

Deployment of ICT Tools for Higher Institution Administration: The Case of Auchi Polytechnic, Auchi, Nigeria

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ABSTRACT

Modern societies depend extensively on Information and Communication Technology (ICT) to function. Globalization could not have gone this far but for ICT. It has greatly served as a vehicle in technological and socio-economic development of Auchi Polytechnic, Auchi. Over time Auchi Polytechnic has had significant changes through the deployment of ICT, which has helped to push the school upward in webometric ranking. This paper aims at bringing to lime light the overview of how Auchi Polytechnic has achieved and intends to fulfill its mandate through the use of Information and Communication Technology, discuss the challenges facing tertiary institutions and particularly how Auchi Polytechnic has greatly improved through the deployment of ICT in its past, present and intend to in the future administrations.

Keywords: Information & Communication Technology, Tertiary Institutions, Challenges,

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1. INTRODUCTION

Information and Communication Technology (ICT) or Information Technology (IT) for short, refers to storage, retrieval, transmission and dissemination of digital information in form of hardware and software Oladunjoye and Obeta (2016). Information Technology is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning, electronic mails, FTP, Blogs, etc As technology has rooted its way into our everyday existence, education has been greatly affected. Long gone are the times of thumbing through an Encyclopedia. With information at the tips of our fingers, learning is now boundless. (Though there is, of course, the argument that technology has adversely influenced students' learning schedules, due to digital distractions and the impact on their attention spans) TrustRadius Team (2019). According to Damkor et al (2015), development is partly determined by the ability to establish a synergistic interaction between technological innovation and human values. The rapid rate at which ICTs have evolved since the mid-20th century, the convergence and pervasiveness of ICTs, gives them a strong role in development and globalization. Atabo (2009) and Sale (2009) in Oladunoye and Obeta (2016) noted that Information and Communications Technology promotes efficiency, improved learning techniques and create wider avenue towards quality service delivery and improved interaction in organizations.

The administration of Auchu Polytechnic, Auchu has been greatly affected by the deployment of ICT tools ICTs are vital in supporting and effectively running the administration of any organization in this 21st century. Here in Auchu Polytechnic, ICT tools are deployed in teaching, course registration, hostel allocation, result checking, result processing, ID Card production, Bursary operations, etc. Sure there is room for improvement; we are still not at our best due to some challenges that will be highlighted later. The information present in the tertiary institutions is in fragmented and fuzzy form, it is generally compiled in non-standard formats. Manual handling of huge data is very difficult and causes delayed information collection and compilation. This can affect decision-making process for quality education, but with the use of ICT, well-organized and analyzed data is readily available to foster effective and quick decision-making Kayiwa (2016).

2. THE GROWING IMPORTANCE OF ICT IN EDUCATIONAL INSTITUTIONS

The role of the Internet and digital tools in higher education are incontestable at the beginning of the 21st century. The technological development creates quick changes in this area. Due to the globalized environment and the innovations in Information Technology, the stakeholders (Teachers, Students, etc) of the educational system have to face new challenges Balázs (2018).

According to Conole (2013), ICT enable new ways of producing, searching and sharing information and knowledge. As the amount of information is rapidly increasing, it has become even more important to manage complex entities and to recognize relevant and reliable information and knowledge. A report from UNESCO (2006) lists seven ways in which technologies can be used in education. They are stated below:

- improve administrative efficiency
- disseminate teaching and learning materials to teachers and students
- improve the ICT skills of teachers and students
- allow teachers and students access to sources of information from around the world
- share ideas on education and learning
- collaborate on joint projects
- conduct lessons from a remote location

Firstly, it can improve administrative efficiency and provide a pan-institutional IT infrastructure for managing the different aspects of learning, teaching and research.

Secondly, ICT can be used to disseminate teaching and learning materials to teachers and students, usually through an institutionally supported Virtual Learning Environment or Learning Management System (VLE/LMS). Most institutions have an open access research repository and increasingly academics are required to deposit their research outputs in the research repository. Presently in Auchu Polytechnic, there is the Centre for Research, Innovation and Development (CRID) which has a Journal of Arts, Management, Science and Technology (JAMST) where lots of teaching and non-teaching staff have papers being published. These are also increasingly being used in terms of research accountability, both for internal promotion and in terms of returns for national research assessment exercises.

Thirdly, they can be used to improve the ICT skills of teachers and students and their digital literacies and competences. Most institutions have a range of online resources to help teachers and students to develop their digital literacy skills and for students to develop good practices in terms of study skills. Resources are also usually available to help teachers make effective use of technologies in the design of courses. Partaking in Online training courses sponsored by the Management of Auchu Polytechnic in collaboration with Common Wealth of Learning (COL) has greatly improved the ICT skills of most teaching staff.

Fourthly, they allow teachers and students access to sources of information from around the world. Increasingly, teachers and students are augmenting institutional IT systems and resources, with tools and resources freely available on the web. Increasing use is being made of cloud computing technologies for example.

Auchi Polytechnic has institutional email addresses that are given to staff at request to enable them access information on the web from some journals that require institutional email addresses in order to release resources. Sixthly, IT systems can provide spaces for academics and students to collaborate on joint projects. These can also be used to support collaboration for research projects. Finally, IT can be used to conduct lessons from remote locations and support distance learning. This can include both synchronous and asynchronous communication UNESCO (2012).

According to ICT in Education (2019), Higher Institutions use a diverse set of ICT tools to communicate, create, disseminate, store, and manage information. In some contexts, ICT has also become integral to the teaching-learning interaction, through such approaches as replacing chalkboards with interactive digital whiteboards, using students' own smartphones or other devices for learning during class time, and the "flipped classroom" model where students watch lectures at home on the computer and use classroom time for more interactive exercises.

When teachers are digitally literate and trained to use ICT, these approaches can lead to higher order thinking skills, provide creative and individualized options for students to express their understandings, and leave students better prepared to deal with ongoing technological change in society and the workplace. Cloud storage has made research a lot easier for the students these days. Gone are the days when they had to go through piles of books to find a specific reference to improve their assignments and projects. With technology, research has been quite an effective tool. Since a lot of time is saved during research, students are able to incorporate a lot of information and knowledge in their projects. Also, the acquisition of different solutions and results all over the world is now possible, which is likely the most obvious benefit a student gets in his life. All thanks to the giant search engine Google Morison (2018).

3. ICT TOOLS AND SERVICES IN AUCHI POLYTECHNIC, AUCHI

A set of ICT tools and services are provided and available to support administration in Auchi Polytechnic, Auchi. These have been provided through the joint effort of the MIS (Management Information System) Directorate and the Polytechnic's ICT consultant. A set of core tools (hardware & software) are provided to support and enhance the teaching, learning, research and efficient services of the school academics and students. These include e-learning centres used to conduct CBT (Computer-Based-Test) for new intake (ND and HND) screening and Computer-Based-Examinations (CBE) for some selected courses in each semester. Figure 1 below shows a section of the hall where CBE is taking place. Every student has at least one CBE course to write in each semester. This has helped the school a great deal in dealing with the problem of some students not paying their school fees on time, as no student can take his/her CBE without fees payment and online course registration. Hence in order not to carry over the CBE course(s), they rush to pay their school fees.



Figure 1: E-Learning Centre with Students Taking Computer-Based-Exams

We also have email system where every staff is encouraged to having an email address that is institution-based (eg eveoduntan@auchipoly.edu.ng). This has helped staff undergoing research work to gain access to journals/books online where only institutional email addresses are accepted.

Before now hostel allocation in Auchi Polytechnic was done manually by the Students' Affairs Unit, but since 2017/18 academic session, we have automated hostel allocation process where students need not have to know or pass through a special/senior staff to get an accommodation on campus. It operates on first come first serve bases, as long as the student has paid his/her administrative charges (school fees) and finished his/her online course registration. In the aspect of students' academic results, a custom built software is used to process results and since 2017/18 academic session, students' results are no longer pasted on notice boards after they are approved by the academic board.

Results can be checked on the Polytechnic's portal by students using their matriculation number as login details in the comfort of their homes/hostels/classrooms, as can be seen in Figure 2 below. Of course only registered students can have access to their results online. So for the fear of not having access to their results, students make payment of fees before results are processed and approved.

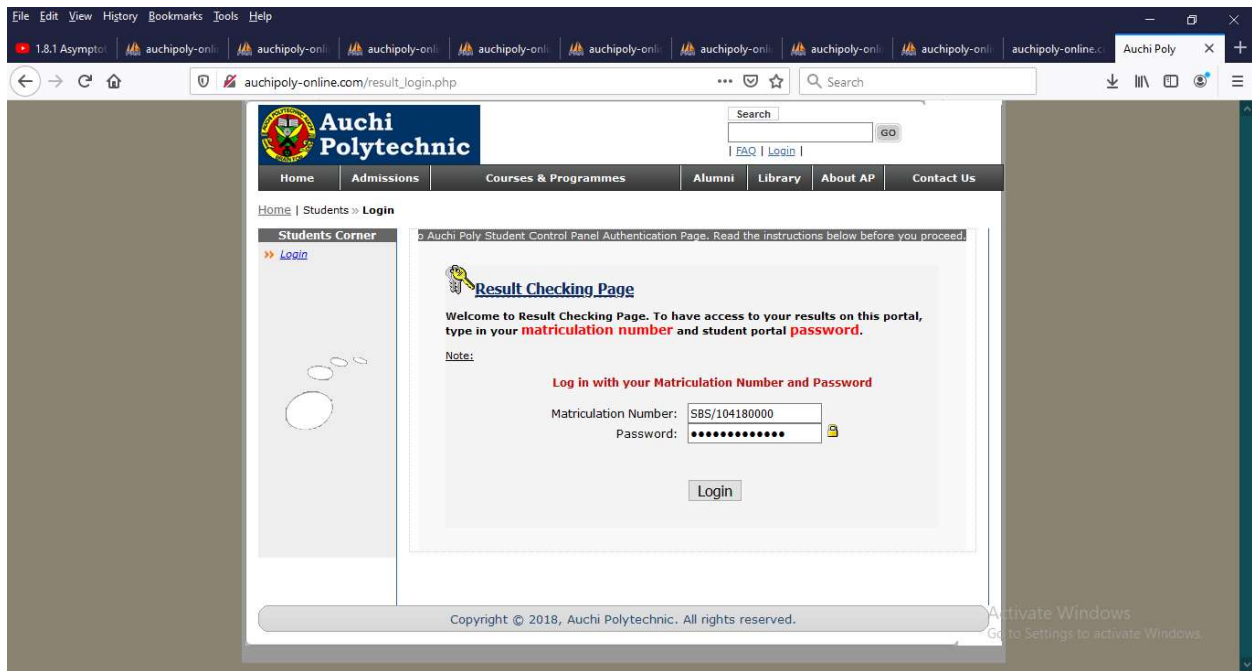


Figure 2: Result Checking Page for Auchi Polytechnic Students

It is worthy of note that during consideration of results in academic board meetings, we use projector and the screen to display results and other issues being considered in the course of the meeting. For effective office management, secretaries work with computers, internet and other ICT tools as shown in Figure 3.



Figure 3: Secretaries in Administrative Offices

The MIS Directorate is headed by a Director, who coordinates the overall activities of ensuring that ICT services are maximized towards improved efficiency and quality output. Other staff in the unit are Data Processing Officers who are graduates of computer science or related fields who serve as programmers, computer operators, Network engineers and database administrators. The facilities used to deploy some of these services are located at the main MIS building within the Polytechnic's campus as well as in sub-units of MIS offices in each school in the polytechnic.

4. CHALLENGES OF DEPLOYING ICT TOOLS IN NIGERIAN TERTIARY INSTITUTIONS

It is a known fact that the challenges of deploying ICT in tertiary institutions are obviously enormous, especially in developing countries like Nigeria. Various factors contribute to these challenges which according to Babatunde & Paschal (2015) and hereby stated below.

1. Cost of Internet Data and Electronic Services

One of the challenges of deploying ICT in Nigerian universities is the high cost of internet data and electronic services, which is basically the determinant of ICT usage and value. The internet as we know today was created in the United States of America and introduced to the rest of the world. America still has a strong hold of control, as most developing countries pay huge amount of dollars to the US Government for the connection of few megabits per annum (Tongia, 2004 in Babatunde & Paschal, 2015). This apparently affects the deployment and full utilization of information and communication technologies in these growing countries, of which Nigeria is one. In Nigeria, the high cost of internet data and fast tariff set by Internet Service Providers (ISP), mostly international companies doing business in the country with the main interest of making profits is among the challenges of ICT deployment.

Although the government is supposed to regulate the internet distribution cost and tariff speed of these internet providers, most often the agencies in charge of such regulations are more interested in tax and the welfare of their organisation that they overlook the value of services the companies they regulate offer to the people. This is seriously affecting the deployment of ICT in Nigerian universities, as most universities in Nigeria are autonomous (i.e. they manage their own funds) especially state owned universities like Enugu State University of Science and Technology (ESUT). Hence, they cannot afford to make ICT available to the whole university which includes staff and students, unless they have sponsors or government funding to embark on such projects. The government should subsidize internet data cost and set a minimum tariff speed for internet providers, in order to enable Tertiary Institutions embrace ICT.

2. Fear of Change

Another challenge facing deployment of ICT in Nigeria Tertiary Institutions is the fear of changing from old ways of doing things to new and modern technology. This is normal in all human activities and lives processes, as people tend to be comfortable and hold on to the old ways of doing things rather than adopt new processes. Notwithstanding, changing from old practice to modern ways is challenging to any establishment, be it a tertiary institution or any form of organisation. It is difficult because it involves huge sums of money, planning, time, disruptions, organisational changes and downsizing or increase in personnel as the case may be. Auchi Polytechnic is not left out in this traditional habit, as most staff are in their mid-age and as such tend to shy away from modern technologies, with the excuse that they are of the older generation and have no time to learn the new generation's ways of doing things. While the students, on the other hand, are too lazy to make efforts to learn modern technologies enormous benefits, apart from their normal addiction to social media. This is evident in the fact that an average Nigerian university staff and student prefers to type any official documents at business centres instead of doing it themselves. The cure to this traditional habit is awareness. There should be adequate sensitization of staff and students on the benefits and value of ICT. This will go a long way to enabling deployment of ICT in the polytechnic, as people are more comfortable with changes once they know the value and benefits.

3. Computer Illiteracy

According to Idowu & Esere (2013) in Babatunde & Paschal (2015), computer illiteracy is another challenge facing staff and students of tertiary institutions. This is due to the fact that an average Nigeria tertiary institution staff or student is not computer literate, which is disappointing in this modern digital era. No doubt that most of them may have at some point studied computer application or gone for basic computer training, but computer training without continuous practical is as good as nothing, as practice makes perfect. Computer illiteracy in this current age of ICT boom is really a great threat to any establishment, talk more of an educational institution as almost all human activities depends on ICT (Anene et al, 2014 in Babatunde & Paschal, 2015). It is interesting, as ICT is actually more important in Tertiary institutions than most organisations. In an average university/polytechnic, ICT is needed for numerous tasks as have been previously discussed. In order to solve these challenging problems and enable deployment of ICT in Nigerian Universities/Polytechnics, the government should work with the monitoring/supervisory bodies over these tertiary institutions to set up and manage ICT Centres where continuous training of staff/students on the use of ICT tools will be done periodically.

4. Fear of being made Redundant

In Nigeria, it is normal practice that people do not want to hear about modern technologies, as they believe that once it is adopted their value in the organisation will be reduced or dispensed with. Universities in Nigeria are not excluded from this false ideology, which is the reason most staff tend to hate any discussion about technologies, talk more of embracing it. Also, owing to inflation aging work class do not want to retire so fast, as they have to pay for their children's school fees and up keep, take care of utility bills and their own selves. This actually makes the introduction of anything that will question their value or proficiency in the work place a threat. Information and communication technologies is one of such threats to university staff, as most of them have been in the job for many years as their means of livelihood in that education is one of the oldest industry (Azuh & Melody, 2014 in Babatunde & Paschal, 2015).

This is a big problem to the nation's growth, because the progress and development of any country depends on the ability to search for and learn new ways of doing things better, thus creating more job opportunities and improved standard of living for the benefit of all citizens and tourists. This challenge to ICT deployment can be dealt with by creating ICT awareness, which will help to ensure university staff that these technologies are operated by human beings, not meant to take the place of humans and when properly managed helps to lessen human burdens and make the work enjoyable (Alturise, 2013 in Babatunde & Paschal, 2015).

5. Lack of Adequate Facilities

Lack of facilities is one of the challenges militating against the deployment of ICT in Nigerian Tertiary Institutions. This is evident in the fact that Nigeria Tertiary Institutions lack basic office gadgets and technologies like computer, printers, faxing machines, photocopiers, binders, projectors, digital display boards etc. This is appalling compared to other universities of the world, not to even talk of internet connection. These basic facilities contribute to the challenges facing deployment of Information and Communication Technology in Nigeria Tertiary Institutions, as no university can function effectively in this modern trend of ICT without these facilities. It is important, in that, apart from educational training these office ICT devices and technologies are needed to equip students for future office and corporate activities after their studies. In universities of developed countries, students while in school learn how to use these office gadgets effectively as it is 'Do it yourself' curriculum. This means that although the students would be taught and guided at every step of learning, they are however expected to do things themselves. This includes typing all their coursework's (assignments and dissertation/projects), printing, photocopying, binding etc. However, this is not so in Nigeria as students constantly depend on commercial office services known as business centres for all their coursework/assignment. Even the computer science students are not left out in this. This ends up not employing them for corporate and general office work, as they cannot operate such gadgets after school when they become working-class without formally being trained.

The government in collaboration with Nigerian Universities Commission/National Board for Technical Education should make a policy to ensure that offices, classrooms and laboratories/e-learning centres have these basic equipment and Internet in good working condition at all times with trained staff to teach or guide students and new staff on how to operate them. This should be one of the main requirements for accreditation, in order to ensure compliance.

6. Inconsistency in Electricity Supply

It is a known fact that in Nigeria the biggest challenge to the growth and development of most industries is poor electricity supply (Babatunde & Paschal, 2015). This is a huge setback to the progress of the country, as it is difficult to boast of one full day without electricity interruption not to talk of a week or one Month. Meanwhile, most countries of the world are beginning to celebrate 100 years and still counting of no electricity interruption. Also, neighboring countries Nigeria supply electricity manage to have better and improved electricity supply than Nigeria. This problem is caused by the greed of some rich and influential citizens, who manipulate and lobby for non-electricity supply in other to sell their imported electricity generators to frustrated citizens for business and home use on one hand; and the corruption and poor management of the electricity distribution company on the other hand.

The government has been so reluctant in addressing this issue for a long time, despite the plight of citizens on the high cost of petrol and diesel to power their private generating plants in the mist of rising inflation. It is also funny and saddening that Nigeria is both a producer and exporter of these costly petroleum products. The government has in the past few years privatized electricity supply in Nigeria, with the aim of solving this problem but it is obviously not helping the situation. This is a big challenge to Information and Communication Technology deployment in Nigeria Tertiary Institutions, as the university/polytechnics and indeed all industries require electricity in order to operate ICT and electronic gadgets.

Recently via students' projects the Department of Electrical/Electronics Engineering Technology in Auchi Polytechnic produced solar-powered electricity in their department. It was very expensive due to the large battery inverters used. It is so bad that lecture halls and academic offices are expected to run under very hot weather, without electric supply to power air conditioners, fans, projectors and other basic learning gadgets. To run the e-learning centres in Auchi Polytechnic during Computer-Based Examinations consumes a lot of diesel as it is an activity that can't be executed using the epileptic national power supply of the country. Since privatization did not solve this problem, government partnership with private electricity distribution companies might be the only option left to improve electricity supply in Nigeria and aid ICT deployment in Nigerian universities/polytechnics.

5. CONCLUSION AND RECOMMENDATIONS

Obviously technology in teaching and learning has come to stay and also develop and impact greatly education in tertiary institutions. It cannot be over emphasized that ICT deployment in any tertiary institution is a necessary and indispensable tool that is of great benefit to both students and staff. Achieving the total deployment of ICT tools in various units in Auchi Polytechnic has been the heart cry of the management of the institution, and indeed they are moving hard to improve on their current status by combating with the challenges outlined in this paper. Lots of diesel is burnt daily to run the administrative and all other affairs and thereby incurring large amount of expenses. Purchasing and maintaining alternate power supply can overwhelm any organization.

To meet up with the current trend in the use of ICT should be the focus of any tertiary institution that craves to produce graduands that will meet the demands of the labour market. For further studies, we wish that researchers look into the various level of application of ICT tools across several tertiary institutions in Nigeria and level of readiness to improve and meet up current trends in use of ICT tools..

In agreement with Bassey et al (2009), we hereby recommend the following

- Increase the integration of ICTs into all areas of the Polytechnic – students' learning, lecturers' teaching, research, and general administration. The need is urgent and demanding.
- Plan and have a well-structured programme for confronting the various classes of barriers that can hinder effective plan implementation.
- Improve the capacity and level of adoption of ICT by the polytechnic staffs and students
- Fund ICTs educational initiatives adequately by partnering with organisations to donate some infrastructures (buildings, computers, networking, etc)
- Train, develop and expose staff and students to various uses (nationally and internationally) that ICTs are capable.
- Cultivate a positive attitude towards the introduction and use of ICT products in teaching, learning and research.
- Create Data/information Backup centres and increase the ICT facilities in offices and e-learning centres on campus.
- Collaborate with big ICT firms, Banks and the government to build and equip more ICT centres in tertiary institutions.
- Create Backup Centres of ICT resources for teaching and learning

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