Global Trends in Information and Communication Technology: Implication of Sustainable Development in Education

[1]Dr. Samuel J. Udoudoh
[1]Dr. G. A Babalola
[2]Oluwatosin Daniel Akobe

[1]Department of Library and Information Technology
School of Information and Communication Technology
Federal University of Technology, Minna, Niger State
[2]Nigerian Defence Academy, Kaduna

E-mail: udohudoh_samuel@yahoo.com
Phone No: +234 (0) 8027707794
E-mail: gaboft7r7@gmail.com
Phone No: +234 (0) 80343702191
Email: akobeoluwatosindaniel@gmail.com
Phone: +234 (0) 816-8681-945

Abstract

The global trend in Information and Communication Technology (ICT) has changed the way we communicate today, the way we learn and the way we work respectively. For this reason ICT in Education has become the irreversible driven tool in institutions of learning which no one or institution or nation could ignore. ICT device is also penetrating into all sectors of our society and they are important components of the education which its skill and mastering must be learnt. ICT have some characteristics that make them an indispensable tool if we are to catch up with the emerging impact of the ongoing global trend in all works of life. The global processes can be actualized only if we admit that education is irreversible basic human right and to resist the tendency not to reduce education into a mere routine.

Introduction

In the world of ICT, education is becoming both more competitive, more interdependent, and their future ever more dependent on the knowledge, skills and resourcefulness of its policymaker, creating new opportunities and difficulties. These opportunities are created by global processes and can only be actualized if key actors continue to insist that education is a basic human right and to resist the tendency to reduce education into a mere routine of life, Power(2000). But if we fail to recognize the global change in education, I am afraid but just have to say it, that our world will become increasingly unequal, competitive, polarized, conflicted and dangerous for incoming generation.

Global trends in ICT according to Laudon and Laudon (2010), is the most important drive behind globalization which has been the explosion in Information and Communication Technologies (ICTs) sectors. ICT by UNESCO (2010), is refer to a great technologies and it is an all encompassing term that includes the full gamut of electronic tools by means of which we gather, record and store information, and by means of which we exchange and distribute information to others. ICTs are defined as diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information. These technologies include *computers, the Internet, broadcasting technologies (radio and television), telephony and so on.*

Based on the UNESCO submission (2014), policymakers accept that access to information and communication technology (ICT) in education can help individuals to compete in a global economy by creating skilled work force and facilitating social mobility. The study emphasize that ICT in education has a multiplier effect throughout the education system, by enhancing learning and providing students with new sets of skills; through reaching students with poor or no access (especially those in rural and remote regions), facilitating and improving the training of teachers, and by reducing costs associated with the delivery of traditional instructions or resources.

Globalization

Globalization and technological changes (trends) processes have accelerated in tandem over years and have created a new global economy "powered by technology, fueled by information and driven by knowledge" as supported by Tinio (2003). The emergence of this new global trend has serious challenging implications for the nature and purpose of educational institutions. As the half-life of information continues to shrink and access to information continues to grow exponentially, schools cannot remain watchers of mere venues for the transmission of a prescribed set of information from teacher to student over a fixed period of time if they are or must catch up with their international counterpart. Rather, schools must promote "learning to learn," that is, the acquisition of knowledge and necessary skills that make possible continuous learning over the lifetime (Thornburg, 2000).

The Schools systems have been using ICT in many decades to address various goals ranging from the teaching of programming to increased participation in distance education to supporting language-acquisition in early childhood and ease of educational operations. During this period, an advance in hardware, software, telecommunication and networking has appreciated the potential that ICT holds for schools, Colleges and education as whole (Curban, 2001). However, successful implementation of these practices irrevocably and tightly linked to resources including;

➢ Financial and human resources within education systems;
➢ National Infrastructure;
➢ Private Sector Capacity;
➢ Attitudes about Knowledge and Technology.

The shortfall in ICT faced is that several of the technologies and models that are emerging at this time are unproven. Others require specific circumstances, such as highly trained teachers or authentic-assessment practices, to be deployed successfully. This article is intended to help actors in education to stay informed about trends and new developments that can enable them to gauge current practices and plans in relation to contemporary and emerging norms.

Education

Education is the mother of courses from science, technology, arts engineering, and humanities etc, to mention and so on. All over the world an instrument ever conceived, known and applied courses in teaching and learning same in institution of learning is always to impart learning, knowledge, broaden, and sharpen skills, intellectual development and knowledge acquisition. Education from time immemorial has been known, admitted and adopted to be in dispensible instrument (panacea) globally by mankind for the achievement of meaningful and sustainable development. So far, there is yet no finding/study to refute this, or replace education for something as instrument of sustainable achievement or attainment. Be that as it may, no man and no nation rise above aggregate of knowledge attainment of her citizenry or nation by extension. On that aggregate knowledge/skill to deal with emerging challenges/issues in life of any nation that affects such nation (Wasagu, 2013)The provision of adequate necessary educational strategies to initiate and foster sustainable development in all ramifications in term of building diverse human capitals, skill acquisition, and known-how to its citizenry who will ultimately drive the country economic, social, social-economic etc can therefore not be over emphasized.

Global Trends and Education

There have been so many clamors and explanation about globalization. Globalization is define with the support of **Power(2000)** as a multi-faceted set of processes which include not only the changes which have flowed from the new Information Communication Technologies (ICT) and opening up of markets, but also new concepts which mean that 'shrinking space, shrinking time and disappearing borders and linking people's lives more deeply, more intensely and more immediately than ever before. *Carmona and Marin(2013) said* the global processes will not only make our societies increasingly multi cultural and ever more intercultural as the interactions among cultural groups intensify, but also they will force shifts in our educational and development priorities making it education for all. It is productive life of every society, full development of the human personality, strengthening of respect for human rights and fundamental freedoms. Education also promotes understanding, tolerance and friendship among all nations, racial and religious groups.

The *Sustain ability* of ICTs in Education

For developing countries ICTs have the potential for increasing access to and improving the relevance and quality of education. It thus represents a potentially equalizing strategy for developing countries. *ICT greatly facilitates the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance educational systems, improve policy formulation and execution, and widen the range of opportunities for business and the poor. One of the greatest hardships endured by the poor, and by many others, who live in the poorest countries, is their sense of isolation. The new communications technologies promise to reduce that sense of isolation, and to open access to knowledge.* However, the reality of the Digital Divide-the gap between those who have access to and control of technology and those who do not means that the introduction and integration of ICTs at different levels and in various types of education will be a most challenging undertaking. Failure to meet the challenges would mean a further widening of the knowledge gap and the deepening of existing education and social inequalities.

Uses of ICTs in *Education*

Education policymakers and planners must first of all be clear about what educational outcomes (what they intend to achieve for the nation) are being targeted. These shall guide the choice of technologies to beused and their modalities of use. The potential of each technology varies according to how it is used. Haddad and Draxler (2002), identify some levels of technology use in education: presentation, demonstration, drill, practice, interaction, and collaboration. Each of the different ICTs print, audio/video, radio and TV broadcasts, computers or the Internet, may be used for presentation and demonstration. On the other hand, networked computers and the Internet are the ICTs that enable interactive and collaborative learning best; their full potential as educational tools will remain unrealized if they are used merely for presentation or demonstration. Other ICT driven technology use in education for sustainable development era;

Teleconferencing: The term teleconferencing refers to interactive electronic communication among people located at two or more different places. Tinio (2003), list four types of teleconferencing based on the nature and extent of interactivity and the sophistication of the technology:

➢ Audio-conferencing;
➢ Audio-graphic conferencing;
➢ Videoconferencing; and
➢ Web-based conferencing;

Audio-Conferencing: Audio-Conference is involves the live (real-time) exchange of voice messages over a telephone network.

Audio-Graphic: Audio-Graphicis when low-bandwidth text and still images such as graphs, diagrams or pictures can also be exchanged along with voice messages.

Video-Conferencinginvolves the live exchange of visual interaction over a television network.
Web-based conferencing connect learners to other learners, teachers, educators, scholars and researchers, scientists and artists, industry leaders and politicians in short, to any individual with access to the Internet who can enrich the learning process. Web-based collaboration tools, such as email, list serves, message boards, real-time chat.

Tele-collaboration is online learning involving students logging in to formal courses online is perhaps the most commonly thought of application of the Internet in education. However, it is by no means the only application.

Benefit of ICT in Driven Sustainability of Education

Perry (2003),postulate that ICT has transformed not only the process of teaching and learning but has opened access to education, and thereby come out with the following benefit;

i. **Curriculum, Teaching and Learning** -the degree of acceptance of ICT as educational tool in developing and even develops countries is so magnificent, there has been increasing focus on the interactions of ICT and teaching and learning among all the actors (student, teachers, donors and government.

ii. **Collaborative Online Projects** – *This is* student-to-student online collaboration has been one of the more common methods of ICT integration by early adopters in schools.

iii. **School-to-School Networking** –*W*ithin education systems, teachers and whole schools adopt technology at differing rates. While decision-makers at the ministry level must work to ensure gains by *all* schools, innovative and early adopting teachers and schools can draw significant benefits from participation in regional or national collaborative networks.

iv. **Blogs, Wikis and Podcasts Created by Teachers and Students** –*This is a* variety(ies) of tools that emerged from the Web have been swiftly adopted by the education community. Web 2.0 refers to a "second generation" of Internet tools that emphasize user-developed content and social networking. Popular Web 2.0 tools used in schools include blogs, wikis, and podcasts. Both Apple's iTunes website and Yahoo! list hundreds of podcasts created by students in kindergarten, primary, and secondary schools. Outcomes that have been ascribed to podcasting include improved written and verbal communication skills, improved research skills, and increased motivation. Blogs (or Web Logs) are websites with content generated by individuals; entries appear in reverse chronological order and resemble journals in that they reference first-person experience or the thoughts and opinions of the author. Most blogs enable readers to post comments, as well as comments about comments.

v. **Anti-Plagiarism Tools and Services** -*a*t both secondary and tertiary levels, forestalling and detecting plagiarism increasingly occupies teachers' attentions. Search engines that provide students with access to a rich array of knowledge resources also provide the means to plagiarize these works (aided and abetted by cut and paste commands).

vi. **Wireless networking** –Schools rapidly adopted wireless local networking in it operation. Wireless LANs reduce installation costs although they may increase support costs and increase the flexibility of school-based installations. In particular, laptops or workstation computers can be stored in carts and brought into classrooms on a temporary or as needed basis for use by teachers or students and in offices.

Demerit of ICT in *Education*
Despite the global trend of ICT in education, there are however, some weak points, experience as result of ICT driven application. They are:
  ➤ *Distraction to some students;*
  ➤ *Make some staff and students very lazy;*
  ➤ *Increase level of plagiarism;*
  ➤ *Some time it makes teachers/students who are computer novices to easily loss data or information;*
  ➤ *It destroyed students or teachers who are willing and interested in watching porn film if they are not properly checked.*

Does Global Trend (ICT) Sustainable in Educational?
One aspect of development programs that is often neglected is sustainability. The long history of development aid has shown that too many projects and programs start with a bang but all too soon fade out with a whimper, to be quickly forgotten. This is true for many ICT-based educational projects as well. In many instances, these projects are initiated by third party donors such as international aid agencies or corporations and not enough attention is paid to establishing a workable and reliable mechanism by which the educational institutions or communities involved can pursue the project on its own or in partnership with other stakeholders after the initiating donor exits. It is interesting to note that the cost and financing are not the only barriers to development and sustainability of educational project. According to Cisler (2002), the sustainability of ICT-enabled programs has many other factors: social, political, technological, and economic.

Technological sustainability involves choosing ICT technology that will be effective over a long time term. In a rapidly changing technology environment, this becomes a particularly tricky issue as planners

must cont end with the threat of technological obsolescence. At the same time, there is the tendency to acquire only the latest technologies (which is understandable in part because these are the models which vendors are likely to push aggressively) generally, however, planners should go with tried and tested systems; stability issues plague many of the latest technologies. Again, the rule of thumb is to let the learning objectives drive the technology choice and not vice versa the latest technologies may not be the most appropriate tools for achieving the desired educational goals. When making technology decisions, planners should also factor in not just costs but also the availability of spare parts and technical support. That is why actors in educational and even beyond should look inward ensure the global trend in ICT is practice, in other to achieve the sustainability development.

Conclusion

The effective functioning of families, schools and educational systems is sensitive to the existence of supportive public policies at the community, national and international level in this global era. It is clearlyseen that the education system is changing by adapting modern requirements and incorporating new technologies. By incorporating these technological trends into the educational system a higher quality education can be provided at a cheaper cost and spread over a larger segment of the population. Although they are difficulties in achieving that and the outcome may not be constant as may be expecting due to the global changes.

However, our common future will depend on the degree to which we all become better world citizens, creating the unity within diversity which stems from an intercultural education which helps us to build strong educational system with meaningful application of ICT.

Recommendations

From all that has been discussed some very valid recommendations are hereby recommended;

> ➤ A good numbers of Nigerian educationist in particular are ICT illiterate and are bound to be obsolete in this global trend, if they don't train and retrain.
> ➤ To breech the social digital divide between educationists, there is a need for training of staff incritical areas tangential to their jobs and also a need for constant training update.
> ➤ There is a need for educational actors to apportion more resources to acquire useful ICT resources in education.
> ➤ Practical hands on ICT facilities should be mandatory to all actors; students should be made to graduate with critical skills needed to discharge their duties as IT professionals, since we are in global world.
> ➤ ICT projects and programs should made to be sustain, in other to avoid been fade out with a whimper and forgotten quickly.

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