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ACADEMIC STAFF INFORMATION AND COMMUNICATION TECHNOLOGY PROFICIENCY LEVEL FOR EFFICIENT JOB PERFORMANCES IN COLLEGES OF EDUCATION IN DELTA STATE

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ABSTRACT

This study assessed Academic Staff Information and Communication Technology (ICT) Proficiency Level for their Efficient Job Performances in Colleges of Education (COEs) in Delta State. Three research questions guided this study and three null hypotheses were formulated for the study. A descriptive survey research design was employed in the study. Population for the study consisted of 762 academic staff from 3 publicly-owned COEs (federal & state government-owned) in Delta State. Sample size for the study constituted 609 academic staff selected out of the entire population of academic staff from the COEs in Delta State using the stratified random sampling technique. A 37-item Questionnaire entitled: "Academic Staff ICT Proficiency Level for Efficient Job Performances Questionnaire (ASICTPLEJPQ)" which was constructed for academic staff was used for data collection in the study. The research instrument was face validated by one Computer Science expert and two Measurement and Evaluation experts from Delta State University Abraka. Reliability of the questionnaire was established through a pilot-test on a single administration sampling 20 academic staff from one of the COEs in Edo State. After the pilot test, the scores were measured using Cronbach Alpha formula to appraise the reliability of the research instrument. The scores gave coefficient reliability of 0.83, 0.87 and 0.82 for the three clusters respectively; which were added up to give an overall internal consistency reliability value of 0.84, showing that the questionnaire was reliable. Data collated was analyzed using mean and standard deviation statistics. The hypotheses were tested using t-test statistics at an alpha level of 0.05 significance. Findings of the study indicated among others that the academic staff in Federal and State COEs were less proficient towards the use of various hardware, software and online information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State. Thus, the differences between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various information and communication technologies (ICTs) for their efficient job performances in COEs in Delta State was not significant. From the findings of the study, recommendations were made and among them included that the Federal and State Governments through the regulatory agency of the COEs, that is, the National Commission for Colleges of Education (NCCE), should provide adequate funds for procurement of hardware information and communication technologies (ICTs) in order to boost academic staff proficiency towards the use of various ICTs for their efficient job performances in COEs in Delta State.

Keywords: *Academic, Staff, ICT, Proficiency, Level, Efficient, Job, Performance, COEs*

Introduction

The Information and Communication Technology (ICT) involves all hardware and software devices together with some online devices which aids effective communication within an environment. According to Kpolovie and Wusaku (2011) and Tomie (2013), the ICT includes the use of communication devices, mobile technological hardware devices, software applications, like the Microsoft word, Excel or spread sheets, power point, graphic design, Corel draw, Adobe page maker, online networking and connectivity, social media applications, among others. The Information and Communication Technology further embraces all physical objects, equipment or hardware used for information processing or transmissions like computers, cellular phones, videos, DVD, CD players, flash drive, CD-ROMs and TV transmitters. This also includes publication outlets like e-books, e-journals or through personal Websites, among many others. For most scholars like Alfawaz and Ibrahim (2018) and Ali, Haolader and Muhammad (2013), the ICT can be grouped as, mobile technology (hardware), computer software applications, cloud computing, desktop and work stations, social media apps and other communication applications. According to Obidile and Onyeagba (2019), with the use of ICT in education, distance learning is made possible and this helps to enhance the accessibility of educational programmes for individuals who are constrained from attending traditional education. The ICT brings to bear the Internet, the Web, and computer-assisted learning to the teaching and learning of courses in different fields of endeavour which could make the courses easier, interesting, accommodating and participatory. The ICT would as well, improve the teaching and learning standard by encouraging learning through ongoing discussion, directed instruction, self-learning, critical thinking, data seeking and analysis. Habibu, Al-Mamun and Clement (2012) opined that ICT integration in education is meant and should be utilized as a tool to support educational objectives such as skills for searching and assessing information, cooperation, communication and problem-solving which are important for the preparation of students for the knowledge-based society. In fact, innovative use of ICT can facilitate student-centered learning and promote quality e-learning delivery (that is, electronic learning) among students in the Colleges of Education - COEs (Habibu, Al-Mamun & Clement, 2012). Hence, every teaching/academic staff in the Colleges of Education (COEs) should use different ICTs to enhance quality instructional delivery in every course of study because it can engage the thinking, decision making, problem solving and reasoning behaviours of students (Ogbomo, 2011).

The academic staff of the Nigerian COEs who are equally known as lecturers play significant role in the teaching-learning paradigm shift of their institutions. As professional teachers, they must understand the potential benefits of different ICT in education, for their effective job performances. The COEs on the other hand, are teacher education institutions which offer diversified education and training for both pre-service and in-service teachers. They further provide Professional Diploma in Education (PDE) programme for graduate teachers without educational background. According to Enueme (2014), the colleges of education (COEs) are part of educational institutions that are saddled with the responsibilities of producing in-service teachers. They offer training programmes such as NCE courses to pre-service teachers. However, the goals and objectives of the Nigerian COEs as one of the teacher education institutions being highlighted by the Federal Republic of Nigeria (FRN, 2014) in the National Policy on Education (NPE) are to:

a. produce highly motivated, conscious and efficient classroom teachers for the basic education programme (that is; pre-primary, primary & junior secondary school levels) of the Nigerian educational system;

b. further encourage the spirit of enquiry and creativity in teachers;
c. help teachers fit into the social life of the community and the society at large and enhance their commitment to national goals;
d. provide teachers with the intellectual and professional background adequate for their assignment and to make them adaptable to changing situations; and
e. enhance teachers' commitment to the teaching profession (FRN, 2014, p.43).

Attainment of all the above goals and objectives of teacher education institutions would involve improving all instructional practices to become more functional, participatory experiential, student-centred, practical and activity-based using the Information and Communication Technology (ICT) tools support. According to the FRN (2014), the information and communication technology (ICT) is one of the educational support services and tools for revitalizing and promoting quality teaching and learning at all levels of the Nigerian education system for teachers' effective job performances. The Federal Republic of Nigeria (FRN, 2014) further enunciated that:

> since education is an 'instrument par excellence' for effecting national development; for achievement of the objectives of education, government shall provide appropriate Information and Communication Technology (ICT) facilities and necessary infrastructure to permeate and spread throughout all levels of education in Nigeria and for the promotion of ICT in all education sector (p.60).

In recognition of the prominent role of the information technology in advancing a knowledge-driven society in the country for effective functioning in economic and sustainable development, all educational institutions and government should provide infrastructure and develop capacity for effective utilization and application of ICT to enhance effective service delivery in the education system (FRN, 2014). This statement showcases government approval and support towards the use of ICT in revitalizing the education system including the COEs in Delta State for efficient job performance. To support the incorporation and integration of ICT into the main streams of the Nigerian education system for continuous educational development, effective service delivery and improvement in job performances, the federal government had earlier initiated an ICT policy in the year 2001 in the country. From the foregoing discussions, effective use of the ICT serves as one means towards ensuring that quality services and instructional delivery are highly promoted in the COEs by academic staff through their efficient job performances. Archibong, Ogbiji and Anijaobi-Idem (2010) opined that just like the academic staff, teachers play a crucial role in the development, adoption and implementation of any educational curriculum or innovation. This role becomes even more critical in adoption and integration of information and communication technology (ICT) into the education programme of a country. It has been discovered that knowledge and proficiency of (ICT) usage improves human capacity in every field of human endeavour, including business transaction, industrial operations, educational programmes and activities and life in general. Hence, integrating ICT culture into educational institution like the COEs is a change which Ringle and Updegrove cited in Archibong, Ogbiji and Anijaobi-Idem (2010) advised that the approach should be carried out by incorporating the socio-economic and pragmatic or technical dimensions. This is so because studies in the management of change and innovation (Fullam, 1993 & 2001 cited in Archibong, Ogbiji & Anijaobi-Idem, 2010) have shown that the process of change is a complex one. It involves not only changes in infrastructure and curriculum materials, but more importantly of practice and belief (socio-economic). For a successful implementation of ICT programme in schools for efficient job performances, this also warrants teachers ICT proficiency, adequate participation in training programmes and

determination of their training needs as well (Archibong, Ogbiji & Anijaobi-Idem, 2010).

Academic staff job performance as defined by Naseer (2010) can be referred to as a teacher's affective relation to his or her teaching role and is a function of the perceived relationship between what one wants from teaching and what one perceives it is offering to a teacher. According to Robbins and Judge (2013), job performance is the disposition of teachers towards their work; and this likewise involves a collection of numerous attitudes to work. Job performance among teachers will be low if their working environment does not facilitate satisfaction of their needs. Teacher job performance level has been linked to how they experience the role of the teacher in terms of contributing to student achievement, helping students, positive relationships with students and others, self-growth and so on. Context seems to be the most powerful predictor of the job performance. If the work context is conducive to providing satisfaction, performance may be correspondingly high (Sackett cited in Naseer, 2010). In the COEs, academic staff job performances include their participation in teaching and learning activities, research activities, consultancy and public services, supervision of students' projects, invigilation of examinations, organizing and conducting students' assessments and evaluation, and performing administrative roles such as the heads of departments, directors of units, among others. All these academic staff tasks and responsibilities cannot be efficiently executed without the support of the ICT. Several authorities like the Ali, Haolader and Muhammad (2013), Antwi-Boasiakoh (2015), Jensen and Sarroco (2002), Mandefro (2013) and Singh and Chan (2014) have commented on the importance role and benefits of the ICT on education, especially in improving job performances among staff members. According to the aforementioned scholars, the information and communication technology (ICT) brings about a powerful learning environment and it transforms the learning and teaching process in which students deal with knowledge in an active, self-directed and constructive way. Using different ICT facilities, gadgets or tools in the classroom enhances facilitation of students' learning in different educational settings for the purpose of teaching and learning process. ICT tools, resources and equipment which includes any form of communication, software and hardware devices, encompassing computers, LCD projectors, printers, photocopiers and duplicating machines, fax machines and scanning machines, radio, television, cellular phones, satellite systems, video conferencing internet access, computer-assisted programmes, software application such as the Microsoft office packages, TV transmitters, publication outlets like e-books, e-journals or through personal Websites, and other online or social media technologies are very useful for processing, analyzing, synthesizing, sharing different kinds of information including information processing activities are necessary to improve student's learning. However, the process of utilization of the ICT can be very effective in teaching and learning only if academic staff of the COEs are well-exposed, knowledgeable and highly proficient in using them for their job performances both inside the classroom and outside the learning environment.

Academic staff ICT proficiency as conceived in this study entails lecturers' skills, abilities and competences towards using ICT in performing both their teaching and administrative duties, tasks, roles and responsibilities. This would involve their proficiency in utilizing various hardware and softwares including other emerging online technologies to efficiently execute their functions in the college. Academic staff competencies or proficiencies that need to be developed at the early stage of ICT adoption will include according to Pelgrum and Law, cited in Archibong, Ogbiji and Anijaobi-Idem (2010), the training of teachers in the use of common office application programme, sending of e-mails, making use of the internet, use of ICT in subject based teaching and class room practices. Production of multimedia course materials, data analysis, e-library, video conferencing, networking and e-payments are other areas of competencies that teachers need to develop.

Scholars such as Jensen and Sarroco (2002) remarked that many of schools neither have computers nor access to the internet, which is an important requirement for supporting networking for learners and teachers, as well as for collaborative learning and improving job performance. Therefore, without adequate access to these technological tools in the COEs, it then, becomes very difficult for academic staff to improve their proficiency in use of ICT. No wonder, teaching and learning activities are still highly dependent on the old traditional and conventional method of 'talk, chalk and board' in the COEs. Antwi-Boasiakoh (2015) opined that looking at the developing countries such as Nigeria, there seems to be generally limited proficiency in academic staff utilization of ICTs. Therefore, one would think that academic staff of the COEs which seems to have low proficiency in the use of ICT could have been responsible by several factors which draws the researchers focus and attention towards their ICT proficiency for efficient job performances. Past empirical studies such as those of Akpan (2014), Antwi-Boasiakoh (2015), Archibong, Ogbiji and Anijaobi-Idem (2010), Nwosu, Shaffe and Nurzatul (2018), Oyekanmi (2016) and others have been conducted in the areas of ICT and job performance, but all these studies have their own mix, findings and shortcomings which necessitates the present study. The poor and deplorable situation of academic staff usage of ICT tools to efficiently execute their respective functions and tasks in the COEs have equally motivated the researchers to investigate academic staff (ICT) proficiency level for their efficient job performances in Colleges of Education (COEs) in Delta State.

Statement of the Problem

Academic staff of the COEs are important in the teaching and learning activities of their institutions. They stand at the forefront of education in order to ensure students' learning. Given the importance of academic staff in the provision of quality teachers education in the COEs, that is, 'no education system can rise above the quality of their teachers', there is need to ensure that these academic staff are proficient in utilizing various ICTs for their efficient job performances. Rather, the researchers' observations from most of the COEs including those in Delta State, showcase that many of the academic staff still highly/largely depend and rely on the old conventional traditional method of teaching using 'chalk and talk' style. Many do not utilize the ICT during instructional delivery in the classroom, therefore, making their teaching more teacher-centred than student-centred. Many of them do not use the ICT during students' project supervision, while conducting their research or executing their consultancy work. For efficient job performances in the COEs, the use and integration of ICT in the teaching and administrative tasks must highly be encouraged. The poor situation of inadequate utilization of ICTs by academic staff for their efficient job performances have continued to raise some doubts and questions about academic staff ICT proficiency. The questions raised in this present study are that; Does it mean that the academic staff lack proficiency in using the various hardware, software and online technologies? In a bid to answer all these questions which seem to have created a gap that needs to be filled in this present study, this has warranted the present study. However, the need towards resolving issues in connection with academic staff ICT proficiency level for their efficient job performance is the problem of this study.

Objectives of the Study

This study examined Academic Staff Information and Communication Technology (ICT) Proficiency Level for their Efficient Job Performances in Colleges of Education (COEs) in Delta State. The study specific objectives aimed at:

1. Determining academic staff proficiency level towards the use of various hardware information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State.
2. Examining academic staff proficiency level towards the use of various software information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State.

3. Assessing academic staff proficiency level towards the use of various online information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State.

Research Questions

The following research questions were raised to guide the study:

1. What is the academic staff proficiency level towards the use of various hardware information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State?
2. What is the academic staff proficiency level towards the use of various software information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State?
3. What is the academic staff proficiency level towards the use of various online information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State?

Hypotheses

The following null hypotheses were formulated and tested in the study at an alpha level of 0.05 significance:

1. There is no significant difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various hardware information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State.
2. There is no significant difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various software information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State.
3. There is no significant difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various online information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State.

Research Method

A descriptive survey research design was employed in the study. This design was employed to collect data and information from a sample size of academic staff of different COEs in Delta State within their population using a questionnaire to determine their ICT proficiency level. The information and data gathered from the respondents through a field survey was used to form generalization and draw conclusion about the study. Justification for the choice of the descriptive survey research design according to Nworgu (2015) aims at enabling researchers to collect data from sample of a given population and describe them in a systematic manner, the characteristics, features or facts about this given population. Population for the study consisted of 762 academic staff from 3 publicly-owned COEs (federal & state government-owned) in Delta State. The breakdown involves 358 academic staff of the federal government-owned COE and 404 academic staff of the two state government-owned COEs. Sample size for the study constituted 609 academic staff selected out of the entire population of academic staff from the COEs in Delta State using the stratified random sampling technique. The academic staff were selected using the stratified random sampling technique based on institutional ownership. The stratified random sampling technique was used to stratify and select 80% of the academic staff from their respective strata based on institutional ownership of federal and state government-owned institution. Nworgu (2015) highlighted that in the stratified random sampling technique each element in the population is selected and included in the sample based on their existing characteristics in relation to their institutional ownership, geographical location, education zones, positions, ranks, sex, among others. To carry out this

technique, it was convenient for the researchers to select samples from the entire elements based on their institutional ownership of federal and state government-ownership. The participants were easily reached out by the researchers using the support of some research assistants. A 37-item Questionnaire entitled: "Academic Staff ICT Proficiency Level for Efficient Job Performances Questionnaire (ASICTPLEJPQ)" which was constructed for academic staff was used for data collection in the study. The items on the ASICTPLPTNEJPQ was organized in three clusters and structured on a 4-point rating scale weighted as follows: (a) Highly Proficient **(HP) - 4**, (b) Proficient **(P) - 3**, (c) Less Proficient **(LP) - 2,** (d) Not Proficient **(NP) –1** for answering research questions 1 to 3. The research instrument was face validated by one Computer Science expert and two Measurement and Evaluation experts from Delta State University Abraka. The corrections made by these experts in terms of their face value, content relevance, items clarity and sentence construction in order to determine the instrument's validity, were incorporated in the instrument before the final draft of the instrument. Nworgu (2015) opined that validity is concerned with measurements which deal with the appropriateness of a research instrument in measuring what it intends to measure, that is, it deals with accuracy and effectiveness of the measuring instrument. Reliability of the questionnaire was established through a pilot-test on a single administration sampling 20 academic staff from one of the COEs in Edo State. After the pilot test, the scores were measured using Cronbach Alpha formula to appraise the reliability of the research instrument. The scores gave coefficient reliability of 0.83, 0.87 and 0.82 for the three clusters respectively; which were added up to give an overall internal consistency reliability value of 0.84, showing that the questionnaire was reliable. The final copies of the questionnaire, that is, ASICTPLEJPQ was distributed to the respondents on a face-to-face, personal and hand-delivery process employing the on-the-spot method using services of six (6) research assistants, who reached out to the respondents in their various COEs. Copies of the questionnaire for the academic staff were delivered to them by the researchers and research assistants who were NCE students in one of the COEs in Delta State. These research assistants were instructed on how to communicate and retrieve the necessary information from the respondents. These research assistants were briefed on how to administer the questionnaire to the respondents in the COEs. This entailed explaining properly to the research assistants the institution's location of the sampled COEs selected for the study likewise the aim of the study. The researchers and the research assistants waited for the respondents to complete the questionnaire on-the-spot before retrieving them to obtain the highest possible rate of return. However, a total of 609 copies of the questionnaire were printed out and distributed by the researchers and the research assistants to the respondents. The rate of return on the retrieval of the research instrument from all the respondents was calculated at a 100% rate of return.

Data collated was analyzed using mean and standard deviation statistics. The hypotheses were tested using t-test statistics at an alpha level of 0.05 significance. Frequency, mean statistics, section means and standard deviation statistics of all the items in the research instrument were calculated and used to analyze the research questions in order to test the mean scores differences and variability of the variables. The standard deviation statistics was used to ascertain the homogeneity of response of the items in the instrument. The mean score and standard deviation score for each item representing each research question in the various clusters were computed for academic staff in the federal and state government-owned COEs in Delta State respectively. As regards, the decision rule for the items on each of the research questions were based on the premise that any statement or item with a mean score of 2.50 and above was accepted and regarded as either proficient, high level or agree, while any item with a mean score below 2.50 was regarded as low level or disagree. In taking decision for the standard deviation, a low or moderate

standard deviation indicated that the respondents were homogenous in their responses, whereas high standard deviation indicated otherwise. This implies that wherever the measure of variability is small among the responses, this indicated a small difference in the responses, whereas the measure of variability is large among the responses, this implies a wide difference and the responses are markedly different (Nworgu, 2015). The null hypotheses were tested using t-test statistics at an alpha level of 0.05 significance. The t-test statistics was used to determine the statistical differences in the mean ratings from the responses of the academic staff in the federal and state government-owned COEs in Delta State. Decision rule for test of the hypotheses using t-test was based upon the premise that wherever *p-value* obtained is greater than or equal to the alpha 0.05 level of significance, the null hypothesis - H_0 is not rejected (accepted). Otherwise, wherever an obtained *p*-value is less than the alpha 0.05 level of significance, such null hypothesis - H_0 is rejected. The test of hypotheses was done using Statistical Package in Social Science (SPSS).

Presentation of Results

Research Question 1: What is the academic staff proficiency level towards the use of various hardware information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State?

Table 1: Mean and Standard Deviation Scores of Academic Staff Proficiency Level Towards the Use of Various Hardware ICTs for Efficient Job Performances in COEs in Delta State (N = 609)

S/N	Statements	Federal COEs		Remarks	State COEs		Remarks
	Please showcase your proficiency towards using the under listed hardware technologies for your efficient job performance in the college. Proficiency in:	$\bar{x}$	SD		$\bar{x}$	SD	
1	operating a laptop by booting it including typing with it efficiently	2.30	1.09	Less Proficient	2.06	0.99	Less Proficient
2	using a desktop computer to efficiently execute a task	2.01	1.03	Less Proficient	2.33	1.06	Less Proficient
3	setting-up and operating a multimedia projector to use it to efficiently deliver lessons in the classroom	2.12	1.00	Less Proficient	2.36	1.09	Less Proficient
4	using a slide, film strip or overhead projector to efficiently start-up a slide show in the classroom without any assistance	2.42	1.04	Less Proficient	2.18	1.07	Less Proficient
5	slotting a CD-ROM into a laptop or desktop computer to efficiently save downloaded files	2.29	1.10	Less Proficient	2.20	1.01	Less Proficient
6	using a USB flash drive in any computer device to efficiently save information	1.95	1.00	Less Proficient	2.09	0.97	Less Proficient
7	operating a fax machine to efficiently send documents	2.09	0.95	Less Proficient	1.96	0.85	Less Proficient
8	connecting a printer to a computer system to efficiently print files that will be used to present lessons in the classroom	2.22	1.11	Less Proficient	2.18	1.03	Less Proficient
9	connecting modem or WIFI hard device on a laptop to carry out task	2.38	1.06	Less Proficient	2.22	1.06	Less Proficient
10	using speakers connected to a PC so as to efficiently execute a task	2.25	1.09	Less Proficient	2.32	1.05	Less Proficient
11	operating an electronic touch screen whiteboard in order to efficiently present lessons in the classroom	2.03	0.96	Less Proficient	2.28	1.11	Less Proficient
12	using digital cameras to efficiently record academic events useful for teaching	2.26	1.09	Less Proficient	2.32	1.08	Less Proficient
13	connecting a scanning machine to efficiently scan documents	2.07	1.07	Less Proficient	2.19	0.96	Less Proficient
14	inserting a portable Hard Disk Drive (HDD) device to efficiently save files from a PC	2.13	1.04	Less Proficient	2.16	1.04	Less Proficient
15	using a CD/DVD to efficiently present lessons in the lecture halls	2.25	1.14	Less Proficient	2.30	1.11	Less Proficient
16	operating any hardware recording device such as video recorder, tape recorded to efficiently record useful activity that will be used for presentation of lesson in the classroom	2.31	1.03	Less Proficient	2.28	1.00	Less Proficient
17	connecting a webcam camera on a desktop/laptop in order to efficiently make an online presentation	2.09	1.05	Less Proficient	2.16	1.04	Less Proficient
	Grand Mean/SD	**2.19**	**1.06**	**Less Proficient**	**2.21**	**1.04**	**Less Proficient**

Field Survey Data (2023), (Federal COEs = 286, State COEs = 323)

Table 1 indicates mean and standard deviation scores of academic staff proficiency level towards the use of various hardware information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State. Furthermore, the analyses also reveal that the respondents rated all items below a mean score of 2.50. This implies that both academic staff in Federal and State COEs are less proficient towards the use of various hardware information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State. The evidence of the above response is shown in grand mean scores of 2.19 and 2.21 for academic staff in Federal and State COEs respectively. Again, the grand standard deviation scores of 1.06 and 1.04 indicate that academic staff in both Federal and State COEs were homogenous on their proficiency level towards the use of various hardware information and communication technologies (ICTs) for efficient job performances in Colleges of Education (COEs) in Delta State.

Research Question 2: What is the academic staff proficiency level towards the use of various software information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State?

Table 2: Mean and Standard Deviation Scores of Academic Staff Proficiency Level Towards the Use of Various Software ICTs for Efficient Job Performances in COEs in Delta State (N = 609)

S/N	Statements	Federal COEs $\bar{x}$	Federal COEs SD	Remarks	State COEs $\bar{x}$	State COEs SD	Remarks
	Please showcase your proficiency towards using the under listed software technologies for your efficient job performance in the college. Proficiency in:						
18	using an excel or spreadsheet Microsoft application to efficiently execute an arithmetical function	2.27	0.97	Less Proficient	2.08	0.93	Less Proficient
19	using Microsoft word application on a PC to efficiently carry out functions of typing, saving, sourcing and sorting information, etc	1.92	0.89	Less Proficient	2.27	1.01	Less Proficient
20	using PowerPoint application to efficiently present teaching in the lecture room	2.11	1.04	Less Proficient	2.19	0.97	Less Proficient
21	using Microsoft publisher to efficiently carry out an activity	2.10	1.00	Less Proficient	2.05	0.91	Less Proficient
22	using Microsoft Outlook to efficiently execute task	1.98	0.94	Less Proficient	2.20	1.04	Less Proficient
23	using Microsoft OneNote including Access to efficiently carry out an educational activity	1.82	0.77	Less Proficient	2.05	0.99	Less Proficient
24	using CorelDraw application to efficiently create designs while preparing a lecture	1.87	0.87	Less Proficient	2.20	1.02	Less Proficient
25	using Adobe page maker application to efficiently draw design when preparing lessons to be taught	2.03	0.92	Less Proficient	2.09	0.97	Less Proficient
26	using statistical software applications such as SPSS, GENSTAT, STAT, etc to efficiently conduct data analysis for research work	2.08	1.05	Less Proficient	2.16	1.03	Less Proficient
	Grand Mean/SD	**2.02**	**0.95**	**Less Proficient**	**2.14**	**0.99**	**Less Proficient**

Field Survey Data (2023), (Federal COEs = 286, State COEs = 323)

Result of Table 2 indicates mean and standard deviation scores of the academic staff proficiency level towards the use of various software information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State. In addition, Table 2 reveals

that all items were rated below a mean score of 2.50 by both academic staff of Federal and State COEs. This implies that the academic staff in Federal and State COE are less proficient in the use of various software information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State. This is evident in grand mean scores of 2.02 and 2.14 for both academic staff of Federal and State COEs respectively. Furthermore, the grand standard deviation scores of 0.95 and 0.99 indicates that the academic staff in Federal and State COEs had the same view on their proficiency level towards the use of various software information and communication technologies (ICTs) for efficient job performances in Colleges of Education (COEs) in Delta State.

Research Question 3: What is the academic staff proficiency level towards the use of various online information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State?

Table 3: Mean and Standard Deviation Scores of Academic Staff Proficiency Level Towards the Use of Various Online ICTs for Efficient Job Performances in COEs in Delta State (N = 609)

S/N	Statements	Federal COEs $\bar{x}$	SD	Remarks	State COEs $\bar{x}$	SD	Remarks
	Please showcase your proficiency towards using the under listed online technologies for your efficient job performance in the college. Proficiency in:						
27	using video meeting apps such a videoconferencing, zoom, video clips, etc to efficiently conduct likewise organize classroom activity	2.22	1.11	Less Proficient	2.21	1.06	Less Proficient
28	using gaming apps to efficiently present lectures in the classroom	1.91	0.85	Less Proficient	2.14	1.08	Less Proficient
29	using cloud computing to efficiently conduct an online team collaboration learning for students	2.05	1.00	Less Proficient	2.10	0.99	Less Proficient
30	using learning management system platforms to efficiently conduct online team collaborative educational activities	2.00	0.92	Less Proficient	2.34	1.09	Less Proficient
31	using social media apps such as Facebook, Tik Tok, Twitter, Instagram, YouTube, Web Chat, Skype, Messenger, Telegram, WhatsApp, LinkedIn, Pinterest, Quora, Slack to efficiently organize an educational team online communication	2.21	1.10	Less Proficient	2.17	1.06	Less Proficient
32	using Google apps such as Google meet, classroom, hangout, Microsoft Teams to efficiently conduct online teaching and learning	2.10	0.96	Less Proficient	2.15	1.02	Less Proficient
33	using Google apps such as Google calendar to efficiently organize educational activity	2.12	1.10	Less Proficient	2.01	0.92	Less Proficient
34	using Dropbox to efficiently give students assignments, projects, or conduct any other interactive content in order to support online classroom teaching	1.95	0.97	Less Proficient	1.98	0.96	Less Proficient
35	using online questionnaire such as the Monkey survey, etc to efficiently collect data from respondents for research work	1.98	0.99	Less Proficient	2.10	0.98	Less Proficient
36	using Internet browsers like Firefox, Safari, and Chrome to efficiently browse likewise source important information useful for lectures from the Internet	2.02	1.01	Less Proficient	2.26	1.08	Less Proficient
37	using emails to efficiently supervise students projects or any other online activity	2.09	0.93	Less Proficient	2.18	0.99	Less Proficient
	Grand Mean/SD	**2.06**	**1.00**	**Less Proficient**	**2.15**	**1.03**	**Less Proficient**

Field Survey Data (2023), (Federal COEs = 286, State COEs = 323)

Data analyzed on Table 3 indicates the mean and standard deviation scores of academic staff proficiency level towards the use of various online information and communication technologies (ICTs)

for their efficient job performances in Colleges of Education (COEs) in Delta State. Additionally, Table 3 reveals that academic staff in Federal and State COEs rated all the items below a mean score of 2.50. This implies that the academic staff in Federal and State COEs are less proficient towards the use of various online information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State. The above indication of not proficiency of academic staff in both Federal and State COEs is represented in grand mean scores of 2.06 and 2.15 respectively. Furthermore, the grand standard deviation scores of 1.00 and 1.03 indicate that the academic staff in both Federal and State COEs had similar view on their proficiency level towards the use of various online information and communication technologies (ICTs) for efficient job performances in Colleges of Education (COEs) in Delta State.

Test of Hypotheses

Hypothesis 1: There is no significant difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various hardware information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State.

Table 4: Test of Difference between Mean Ratings of Academic Staff of Federal and State COEs on their Proficiency Level towards the Use of Various Hardware ICTs for Efficient Job Performances in Colleges of Education (COEs) in Delta State

Colleges of Education	N	Mean	SD	df	t	Sig
Federal	286	43.69	7.86			
				607	-1.147	.252
State	323	44.41	7.75			

p > 0.05

Data analyzed on Table 4 shows that t-test was run to test the difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various hardware information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State. The result shows no significant difference given that t-value = -1.147 and $p > 0.05$ (.252 > 0.05), therefore, the null hypothesis was accepted that the difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various hardware information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State is not significant.

Hypothesis 2: There is no significant difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various software information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State.

Table 5: Test of Difference between Mean Ratings of Academic Staff of Federal and State COEs on Their Proficiency Level towards the Use of Various Software ICTs for Efficient Job Performances in Colleges of Education (COEs) in Delta State

Colleges of Education	N	Mean	SD	df	t	Sig
Federal	286	43.16	7.95			
				607	-1.646	.060
State	323	44.29	8.94			

p > 0.05

Analysis on Table 5 reveals that t-test was run to test the difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various software information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State. The analysis indicates no significant difference for the fact that t-value = -1.646 and p > 0.05 (.060 > 0.05), hence, the null hypothesis was accepted that the difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various software information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State is not significant.

Hypothesis 3: There is no significant difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various online information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State.

Table 6: Test of Difference between Mean Ratings of Academic Staff of Federal and State COEs on Their Proficiency Level towards the Use of Various Online ICTs for Efficient Job Performances in Colleges of Education (COEs) in Delta State

Colleges of Education	N	Mean	SD	df	t	Sig
Federal	286	43.73	8.60			
				607	-6.623	.102
State	323	48.56	9.29			

p > 0.05

Data presented on Table 6 indicates that t-test was run to test the difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various online information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State. The result reveals no significant difference given that t-value = -.6.623 and p > 0.05 (.102 > 0.05), thus, the null hypothesis was accepted that the difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various online information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State is not significant.

Discussion of Findings

Findings of this study generally revealed that the academic staff in Federal and State COEs were less proficient towards the use of various hardware, software and online information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State. The differences between the mean

ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State were all not significant. All these were discussed under several subheadings in this section:

Academic Staff Proficiency Level Towards the Use of Various Hardware Information and Communication Technologies (ICTs) for their Efficient Job Performances in Colleges of Education (COEs) in Delta State

The finding of this study indicated that the academic staff in Federal and State COEs were less proficient towards the use of various hardware information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State. They were less proficient in: operating a laptop by booting it including typing with it efficiently, using a desktop computer to efficiently execute a task, setting-up and operating a multimedia projector to use it to efficiently deliver lessons in the classroom, using a slide, film strip or overhead projector to efficiently start-up a slide show in the classroom without any assistance, slotting a CD-ROM into a laptop or desktop computer to efficiently save downloaded files, using a USB flash drive in any computer device to efficiently save information, operating a fax machine to efficiently send documents, connecting a printer to a computer system to efficiently print files that will be used to present lessons in the classroom, connecting modem or WIFI hard device on a laptop to carry out task, using speakers connected to a PC so as to efficiently execute a task, operating an electronic touch screen whiteboard in order to efficiently present lessons in the classroom, using digital cameras to efficiently record academic events useful for teaching, connecting a scanning machine to efficiently scan documents, inserting a portable Hard Disk Drive (HDD) device to efficiently save files from a PC, using a CD/DVD to efficiently present lessons in the lecture halls, operating any hardware recording device such as video recorder, tape recorded to efficiently record useful activity that will be used for presentation of lesson in the classroom, and connecting a webcam camera on a desktop/laptop in order to efficiently make an online presentation. This finding agrees and corroborates with Archibong, Ogbiji and Anijaobi-Idem (2010) study on ICT competence among academic staff in universities in Cross Rivers State, Nigeria, which found out that majority of the academic staff in this study rated their ICT competence as low. In terms of ICT usage, the highest areas of competence were in research, e-mail and word processing, while their competences in the other areas studied were low. The finding showed that only 20 (6.7%) of the academic staff in this study rated their ICT competency level as high. Those with moderate competency level were 120 (40%), while the majority 160 (53.3%) rated their ICT competency level as low. This result is not encouraging as the combination of staff that rated their competency level as high and moderate (46.7%) is still lower than those that were low ICT competency level. With this result, the possibility of many academic staff utilizing ICT in teaching and learning situation is greatly restricted if non-existent. Archibong, Ogbiji and Anijaobi-Idem (2010) further indicated that majority of the academic staff funded their ICT training; high number of them had laptops; access to internet was mainly at public cyber café; majority (53.3%) rated their ICT competence as low. Akpan (2014) study confirmed that lecturers with high ICT competence were found to be more efficacious in classroom instruction, research/publication, communication and record keeping more than those with moderate and low ICT competence. The hypothesis test indicated that the difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various hardware information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State was not significant. This hypothesis agrees with Akpan (2014) study on ICT competence and lecturers' job efficacy in universities in Cross

River State, Nigeria which confirmed that male and female lecturers did not differ significantly in their level of ICT competence. Lecturers with high ICT competence were found to be more efficacious in classroom instruction, research/publication, communication and record keeping than those with moderate and low ICT competence. The findings of this previous study further revealed that the level of ICT competence of lecturers significantly enhanced their job efficacy.

Academic Staff Proficiency Level Towards the Use of Various Software Information and Communication Technologies (ICTs) for their Efficient Job Performances in Colleges of Education (COEs) in Delta State

It was discovered through the finding that the academic staff in Federal and State COE were less proficient in the use of various software information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State. This finding further revealed that the academic staff were less proficient in: using an excel or spreadsheet Microsoft application to efficiently execute an arithmetical function, using Microsoft word application on a PC to efficiently carry out functions of typing, saving, sourcing and sorting information, etc, using PowerPoint application to efficiently present teaching in the lecture room, using Microsoft publisher to efficiently carry out an activity, using Microsoft Outlook to efficiently execute task, using Microsoft OneNote including Access to efficiently carry out an educational activity, using CorelDraw application to efficiently create designs while preparing a lecture, using Adobe page maker application to efficiently draw design when preparing lessons to be taught, and using statistical software applications such as SPSS, GENSTAT, STAT, etc to efficiently conduct data analysis for research work. The present study agrees and does not deviate from Nwosu, Shaffe and Nurzatul (2018) study on teachers' use of ICT in teaching and learning in Aba North District secondary schools which found out that teachers' ICT competency was found to be at a moderate level (M= 2.87). It was found that the level of teachers' ICT acceptance and use in Aba North District secondary schools was low (M = 1.58). The present study finding deviate from the study of Oyekanmi (2016) which confirmed that the teachers have higher competence level in the use of ICT for Instructional purposes. The hypothesis test indicated that the difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various software information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State was not significant. This finding agrees with Oyekanmi (2016) study on information and communication technology (ICT) needs and competence level of basic technology teachers in Kwara State which indicated that there was no significance difference between male and female basic Technology teachers based on gender at t (98) =0.023, p=0.981>0.05. There is no significant difference between male and female basic technology teachers based on qualification at F (5, 94) = 1.716, P=0.138> 5% alpha level of significance.

Academic Staff Proficiency Level towards the Use of Various Online Information and Communication Technologies (ICTs) for their Efficient Job Performances in Colleges of Education (COEs) in Delta State

It was revealed through the finding that the academic staff in Federal and State COEs were less proficient towards the use of various online information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State. They were less proficient in: using video meeting apps such a videoconferencing, zoom, video clips, etc to efficiently conduct likewise organize classroom activity, using gaming apps to efficiently present lectures in the classroom, using cloud computing to efficiently conduct an online team collaboration learning for students, using learning management system platforms to efficiently conduct online team

collaborative educational activities, using social media apps such as Facebook, Tik Tok, Twitter, Instagram, YouTube, Web Chat, Skype, Messenger, Telegram, WhatsApp, LinkedIn, Pinterest, Quora, Slack to efficiently organize an educational team online communication, using Google apps such as Google meet, classroom, hangout, Microsoft Teams to efficiently conduct online teaching and learning, using Google apps such as Google calendar to efficiently organize educational activity, using Dropbox to efficiently give students assignments, projects, or conduct any other interactive content in order to support online classroom teaching, using online questionnaire such as the Monkey survey, etc to efficiently collect data from respondents for research work, using Internet browsers like Firefox, Safari, and Chrome to efficiently browse likewise source important information useful for lectures from the Internet, and using emails to efficiently supervise students projects or any other online activity. This finding concurs with Archibong, Ogbiji and Anijaobi-Idem (2010) study which found out that the combination of staff that indicated that they were either competent or very competent in utilization of ICT in all the indices measured was below fifty percent (50%). The highest areas of competence indicated by academic staff were in usage of ICT for purposes of research 148 (49.3%); for e-mail 136 (45.3%) and for word processing 120 (40%). It is disheartening to that in this era of technology, academic staff are still not competent in utilizing ICT for common purposes such as e-library, data analysis, e-learning and so on as the finding revealed. Given this result, it can be said that the competency level of academic staff in utilizing ICT is still very low. The hypothesis test indicated that the difference between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various online information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State was not significant. This hypothesis also agrees with Akpan (2014) study on ICT competence and lecturers' job efficacy in universities in Cross River State, Nigeria which confirmed that male and female lecturers did not differ significantly in their level of ICT competence. The hypothetical finding equally agrees with Oyekanmi (2016) study on information and communication technology (ICT) needs and competence level of basic technology teachers in Kwara State which indicated that there was no significance difference between male and female basic Technology teachers based on gender at t (98) =0.023, p=0.981>0.05. There is no significant difference between male and female basic technology teachers based on qualification at F (5, 94) = 1.716, P=0.138> 5% alpha level of significance.

Conclusion

The information communication technology has played significant role in promoting academic staff job performance in several ways in the COEs. But the present study submits and conclude that the academic staff in Federal and State COEs were less proficient towards the use of various hardware, software and online information and communication technologies (ICTs) for their efficient job performances in Colleges of Education (COEs) in Delta State. As such, the differences between the mean ratings of academic staff of the Federal and State Government-owned COEs on their proficiency level towards the use of various information and communication technologies (ICTs) for their efficient job performances in COEs in Delta State, were all not significant. This situation calls for absolute redress if quality education must be enhanced in academic staff job performance in the COEs. Thus, the recommendations made below.

Recommendations

Based on the findings of this study, the following recommendations has been proffered:

1. The Federal and State Governments through the regulatory agency of the COEs, that is, the National Commission for Colleges of Education (NCCE), should provide adequate funds for procurement of hardware information and communication technologies (ICTs) in order to

boost academic staff proficiency towards the use of various ICTs for their efficient job performances in the COEs in Delta State.

2. The Management of the COEs should solicit support from external sources such as the private businesses, individuals and non-governmental organizations for installation of various software information and communication technologies (ICTs) in order to aid academic staff proficiency in the use of various software for their efficient job performances in the COEs.
3. The National Commission for Colleges of Education (NCCE) through the leaderships and management of the COEs should organize constant training and retraining programmes in order to boost academic staff proficiency towards the use of various online information and communication technologies (ICTs) for their efficient job performances in the COEs.

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