



## **Challenges and Strategies for Utilizing Information and Communication Technology among Office Technology and Management Educators in Nigerian Polytechnics**

**Amiaya, Anita Ogheneovo**

Department of Office Technology and Management,  
Delta State Polytechnic, P. M. B. 05,  
Ozoro, Delta State, Nigeria

### **Abstract**

The changes in work processes and business organizations as well as the model of transmission and exchange of information in the globalized economy call for transformation in the teaching and learning process in Office Technology and Management (OTM) to reflect the emphasis in the use of Information and Communication Technology (ICT). The major purpose of the study was, therefore, to assess the extent of utilization, challenges and strategies of ICT for repositioning OTM programme in Nigerian Polytechnics. Three research questions were generated and three null hypotheses were also formulated to guide the study. A survey design was adopted and the study was carried out in all Polytechnics offering OTM in South-South Nigeria. The population for the study comprised 85 OTM Educators. The entire population was studied hence no sampling techniques. A 45-item questionnaire was used for data collection. A reliability coefficient of 0.82 was obtained from Cronbach Alpha reliability test used. Seventy-eight (78) copies out of the eighty-five (85) copies of the questionnaire administered were collected and analysed. The research questions were answered using mean and standard deviation while the hypotheses were tested using t-test statistic at 0.05 level of significance. It was found that ICT was not effectively utilized in the institutions studied because of many challenges. However, many strategies for improving the utilization of ICT were identified. It was, therefore, recommended that government and the management of the institutions should endeavour to ameliorate the challenges with the identified strategies.

**Keywords:** Challenges, Strategies, ICT, OTM Educators

## Introduction

Information and Communication Technology (ICT) can be seen as the bedrock for national survival and development of a country in a rapidly changing global environment. It challenges education planners and curriculum designers to address a host of vital socio-economic issues such as reliable infrastructure, skilled human resources, open government and other essential issues of capacity building. It is for this reason that every progressive country has to draw a national policy on ICT and the implementation of strategies to respond to the emerging global reality. A developing nation like Nigeria, which has aspired to participate effectively and become a key player in the emerging information age needs to have in place, a highly efficient information technology system driven by vibrant national Information Technology policy. This paper thus, deals with the challenges and strategies for effective utilization of ICT among Office Technology and Management (OTM) educators in Nigerian Polytechnics.

Office Technology and Management is a nomenclature that has replaced Secretarial Studies Programme in Nigerian Polytechnics as introduced by the National Board for Technical Education (NBTE) in 2004. This was as a result of an extensive review of Secretarial Studies Curriculum in order to make its recipients to be ICT-compliant and fit appropriately in the world of work, most especially, in modern offices that are characterized by various types of state of the art communication and technology. Polytechnic education in Nigeria is recognized as part of tertiary education whose aim is to provide middle-level manpower to man the various sectors of Nigerian economy (Ikelegbe and Odede, 2012). According to the National Policy on Education (FRN, 2004), Polytechnics in Nigeria shall maintain a two-tier programme of studies; namely, the National Diploma (ND) and the Higher National Diploma (HND) with one-year period of industrial experience serving as one of the pre-requisites for entry into the HND programme.

Office Technology and Management programme is designed to equip students with the competencies required to work in a modern office environment. The broad objectives of OTM programme, according to NBTE (2004), are:

1. Acquisition of Secretarial skills
2. Acquisition by ability to write shorthand for three minutes in varied materials at 1.3 syllabic intensity dictated at 80 Words Per Minute (WPM) and 1.4 syllabic intensity of 100 wpm and transcribe on the computer with a minimum of 95% accuracy for both ND and HND respectively.
3. Typing effectively various office jobs and acquiring a copying rate of 40wpm and 50wpm for ND and HND respectively on passages not below 1.3 syllabic intensity with 98% accuracy.
4. Acquisition of general education.
5. Laying the foundation for advanced studies.

The efforts towards the use of ICT in the training of office managers and its use in teaching office technologists/secretaries has met several challenges as pointed out by Udoye and Ikenga (2010). These include:

1. Inadequate ICT infrastructure such as computer hardware and software
2. Resistance to change from traditional pedagogical methods of teaching secretarial education/office management to more innovative and technology-based teaching and learning method
3. Lack of skilled manpower to manage available systems
4. Inadequate facilities for office managers/educators at the tertiary institutions; and
5. Incessant electricity distribution.

Learning ICT skills is not sufficient, but using them to improve the teaching and learning environment is the key for pedagogy-technology integration. Understanding the changing role of teachers from instructors to facilitators, teacher-led instruction to learner-centered instruction is the key to the successful implementation of pedagogy-technology integration for teacher development. Therefore, preparing teachers to face the challenges of an ICT enriched teaching and learning environment is crucial. Nigerian teachers need to be equipped with the fundamentals of how to use ICT tools and to have a sufficient understanding of how the integration of these tools in the effective teaching-learning process can be smoothly facilitated. Effort must be oriented towards changing the teachers' mind-set by developing positive attitudes towards ICT applications in teaching and learning (Shyamal, 2005).

The changes occurring in businesses and industries with regard to the processes, production, distribution and marketing of goods and services together with the mode of information transmission and exchange require that the teaching and learning process of OTM should be effectively and efficiently reorganized to reflect the emphasis on the use of ICT in educational service delivery. Information and communication technology should be effectively utilized in OTM to match graduates with the current demands of modern organizations. An elaborate use of ICT in the implementation of OTM programmes will, in no small measure, assist Nigeria to achieve her Vision 20:2020. Vision 20:2020 is aimed at making Nigeria one of the 20 largest industrialized economies of the world by the year 2020.

According to Shyamal (2005), ICT include all the electronics means for gathering, processing, storing, sharing and distributing information, knowledge and ideas. Information and communication technology has integrated the world into a global village thereby making the processing, production, marketing and consumption of knowledge, skills, goods and services very easy without distance barriers. It encompasses all forms of information delivery systems that use multi-media, internet, intranet, extranet and interactive TV, among others. It is one of the major innovations that are taking place in Nigerian education system, particularly at the tertiary education level. The introduction of ICT in teaching and learning methods in Nigeria has affected the whole process of educational service delivery (Ede, 2009).

Effective utilization of ICT in OTM means that the teachers should be skilled in the use of ICT tools to improve their teaching methods. The teachers should be adequately trained and regularly retrained to acquire the competencies and skills required for effective utilization of ICT in instructional delivery. This can be evidenced in the students with the appropriate skills, knowledge and attitudes for employment in modern offices and organizations. Effective utilization can be possible with adequate provision of ICT facilities and infrastructure in OTM programme as well as adequate funding of the programme by government and all stakeholders in the education industry. According to Ejiofor (2009), the teachers as the implementers of curriculum, innovators and custodian of knowledge always require appropriate training, facilities, tools and motivation for effectiveness and technological advancement. Akinyemi (2001) attributed the poor quality of OTM graduates to many challenges which include poor teacher quality in ICT, inadequate ICT facilities and infrastructure, under-funding of OTM programme, lack of motivation and incentives to OTM educators. It is not yet certain that ICT is effectively utilized in the teaching and learning of OTM in Nigerian Polytechnics with widespread unemployment of the Polytechnic graduates and the myriad of challenges hindering the effective use of ICT in the institutions.

## **Purpose of the Study**

The major purpose of the study was, therefore, to determine the effective utilization of ICT for repositioning OTM programmes in Nigerian Polytechnics for national development. Specifically, the study sought to:

1. Ascertain the extent of utilization of ICT in OTM programme in Polytechnics in South-South Nigeria,
2. Identify the challenges faced by OTM educators that hinder the effective utilization of ICT in OTM programme in Polytechnics in South-South Nigeria,
3. Identify strategies for enhancing the effectiveness of OTM educators for utilizing ICT in OTM programme in Polytechnics in South-South Nigeria.

## **Research Questions**

The following research questions guided the study:

1. What is the extent of utilization of ICT in OTM programme in Polytechnics in South-South Nigeria?
2. What are the challenges faced by OTM educators that hinder the effective utilization of ICT in OTM programme in Polytechnics in South-South Nigeria?
3. What are the strategies for enhancing the effectiveness of OTM educators for utilizing ICT in OTM programme in Polytechnics in South-South Nigeria?

## **Hypotheses**

Three null hypotheses were formulated to guide the study and tested at 0.05 level of significance:

1. There is no significant difference in the mean ratings of male and female OTM educators on the extent of utilization of ICT in OTM programme in Polytechnics in South-South Nigeria.
2. There is no significant difference in the mean ratings of male and female OTM educators on the challenges faced by OTM educators that hinder effective utilization of ICT in OTM programme in Polytechnics in South-South Nigeria.
3. There is no significant difference in the mean ratings of male and female OTM educators on the strategies for enhancing the effectiveness of OTM educators for utilizing ICT in OTM programme in Polytechnics in South-South Nigeria.

## **Methodology**

A survey research design was adopted for this study to assess the opinions of OTM educators on the challenges and strategies for the effective utilization of ICT in OTM programme in Polytechnics in South-South Nigeria. The area of the study was the six South-South States of Nigeria namely: Delta, Edo, Bayelsa, Rivers, Cross River and Akwa-Ibom States. All the government-owned Polytechnics in the area that have established OTM department were used for the study. The population for the study was 85 OTM educators in the department of OTM in government-owned Polytechnics in the South-South States of Nigeria. The entire population was studied because it was manageable; hence, there was no sampling.

A structured questionnaire consisting of 45 items was used to elicit information from respondents on a five point Liker-type scale. The questionnaire was subjected to face validation by three experts: two from the OTM Department, Federal Polytechnic, Nekede,

Owerri, Imo State, Nigeria and one from the Department of Measurement and Evaluation, Delta State University, Abraka, Nigeria. In order to ascertain the reliability of the instrument for the study, it was trial-tested in three Polytechnics in South-East Nigeria. Thirty (30) copies of the instrument were administered to OTM educators in the Polytechnics. The result obtained after the trial-testing was subjected to the test of internal consistency using Cronbach Alpha procedure to measure its reliability before it was used for the study. The test yielded a coefficient of 0.82, indicating that the instrument was quite reliable for the study.

The instrument was administered to the Educators in their various institutions with the help of three research assistants. Eighty-five (85) copies of the instrument were distributed out of which seventy-eight (78) copies were returned and used for the study. The research questions were analyzed descriptively using mean and standard deviation based on a 5-point Likert-type scale. On the other hand, the null hypotheses were tested using t-test of difference between mean ratings of independent samples at an alpha level of 0.05.

## Results

The results are presented according to the research questions and hypotheses that guided the study.

### Research Question One

What is the extent of utilization of ICT in OTM in Polytechnics in South-South Nigeria?

Table 1: Mean Ratings of Male and Female OTM Educators on the Extent of Utilization of ICT in OTM Programme in South-South Nigerian Polytechnics

S/N	Items of ICT Utilization	Male			Female		
		X	SD	Dec.	X	SD	Dec.
1	Electronic presentation technology (PowerPoint)	3.58	0.87	MU	3.50	0.80	MU
2	Windows and file management technology	4.04	0.79	MU	3.89	0.86	MU
3	Computer networking technology	2.41	0.39	RU	2.38	0.56	RU
4	Internet and web browsing technology	2.66	0.67	SU	2.56	0.74	SU
5	Website design and navigation technology	2.85	0.62	SU	2.86	0.72	SU
6	Electronic spreadsheet technology	2.76	0.58	SU	2.86	0.72	SU
7	Software installation and downloading technology	2.79	0.78	SU	2.57	0.68	SU
8	Web communication technology	2.41	0.39	RU	2.47	0.98	RU
9	Computer-related devices (Discs, CDs, USB, among others)	4.22	0.36	MU	4.14	0.56	MU
10	Video conferencing technology	1.88	0.98	RU	1.56	1.07	RU
11	Scanning technology	3.89	0.89	MU	3.78	0.96	MU
12	e-mail and database management technology	3.58	0.69	MU	3.61	0.60	MU
13	Word and data processing technology	4.31	0.82	MU	4.41	0.70	MU
14	Computer security technology	2.74	0.55	SU	2.78	0.58	SU
15	Electronic learning technology (E-Learning)	2.45	0.82	RU	2.37	0.77	RU
	<b>Average Mean and SD</b>	<b>3.11</b>	<b>0.68</b>		<b>3.05</b>	<b>0.75</b>	

**Key:** X=Mean, SD=Standard Deviation, Dec=Decision, MU=Most-times Utilized, SU=Sometimes Utilized, RU=Rarely Utilized.

The data in Table 1 revealed that six items were most-times utilized with their mean responses ranging between 3.50 and 4.41. Four of the items had the mean responses ranging

between 1.56 and 2.47 which showed that they are rarely utilized while five items with responses ranging 2.56 and 2.86 shown in Table 1 were sometimes utilized in the teaching and learning of OTM. The overall average mean of 3.11 and 3.05 also indicated that all the ICT items were sometimes utilized. The overall average standard deviation, which is 0.68 and 0.75 also indicated that the respondents were close to one another in their opinions on the extent of utilizing ICT in OTM programme in South-South Polytechnics in Nigeria.

### Research Question Two

What are the challenges faced by OTM educators that hinder the effective utilization of ICT in OTM programme in Polytechnics in South-South Nigeria?

Table 2: Mean Ratings of Male and Female OTM Educators on the Challenges Faced by OTM Educators that Hinder the Effective Utilization of ICT in OTM Programme in Polytechnics in South-South Nigeria

S/N	Items on challenges of ICT utilization	Male			Female		
		X	SD	Dec.	X	SD	Dec.
1	Inadequate ICT facilities and infrastructure	3.96	0.98	A	3.76	0.65	A
2	Lack of access to ICT resources	4.21	0.76	A	3.72	0.64	A
3	Shortage of ICT skilled Educators	4.14	0.84	A	3.92	0.65	A
4	Incessant electricity failure	4.56	0.88	SA	3.76	0.65	A
5	Lack of required competencies in the utilization of ICT resources	3.88	0.78	A	3.56	0.63	A
6	Lack of motivation and incentives for lecturers	4.31	0.94	A	4.04	0.86	A
7	Inadequate funding of OTM programme on ICT based curriculum	4.51	0.63	SA	4.10	0.98	A
8	Poor administration and supervision of OTM programme on ICT usage	3.88	0.78	A	3.89	0.62	A
9	High cost of acquisition and maintenance of ICT facilities	4.16	1.24	A	4.04	0.68	A
10	Poor perception and conservative attitude of lecturers on the use of ICT in instructional delivery	3.71	1.03	A	3.58	0.78	A
11	Inadequate time allocated for ICT-related instructions, training and practice	3.68	0.56	A	3.67	0.87	A
12	Inadequate technical support to keep ICT resources working during instruction	4.51	0.63	A	4.38	0.55	A
13	Frequent changes in the models of ICT resources	3.82	0.85	A	3.98	0.66	A
14	Haphazard integration of ICT into OTM curriculum	4.02	0.77	A	4.10	0.98	A
15	High cost of training and retraining of manpower	4.07	0.85	A	3.67	0.86	A
	<b>Average Mean and SD</b>	<b>4.09</b>	<b>0.84</b>		<b>3.88</b>	<b>0.74</b>	

**Key:** X=Mean, SD=Standard Deviation, Dec=Decision, A=Agree, SA=Strongly Agree

The data presented in Table 2 shows the respondents' level of agreement on the challenges hindering the effective utilization of ICT in OTM programme. All items in the table had their mean responses ranging from 3.56 to 4.56 which implied that the respondents agreed that the items were challenges faced by OTM educators that hinder the effective utilization of ICT in teaching and learning in OTM programme. All the items had an overall average mean of 4.09 and 3.88, which also implied that the respondents were in agreement about all items listed as challenges faced by OTM educators. The overall average standard deviation of 0.84 and 0.74

showed that all the respondents were close in their agreement that all the items listed were challenges that hinder effective utilization of ICT in OTM programme.

### Research Question Three

What are the strategies for enhancing the effectiveness of OTM educators for utilizing ICT in OTM programme in Polytechnics in South-South Nigeria?

Table 3: Mean Rating of Male and Female OTM Educators on the Strategies for Enhancing the Effectiveness of OTM Educators for Utilizing ICT in OTM Programme in Polytechnics in South-South Nigeria

S/N	Items of Strategies for Enhancing ICT Utilization	Male			Female		
		X	SD	Dec.	X	SD	Dec.
1	Adequate provision of ICT facilities and infrastructure	3.79	0.89	A	3.58	0.86	A
2	Organization of ICT training and retraining programme for lecturers	4.46	0.58	A	4.16	0.51	A
3	Adequately subsidizing lecturers to own personal computers and laptops	3.65	1.07	A	3.60	1.09	A
4	Encouraging and supporting lecturers financially to participate in ICT-based professional development programmes	3.96	0.79	A	3.86	0.89	A
5	Periodic organization of ICT capacity-building programmes for lecturers	4.01	0.84	A	4.26	0.84	A
6	Periodic evaluation of lecturers on the extent of ICT utilization	4.12	0.66	A	3.98	0.67	A
7	Adequate funding of OTM programmes by government and private sector on ICT-based curriculum	4.36	0.82	A	4.21	0.81	A
8	Effective management and maintenance of ICT facilities	3.80	0.76	A	3.58	0.86	A
9	Making the acquisition and maintenance of ICT facilities tax free to reduce cost	4.14	0.82	A	3.98	0.78	A
10	Provision of automatic alternative source of electricity supply	3.94	0.70	A	3.98	0.78	A
11	Increasing the time allocated for ICT instructions, training and practice	4.16	0.98	A	4.10	0.88	A
12	Encouraging lecturers to search and share ideas and information on ICT with experts, colleagues and peers	3.88	0.59	A	3.68	0.79	A
13	Institutions partnering with professional and corporate bodies for adequate technical support	3.69	0.70	A	3.51	0.98	A
14	Periodic organisation of workshops, seminars and conferences on ICT for lecturers	4.21	0.75	A	4.01	0.84	A
15	Motivating the lecturers with adequate incentives	4.08	0.75	A	3.98	0.78	A
	<b>Average Mean and SD</b>	<b>4.02</b>	<b>0.82</b>		<b>3.90</b>	<b>0.78</b>	

Key: X=Mean, SD=Standard Deviation, Dec=Decision, A=Agree,

The data presented in Table 3 shows the respondents' level of agreement on the strategies for enhancing the effectiveness of OTM educators for utilizing ICT in OTM programme. All items in the table had their mean responses ranging from 3.51 to 4.46 which

implied that the respondents agreed that the items are strategies for enhancing the effectiveness of OTM educators for utilizing ICT in OTM programme. All the items had an overall average mean of 4.02 and 3.90 which also implied that the respondents were in agreement about all the items listed as strategies for enhancing the effectiveness of OTM educators for utilizing ICT in OTM programme. The overall average standard deviation of 0.82 and 0.78 showed that all the respondents were in their agreement that all the items listed were strategies for enhancing the effectiveness of OTM educators for utilizing ICT in OTM programme.

Table 4: Summary of t-test on the Extent of Utilization of ICT in OTM Programme in South-South Nigerian Polytechnics

Source	N	X	SD	DF	LS	t-cal	t-tab	Decision
Male	47	3.11	0.68	76	0.05	0.35	1.96	Not significant
Female	31	3.05	0.75					

Key: N=Number of respondents, X=Mean, SD=Standard Deviation, DF=Degree of Freedom, LS=Level of Significance

Table 4 reveals that the calculated t-value of 0.35 is less than the table value of 1.96 at 76 degree of freedom and at 0.05 level of significance. Since the table value is greater than the calculated value, the stated null hypothesis is accepted. This implies that there was no significant difference in the mean ratings between male and female OTM educators on the extent of utilization of ICT in OTM programme in South-South Nigerian Polytechnics.

Table 5: Summary of t-test on the Challenges Faced by OTM Educators that Hinder the Effective Utilization of ICT in OTM Programme in Polytechnics in South-South Nigeria

Source	N	X	SD	DF	LS	t-cal	t-tab	Decision
Male	47	4.09	0.84	76	0.05	1.05	1.96	Not significant
Female	31	3.88	0.74					

Table 5 reveals that the calculated t-value of 1.05 is less than the table value of 1.96 at 76 degree of freedom and at 0.05 level of significance. Since the table value is greater than the calculated value, it means that there was no significant difference whatsoever between the mean responses of the male and female OTM educators on the challenges faced by OTM educators that hinder the effective utilization of ICT in OTM programme in Polytechnics in South-South Nigeria. The stated null hypothesis for the independent samples and the entire items were, therefore, accepted.

Table 6: Summary of t-test on the Strategies for Enhancing the Effectiveness of OTM Educators for Utilizing ICT in OTM Programme in Polytechnics in South-South Nigeria

Source	N	X	SD	DF	LS	t-cal	t-tab	Decision
Male	47	4.02	0.82	76	0.05	0.71	1.96	Not significant
Female	31	3.90	0.82					

Table 6 indicates that the calculated t-value of 0.71 is less than the table value of 1.96 at 76 degree of freedom and at 0.05 level of significance. Since the table value is greater than the calculated value, it means that there was no significant difference between the mean responses of male and female OTM educators on the strategies for enhancing the effectiveness of OTM educators for utilizing ICT in OTM programme in Polytechnics in



South-South Nigeria. Therefore, the stated null hypothesis for the independent samples and the entire items were accepted.

### **Discussion of Findings**

The result of this study indicated that most of the Information and Communication Technology tools studied were not extensively utilized. They were sometimes utilized in OTM programme in South-South Nigerian Polytechnics. However, electronic presentation technology (PowerPoint), windows and file management technology, computer-related devices (Discs, CDs and USB among others), scanning technology, e-mail and database management technology and word and data processing technology were utilized most times in the institutions. The in-extensive utilization of the ICT tools might be because of the non-availability of the ICT facilities, OTM educators' apathy on the use of ICT in their teachings as well as the incompetency of the lecturers. This is in line with Nwaokolo (2010) who stated that most educators do not utilize ICT in teaching and learning because they do not have the needed skills, and dearth of the facilities to use.

In line with Akinyemi (2001) who attributed the poor quality of OTM graduates to many challenges, the findings revealed myriad of challenges hindering the effective utilization of ICT in OTM in South-South Polytechnics in Nigeria which include inadequate ICT facilities and infrastructure, lack of access to ICT resources at will, shortage of ICT skilled lecturers, incessant electricity failure and inadequate funding of OTM programmes. Other challenges are inadequate technical support, lack of required competencies in the utilization of ICT resources, lack of motivation and incentives for lecturers, high cost of acquisition and maintenance, frequent changes in the model of ICT resources and poor perception and conservative attitude of lecturers in the use of ICT in instruction delivery. The result of the study also indicated that haphazard integration of ICT into OTM curriculum as well as high cost of training and retraining lecturers to match with the ICT integration is among the challenges hindering the effective utilization of ICT in OTM programme in the Polytechnics in South-South Nigeria.

Furthermore, the result of the study showed many strategies for enhancing ICT utilization in OTM programme in the Polytechnics. These include adequate provision of ICT facilities and infrastructure, organization of ICT training and retraining programmes for lecturers, adequately subsidizing lecturers to own personal computers and laptops, encouraging and supporting lecturers financially to participate in ICT-based professional development programmes, periodic evaluation of lecturers on the extent of ICT utilization and adequate funding of OTM programmes by government and private sector on ICT-based curriculum. Other strategies were effective management and maintenance of ICT facilities, making the acquisition and maintenance of ICT facilities tax free to reduce cost, provision of automatic alternative source of electricity supply and increasing the time allocated for ICT instructions, training and practice. Encouraging lecturers to search and share ideas and information on ICT with experts, colleagues and peers, institutions partnering with professional and corporate bodies for adequate technical support, periodic organisation of workshops, seminars and conferences on ICT for lecturers and motivating the lecturers with adequate incentives were also revealed by the result of this study as strategies for enhancing ICT utilization in OTM programme. This is in line with Rodriquez and Wilson (2000) who stated emphatically that professional development programmes help teachers to learn not only how to use new technologies but also how to provide meaningful instruction and activities with the technologies in the classroom.

## **Conclusion**

Effective utilization of ICT in OTM programmes in Nigerian Polytechnics is vital in the national development of Nigeria, especially in the attainment of the nation's Vision 20:2020. Unfortunately, Polytechnics in South-South Nigeria do not extensively and effectively utilize ICT in the implementation of OTM programmes because of myriads of challenges. However, many strategies could be adopted to enhance the effective utilization.

## **Recommendations**

Based on the findings, the following recommendations were made bearing in mind the need for implementation and effective utilization of ICT tools in OTM programme for national development.

1. Constant electricity supply should be provided to all ICT laboratories and if possible, alternative power supply should be provided to augment that of electricity providers in Nigeria.
2. Office Technology and Management educators should be given in-service training in the use of ICT to facilitate teaching and learning process.
3. Government and the management of the institutions together with good-spirited individuals and corporate organizations should endeavour to ameliorate the challenges with all the strategies identified by the study.
4. Office Technology and Management laboratories should established to encourage practical appreciation of ICT in office procedures and tasks usually faced in Office Technology and Management
5. Adequate structure and technologies should be provided to achieve the goal of ICT-based curriculum in Office Technology and Management.

## References

- Akinyemi, A.O. (2001). The impact of office technology on information processing and its implications for secretarial training in the 21<sup>st</sup> century in Nigeria. *Business Education Journal*, 3(4), 62 – 68.
- Ede, E.O. (2009). Hindrances to the implementation of information and communication technology in the teaching and learning of technical drawing in Nigerian Universities. *Nigeria Vocational Journal*, 14(1), 60 – 67.
- Ejiofor, T.E. (2009). Utilization of information and communication in implementing agricultural education programme in tertiary institutions in Anambra and Enugu States: Constraints and enhancement measures. *Nigeria Vocational Journal*, 14(1), 90 – 97.
- Federal Republic of Nigeria (2004). *National policy on education*. Lagos: NERDC Press.
- National Board for Technical Education (2004). *National/Higher National Diploma in Office Technology and Management curriculum and course specifications*. Kaduna: Federal Government Press.
- Nwaokolo, J.O. (2010). Women learners in technical education training: Implication for attainment of millennium development goals in Nigeria. *Nigeria Vocational Journal*, 14(1), 47-62.
- Rodriguez, F. & Wilson, E. (2000). *Are poor countries losing the information revolution? MfoDev working paper*. Washington D.C: World Bank Publication.
- Shyamal, M. (2005). *Emerging challenges and trends in technical education in Asia-Pacific Region*. Netherland: Sense Publishers.
- Udoye, R.N. & Ikenga, U.G. (2010). Impact and challenges of information communication technology in the teaching and learning of accounting education. *Book of Readings*, 1(10), 67-75.