

THE IMPACT OF INFORMATION COMMUNICATION TECHNOLOGY (ICT) ON NIGERIA EDUCATION SYSTEM

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Abstract

The impact of information communication technology (ICT) on Nigeria education system was the crux of matter for this paper. Information technology is the use of electronic equipment to process, store and disseminate information to, and over a wide audience. It also refers to technologies used in collecting, storing, editing and passing on information in various forms. The impact of ICT on Nigeria education system includes supporting learning and providing learners with technological advancement, helping teachers to assess information, assisting in their skills development and providing more engagement for greater productivity etc. Recommendations includes: the connection of public and private schools to the national grid, the supply of uninterrupted and affordable power supply, government formulation of national ICT policy, training and retraining of ICT staff and learners the provision of ICT facilities in tertiary institutions and making ICT learning compulsory from primary to tertiary school levels

Cooke (1993) views education as the process of transferring knowledge from a teacher to a learner allowing both persons explore and come to full understanding of all that is in their domain. Fafunwa (1989) describes education as the aggregate of all the processes by which a child or adult develops the abilities, attitudes and other forms of behaviour, which are of positive value to the society in which he lives.

Education facilitates realization of self potential and talent of an individual, and can be generally seen from three dimensions; development of knowledge, training of mental abilities and development of character (Akpan, 2009) One of the crucial functions of education is to adapt to the changing values of the fast changing societies in the world (Olayiwola, 2010) The challenges in education, especially in this 21st century, where advancement in Information and Communication Technology (ICT) has turned the world into a global village and has profited everybody (Jockeil - Ojike & Ajie, 2009).

Ojugo Osika, Ureigho, Aghware and Ugboh (2009), Rowe (1993) stressed that science and technology is our heritage and mankind's hope. It is the vision and mission of today's education to ensure that students are scientifically literate to cope with technological changes of the information era. Information Communication Technology (ICT) is seen as the technology of creation, processing, storage, retrieval and transmission of data and information (Ajuonuma, 2010). According to Samni and Osungbemi (2002) as cited by Ajuonuma (2010), ICT is the use of electronic equipment (especially computer) to process, store and disseminate information to, and over a wide audience. It refers to the technologies used in collecting, storing, editing and passing on information in various forms. ICT includes the use of communication satellites, radio, television, telephones, tape recorders, compact discs, floppy discs and personal computers.

Multidisciplinary Journal of Research Development, Volume 22 No. 2, July, 2014

The e-science and technology (e-ST) for which Information and Communication Technology (ICT) education is a part, is an important and veritable tool for National survival and can help in the realization of the millennium development goals in contemporary Nigeria (Awatefe & Umudi, 2010) The 21st century calls for the policies on ICT to address the employment and other socio-economic problems, specifically the restive youth (Aina, 2000). Education as a capacity building programme is expected to prepare students and citizens with skills and knowledge required for global competitiveness.

According to Agada (2007), there are about eight million internet users in Nigeria, representing about six percent of the total population of one hundred and fifty million. This low impact according to the author, is attributable to low level of infrastructure! development, low funding, lack of adequate indigenous e-science and technology education expertise and infracture which is derived from weak supervision, fraudulent practices, quack practitioners, disregard of regulations and non-adherence lo professional ethics.

For this paper to address the impact of ICT on Nigeria education system, the following subheadings will be highlighted; the rationale for ICT integration in Nigeria education system, the impact of ICT on education system, how has ICT fared in Nigeria education system? And factors militating against ICT effectiveness in Nigeria education system

The Rationale for Information Communication Technology Integration in Nigeria Education System

The following reasons constitute the rationale for ICT integration in Nigeria education system according to Newhouse (2006):

1. **Educational Productivity:** Productivity in economics is a concept in which output (revenue) is measured by the input (cost). Though difficult to define in this context, since output is not easily measured particularly in monetary terms but output can be viewed as the quantity and quality of learning demonstrated by the student or the learning outcomes To increase productivity, we either increase output so that input is decreased, or we increase both the output and input, and vice-versa. Educational technology influences its outcomes and cost. Thus, if a teacher properly selects the input and output, learning is optimized to show increase in the outcome. Some technologies are more expensive and ICT is relatively expensive to acquire, install and maintain to support users, and this must be compared with its potential outcome. But to consider productivity, this cannot be the basis to decide the use of technology as there are situations in which technology should be used because it solves a problem such that if a part of the curriculum is not completed due to lack of technology, then the associated outcome is zero and productivity is zero.
2. **Technological Literacy:** Computers need to be used to address problems that occur in regular curriculum. The computer is a problem solving machine that must be adapted to typical school problems such as those concerning student's learning, teacher's instruction, school administration etc. Educational technology should be selected on the basis that it has the best feature for implementing the curriculum. Thus, educations technology should be used or not used at all.
3. **Support for Student's Learning:** There are many potential uses of computers in the learning process, but whatever rationale there is, it requires much more critical evaluation on the part of the students. We need to bear in mind these criteria that must be met on the student's part:

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- i. The management of high quality educational programmes requires and generate large amount of data Thus, can teachers effectively help students manage these data?'
- ii. Access to and provision of resource materials linked to teaching and learning;
- iii. Computer literacy.

4. **Teachers' Competencies:** Long and Long (2002) asserted that, ICT has drastically improved teachers' competencies with the advent of modern computers and website technological advancement. Lots of information that were difficult to get before are now easily accessible to teachers, and even teaching now takes place via the internet In the academic environment, a teacher can get all his students to compulsorily use the e-mail and this requires every student to open an e-mail address for easy accessibility.

5. **Proper Documentation:** The conventional methods of documentation of examination scores, results and continuous assessments and other important documents in our educational are no longer fashionable. ICT will assist to document relevant educational programmes in hard disc, flash drive, floppy disc etc, and it will also facilitate easy retrieval of important messages and documents when needed from ICT accessories (Anthony. 2005).

The Impact of ITC on the Education System

It is quite obvious that education has witnessed the impact of ICT on its programmes, and it is thus discuss as follows:

1. **Impact of ICT on the Learner:** Learners are expected to be the subjects that consume the teaching process. According to Ojugo et al (2009) ICT supports learning and provides it with technology literacy, increased technology capacity and skills, strong academic emancipation from teachers, increased motivation for learning, improves their achievement in core subjects as measured by tests scores, increased student's engaged learning and interdependence, thus, allowing them to develop skills associated with time and resource management, concentration, self-discipline, attention to defined task and ability to follow instructions. Learner responds and uses ICT in different ways as provision of more flexible access to ICT requires greater personal responsibility which may be lacking in some students (Loader, 1993). According to Ojugo et al (2009), Rowe (1993) emphasizes the importance of computer literacy and [hat a student makes the computer part of oneself and this can be readily accomplished where the user interface is customized by the learner and the array of tools available can match the student's need.
2. **Impact of ICT on the Teacher:** A teacher is responsible for transmitting knowledge to the learner in the classroom environment or in any suitable setting Collis (1989) is of the opinion that regardless of ICT potentials, teachers remain instructional leaders and there is always need for human interaction and motivation. According to Fullan (1996) which change is complex and difficult to achieve mostly at classroom level. Some teachers fear to lose their established influence over the values and directions of classroom activity. Thus, it is important to help teachers reflect more on ICT impact on their roles and on that of the learner. It is expected thatt teachers seeking to employ the use of ICT must have in mind the issue of curriculum, ICT implementation in the classroom, student roles behaviour and materials for learning.

According to Cradler and Bridgforth as cited by Ojugo et al (2009), ICT impact on teachers are identified as follows:

- i. The balanced roles they play with a perceived risk of reduced influence,
 - ii. Teachers are provided great information access that leads to increased interest in teaching and experimentation;
 - iii. Requires more collaboration and communication with teachers, administrators and parents,
 - iv. Requires more planning, energy, skills development and knowledge of ICT; and
 - v. Provides more engagement time for learners that leads to greater productivity
3. **Impact of ICT on Learning:** ITC aims to embed its support in the learning environment by offering new learning chances and improves overall effectiveness of the Teaching environment, and allowing teachers to rely on their long traditions of educational theory, past experiences and knowledge of the educational situation in order to help them make decisions about what and how the learning environment will look like and what inputs into the learning process are required (Cradler & Bridgforth, 2009). ICT indirectly has positive inputs in its use on learning according to Newhouse (2006), and they include:
- i. Considerably class-size reduction;
 - ii. Increased instructional time to learn;
 - iii. Development and use of gross age tutoring programmes;
 - iv. On the average learners, with automated instructions perform better and;
 - v. Given the right condition for access / use, significant gains in student learning were recorded with ICT.
4. **Impact of ICT on the Learning Environment:** Laferriere and Bracell (1999) opined that the degree to which ICT is applied depends on variables like developmental age learning environment, the learner's personal attributes and nature of curriculum contents For both learner and teacher, ICT will allow thorough investigation of real world applications with vast amount of information access as well as tools to analyze and interpret such information so that what can be learned is broadened and deepened. Active participation and proper assessment of classroom activities, as well as students' engagement with curriculum will increase and afford more opportunities to create information and represent ideal ideas.
5. **Impact of ICT on Educational Technology:** Educational technology is seen as the application of media born out of the communication revolution through the production and use of quite a range and variety of electronic information carriers, projection and amplification. That is to say that educational technology is a tools technology with emphasis on hardware or equipment and related materials (Agun & Imogie, 1988).

The level of effectiveness of educational technology is influenced by the specific student population, software design, educator's role and level of student's access to the technology (Schacter, 1999).

How has ICT Fared in Nigeria Education System?

Having highlighted the rationale and impact of ICT on the education system, it is pertinent at this juncture to appraise how far ICT has fared in Nigeria education system.

Mike (2003) noted that the rate of ICT development and diffusion in Nigeria until recently is not in any way comparable to that of Egypt, South Africa and Botswana. It is very important to look at the three stages of educational system in Nigeria in order to ascertain how ICT has fared.

1. **The Primary School Level:** At this level of the Nigeria educational system ICT is yet to be established, mostly at the public and rural areas where electricity and ICT accessories are near absent. Most primary school teachers are not computer literate, and internet facilities are absent in Nigerian primary schools. At this level of education, the pupils are seen to be too young and intelligent for ICT programmes.
2. **The Secondary School Level:** Compared to the number of secondary schools, both private and public in Nigeria, the impact of ICT is still at low ebb. Most government schools are without electricity, which is the source of power for ICT facilities Ndukwe (2007), recommended that as power supply from the utility company improves; every base state should have an average of three generating sets to keep services on. Most secondary schools' staff and students go out of their school premises to do their ICT programmes, especially at the internet.
3. **The Tertiary Institution Level:** At this level of education, ICT is a must, but private organisation and individuals are liaising with school authorities to install internet services. Students patronize computer schools to enhance their knowledge about ICT, so as to be computer literate. According to Mobalaji (2008), the tertiary institutions, especially universities have actually felt ICT programmes via the net and websites. Compared with the number of tertiary institutions and the impact of ICT on them, one would score it below average, which means a lot is still needed to be done Education trust fund and other non-governmental agencies have tried on their own to equip some universities with ICT facilities.

Factors Militating Against Effectiveness in Nigeria Education System

The following under listed factors militate against ICT effectiveness in Nigeria

1. Epileptic power supply
2. High cost of installation
3. Security challenges
4. Theft
5. Transmission cable cuts
6. Low level of computer literacy
7. Environmental and climatic problems
8. Low level of infrastructure development
9. Lack of adequate indigenous e-service and technology education expertise
10. Quack practitioners
11. Disregard of regulations and non-adherence to professional ethics

Summary and Conclusion

When compared with most developed countries of the world, the impact of ICT in Nigeria education system is still very low, even when compared with some Africa countries. This drastically falls below the expectations of concerned individuals in this

present dispensation. The basic ingredient required for ICT programmes to blossom very well is electricity. Nearly all the public secondary and primary schools lack electricity and competent teachers for ICT programmes as well as facilities. At the tertiary level the issue of electricity is the same with the first two levels of education. Some of the tertiary institutions can because of the generated income from school fees and from government intervention afford to use alternative power source for short time measure. Student on their own purchase laptops and desktop computers and even visit the internet to update their knowledge on ICT. Apart from electricity, many other factors are responsible for the impact of ICT on the Nigerian educational system.

Recommendations

The following recommendations were made for this paper:

1. Uninterrupted and affordable power supply in urban and remote areas should be provided.
2. All schools both private and public schools should be connected to the national gride
3. Government should urgently formulate an all embracing national ICT policy, which will ensure availability, accessibility and affordable information.
4. ICT education training and retraining should be organized at all educational levels in Nigeria.
5. Private individuals and non-governmental agencies should be encouraged to provide internet facilities in remote areas
6. ICT facilities should be provided in all tertiary institutions.
7. ICT related courses should be taught from primary to tertiary school levels.

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