

# THE IMPACT OF APPLICATION OF INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) IN THE ADMINISTRATION OF POLYTECHNICS IN OGUN STATE, NIGERIA

Soneye Semiu Adebayo  
National Open University of Nigeria  
[bayosoneye2010@gmail.com](mailto:bayosoneye2010@gmail.com)

## Abstract

*The study was on the Impact of Application of Information and Communications Technology (ICT) in the administration of Polytechnics in Ogun State, Nigeria. The study population comprised five polytechnics in Ogun State, Nigeria. These polytechnic were: one Federal Polytechnic, one State owned Polytechnic, one Private owned Polytechnic and two ICT based Polytechnics. Sixty subjects were randomly selected from the population. However, related literatures were reviewed from textbooks, journals and past researches. The research instruments were questionnaire which was statically analyzed with contingency tables, while the hypotheses were both tested at 0.05 level of significance using the mean statistic. It was discovered that there is a significant relationship between Information and Communications Technology (ICT) and the administration of polytechnic. Therefore, the finding revealed that the proprietors of polytechnics (Federal Government, State Government and private individuals) should procure more ICT facilities and equipment to enhance efficiency and effectiveness in administration of polytechnics. This study suggested that administrators of polytechnics should place greater emphasis on ICT in their respective institutions to foster capacity building of human resources, material resources and financial resources.*

**Keywords:** Application; Information and Communications Technology (ICT); Administration; Polytechnics; Electronic Learning

## 1. INTRODUCTION

Information and Communications Technology (ICT) is technology that supports activities involving the creation, storage manipulation and communication of information, together with the related methods, management and application. In other words, ICT enables us to record, store, process, and retriever and transmit information. It encompasses modern technology technologies such as computer, telecommunication, facsimile and micro-electronics. Older technologies such as document filling systems, mechanical accenting machines, printing and care drawings are also included in the term information technology. Information and communication technology in today's world refers to those technologies that determine the efficiency and effectiveness with which we communication and the devices that allow us to handle information.

Information and communications Technology (ICT) has becomes a key tool in acquiring, processing and disengaging knowledge.

It has becomes an imperative tool for investing and development of a nation in the 21<sup>st</sup> century, the revolutionary impact of ICT on all sphere of the society has not spared the educational sector.

Education is a pre- requisite of today knowledge-based economy, the production and use of new knowledge required a more educated population, ICT is playing a major role in the acquisition and diffusion of knowledge which are fundamental aspects of the education process. It is offerings increasing possibilities absent teaching and for invocation in teaching activities through being able to deliver learning cognitive activities anywhere at any time. The availability of the internet has giving rise to an electronics approach to the educational system called e-learning. Tertiary educational institutions have always being at the fore front of new scientific discoveries and innovation brought about by the activities of teaching learning and research. E-learning is becoming increase singly primmest in tertiary education, e-learning is being delivered on the platforms of ICT infrastructure promise to widen access to education and at reduced cost, Apart from electronics learning ICT infrastructure are being widely use to support teaching, learning, administration and research activities in tertiary instillation, such infrastructure include personal computers, specialized software, handheld devices, interactive volute board, intranet and visual literary.

## **2. OVERVIEW OF INFORMATION AND COMMUNICATIONS TECHNOLOGY**

### **APPLICATION IN EDUCATION ADMINISTRATION**

Information and communications technology (ICT) are indispensable tools in the administration of polytechnic education. Electronic management (e-management) facilitates decision making in an organization. (Hastim et al 2010) development of ICT in administration of schools as suggested by international institute for communication and development (IICD) “needs to be strengthened in order to manage and plan activities more effectively. Information is mostly in hardcopy format and is not easily accessible. Data about teachers’ salaries, students grade, the number of pupils peer class and statistical information in general and scattered and are not readily available” (IICD 2007).

School administrators need to be equipped with knowledge, competencies and should have a deep understanding of educational and social dimension of ICT integration. Educational understanding or dimension includes application of ICT in curricular, technical management and financial aspects, while social dimension referred to understanding how ICT are applied in day-to-day social interaction (Tinio 2003). Studies on the application of ICT in the administration of education reveals major achievements; a study on the use of e-learning software among future school heads in educational management and leadership reveals that e-headship succeeded in promoting teaching and learning strategies to a higher

degree (Moh'd et al, 2009). E-school management system application has been perceived by its users (Rectors, administrative staff and lecturers) to help create the report faster by saving the data into the digital contents and saving the time to preparing the lecture note. ICT helps administrators to perform schools duties effectively, to increase and provide information to the fingertips of administrator and build a very conducive atmosphere for work.

### **3. APPLICABILITY OF INFORMATION AND COMMUNICATIONS TECHNOLOGY IN STUDENTS AND STAFF ADMINISTRATION**

Students administrative services using information technology application packages are too numerous to mention in this area of ICT dispensation. Its application into both applied and physical science is evident in the wealth of literature on ICT. Information and communications technology simplify the administrative support levels of their academic in various levels of their academic pursuit. Students services like records, admission / recruitment, class schedules, attendance, registration, time tabling and accessing result can be realized via network of computers and other communication avenues called student portal (Horn and Siew 2011).

The inventory management, personal records maintenance and library systems are areas that are mostly affected in the field of technical and vocational education and training. This is essentially connected to the peculiar nature of the field and its desire to prepare worker with certain competencies and employability skills. Facilities management, tools and equipment inventory and workshop schedules make it necessary for polytechnics to deploy and fully integrate ICT in its day-to-day operations, students of polytechnics should be able to book for tools and machineries needed to carry out certain experiments online or by using ICT. Therefore, polytechnic institutions should have to embrace the use of technology in both staff and students administrative services (Leung et al, 2005). ICT tools such as e-tutor and e-student system could provide significant atmosphere in the preparation of technical education graduate to face the challenges for the world to work in the 21<sup>st</sup> century (Seng 2007).

Several ICT and computer aided administration application packages highly enriched with current and emerging technologies are readily available and can be found to support students activities in schools and colleges. Among these latest ICT tools, radio frequency identification (RFID) system appeared to be one. According to Akpir and Kaptan (2010), "RFID is a term that is used to describe a system that transmits the identity of an object or person in the form of a unique serial numbers using radio waves. Apart from its numerous applications that aid across human endeavour, RFID application in educational administration includes "automatic person identification system (APIS), class / laboratory. library attendance management, static / dynamic authorization, submission of workings / announcement and e-money usage.

The following are ways in which teachers use ICT to support their work:

**A. Resources / material preparation**

- i. Lesson planning
- ii. Report writing
- iii. Curriculum planning
- iv. As a lesson resources (e.g. website)
- v. Time tabling
- vi. School policy development
- vii. Reprographics / photocopying
- viii. Presentation of demonstrations
- ix. Marking and assessment
- x. Monitoring pupils progress
- xi. Record keeping (e.g. data base entry)
- xii. Special educational needs coordination
- xiii. Development planning
- xiv. Exam entries and results
- xv. Records of achievement
- xvi. Extra curriculum activities

**B. Registration**

- i. Staff appraisal / supervision or monitoring
- ii. Monitoring attendance
- iii. On-line communities
- iv. Financial records
- v. Continuing professionals development / training
- vi. Budgeting
- vii. Partnership links (contact outside the school)
- viii. Pupil contact (for example, council / internet)
- ix. Staff contact (for example arranging through email / internet)
- x. On-line purchasing of services and / or goods

**C. Parent / Career Contact (for examples, e-mail)**

Source: Selwood (2005).

ICT network enables students to have access to course materials and support services anywhere anytime. Wonacolt (2002) states that “Distances students must rely on secure, easily accessible ICT for clear, detailed information about enrolment, modules, courses, requirements, assessments, expectations and

sources of help; the opportunity to enroll, pay fees and complete all administrative procedures, regular contact and timely response and feedback from instructions, a variety of methods communicate with teacher (e-mail, online chat bulletin boards), enrolment information linked to application forms, and online assessments (Wonacott, 2002).

Staff administrative support service is achievable through effective ICT integration. Due to the distinct nature of polytechnic system, administration support requires ICT tools embedded in them special features meant to take care of the management of training facilities, tools and equipments both in hard and soft copies. Horn and Siew (2011) note that ICT tools such as Facility Management System (FMS), File Booking System (FBS), Building Control Management System (BCMS) and Resources Tracking and Management System (RTMS) could help both staff and students to use university or polytechnic facilities conveniently.

#### 4. DATA ANALYSIS AND TECHNIQUES

The research questions were assumed using percentages after construction of contingency table for the items with regard to the research questions. The hypotheses were all tested at 0.05 level of significance using the mean statistic.

##### Research Questions / Hypotheses Analysis and Results

**Hypotheses I:** There is no significant relationship between information and communications technology and solving of administrative problems

**Table 1:** Relationship between ICT and administrative problem solving

X	4	3	2	1	
F	146	81	0	3	240
Fx	584	243	0	240	840
$\bar{X}$					3.5

The above table revealed that the calculated  $\bar{X}$  value of 3.5 is less than the table value of 5.0, therefore, the null hypothesis that there is no significant between information and communications technology and solving of administrative problems is rejected. This implies that there is significant relationship between ICT and solving of administration problems

**Hypothesis II:** There is no significant relationship between information and communications technology and quality of decision-making in the administration of polytechnics.

**Table 2:** Relationship between ICT and quality of decision making in the administration of polytechnics

X	4	3	2	1	
F	114	122	0	4	240
Fx	456	366	0	4	826
$\bar{X}$					3.4

The above table revealed that the calculated  $\bar{X}$  value of 3.4 is less than the table value of 5.0, therefore, the null hypothesis that there is no significant relationship between information and communications technology and solving of administrative problems is rejected. As a result of this, there is a significant relationship between information and communications technology and quality of decision-making in the administration of polytechnics.

**Hypothesis III:** There is no significant relationship between information and communications technology and administrative competence in polytechnics.

**Table 3:** Relationship between ICT and administrative competence in polytechnics

X	4	3	2	1	
F	104	115	0	21	240
Fx	416	345	0	21	782
$\bar{X}$					3.26

Since the calculated  $\bar{X}$  value of 3.26 is less than the decision rule value of 5.0, therefore, the null hypothesis that there is no significant relationship between information and communications technology and administrative competence of polytechnics is rejected. Thus, there is significant relationship between information and communications technology and administrative competence in polytechnics.

**Hypothesis IV:** There is no significant relationship between information and communications technology and administration of human resources in polytechnics.

**Table 4:** Relationship between ICT and administration of human resources in polytechnics

X	4	3	2	1	
F	116	81	7	36	240
Fx	464	243	14	36	757
$\bar{X}$					3.2

The above table revealed that the calculated  $\bar{X}$  value of 3.2 is less than the decision rule value of 5.0. The null hypothesis that there is no significant relationship between information and communications

technology and administration of human resources in polytechnics is therefore rejected. This indicates that there is significant relationship between ICT and administration of human resources in polytechnics.

**Hypothesis V:** There is no significant relationship between information and communications technology and speed in data management in polytechnics.

**Table 5:** Relationship between ICT and speed in data management in polytechnics

X	4	3	2	1	
F	126	113	0	1	240
Fx	504	339	0	1	844
$\bar{X}$					3.52

The above table shows that the calculated  $\bar{X}$  value of 3.52 is less than 5.0 value of the decision rule. The null hypothesis that there is no significant between information and communications technology and speed in data management in polytechnics is therefore rejected. Thus, there is a significant relationship between ICT and speed in data management in polytechnics.

## 5. DISCUSSION OF RESULTS

This section aims at discussing the result of the findings of the research with one view of giving meaningful interpretation to them. Consequently, each hypothesis is discussed in relation to the data presented with a view of accepting or rejecting such hypothesis.

### Hypothesis One

This finding indicates that information and communications technology could be more relevant in providing solutions to administrative problems. This is probably because with the application of ICT, clearer perception of problems could be seen with a view to providing better and more permanent solutions to the problem. It could also make problem solving faster than using the traditional means of problem solving. My finding supports Adeyemi (2011) who says that possible solution could be proffered in enhancing the use of information and communications technology (ICT) in the effective management of universities. Polytechnics administrators are therefore advised to adopt ICT in problem-solving.

### Hypothesis Two

The finding revealed that information and communications technology enhances quality of decision making in the administration of polytechnics. Quality of decision could be achieved through priority of attention to the pressing project of polytechnics be it building of additional lecture hall, procurement of staff, vehicles and building of ICT laboratory.

Information and communications technology justifies quality of decision making in all facets of polytechnics administration. As a result of this, polytechnics administrators are endowed with skills of prompt attention to desirable projects of all kinds.

There are many desirable attributes of information and communications technology (ICT) which are concern with the effective provision of information to recipient, relevance for intended purpose, accuracy, factual, volume of information, volume of detail and presentation of information (Adegun, 2002). The quality of decision making in polytechnic in related to ICT can stand the test of time.

### **Hypothesis Three**

This finding indicates that ICT could be relevant in administrative competence of personnel in polytechnics. It was found out that using ICT will promote issues on students' admission, students' records and transcript, examination records, teaching, research and community services (Abe and Adu, 2007). The relationship between ICT and administrative competence was supported to enhance capacity building. Polytechnic administrators are therefore advised to put up more programmes to facilitate competence administrative skills.

### **Hypothesis Four**

This finding shows that information and communications technology could be used to exploit administrative of human resources in polytechnics. Adeyemi (2007) supports the utilizing human and material resources in accomplishing designated objectives. Information and communications technology could be used to organize, direct, coordinate and evaluate programmes in a bid to achieve goals or objectives of administration of polytechnics. ICT justifies better human relations for effective management of human resources, material resources and financial resources. It makes personnel to contribute greater achievement of goals within the system.

### **Hypothesis Five**

The finding indicates that information and communications technology (ICT) could justify more speed in data management of polytechnics. ICT helps administrators perform school duties effectively. Zain et al. (2004) also affirm that ICT increases and provides information to the finger tips of administrators. Information and communications technology could facilitate speed in data management by creating rapport faster by saving the data into digital content; and saving the time to preparing the lecture notes. Information and communications technology should be ubiquitous in educational administrative offices and mainly helps administrators get a better idea of the size of the educational system, students' dropout and repetition, and the number of students per teacher (Canoy, 2004).

## **6. SUMMARY OF FINDINGS**



This study is the impact of application of information and communications technology (ICT) in the administration of polytechnics in Ogun State, Nigeria.

The findings of this study include the following:

1. There is significant relationship between information and communications technology and solving of administrative problems.
2. There is significant relationship between information and communications and quality of decisions making in the administrative of polytechnics
3. There is significant relationship between information and communications technology and administrative competence in polytechnics.
4. There is significant relationship between information and communication technology and administrative of human resources in polytechnics.
5. There is significant relationship between information and communications technology and speed in data management in polytechnics.

## **7. CONCLUSION**

Considering the findings of the study, it was concluded that information and communications technology have significant impact in the administration of polytechnic in Ogun, State, Nigeria. The impact were found to be relevant to senior academic & administrative officers of polytechnics, ICT providing solutions to specific problems of administration, ICT enhance qualitative and quantitative decision-making in the administration of polytechnic, ICT encourages skill acquisition and competency of administrators, ICT guarantees effective administrative practices of human and material resources, ICT has capacity to handle quality of data for processing with fastest speed. For greater reference, ICT therefore should be fully integrated into capacity building of both academic and administrative staff of all polytechnics.

## **REFERENCES**

- 1) Abe, T.O. and Adu, E.T. (2007): Impact of Information and Communication Technology (ICT) on Teacher Education in Ikere, Journal of Education, Ikere-Ekiti, vol. 5, NO. pp. 169-175.
- 2) Adedapo A. (2007): Designing a MIS for effective secondary school administration in Nigeria in special education on information communications technology (ICT) IKEJE 138 – 143).
- 3) Adedapo, A. (2007): Designing a MIS for Effective Secondary School Administration in Nigeria in Special Education on Information and Communication Technology (ICT), IKEJE, 138-143.

- 4) Adegun O.A. (2002): Communication and administrative effectiveness of principals of secondary schools in South Western, Nigeria” unpublished Phd Thesis University of Ado-Ekiti Nigeria 86 – 102
- 5) Adeyemi T.O (2011): Impact of information and communications technology (ICT) on the effective management of universities in south-west Nigeria <http://www.scribhub.org/AJSMS>
- 6) Asiabeka IP (2010): Access and use of information and communications technology (ICT) for administrative purposes by principals of Government Secondary Schools in Nigeria. The researcher 2 (1): 43:50 Available at <http://www.sciencepub.net/researcher>
- 7) Bof F, Previtali P. (2010): National models of public (e) – procurement in Europe journal of e-government studies and best practices. Available outline at <http://www.inbmapublishing.com/journals/JEGSBP/2010/315295/315295.pdf>
- 8) Canoy, M. (2004): ICTs in Education: Possibilities and Challenges. Inaugural Lecture of the 2004-2005 Academic Year, Universitat Oberta de Catalunya. Available at <http://www.uoc.edu/inaugural04/eng/carnoy1004.pdf>.
- 9) Faloye, J.O. and Oparah, O.B. (2007): Relevance of Information and Communication Technology (ICT) in Education in Ikere, Journal of Education, Ikere-Ekiti, vol. 9, No. 1, pp. 37-42.
- 10) Kolade-Oje, O.T. and Omodara, O.D. (2007). Developing a Monitoring and Evaluation Plan of Information Communication Technology ICTS in Education System in Special Edition on Information Communication Technology (ICT), Ikeja: pp. 176-181.
- 11) Kolawole, C. (1997): “Availability and Utilization of Audio-visual Materials for the Teaching of English Language in some Nursery/Primary Schools in Ibadan,” Journal of Educational Studies 1(1), 122-127.
- 12) Lawsent, I and Vincent, I (1995): Impact of e-Learning on Tertiary Education (on line) Accessed 18 June, 2008 at <http://www.info.gov.za/speeches/index.html>.
- 13) Lucey, T. (1995): Management Information Systems, London: DP Publications Ltd., 31-52.
- 14) Mohammad S.S, Babawero S., Lokman M., Yahaya Buntat., Noraffandy Yahaya, Abdulsalam Y., (2011). Applicability of information and communications technologies (ICTS) in the administration of technical and vocational education and training (TVET) is a knowledge-based society academic <http://www.academicjournals.org/IJPS>
- 15) Mohammad Y. (2006): Factor influencing the implementation of ICT in Jigawa States Schools Nigeria. Unpublished M.Ed. Thesis, University of Ilorin.
- 16) NOUN (2009): Application of management information systems (MIS) in education, National Open University Press, Kaduna, Nigeria.

- 17) Oppenheim, A.N. (1992): Questionnaire Design, Interviewing and Attitude Measurement; London & New York: Pinter Publishers, 70-72, 159-162.
- 18) Sambo A. (1992): Management information system and university administration, university system news. Quarterly publication by NUC special edition 11, 12 and 16.
- 19) Song LS (2207): Vocational technical education and economics development – the Singapore experience. ITE paper No. 9 Paper presented to members of a World Bank delegation on an Asian education study visit to the institutes of technical education [http://www.ite.edu.sg/about\\_ite/ITE\\_conference](http://www.ite.edu.sg/about_ite/ITE_conference) paper
- 20) UNESCO, ILO (2002): Revised recommendation concerning technical and vocational educational (2001). Paris UNESCO; Geneva, Switzerland <http://unesdoc.unesco.org>
- 21) Wonacott ME (2002): Blending face the face and distance learning methods in adult and career – technical education. Educational resources information centre (ERIC) <http://www.calpro-online.org/eric/docs/pob00032.pdf>

### Biography of Author

Soneye Semiu Adebayo is a graduate of University of Ado-Ekiti, Nigeria with B.Sc Ed. in Business Education (Marketing Option). He also attended National Open University of Nigeria, (NOUN) where he was awarded a Master's Degree in Educational Administration and Planning M.Ed. He co-author e-book title: *“Study of The Implementation of The New Senior Secondary School Curriculum in Nigeria”* ISBN: 978-93-83006-19-9 Publisher: GIAP Publications, India.

He was rank second in the Arts category of GIAP'S Confluence v1.0 2013. His latest research work is on *The Appraisal of Students Academic Achievement in Open and Distance learning programme of National Open University of Nigeria*, which will be publish next year.