



Information and Communication Technology and the Management of Educational Institution in Nigeria

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ABSTRACT

The advent of information and communication technology towards the middle of 20th century and beyond has proven to be the driving force for globalization and therefore an effective tool for management. Managing education being a pivotal sector or bedrock for any meaningful development is required to be receptive to technological advancement and innovations. ICT has made a remarkable contribution in the delivery and access to knowledge and innovation. Using documentary (literature) as a source of intellectual strength, the paper concludes that ICT in management of educational institution provides platform for among other very important organizational activities, formidable decision and management processes hence an educational institution that is ICT driven has greater tendency of having more effective and efficient management process. On the basis of the foregoing, this paper recommends for adoption of ICT by educational institutions in the interest of enhanced productivity and attainment of overall development goals within global standards and best practices contexts.

Introduction

The concept of management entails the broad activities of managers in organizations. It involves the harnessing of organizational resources to achieve the desired result as per set targets. In doing so the field of management, includes the planning, organizing, directing and controlling of the entire organizational resources to achieve organizational goals effectively and efficiently in a coordinated form. The advent of information and communication technology towards the middle of 20th century and beyond has proven to be the driving force for globalization and therefore a tool for effective management. Information technology in effect has a reasonable contribution towards speedy decision making which is the main focus of managing humankind and any other resources.

According to Jones and George (2003) in the contemporary management third edition “computer based information technology has allowed managers to develop computer based management information system that provides timely, complete, relevant and high quality information”. Thus, the information is measurably, authentic and reliable for decision making. Effective decision is product of concise and ambiguous rational information. Managing education being requires receptivity to changing times, technological advancement and innovations. ICT has made a remarkable contribution in the delivery and access to knowledge and innovations. It facilitates teaching, learning and development activities through research.

The control issue of this paper is to appraise the use of information and communication technology in educational institution with specific emphasis on the management processes and routine organized operations of educational institution. Apart from the introductory part, the next section reviews relevant literature, from the secondary sources of journal, books and periodicals on the basis of which the paper takes intellectual position and recommendations proffered in the light of identified gap(s).

Review of Literature

The paper reviews literature on the point of focus with a view to identifying the literature gap while trying to situate this effort within the context of same. This requires the paper’s ability to streamline elements of methodology, conclusions and even environmental variation. The following constitute the issues raised thus:

Management of Systems as an Indispensable Alternative in the Process of Transition: Consolidating the ICT Adjustment Argument

The word or concept “management” is universal and has been viewed from many dimensions by many scholars and theoretic. Management can be defined or described as the effective application and utilization of resources human and material to achieve the desired result with maximum effectively. It is a scientific method of harnessing resources towards achieving set organization goods. It is imperative to note that the art or sciences of management can be viewed from any practical organizational or human action. According to Jones and Georges (2003) “the job of management is to help an organization to make the best use of its resources to achieve desired goal. They do so by performing four essential managerial functions; planning, organizing, leading and controlling.

Theories and models which explain management are vast and varied and well documented in the organizational and institutional literature. In this regards the Douglas McGregor theory X and Y and Max Weber’s principle of bureaucracy came to mind while the Henry Fayol’s effective management principles or theory can be described as a synthetic of the scientific and administrative management. The human relation school of thought and motivational theories are all geared towards effective management. Topical issues in these schools of thought are for the enhancement of sound decision making that are key ingredients to effective management. The concept of Managements by Objective (MBO) and later Management by Result (MBR) imply the re-energization of management principles using information technology to speed up decision making machinery.

Information and Communication Technology (I.C.T): A Support or an Independent Instrument?

The flourishing importance of information and telecommunication technology in various spheres of human endeavor is glaring even to the casual observer. It connects the gathering, analyzing, summarizing and communicating raw data into scientific information that is reliable and retrievable on demand for timely decision making which is a prerequisite for effective management. ICT involved the use of electro-magnetic waves using apparatus such as computers, video and audio facilities, remote sensors in processing and storage of information in such a reliable and authentic manner for managerial function of planning, directing controlling and coordination for greater productive and organizational effectiveness.

According to Aminu and Kirfi (2010) “The key issue is not ICT itself, but rather the understanding of ICT and effectively employing it in the delivery of knowledge and reaching goals in less time. ICT is used as a means but not as an end”. Similarly one of the key management function in educational institution is the use of non-programmed decisions which are unusual and novel, the need for such decisions may stem from policy changes, environmental influence, public perception and universal changes in socio-economic order, one effect of globalization is that changes due occur on hourly basis typical of which is the financial system and exchanged. Therefore the use of decision support system of information technology will equip an educational manager with the required information as to advancement in technical knowhow and cost implication thereon.

The application of information and communication technology involved the use of software (programme language) and hardware’s (equipment). The later make the use of micro and macro processors, Computer’s, Scanners, Printers, CD_ROM, Digital Appliances such as Cameras, Sensors, and Projectors, Radio & TV while the former involved the development solution language such as Windows, Microsoft word and Excel, Adobe, Emails, Power point both of which are used harmoniously advance instances the use of Linux platform, Windows Apache MySQL PHP, WAMP are at hand, while courseware management system such as MOODLE CMD is a complete system that covers student cognitive activities with ease.

Information and Communication Technology and Educational Institution Management Nexus

The information and communication technology has become a critical factor in modern times and in the life of individuals, communities and nations. Human life, factors of production, entrepreneurship and any social service, requires and I.C.T facility in the discharge of its function for survival and advancement, even in remote communities and environment that operate as a close systemic the impact of I.C.T will visits its tenets directly or indirectly. Therefore, the popular adage that individuals, groups and nations must be IT compliant in order to be in tune with the reality and essence of life holds water.

Education being a critical sector to any human advancement and emergence of group and organization must respond to changes such as information and communication technology. Education is imparted on conventional, distant and adhere system, training and capacity building are part of it changes in technology. Imputes and systemic requires changes in behavior adhering the psychomotor and psycho analytic lines, where conventional systems are not trouble a distant ones must be issued. Thus in the modern world education is imparted, formally, informally, conventionally, distant and in an organized form. According to Tinio (2002) I.C.T has greatly facilitated the acquisition and absorption of knowledge by offering developing countries unprecedented opportunities to enhance their educational system, improve policy formulation and execution and also widen the range of opportunities for rich and for the poor. Thus the inhabitants of poorest countries and those living in country side struggles to reduce the extent of their isolation and to open access to knowledge in way unprecedented.

The information and communication technology has greatly redefined the focus and procedures of high education generally and distance living in particular in the 21st century (Olivar 2003). Even the conventional on campus setting of academic interaction, ICT has revolutionized the teacher student relationship. Teachers are now less concerned with course content pedagogical pattern of delivery but with coaching and mentoring students to learn largely on their own with the support of contemporary ICT facilities like; e-library, Internet, Laptop computers and so on.

Computer applications can be viewed and accessed in the educational institutions and their systems in the following areas:

- a. Application for admissions, central and course registrations and matriculation procedures and orientation.
- b. Cognitive development of I.C.T as a prerequisite course for educational pursuit and graduation.
- c. Massive investment that is capital in mature through the provision of computer laboratories, savers, and projectors which add value to the corporate standing of educational institutions.
- d. Development of E-learners along with the conventional ones which facilitate research, innovations and community service.
- e. Widened the scope and accessibility to research funding, development and adaption of new ideas and innovations through the use of online libraries collections and information displays.
- f. Facilitate easy monitoring and evaluations of institutional budgets and resources allocation and development of variance analysis and responsibility accounting there with.
- g. Development of reliable demographic data of staff and students for identification of training needs for staff and career guidance on students.
- h. Increase the pool of academic work and accessibility thereon through the online collections of books, journal, and other intellectual properties in the website for reference purposes and information sharing.
- i. Reduces the human resource cost of engaging ancillary staff in areas of administration and information management and data processing.
- j. It facilitate educational institutions to develop synergy with others likewise and like not in comprehending policy issues, environmental constrains and competitive advantages and develop appropriate strategy to stem such tide.
- k. I.C.T enhances the mindset of both teachers and students in a typical educational institution, developmental capabilities and alertness, update their intellectual horizon and widened their capacities and competence.

Empirical Literature on Benefits' of I.C.T in Educational Institution

ICT helps in providing a catalyst for rethinking teaching practice (Flecknoe, 2002; McCormick & Scrimshaw, 2001) developing the kind of graduates and citizens required in an information society (Department of Education, 2001); improving educational outcomes (especially pass rates) and enhancing and improving the quality of teaching and learning (Wagner, 2001; Garrison & Anderson, 2003). ICT can help deepen students' content knowledge, engage them in constructing their own knowledge, and support the development of complex thinking skills (Kozma, 2005; Kulik, 2003; Webb & Cox, 2004). Studies have identified a variety of constructivist learning strategies (e.g., students work in collaborative groups or students create products that represent what they are learning) that can change the way students interact with the content (Windschitl, 2002). Albert Bandura, Girasoli and Hannafin (2008) urge the use of asynchronous CMC tools to promote student self-efficacy and hence academic performance. Fister et al (2008) also depict the power of tablet PCs to improve mathematics instruction. ICTs have the potential for increasing access to and improving the relevance and quality of education.

The other side of this coin is that ICT used for student-centered teaching, in which student engagement, hence greater understanding of the material, may require new kinds of assessment tools. In its recent publication, *Learning to Change: ICT in Schools*, the OECD discusses recent work by Voogt and Odenthal (1999), who «have proposed a series of *emergent practices* associated with the integration of ICT in education, which imply and invite radical change. They see an emphasis on skill development and on cross-disciplinary activity more in keeping with real life, developed and accredited through formative and summative student assessment by a variety of means, including portfolios. Students will themselves accept more responsibility for their own learning and its assessment, developing expertise in the process» (OECD, 2001, pp. 28-29). The OECD study further concludes that the potential of ICT will not be realized as long as assessment is «primarily in terms of student achievement in single subjects, by means of conventional written tests (OECD, 2001, p. 31).

The use of ICT in educational settings, by itself acts as a catalyst for change in this domain. Students using ICTs for learning purposes become immersed in the process of learning and as more and more students use computers as information sources and cognitive tools (Reeves and Jonassen, 1996), the influence of the technology on supporting how students learn will continue to increase.

Apart from the summaries random of possible areas of impact that can be accessed in educational institution there exist a broad based benefits that is derivable in applying I.C.T to the management of educational institution, among which include one or a mixture of the following.

- a. The use and application of ICT in the management of educational institutions facilities a wide range of unlimited and unsurpassed access to information its defined from worldwide, thereby ensuring quality of academic programmes, research findings and sound community service, massive transformation of these institutions into centuries of learning and academic excellence will be guaranteed.
- b. ICT driven management of educational institution will facilitate the much needed synergy with other related organizations, evolving a better comprehension of policy framework by taking appropriate strategic actions and effective decision making that will necessitate organizational efficiency.
- c. As ICT is the social point and driving force of globalizations the need for educational institution to embrace it and apply it to its management process in order to keep in tune with the realities of the competitive world.
- d. Management process of setting objective goals, planning, organizing, directing and controlling are better assembled, perceived and operationalize using the tenet of ICT. A measurable and achievable goals objective, a sound planning and control patterns are realizable using ICT globalized information such as case studies, and research findings.

I.C.T Application Facilities

According Aminu and Kirfi (2010), facilities that constitute the material culture or artifacts of I.C.T and wide and varied, typically all computing devices, audio and visual aids, remote sensors, projectors and cameras and a wide range of software applications facilitate inter and intra communications and other problem solving on advancement processes. The few considered for this write up include the following:

- a. **E-mail:**
This can be described as a short form of electronic mail, which allows passage of messages from recorder to decoder, or sender and receiver. In educational pursuit ideas, research finding or academic breakthroughs can be communicated among stakeholders (i.e. lecturer to lecturer, student to lecturer and lecturer to student). This allows for sharing ideas, methodologies and or strategies within and without of educational institutions.
- b. **Worldwide Web (www)**
This constitute a well-researched and sound information displayed in wide universal spatial pages that can be located to access relevant information, educational or otherwise to facilitate information and appropriate data on a subject matter. These information can be accessed, retrieved using audio and wide or any other apparatus.
- c. **E-learning**
This consists of importing or receiving instructional material for education, training and cognitive development through the Internet. Internet service providers and machinery such as yahoo, goggle has catalogs that can be used for learning and capacity building.
- d. **Governance**
This refers to the application of ICT on the political administration of social structure and activities of state. Issues such as policy formulation and inherent changes and or information thereon are accessed and obtained. Similarly the activities of the state administrative machinery can be found in electronic governance.

Problems and Constrains of I.C.T: Perceived Usefulness or perceived ease of use?

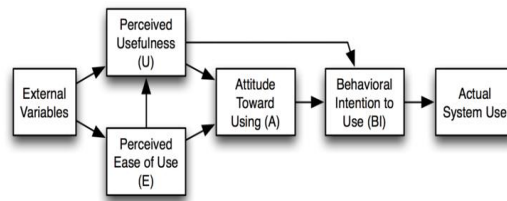
Change is one very important aspect in the life of a system. It is sometimes characterized by acceptance or resistance. The **Technology Acceptance Model (TAM)** is an information systems theory that models how users come to accept and

use a technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably:

Perceived usefulness (PU) - This was defined by Fred Davis as "the degree to which a person believes that using a particular system would enhance his or her job performance".

Perceived ease-of-use (PEOU) - Davis defined this as "the degree to which a person believes that using a particular system would be free from effort" (Davis 1989).

The TAM has been continuously studied and expanded-the two major upgrades being the TAM 2 (Venkatesh & Davis 2000 & Venkatesh 2000) and the Unified Theory of Acceptance and Use of Technology (or UTAUT, Venkatesh et al. 2003). A TAM 3 has also been proposed (Venkatesh & Bala 2008).



Technology Acceptance Model

In spite of its numerous impacts and benefit of using and embracing ICT as a complete solution to information and data in the management educational institution there exists constraints and problem in accessing, usage and practical application of I.C.T in Nigerian system, which includes the following:

- Lack of standard policy and policy framework on I.C.T despite the appointment of a cabinet minister in the Federal Executive Council, still there is no articulated and desired national policy on ICT in Nigeria.
- Absence of basic instructional facilities such as electricity to support the development and facilitate the coverage of ICT application.
- Poor funding of educational institutions owned by both public and private organizations, this funding constrains manifest itself not only on ICT but in the general development of these institutions.
- Apathy and timidity exhibited by stakeholder (teacher and policy makers student) towards the emergence, application and development of I.C.T as a perfect alternative for data and information management.
- Level of poverty in the economy of the Nigerian state is an inhibiting factor mitigating against accessing and embracing ICT solutions (soft and ware). Most Nigerians individuals and corporate organizations are welcoming in object poverty despite concerted effort through the establishment of poverty reduction agencies and programmes.
- Inadequate security of life and properties as examined by mass killing of citizens and vandalization of ICT facilities and other support infrastructures.

Conclusion and Recommendations

This write-up strongly believed that education as pivot of any meaningful development and advancement of human intellect and attributes cannot position self appropriately without embracing globalization and information and communication technology as they are but driving forces for it. Institutions and/or organizations generally and educational institution in particular are better run, positioned and developed or manage using information and communication technology. Any institution educational or otherwise the forcing its organizational principles and modes of operation devoid of ICT is bound to operate as a close system and eventually failure will ensue managers and policy makers of education and the general citizenry must realize the enormous benefit inherent in I.C.T view of which the following recommendation are hereby made.

- The Nigerian political authority as a matter of urgency need to formulate and implement a standard I.C.T policy in line with international law, convention and best practices.
- Massive development and maintenance of basic infrastructures in all nook and crannies of Nigerian state, especially those that are closely related to the emergence and development of I.C.T.
- Improved funding of educational institutions by both public and private sectors. In this regard the benchmark set for public spending on education by United Nations should be adhered strictly, annual financial appropriation bill to be in tune with such benchmark.
- Sound economic policies and programmes geared towards poverty reduction must be pursued vigorously. Similarly non politicization of such programmes by instituting a variable strategy should be ensured.
- The state machinery should consider the security of life and property as non-negotiable priority, as no meaningful development can be achieved without a secured environment.

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