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Teachers' computer literacy level effectiveness in teaching at the captain elechi amadi polytechnic, Port Harcourt, Nigeria

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Abstract
Information and communication technology (ICT) has been considered as one of the most powerful tools in educational transformation such that every teacher and learner strive to have knowledge and understanding of how it affects their area of teaching and learning. This study determined the computer literacy level of teachers and its effectiveness in teaching at the Captain Elechi Amadi Polytechnic, Port Harcourt. Nigeria. To achieve this, descriptive survey research design was used to carry out the study.The population of the study is 275 teachers at the Captain Elechi Amadi polytechnics. A simple random sampling technique was used to obtain ninety (90) polytechnic teachers who participated in the study. A structured questionnaire was employed to collect relevant data. Data collected were analyzed using percentage, mean and standard deviation measures. The results indicate that computer literacy has a great effectiveness for the teachers with the (Mean = 3.04 and S.D= 0.522). Findings indicated that teachers' well-equipped preparation with computer knowledge and facilities is one of the main factors in success of technology-based teaching. It was also found that professional development training programs for teachers also played a key role in enhancing teachers' quality teaching.

Keywords: computer literacy, Teachers effectiveness, polytechnic education

Introduction

The Captain Elechi Amadi Polytechnic (CEAP), Port Harcourt is a public funded urban Polytechnic. The enabling Law establishing the institution grants it a right to award diplomas (National Doploma and Higher National Diploma), certificates and other distinctions in science, commerce and technology. The Polytechnic is accredited by the National Board for Technical Education (NBTE). On the strength of the above, the Polytechnic explores avenues and means of initiating and expanding its programme of studies to achieve excellence in its mandates. This opportunity provides for partnership and collaborations between the Polytechnic and industries to tackle the training of its teachers and instructors. Notable amongst the collaborators are (1) the Trisat Communication Limited, to provide training on ICT software, and (2) the Cinfores to provide training and to run ICT studios. The Polytechnic also operates a functional ICT Centre for its internet services, powered by a donation of computers by the National Information Technology Development Agency (NITDA), and the Nigerian Communications Commission (NCC). In practical terms, The E-Library with 12 computer workstations were donated by Petroleum Technology Association of Nigeria(PETAN) and Total E & P, 110 laptop computers from Nigeria Communication Commission (NCC), another 200 computer workstations by Niger Delta Development Commission (NDDC) and 30 tablet-top computer workstations and Solar power source and internet connection (Rivers State College of Arts and Science, 2014). With this lofty effort in the Polytechnic staff development, it becomes imperative that this study be directed to find out the teachers' computer literacy level and its effectiveness in teaching at the Captain Elechi Amadi Polytechnic.

Most Polytechnics in Nigeria and across the world have joined the technology revolution over the years because of its contributory factors to teaching- learning process. Today, students have at least some forms of technologies available to them in schools. This trend is not likely to change, therefore, there is an increasing need for teachers who are literate in the use of the various types of technologies, having realised that the most important determining characteristics of our century is that information is increasing at a very fast rate. In situations like these, it is unavoidable to create, develop and update the skills of teachers and instructors in information-based professions. Otherwise, their professional skills and statuses may be questionable. There are some basic skills required in teaching and learning process, as one of these professions, are supposed to be 'teachers teaching ability', 'world knowledge' and 'subject knowledge'. Skills in each of these areas are dynamic. That is, it is in constantly changing condition and can no longer be continued with primitive means of passing knowledge in our conventional setting.

Having realized this ever fast changing phenomenon in the learning process and technology, there is need for adaptation of the best practices to actualizing the aims and objectives of education. Computer will be of great help in the adaptation to this change since computer meets up with all the requirements by providing an enabling environment to create, store, preserve, process, transfer and share information. To be an effective competent teacher in the use of virtual environment, knowledgeable in getting the necessary information fully and on time, harnessing information in personal and professional development and thereby becoming an expert teacher is the aim

of this studies. Sofoluwe (2007) [9] argues that computer literacy by teachers assists in enhancing computer aided Instruction (CAI), and Lawal (2012) [3] observes that when teachers appreciate the use of computers in the schools, the work becomes earlier for them.

Although teachers may have not been taught during their university or post graduate studies on how to teach or learn with computer, but it is obvious now that computer is part of their profession (Osuji, 2010) [6]. According to Martin and Heller (1982) [5], though no fault of their own, most teachers are not prepared to teach about computing or use a computer in teaching because they received their education "BC" before computers. Now they're finding the need for computer literacy as part of their jobs. The attitudes of teacher toward computer technology may be a significant factor in the use of computers in education. Satharasinghe (2007) [8], stated that Computer literate individuals will reap greater benefits than their counterparts who lack that knowledge. Having computer knowledge is not only applicable to teaching and learning, it also helps teachers to have some basic knowledge on how to use computer to solve some problems. Lu and Miller (2002) [4] identifie technology use in the classroom in various forms including; DVD, VCR players, digital video cameras, televisions, etc. Brain (1983) [1], earlier argued that computer knowledge is not only in getting information but also making the learning and teaching process more effective on the supposed skills of teachers related to computers. It is therefore expected that the outcome of this study will be of immense helps in the assessment of Teachers level of computer literacy in the Polytechnic.

Statement of the Problem

The need to improve on the computer skills and competency of the higher institution teachers for better performance in teaching and learning process has spurred several researchers into finding out what might likely be responsible to countless deficiencies we have today at the Nigerian various educational sectors. These efforts are made to provide solution to Teachers competencies in computer literacy in higher institutions, to harness the importance of computer, to meet up with the pace at which technology is conveying education.

It should however be borne in mind that the increase in the world population leading to an increase in the number of learners and teachers in the education sectors has proven that traditional approaches to teaching have not been able to provide the expected solutions to these challenges. This means that a complete attention has not been paid to the basic skills that can facilitate the classroom activities. From the foregone assertions, this present study is set to consider the computer literacy of teachers and its effectiveness in teaching and learning so as to reinstate the importance of computer literacy and its effectiveness in teaching. This could possibly help the teachers to confront the necessary challenges facing their professional demand. For computer, this study will not only provide empirical data on the extent of computer literacy needs of the Polytechnic, it will go a long way to assisting the Polytechnic administration in plan for its staff training programmes.

Purpose of the Study.

The main purpose of this study is to determine the level of computer literacy and its effectiveness in teaching at the Captain Elechi Amadi Polytechnic, Port Harcourt. The study specifically sought to:

1. Determine teachers' level of computer literacy in teaching at the Captain Elechi Amadi Polytechnic, Port Harcourt.
2. Determine the extent to which computer level of teachers enhances effectiveness in teaching at the Captain Elechi Amadi Polytechnic, Port Harcourt.

Research Questions.

The following research questions guided the study:

1. What is the teachers' level of computer literacy in teaching at the Captain Elechi Amadi Polytechnic, Port Harcourt ?
2. To what extent does computer literacy level of teachers enhance effectiveness in teaching at the Captain Elechi Amadi Polytechnic, Port Harcourt ?

Method and Materials.

The study determined the computer literacy (knowledge and skills) level of teachers and its effectiveness in teaching at the Captain Elechi Amadi Polytechnic, Port Harcourt, Nigeria. To achieve this, descriptive survey research design was adopted. To guide the study, four research (4) questions were raised.

The population of the study was 275 teachers at the the Polytechnic in 2019/2020 academic session. A simple random sampling technique was used to obtain a sample of ninety (90) polytechnic teachers who participated in the study. This figure represented 33 percent of the population.

A structured close-ended questionnaire was designed and used to collect relevant data. The questionnaire before used, was subjected to both the test of validity and reliability. The validation was performed by experts in both e-learning and teacher education.

Through test- re-test method, a reliability coefficient of 0.77 was obtained using Pearson's Product Moment Correlation computation of two sets of scores from a pilot study of an equivalent group outside the sample.

The ready copies of the questionnaire were administered by the researchers, through the various Heads of Department at the Polytechnic, Data collection were analysed using percentage, mean and standard deviation statistics.

Research Question 1: What is teachers' level of computer literacy in teaching at the Captain Elechi Amadi Polytechnic, Port Harcourt ?

Table 1: Mean rating of the teacher's level of computer literacy at the Polytechnic.

S/N	Items	Percentage	
		Yes (%)	No (%)
1	Word Processing Skills	85%	15%
2	Spread Sheets	69%	31%
3	Database Skill	50%	50%
4	Facilitating Online use in Class	80%	20%

5	Web Navigation Skills	100%	0%
6	Web site Design Skills	35%	65%
7	Email Management Skills	97.9%	2.1%
8	Digital Camera Knowledge	89.4%	10.6%
9	Computer Networking Knowledge	45%	65%
10	File Management and Window Explorer Skills	68.3%	31.7%
11	Downloading Software from the Wed	99%	1%
12	Installing Computer Software into a Computer System	80%	20%
13	Web or Blackboard Teaching Skills	30.5%	69.5%
14	Video Conferencing Skills	80.7%	19.3%
15	Computer-related Storage Devices (CD, USB Drives, DVD Zip Disk Knowledge	86%	14%
16	Scanner Knowledge	95.4%	4.6%
17	Deep Web Knowledge	35%	65%
18	Educational Copyright Knowledge	55.2%	44.8%
19	Computer Security Knowledge	40.5%	59.5%

From the Table 2, above with 90 respondents on the teachers' level of computer literacy. It was found that 85% of the respondents were skillful in the use of word processing package that is an indication that they operate computer to a certain level. 65% of the respondents can effectively use spreadsheet packages. Also from the table it was discovered that only 50% of the respondents can effectively use Microsoft access, 50% can't use Microsoft access. 80**%** of the respondents can make facilitating online classes with ICT tools, 20% can't use ICT tools for online classes. It also indicates that all the respondents (100%) can browse through the internet and sort for some information. 35% of the respondents have website design skills, also from the table 97.9 respondents have working e-mail which is an indication that they visit internet often. 80% of the respondents can install computer softwares on their computer system and also do video conferencing. 95.4% of the despondence can make use of scanner to scan either pictures or any document. From the table it was discovered that teachers in the captain Elechi Amadi Polytechnics don't have deep web knowledge as only 35% indicated that they have while 65% don't have. Furthermore only 40.5% have Computer security knowledge why 59.5% don't have Computer security knowledge.

Research Question 2: To what extent does computer literacy level of teachers enhances effectiveness in teaching at the Captain Elechi Amadi Polytechnic, Port Harcourt?

Table 2: Effectiveness of teachers' computer literacy in teaching

S/N		Very Low Extent	Low Extent	High Extent	Very High Extent	Mean	Standard Deviation
		Frequency and percentage (%)					
1	ICT allows teachers to be more creative and imaginative in teaching process.	0 0%)	6 6.7%	30 33.3%	54 60%	3.53	0.618
2	The use of ICT increases teachers' confidence for effective class delivery.	0 0%	3 3.3%	48 53.3%	39 43.3%	3.40	0.388
3	ICT aids teachers for effective counseling of students on choice of career.	0 0%	0 0%	39 43.3%	51 56.7%	3.57	0.373
4	The use of ICT helps teachers to find related knowledge and information for teaching.	0 0%	6 6.7%	33 36.7%	51 56.7%	3.50	0.491
5	The use of ICT helps to broaden teachers' knowledge paradigm	0 0%	6 6.7%	33 36.7%	51 56.7%	3.50	0.491
6	ICT aids teachers to generate questions to evaluate students.	9 10%	21 23.%	30 33.3%	30 33.3%	2.90	0.744
7	ICT tools helps in creating an effective platform for teachers to rob minds and share ideas.	9 10%	15 16.7	42 46.7%	24 26.7%	2.90	0.708
8	The use of ICT enhances collaboration among teachers.	0 0%	6 6.7%	51 56.7%	33 36.7%	3.30	0.405
9	The use of ICT enables teachers to learn new skills for efficient teaching delivery.	0 0%	3 3.3%	60 66.7%	27 30%	3.27	0.318
10	The use of ICT tools helps/aids effective evaluation by the teacher.	6 6.7%	9 10%	39 43.3%	36 40%	3.17	0.679
	Grand Mean/ Standard Deviation.					3.30	0.52

From the data provided in table 2 which is effectiveness of teachers' computer literacy in teaching it showed that the use of ICT in allows teachers to be more creative and imaginative while teaching with the mean of 3.53. The confidence of teachers to be active in class activities has been proved to have been increased with the aids of ICT with mean of 3.40. The use of ICT tools helps the teachers in effective counseling of students in choice of career with the mean of 3.57. Also it was discovered that the use of ICT helps teachers to find related knowledge and information for learning with the mean of 3.50. The use of ICT helps to broaden teachers' knowledge paradigm with the mean of 3.50. The use of ICT helps teachers to generate questions to evaluate students with the mean of 2.90. The use of ICT tools help in creating an effective platform for teachers to rob minds and share ideas with the mean of 2.90. The use of ICT enhances collaboration among teachers with the mean of 3.30. The use of ICT enables teachers to learn new skills for efficient teaching delivery with the mean of 3.27. The use of ICT tools helps/aids effective evaluation by the teacher with the mean of 3.17.

Discussion of the Findings

The results of this study show that modern technology-based teaching (ICT) and learning is more effective in compare to traditional classroom. This is because, using ICT tools and equipment will prepare an active learning environment that is more interesting and effective for teachers. The results are in line with a research findings by Macho (2005) that proved using ICT in education would enhance teachers' teaching effectiveness. However, most of teachers in this study agree that ICT helps to be more creative and imaginative in teaching process. Moreover, this study proved that ICT aids teachers for effective counseling of students on choice of career. Accordingly, the respondents agreed that the use of ICT increases teachers' confidence for effective class delivery. From this study most teachers think ICT

integration in teaching is effective. Because teachers can develop the confidence to have better communication and able to do their presentations; ICT helps teachers to be more creative and imaginative as their knowledge paradigm expend; and ICT enhances collaboration among teachers. In conclusion, the very first stage of ICT implementation must be effective to make sure that, teachers are trained to be able to make the best use of ICT tools. Finally, the computer literacy of the teachers and integration of ICT in classroom needs serious consideration in order to increase the competency of the country's education system.

Conclusion

Based on the findings of this study, it could be concluded that computer literacy of the teachers makes teaching more effective. This means that increase in teachers' computer literacy and skills increases their teaching effectiveness. The skill development in the usage of ICT tools give teachers an edge in their chosen careers. Teachers' ability to use computer application packages such as Microsoft word, Microsoft PowerPoint and others educational applications greatly enhanced their teaching effectiveness. It is concluded, therefore that the purpose for which computers and their accessories were donated to had been achieved.

Recommendations

The study recommends that efforts should be directed to providing more training opportunities in areas where the Polytechnic teachers have shown low levels of computer literacy and skills. These areas are website design skills, computer networking knowledge, web or blackboard teaching skills, deep web knowledge, computer security knowledge, database skills and educational copy-right knowledge.

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