

The result revealed that only a few of the stipulated ICT resources such as television; microcomputer; Radio; CD player; microcomputer modem; word processing spreadsheet; video and video projector were available in Colleges of Education, South-South Nigeria. This is in tandem with the viewpoint of Illomaki and Lakkala (2008), who posited that it is a common occurrence to find in some schools, computers, video machines and television which are rarely utilized to

engage teachers and students in knowledge and skills acquisition.

The study further revealed that the ICT resources required for effective instruction in the classroom such as digital camera; interactive television; one or two- way video satellites and the different software were unavailable. This findings agreed with those of Tella (2011) and Jude and Dankaro (2012). Tella (2011) found that most of the Colleges of Education in South-West, Nigeria, lack ICT infrastructural facilities while Jude and Dankaro (2012) found that ICT resources for classroom instruction are generally not available in College of Education, Katsina-Ala in Benue State, Nigeria.

The achievement of the vision of teacher education programme in Nigeria which is the production of competent and high quality teachers for the Basic education sector has necessitated the use of ICT resources for effective instruction in Colleges of Education in order to enhance and improve the quality of instructional delivery. The moderate proficiency in ICT competency standard of instruction expressed by ABTEs in this study is indicative of their readiness and capability to use ICT resources for instruction if the resources are made generally available in the classroom. It also shows that the ABTEs have the capacity of being very proficient in ICT pedagogical competencies for instruction if given the necessary and adequate training.

Therefore, the provision of needed ICT resources for instruction in the classroom and training of the ABTEs on the identified ICT competency standards of instruction where they are unproficient, will go a long way in the realization of NCCE goal of ensuring that Teacher educators in Colleges of Education in Nigeria, make use of ICT resources to facilitate their students learning and creativity. Consequently, it will result in the production of competent and high quality Vocational agriculture and business teachers for the Basic education sector.

#### V. EDUCATIONAL IMPLICATIONS AND RECOMMENDATIONS

The findings in this study indicate that ABTEs are bereft of the ICT pedagogical competency standards necessary for effective instruction in pre-service teachers' classrooms and ICT resources needed for classroom instruction are not available. These findings present far reaching implications for effective instruction; the production of high quality and competent agricultural science/business study teachers; agriculture/business knowledge and skills development by in-school youths; food and social security in Niger-Delta region in particular and Nigeria in general. To ABTEs, the findings

will affect the quality of instructional delivery; knowledge and skills imparted on teachers' trainee which is implicated in the production of incompetent and poor quality agriculture/business teachers for the UBE sector. To Niger-Delta region and the larger Nigeria society, the inability of the education system to encourage the development of agriculture/business knowledge and skills by in-school youths as a result of poor quality and ineffective instruction would engender food and social insecurity in the region and Nigeria society in general.

Against the backdrop of the findings of this study; educational implications and conclusion drawn, the following recommendations were made:

1. The capacity of agriculture and business teacher educators in Colleges of Education in South-South Nigeria need to be built on how to integrate and use ICT resources for effective classroom instruction. The management of the various Colleges of Education in conjunction with relevant agencies involved in teacher educators' capacity building such as Tertiary Education Trust Fund (Tetfund) and National Communication Commission (NCC) should use the proficiency gaps in ICT competency standards of instruction identified in this study as a guide to organize regular in-service training programmes and workshops for agriculture and business teacher educators so that they can acquire the requisite ICT proficiency for effective classroom instruction.
2. The necessary ICT resources required for effective classroom instruction in Colleges of Education in South-South Nigeria should be procured and made available through leveraging on ICT development intervention funds allocated to these institutions by Tertiary Education Trustfund (tefund).
3. The Management of the various Colleges of Education in South-South, Nigeria needs to provide steady power supply, technological/leadership support and work environment conducive for the use of ICT resources for effective classroom instruction by agriculture/business teacher educators.

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