ENHANCING THE 21ST CENTURY SCHOOL MANAGEMENT THROUGH ICT

John. O. Ugah\textsuperscript{1} and Stephen C. Nwali\textsuperscript{2}

\textsuperscript{1} Department Of Computer Science, Ebonyi State University, Abakaliki
\textsuperscript{2} BMCGS ICT CENTER, AFIKPO, EBONYI STATE, NIGERIA

\textsuperscript{1}ugahjohn@gmail.com, \textsuperscript{2}nwali.stephenchibuike@gmail.com

ABSTRACT

Due to the complexities and the changing nature of information and data being manipulated in schools in recent times, school administration and management has fundamentally been affected in terms of procedures and practices of governance, hence the need for enhancing school management through ICT in the 21st century has risen. Enhancing the 21st century school management through ICT was borne out of strong desires to design and propose a school management information system which can efficiently and effectively be used to perform/automate in real time every administrative task involved in school management such as students & staff administration, resources/facilities administration, financial administration, and communication/file administration. The methodology employed in carrying out this research was simple random sampling techniques with some major key stakeholders in school management. This paper exposes the various administrative tasks not being covered by existing school management portals that complement the existing school management portals for effective and better school management. It also defines ICT and its constituting terms such as Information, Communication and Technology. The paper also outlined a number of benefits accruing from enhancing school management, increased workflow and communication channels, reduced list of administration and centralized administration monitoring, to really meet up with the management/administrative demands of the 21st century, it is very paramount to deploy enhanced school management portals.

Keywords: ICT, Enhancement, School, Management, MIS, Administration.

1. INTRODUCTION

Information and Communication Technology [ICT] has become a globally common tool that has tremendously influenced development of all facets of human endeavors. Its application is indeed accountable for all the evident advancement of the so-called developed nations of the world as against the less developed ones. The essence of referring to the world community as a global village lies on the fact that the use of ICT closes communication gap between persons, nations and continents in different parts of the globe (Samuel, Ugwoke & Etaal 2015). The use of ICT in facilitating knowledge acquisition and dissemination across various disciplines has been such that human input is reduced to the barest minimum and with a supersonic speed. However, evidence in the developing countries including Nigeria appears to show that the effective utilization of ICT in facilitating knowledge acquisition and dissemination is more common in such disciplines as engineering, medicine, agriculture amongst others. Information Communication Technology (ICT) is a generic term used to describe a range of technologies for gathering, storing, retrieving, processing, analyzing, and transmitting information. Thus, ICT is very essential for the generation of quality information and management of that information is required for effective and efficient decision making. ICT assists the school administrators to meet the task of school management in the areas of curriculum and instruction, school community relationship and school business operations and ICT introduction in schools goes a long way to enhancing the daily school routine, programme, updating the evaluation of school programmes and curriculum, solving individuals’ or groups’ assignments as well as staff development. To understand the term ICT well, one needs to know the meaning of some terms such as Information, Communication, Technology and Information Technology. Information could be perceived as the life-wire of any organization including education. Information is knowledge about a particular subject, entity, issue, event or process. Information can be obtained from various sources: you can be told information, for example through a lecture or a television programme, or you can find information through your
own research. Information is essential to finding your route to university in the morning, writing an essay, getting the right ingredients for a recipe, conducting an experiment, renting a flat, filling in a job application form, exam revision and for many, many other everyday and not-so-everyday tasks. For each task you need a different type of information, and to find the most suitable, useful and relevant information about whatever you want you will have to understand:

- what information is
- why you need the information
- what are the different types of information available
- where to look for information

Communication on its own is the act or process of conveying an intended meanings (information and data) from one entity or group to another through the use of mutually understood means, signs and devices which follows a semiotic rules. Communication passes through any of these channels, namely visual, auditory, tactile and haptic, olfactory, electronic, electromagnetic, or biochemical to get to its targeted destination (receiver). In a communication channel, there must be a sender and a receiver.

Technology on the other hand is the science and art of developing and creating tools to solve problems in different areas of human endeavors. It is a body of knowledge devoted to creating tools, processing actions and the extracting of materials. The term ‘Technology’ is wide, and everyone has their way of understanding its meaning. We use technology to accomplish various tasks in our daily lives, in brief; we can describe technology as products and processes used to simplify our daily lives. We use technology to extend our abilities, making people the most crucial part of any technological system. We apply technology in almost everything we do in our daily lives; we use technology at work, we use technology for communication, transportation, learning, manufacturing, securing data, scaling businesses and so much more. Technology is human knowledge which involves tools, materials, and systems. The application of technology typically results in products. If technology is well applied, it benefits humans, but the opposite is true, if used for malicious reasons.

Consequent to the above definitions, ICT is therefore the business and act of creating, developing and use of technology to process and harness information to aid communication and information dissemination. ICT has to do primarily with focus on communication technologies such as the internet, 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. Schools today require administrators/managers or leaders who uses whatever information available to them to ensure effective and efficient job performance and delivery. As the world changes, information and knowledge changes rapidly, teaching and learning processes as well as the management of schools are forced to change also. The introduction of innovative technological applications in schools is connected with changes, not only at the level of teaching and learning, but also in carrying out administrative tasks in schools. The use of information communication and technology (ICT) can improve education quality and standard, expand teaching/learning opportunities and make education and its resources accessible. Information and communication technology (ICT) evolved from the quest for faster and easier management of enormous data and information available to users.

Over the past twenty years, the use of School Management System popularly described as Management Information System (MIS) in school administration has fundamentally affected the procedures and practices of almost all spheres of enterprise and governance within an education administration and management. School Management Portal has permeated our educational administrative systems but the impacts has not been extensively felt as in other fields especially in this 21st century where many of educational institutions are still tuck-in by the digital divide menace, through as the world moves rapidly into digital media and information, impact of ICT integration in education is becoming more and more paramount as this will continue to improve and enhanced in this 21st century and beyond.

The education that the past century learners have experienced is no longer appropriate for preparing today’s learner for a global market. For this reason, proponents of 21st century education argue that the world can no longer seek to reform education; education must be transformed into something entirely different (Berry & Team, 2011; Schlechty, 2011; Jacobs, 2010). Huge social changes, such as growing diversity and population mobility, present educators with new and constantly changing circumstances. As a result, the characteristics which defined the successful education systems of, say, 1975, are unlikely to be those which will define success in the future. “The effect of high stakes assessments has resulted in many school districts shifting focus from resource rich curriculum and best practice instruction to a focus on what is tested, thus diminishing the standards and subject areas that are not assessed. Similarly the extent to which ICT has been deployed in secondary school managerial systems needs to be assessed.

For many years now, school managers (administrators) had wished to adopt a robust and flexible Management Information System (school management portal) with adaptable features and other many outstanding characteristics that will provide them with high level of
access to variety of information/data within their institutions in the shortest possible time but had faced a lot of restrictions and impediments of being limited to just the aspect of data collation, and manual record keeping. Basically, an enhanced school management portal should have main areas of concerns improved features, such areas are communication and general administration to really handle the management of education institution. These administration and management activities in education institution are hereby broken down into:

- Student administration
- Staff administration
- Resources administration
- Financial administration
- Communication and document administration.

2. LITERATURE REVIEW

Information and communication technology provide several facilitates and possibilities for educational administration to carry out their duties (Hussein Zionally, 2008). It’s obvious that there are conspicuous changes in school management systems especially in this 21st century which allow information to be sent, shared, accessed and processed by almost all that work, and interact within/outside a given institution. It is glancing that the use of ICT unit across all aspect of management and administration within an education institution ranging from planning supervision and evaluation of academic activities, financial management, student affairs and other administrative affairs such as procumbent and store management, Hostel accommodation, medical services and data distribution and management.

ICT is the digital processing and utilization of information by the use of electronic computers. It comprises the storage, retrieval, conversion and transmission of information. (Ifuoku Omoigui Okauru, 2011). ICT (information and communications technology – or technologies) 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. ICTs are often spoken of in a particular context, such as ICTs in education, health care, or libraries. The term is somewhat more common outside of the United States. (Margaret Rouse 2005)

The study, design, development, application, implementation, support or management of computer-based information systems. The term is commonly used as a synonym for computers and computer networks, but it also encompasses other information distribution technologies such as television and telephones. (Chandler, Daniel; Munday, Rod, iaugust 2012). According to Olive Mugenela (2006), ICT fosters the dissemination of information and knowledge by separating content from its physical location. Data and information flow is solely impervious to geographical locations, hence allows a community to become fully integrated into the globe and rendering information, knowledge and culture accessible to wide audience. However the role of ICT in school management and administration is a vital field to explore in order to support and improve appropriately both in current and future administrative and management practices in schools. Looking at the point of views of education managers at all level, it is obvious that there has been a potential shifts in practices of educational administration and management arising from many potential shifts in practices as a result of the involvement of ICT in the administration processes. The likely dimension of this shift entail that management at any level of education needs to be well informed and skilled in order to really address/surmount the challenges facing the enhancement of school management systems affectively through a specified techniques that adopt appropriate knowledge of the management of change using affective management approaches in ways that create or induce organizational impacts.

3. ICT AS A TOOL FOR EDUCATION MANAGEMENT

It is not thought-wise to find many educational establishments especially schools still keeping record in files- and tucked them in filing cabinets where dust accumulates on them and many of these files end up being eaten-up by rodents, cockroaches and thereby making their content (information) irretrievable. According to the European Commission, the importance of ICTs lies less in the technology itself than in its ability to create greater access to information and communication in underserved populations. Many countries around the world have established organizations for the promotion of ICTs, because it is feared that unless less technologically advanced areas have a chance to catch up, the increasing technological advances in developed nations will only serve to exacerbate the already-existing economic gap between technological "have" and "have not" areas. Internationally, the United Nations actively promotes ICTs for Development (ICT4D) as a means of bridging the digital divide. There are lots of ICT application tools vastly used for management and administration, these ICT application tools available for school administration and management are the internet, website and portals, software application, hardware component such as printers, computers, photocopying machines, fax
machines, scanners, modems for internet connections (Kazi, 2012; Kawade, 2012; Mwalonga, 2011; Sumita, 2007). The availability of software application suits for school administration and management jobs such as Microsoft office suite has offered effective and efficient ways to manage information.

4. INFORMATION AND COMMUNICATION TECHNOLOGY’S INVOLVEMENT IN SCHOOL MANAGEMENT

The management of school is made more meaningful and effective through the support of a strong Information Management System especially in this 21st century. Yusuf (2005b, p.316) posited that the ability of any modern organization to attain its set goals and objectives, the decision-making process of any contemporary manager is no longer determined by just the quality of the managers but more importantly determined by a function of the quality and the effective of the information channels sending and receiving their actions.

Consequent upon this, the management of school through ICT in this 21st century can be broken down into two main categories depending on the record type involved; that is the type of data being sent out and received, these categories are; Management and administrative records.

Management Records: This has to do with school records generated at the top management level (school principals, PTA, vice principal, bursars, Librarian); they are generated in the form of meeting, procedures, decision and resolutions.

Administrative records: This on the other hand handles admission and registration records, employment of staff, exams and results records, personal records and physical resources records.

Sequel to the above assertion due to growing complexities of data/records being manipulated in the educational domain, it is very necessary for an enhanced school management portal that will be deployed in schools to take up the tasks of assessment, logistics, planning resources utilization, operational control, and management of evaluation of result in school administration and management.

5. FEATURES OF ENHANCED SCHOOL MANAGEMENT SYSTEM

The enormous tasks and activities involved in the administration and management of school can effectively be handled only through the deployment of a well thought after school management system which must have the capacity to automate the following tasks without the viability and the integrity of data being sent and received compromised, these tasks include; store, received all information regarding the students teachers non-teaching stuff, parents, alumni, online payment and the facilities being owned by the school. The enhanced school management system oversees the following tasks:

- **Data collation**: Collates students, staff, teachers, alumni, and parents record, and also calculates student academics records such as in course assessment/test and exams.
- **Access grant**: The system grants access to student, parents, teacher, alumni and administrators to their requested information which they have access to.
- **Communication and social facility**: School management system of this 21st century must create avenues for adequate communications to the various users of the system such as voice messaging, chat and email texts
- **Enforcement of top management level decision procedures and meeting resolutions**: In order to achieve a sustainable school administration in this 21st century a school management system should be enhanced to enforce administrative policies and resolutions made at top management levels.
- **Report generation**: The task of having an efficient and accurate report in any educational institution cannot be over emphasized because through the various reports generated from different units and department of an institution/organization, polices can be harnessed as these report also serves as feedback mechanism for administrators and managers.
- **Fees payment (online) and tracking**: Nowadays, the integration of ICT in school management has a very system and impact in the effectiveness and the ease of school administration especially in the area of finances, the integration of online payment system in a school management system, fees payment can be paid through electronic means and the report of the transaction generated automatically and the accounts involves in these transaction updated immediately.
- **Admission and project management**: A good school management system must have the ability to process students’ admission and allows those admitted to access their personal profile at their convenient time, and place.
- **Resources management**: School management cut across different aspect of school administration including academic and non-academic activities, its pertinent that a good school management system keeps track of the school resources such as hostels, laboratories, libraries, school
bookshops, refectories, etc so as to always school managers and administrators abreast of the facilities that’s on ground at any point in time.

- Cloud enablement school administrator should now consider performing all school activities in the cloud which makes school records and information available for manipulation any time anyway.

6. ADAPTABLE SCHOOL MANAGEMENT PORTAL: RECOMMENDED OPTION FOR THIS 21ST CENTURY

The dynamics of ICT in the society is influential in all aspects of school administration and management; these influences are felt most because ICT provides both student and teachers with more opportunities in adapting learning, teaching and managements of individual needs. The 21st century has really witnessed tremendous advancement in technology leading to far-reaching developments and enhancements in the administrative system of schools.

In the 21st century information and communication technology (ICT) plays a vital role in supporting powerful, efficient and effective management and administration in the education sector. Due to emerging challenges of existing school management portals, there is an urgent need for an adaptable school management portal that will overcome the shortcoming of the existing school management portals. Adaptable school management portal is a school management that has features that can be adapted to any school without the essence of the system being compromised in any way.

School administration in this 21st century requires a robust and adaptable school management portal that can be used by different schools irrespective of their mode of operation thereby breaking the barriers created by culture and language of other existing school management portal. Adaptable school management systems brings under a common platform and interface all the different level of schools (Nursery, Primary and Secondary) into a common umbrella thereby eliminating excessive cost of running different portal for different school. However, the adaptable school management portal grants access to schools that ordinarily may not have afforded the money to build a school management portal for themselves.

- Features of the recommended school management portal are;

- Convenient & flexible online payment methods: Users of this Portal especially parents and students can comfortably make payments online for school fees and other services that require payment to the school with the receipt of whatever payment made generated automatically. However, users can choose any payment method of their choice that is convenient for him/her.

- Digital Library: Users of this Portal may gain access to various educational resources as well as to information on the legal framework underlying nursery, primary and secondary schools through the Digital Library of the Portal. The provided educational resources include, but are not limited to, articles and publications, tests and exams, teaching instructions and guidelines, and in general useful and practical educational material.

- Special interest forum: A number of online communities of specific and special interest can be established through the Portal’s forum facilities as a means for collaboration and communication among the Portal users. Users can propose discussion topics and participate in evolving discussions. Furthermore, the Portal provides the ability to certain groups of users to participate in private exchanges of ideas, opinions and experiences.

- Announcements board: This allows wide range dissemination of latest news and information on educational topics, as well as access to the archives of all past announcements.

- Advanced search facilities Users can use various search facilities (eg keyword-based, parameter-based) to retrieve information regarding all the available Portal content (digital library resources, posted messages, announcements, etc).

- Administration tools: The Portal features an integrated content management portal for organizing and facilitating the collaborative creation and update of dynamic content. Furthermore, it provides the administration of each school adaptable access in the portal with support facilities for the accomplishment of administration tasks, such as automated generation of statistical and progress reports.

- Students and Teachers - Learning and teaching are highly assisted through the available educational content, while collaboration is enhanced through the communication Portal facilities.

- Parents - The management Portal provides parents with access to information related to educational activities, school contact information, courses curricula and schedules, etc. Furthermore, they have the ability to communicate with other stakeholders within the local educational community.
• The adaptable school management portal helps school managers and administrators to:
• Plan teaching and learning in their school across a broad and balanced curriculum.
• Reuse, adapt and share documents among various departments
• Store and analyze pupil/students’ data for formative and summative assessment
• Identify and address their local professional development needs, such improving on their ICT skills
• Respond to emerging technologies and practice.
• Extend learning and work in partnership with parents, families and the community.

However, school administrators use technology regularly and consistently to:
Support their professional judgment at work
Track pupil/students’ progress
Monitor staff to ensure their use of technology is safe, legal and responsible
Communicate with parents/ careers, sharing information through online reporting and feedback.

REFERENCES


