



ICT Usage Among Academic Staff of Polytechnics in Osun State: Implications for National Development

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Abstract - The development of a nation determines the standard of living of people in that country. When a nation is developed, the standard of living of its people rises and the level of acceptance and use of basic science and technology tools will directly be high. The study of the usage of Information and Communication Technology (ICT) tools among different people in a country is carried out to determine the level of development in that country. This study is carried out to investigate the usage of ICT tools among academic staff of polytechnics in Osun State. It uses ICT Usage Questionnaire (ICTUQ) to survey the extent of use of ICT among 159 randomly selected staff of the two selected polytechnics, the data collected was analysed with the aid of the Statistical Package for Social Sciences using frequency count and simple percentage. The results showed that there is low level of ICT usage among the respondents from the Federal Polytechnic Ede with high focus on research and the ICT usage level is high in Osun State College of Technology with poor focus on research use of ICT. The implications of the findings in this study to national development explained and appropriate recommendations were made towards the maximization of the use of ICT in the two institutions under survey.

Keywords: Academic Staff, FedPolyEde, GDP, ICT Usage, National Development, Oscotec.

Introduction

The standard of living of people in developing countries is measured by different indicators among which are the extent of the acceptance and use of basic technologies which are development drivers. The widely used among these technologies is the Information and Communication Technology (ICT), which has been discovered to be a basis for modern innovations such as e-government, e-commerce, e-voting or e-democracy, all of which contribute immensely to the economic development of a nation. The more developed the economy of a nation is, the more improved the standard of living of her people.

In the present time of our country, Nigeria when all efforts are on deck to salvage the economy of the nation, science and technology cannot be left out. The process of salvaging the economy can be in two forms, there can be new innovations in science and technology to boost the Gross Domestic Product (GDP) of our nation and/or the reconstruction or revamping of under-utilized opportunities in science and technology.

This study is carried out with the objective of examine how the people in the survey (as sample of the environment under study) are faring with the use of ICT so as to quantify what we may be losing or gaining and know the next line of actions that can be taken by both the individuals and the government towards maximization of the gains from ICT.

ICT is a growth driver in the developed nations [1]. It has been specifically affirmed to be a tool for upgrading of knowledge and conducting of research and publications among academic staff [2] and also improve academic staff job efficacy as confirmed in [3]. It has been defined as a technical term that include communication devices or applications encompassing radio, television, cellular phones, computer

network, hardware and software, satellite systems and so on, as well as the various services and applications associated with them [4].

The two most recognized ICT usage indicators are the access to computers and the internet [5]. This is because the accessibility of an individual to computer system and the adequate provision of internet facilities can greatly determine the extent of use of ICT. It is automatically true that where access to computer is low the computer usage will also be low and where internet access is poor, the extent of the use of the internet for various tasks will be very low. Several studies have been carried out by researchers in this regard, some of which shall be reviewed in the next section. However, most research efforts are geared towards helping to measure the level of acceptance and penetration of ICT among different people in different nations. These measurements are often done at the instance of development organizations such as the UNESCO, United Nations and the OECD (Organisation for Economic Cooperation and Development) which they use to compare the degree of digital economy among nations of the world [5]. The rest part of this paper are organized into the review of related works, the research methodology, data presentation and analysis, findings, discussion of results, implications for national development. The paper ends with the conclusion and recommendations.

Review of Related Works

A lot of researches had been carried out on the availability and usage/utilization of ICT among different people in different countries. Some of these works are summarized below. [3] examined the influence of ICT competence of university lecturers on the efficacy of their jobs in two Nigerian universities using chi-square and one-way ANOVA to analyse the data collected. The study found out that the level of ICT competence (which is determined by ICT usage) of lecturers significantly enhanced their job efficacy. This is indirectly indicating a situation where the usage level is high. In another related work of [6] ICT competence among academic staff was investigated. The study uses questionnaire administered among 350 academic staff of two universities under study using accidental sampling selection technique. Their findings revealed that there is a low level of ICT competence (or usage) among academic staff due to several challenges like poor internet coverage and lack of ICT knowledge despite the fact that majority of the staff own their personal computers.

[1] investigate the use of ICT by lecturers and students of Ignatius Ajuru University of Education and Rivers State University of Technology using random sampling technique to select 1,154 respondents (lecturers and students) for the survey. The study found out that the use of ICT was not influenced by the gender of the lecturers and that ICT usage contributed to the change in capacity building level of the users leading to the conclusion that ICT usage contributed to national development. In another related study conducted on human capital resources of Tertiary institutions in South-Western Nigeria, [7] found out that most human resource capitals (lecturers inclusive) of the four institutions studied source for ICT tools by themselves and that the level of availability of ICT resources has significant relationship with the utilization level. [8] investigated the utilization of computer technology for academic work by lecturers of University of Jos, Nigeria and found out that a greater percentage of the lecturers of the university make use of computer mostly for typing/printing of lecture notes. The study also discovered that using ICT for teaching and learning was not properly adopted.

[9] studied the use of internet facility in the college libraries among lecturers in the three state-owned colleges of education in Delta state with 106 questionnaires distributed to them using stratified sampling technique. The data collected were tabulated and analysed using simple percentages. It was found out that the internet use among the respondents is mostly for research purpose. The internet use was low and the greatest barrier to the internet use is the high cost of access and difficulty of access. [10] carried out a study to examine the level of usage of ICT as well as the perception of technology by the preservice teachers and instructors in the faculty of education of a university in Turkey. It was found out that although there was positive attitude of both preservice teachers and instructors to the use of technology in teaching and learning but the level of ICT usage was low. [11] investigated the pattern of access and use of ICT among science teachers in Federal Unity Schools in Nigeria by examining and analyzing the

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responses of 353 respondents using mean scores. The study revealed that there is low access to laboratory-based ICT facilities and a low level of ICT usage.

Several related works had been carried out using secondary schools as case studies, these studies include the work of [12] which was carried out to assess the availability and utilization level of ICT resources for teaching and learning in a secondary school in Kwekwe, Zimbabwe. It was discovered that there was low level of utilization of the available ICT resources while most of the ICT facilities are not available. Another study that uses secondary school as case study is the work of [13] which was carried out on selected secondary schools in Ardo-Kola and Jalingo in Taraba state. The study revealed that there was a very low availability and utilization of ICT resources. [14] assessed the availability and utilization of ICT devices in selected Senior Secondary Schools in Ebonyi Local Government Area of Ebonyi State by using a sample containing 225 teachers and 8,128 students in 15 schools. The data collected were analysed using mean scores and it was revealed that the ICT devices are not adequately utilized. That is to say that the level of ICT usage is low.

[15] studied the accessibility and utilization of ICTs among teachers of selected secondary schools in Kenya with 98 teachers as respondents in the sample. Their findings revealed that the level of accessibility was very high (98%) and the level of ICT utilization is more pervasive as a means of communication and for information searching. It is however important to stress that study of this nature using polytechnics as case study are either not available or very scanty in the literature.

Methodology

This study uses an ICT Usage questionnaire (ICTUQ) as a research instrument. A total of 100 questionnaires each were distributed to academic staff of both the Federal Polytechnic, Ede and Osun State College of Technology Esa-Oke. The same number was also planned to be distributed to academic staff of Osun State Polytechnic, Iree but we were not able due to the on-going strike at the institution during the period of this survey. 159 correctly filled questionnaires were returned from the two schools (72 from the Federal Polytechnic, Ede and 87 from the Osun State College of Technology, Esa-Oke), the data collected were analysed using the Statistical Package for Social Sciences (SPSS) with interest on simple frequency count and percentage.

Data Presentation and Analysis

The data collected and analyzed are as presented below.

Data from the sample in Federal Polytechnic, Ede are analyzed and presented as follows:

Table 1: Contingency table of PC ownership with Hours of Use on the Computer

			HoursUse				Total
			0 - 2hrs	3 - 5hrs	5 - 8hrs	Above 8hrs	
pcownership	No	Count	0	0	0	1	1
		% of Total	.0%	.0%	.0%	1.4%	1.4%
	Yes	Count	6	22	18	25	71
		% of Total	8.3%	30.6%	25.0%	34.7%	98.6%
Total		Count	6	22	18	26	72
		% of Total	8.3%	30.6%	25.0%	36.1%	100.0%

Table 2: Contingency table of PC ownership with Facility most Used on the Computer

			FacilityMostUsed			Total
			Web Browsing	E-mail	All of the Above	
Pcownership	No	Count	0	0	1	1
		% of Total	.0%	.0%	1.4%	1.4%
	Yes	Count	30	2	39	71
		% of Total	41.7%	2.8%	54.2%	98.6%
Total		Count	30	2	40	72
		% of Total	41.7%	2.8%	55.6%	100.0%

Table 3: Contingency table of PC ownership with Internet Activities Used

			InternetActivities					Total	
			Checki ng E-mail	Surfi ng for Academi c Materials	Chatti ng with Friends	Reading News	All of the Abo ve		Others
Pcownership	No	Count	0	0	1	0	0	0	1
		% of Total	.0%	.0%	1.4%	.0%	.0%	.0%	1.4%
	Yes	Count	1	44	0	2	23	1	71
		% of Total	1.4%	61.1%	.0%	2.8%	31.9%	1.4%	98.6%
Total		Count	1	44	1	2	23	1	72
		% of Total	1.4%	61.1%	1.4%	2.8%	31.9%	1.4%	100.0%

Table 4: Contingency table of Internet Provision with Hours of Use

			HoursUse				Total
			0 - 2hrs	3 - 5hrs	5 - 8hrs	Above 8hrs	
InternetProvision	No	Count	2	1	3	11	17
		% of Total	2.8%	1.4%	4.2%	15.3%	23.6%
	Yes	Count	4	21	15	15	55
		% of Total	5.6%	29.2%	20.8%	20.8%	76.4%
Total		Count	6	22	18	26	72
		% of Total	8.3%	30.6%	25.0%	36.1%	100.0%

Table 5: Contingency table of Internet Provision with Internet Activities Used

			InternetActivities					Total	
			Checking E-mail	Surfing for Academic Materials	Chatting with Friends	Reading News	All of the Above		Others
InternetProvision	No	Count	0	3	1	0	12	1	17
		% of Total	.0%	4.2%	1.4%	.0%	16.7%	1.4%	23.6%
	Yes	Count	1	41	0	2	11	0	55
		% of Total	1.4%	56.9%	.0%	2.8%	15.3%	.0%	76.4%
Total		Count	1	44	1	2	23	1	72
		% of Total	1.4%	61.1%	1.4%	2.8%	31.9%	1.4%	100.0%

Data from the sample in Osun State College of Technology, Esa-Oke are analysed and presented as follows:

Table 6: Contingency table of PC ownership with Hours of Use on the Computer

			HoursUse				Total
			0 - 2hrs	3 - 5hrs	5 - 8hrs	Above 8hrs	
pcownership	No	Count	1	1	0	0	2
		% of Total	1.1%	1.1%	.0%	.0%	2.3%
	Yes	Count	0	21	38	26	85
		% of Total	.0%	24.1%	43.7%	29.9%	97.7%
Total		Count	1	22	38	26	87
		% of Total	1.1%	25.3%	43.7%	29.9%	100.0%

Table 7: Contingency table of PC ownership with Facility Most Used on Computer

			FacilityMostUsed			Total
			Web Browsing	E-mail	All of the Above	
Pcownership	No	Count	1	0	1	2
		% of Total	1.1%	.0%	1.1%	2.3%
	Yes	Count	8	1	76	85
		% of Total	9.2%	1.1%	87.4%	97.7%
Total		Count	9	1	77	87
		% of Total	10.3%	1.1%	88.5%	100.0%

Table 8: Contingency table of PC ownership with Internet Activities Used

			InternetActivities		Total
			Surfing for Academic Materials	All of the Above	
Pcownership	No	Count	1	1	2
		% of Total	1.1%	1.1%	2.3%
	Yes	Count	6	79	85
		% of Total	6.9%	90.8%	97.7%
Total		Count	7	80	87
		% of Total	8.0%	92.0%	100.0%

Table 9: Contingency table of Internet Provision with Hours of Use

			HoursUse				Total
			0 - 2hrs	3 - 5hrs	5 - 8hrs	Above 8hrs	
InternetProvision	Yes	Count	1	22	38	26	87
		% of Total	1.1%	25.3%	43.7%	29.9%	100.0%
Total		Count	1	22	38	26	87
		% of Total	1.1%	25.3%	43.7%	29.9%	100.0%

Table 10: Contingency table of Internet Provision with Internet Activities Used

			InternetActivities		Total
			Surfing for Academic Materials	All of the Above	
InternetProvision	Yes	Count	7	80	87
		% of Total	8.0%	92.0%	100.0%
Total		Count	7	80	87
		% of Total	8.0%	92.0%	100.0%

Findings

Our findings revealed the following:

- 1.) When the variable ‘pownership’ was cross tabulated with the ‘hours of use’, it was found out that 36.1% of the respondents in FedPolyEde use computer for more than 8 hours while 29.9% of the respondents in Osun State College of Technology (Oscotec) use computer for more than 8 hours (Table 6). We go further to examine what facilities are being used during these hours on the computers to determine the ICT usage level as in finding 2 below.
- 2.) The cross tabulation of ‘pownership’ with ‘facility most used’ shows that 55.6% of the

respondents in FedPolyEde (Table 2) and 88.5% of the respondents in Oscotec (Table 7) use all the mentioned internet facilities. This shows that there is high level usage of ICT in Oscotec compared to that of in FedPolyEde despite the fact that many use computers for more hours than in Oscotec.

- 3.) PC ownership was again cross-tabulated with 'InternetActivities' 61.1% of respondents (Table 3) indicated that they use the internet in surfing for academic materials in FedPolyEde while 90.8% of respondents (Table 8) indicated their use of internet for all the activities in Oscotec.
From this, we can infer that the usage of ICT is focused on research activities in FedPolyEde than in Oscotec since their responses shows generality of usage regarding all the internet activities.
- 4.) Internet Provision was cross-tabulated with 'Hours of Use' and the result shows that 23.6% of the respondents in FedPolyEde said there is no provision and 74.6% said there is (Table 4). In Oscotec, all the respondents said that there is internet provision (Table 9). This revealed that there is internet provision in the two polytechnics but the coverage in FedPolyEde may be poor (making the 23.6% feeling that there is none) while it may be very good in Oscotec with 100% respondents going for Yes.
- 5.) When the 'Internet Provision' was cross-tabulated with 'Internet Activities', the result shows a corroboration of our finding in (3). It shows that 56.9% focused on the use of internet for surfing the internet for academic materials in FedPolyEde (Table 5) while all the respondents went for all the internet activities in Oscotec (Table 10). This is to say again that research using ICT is focused on in FedPolyEde than in Oscotec.

Discussion of Results

The whole findings above show that there is high level of ICT usage in Osun State College of Technology, Esa-Oke with very strong internet facility and poor focus on the use of ICT for research. There is low level of ICT usage in Federal Polytechnic, Ede with moderately strong internet facility and very strong focus on the use of ICT for research.

The findings of this study as it relates to FedPolyEde where ICT usage is low is in agreement with that of [10], [6], [14], [7] and [9] where academic staff were reported to have mostly used internet for research purpose. The revealed findings as it relates to Osun State College of Technology where ICT usage level is high with poor focus on use of ICT for research agreed with the work of [8] where academic staff use of computer technology was not focused on research.

There are many factors that can contribute to the low level of ICT usage in FedPolyEde, these may include poor power supply, inadequate technical know-how of some academic staff [16], high cost of access [9] and inadequate ICT updating opportunities [17].

Implications for National Development

The above findings have a lot of implications on the development of Nigeria as a whole. These implications include:

- The need for government to enhance the provision of ICT infrastructure in our tertiary institutions especially where there is inadequate facility like Federal Polytechnic, Ede.
- The poor focus on research in an institution like Oscotec can directly tell on the products of the institution and therefore the need for improvement. This is because poor focus on research in an academic institution can result in reduced level of contribution to national development.
- The low level of ICT usage even where there are ICT facilities can impact on the productivity of the academic staff in the institution and the need to increase sensitization on the use of ICTs to boost the development of our nation since ICT has been viewed as the wheel of economic growth and development [16].

Conclusion

This study had been able to assess the level of ICT usage among academic staff of polytechnics in Osun State and came out with several findings. We are however aware that findings of this study may be influenced by so many factors like the level of honesty of the respondents in the survey, the fact that the filling of the research instrument does not attract any financial gain for the respondents and the lack of interest in the study resulting from the ignorance of its significance.

However, with the data collected and analysed, the paper has been able to show the relationship between the findings of the study with the development of our nation.

Recommendations

In view of our findings and the foregoing discussion, the following are recommended for the desired development of our nation.

1. The government through the management of the Federal Polytechnic, Ede should improve on the provision of ICT infrastructure to strengthen the existing ones for wider accessibility by academic staff.
2. The management of Osun State College of Technology Esa-Okene should organize seminars and workshops for the academic staff on the use of ICT for research so as to increase their focus for national development.

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