ADOPTING INFORMATION AND COMMUNICATION TECHNOLOGY FOR SECONDARY SCHOOL IMPROVEMENT IN NIGERIA

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Abstract

In Nigeria, the face to face instruction and tradition technology such as radio, television and print can no longer meet the demand of secondary education in terms of improvement. This paper dwelt on the role of information and communication technology (ICT) as a requirement for improving secondary education in order to meet the claims of modern society. Important issues for determining the appropriate use of ICT and its contribution towards qualitative secondary education were explained. The advantages and limitations of using ICT were enumerated. Recommendations on the application of ICT for improving the quality of secondary education were offered.

In Nigeria, over the past five (5) decades, the face-to-face Instruction has been the tradition method of communication in the classroom. The demand for secondary education cannot be met through the tradition face-to-face instruction alone, due to the scale of the resources required for such a solution like construction of infrastructure and facilities, learning materials laboratories and operating cost etc. Given this situation and the shift in education priorities in favour of secondary education, other methods could offer an effective alternative to meet the demand.

Another tradition technology such as radio, television and print is used for reason of effectiveness and resource constraints (Onwuka, Awuka, Aghenta, 1990). In this technology, audiovisual material, are appealing to both sense of vision and hearing in the classroom. This will have the effect of improving the quality of face-face instruction in schools. Some analyst contributed that radio may be more appropriate for instructions in some locations. The best media also are those that are easy to produce and easy to use. Hence the popularity of audiostream. Information and communication technology (ICT) related to computer came into fore to improve education in school and teacher training. The challenge is to use technology to increase access, improve quality and lower cost in education. It will make teacher-learning process improve, better student result achieve and stronger relations with and support from local community (Mahlick and Smulders, 1996). Rapid technology transfer through (ICT) will concentrate on the development of those computer based skills required to explore education policy options concerned with planning the quality of education (Saito, 1996). At the same time, find solution to challenges faced by teachers and education planners to make such technology available and sustainable.
The Role of ICT in Emerging Information Society

ICTs facilitate large-scale learning needs in new information emerging societies like Nigeria for social and economic development. For the first time in history, information and scientific knowledge are not simply means of improving secondary education but society and main product of economy. Moreover, knowledge is a major asset and product of the society, upon which continue economic well-being and social development depend. ICTs are in the mainstream of these developments. ICT and information society are concern with the creation, acquisition, sharing and dissemination delivery, support and recognition of knowledge. ICTs are the means for providing an access to and engaging in the continuous learning that becomes necessary for successful participation at the secondary school level (Kinelev, Kommers, Kotsik, 2004). ICTs have become a critical tool for professional training; the sooner learner know how to use ICTs at the secondary school level, the easier they can find their ways to capture the newest methods of data acquisition and transformation to knowledge. The (ICT), as a facility for teaching and learning had gone through various stages before it arrived in its catalytic function nowadays.

1. The early software prototypes that demonstrated the computer as an electronic teacher, stems from early seventies
2. Since more structures that are complex were introduced, the computer took the role of representing the knowledge domain. Expert systems were established in the early eighties.
3. Intelligent tutoring, simulation and embedded task support system were built in the early nineties.
4. In the mid-nineties hypertext, hypermedia and multi-media were introduced
5. Since 2000, virtual realities have carried users through fictions and other worlds.

Important Issues for Determining the Appropriate Use of ICT in Secondary Education

Some of the important issues to be taken into consideration when determining the appropriate use of ICT in schools according to Chapman and Mahlick (2005) are:

1. The appropriateness of any specific technology or combination of technologies depends on the physical structure, the local culture, available resource and teacher capacity and motivation. The world conference on education for all in Dakar recommended that low and middle-income countries like Nigeria combine ICT with more tradition technology. They never knew that modern technologies are not always better.
2. Newer forms of ICT offer opportunity (and for some the threat) of fundamentally changing pedagogical practice at the classroom level with
the effectiveness use of ICT, teacher centered approaches are moving towards more student centered, constructivist learning strategies emphasizing inquiry based learning critical thinking, collaborative and discussion with the teacher acting as facilitator. This involves changes in roles and relationships and more important changes in the prevailing work patterns of teachers and their beliefs.

3. Simply using new technology does not ensure improved quality of instruction. ICT can be used to promote quality or improve on mediocrity. It allows students to access better designed instruction and provides an opportunity to learn in different ways.

4. The need for better theoretically, grounded and more reality base teacher training and professional development programs. A wide array of experiences in preparing teachers to use technology range from workshops providing computer literacy and bases operating system to long term in depth professional development strategies. A conceptual framework with clear guiding principles is essential to identify the knowledge; attitudes and skills need for teachers to use technology effectively.

5. Strategies to implement education technology and the need for cost sharing and new partnership. the national experiences in integrating technology in education used several strategies and combinations such as
   a) Establishing a national plan or programme deployment of technologies.
   b) Implementing a major pilot projects as part of a broader education reform.
   c) Launching a bottom-up project by providing computer technology in secondary schools that grew nation wide, adopted by central level authorities.
   d) Implementing small-scale projects to meet regional/local objectives or as demonstration projects.
   e) Use of broad costing technologies, radio and television, to reduce education in equalities and deliver improved content and pedagogy. As the development of ICT in secondary education is expensive to sustain and institutional funding sources, or combinations there of, need to be very diversified. Some private companies can subsidize computer use in the schools.
   f) Cross-national sharing of development of education materials and cooperation in capacity building. ICT instructional materials and computer software are available and by using them the country would be able to introduce ICT in to school practice more rapidly without heavy investment in development and producing the materials.
ICT and Quality of Secondary Education

The unique role of ICTs in improving education quality is based on their ability to effectively facilitate the fulfillment of both necessary and sufficient conditions for receiving quality secondary education. Modern level of ICT development significantly broadens opportunities available to students and teachers for gaining access to educational and professional information educational system into the world network. Considerably assists in accessing international information resources in the areas of education, science and culture (UNESCO, 2004).

At the same time it is worth mentioning that the present level of ICT development permits their successful application in secondary education. The use of computers is very important in realization of creative potential of student. It can be even more efficient in individualizing the classroom work with the help of adoptable curriculum ICT have brought about dramatic changes in the technologies of obtaining knowledge, its converting into education and further in practical application. Moreover, when we speak about the role played by ICT in secondary education, we should proceed from the understanding that not only the facilitate educational opportunities but assist an individual in perfecting his/her perception, as well as modern ICT provide learner with richer information objects such as images, videos complex structures of knowledge and their combinations available via the internet or other intelligent computer networks. ICT radically extend possibilities for visualization, including visualization of the invisible visualization in changed colours and shapes. Colourful images of architecture, sculpture or painting grouped thematically and accompanied by well written text and beautiful music have a strong emotion effect on the student, develop his or her artistic taste and at the same time liable the student to taste and at the same time enable the student to learn more about culture, art and nature.

Cyberspace is another means of preparing student life. Cyberspace promotes a reverse process, which could be called exteriorization models of the physical world constructed in the human mind, are let out into cyber space. Thus, ICT do not merely enhance intellect; they designate new dimensions of the human mind, produce on orderly system of a new global culture and open up vast and exciting perspective of their use in improving quality of education. The uses of ICT in secondary education include:

b. ICT in curricula
c. System hardware equipment
d. Educational software availability
e. Access to internet and global communications.
f. Training and upgrading of computer competence of educational personnel.
Adopting Information and Communication Technology for Secondary School Improvement in Nigeria

Through the ICT applications in secondary education, human kind seeks to respond to the challenge of the 21st century by integration of national information education systems into the world network that will considerably facilitate an access to international information resources in the sphere of education.

Advantage of ICT

The improvements that secondary education could provide are strongly correlated with the use of new technologies which are to systematically integrate into educational practice. It will involve training teachers to use new ICT in order to develop their skills in accessing information that previously they had no hope of obtaining. These works have the effect of improving the quality of face-to-face instruction in schools.

Secondary education also makes it possible to reduce investment requirements like costly facilities, excessively large student bodies receiving face-to-face instruction and to broaden access to institutions of secondary education, eliminating the obstacle of competitive entrance examinations (Balde, 2004). It is the most effective means of addressing reduced human resources in secondary education and lack of teaching materials. For a country like Nigeria, which faces a severe shortage of qualified teachers, secondary education may prove a very useful strategy for partially meeting the increased demand for secondary education expected over the coming decade. For students, secondary education offer the added advantage of reduced education costs, eliminating housing and transport expenses and the possibility of remaining employed whilst studying, finally it offers the advantage of enhanced access quality aid resources of secondary education.

Limitations of ICT

The use of new technologies, particularly in secondary schools requires good electrical and telecommunications infrastructure. In the case of Nigeria, internet transmission speeds are low, and power generation is far below the level needed for broadband requirements. Abuja, the capital of Nigeria, was only connected to internet in the early 1990’s. Seven years later secondary education do not all have access to a computer connected to internet. In such circumstances, new technologies cannot be introduced just for the sake of it; they should only be considered as a means to achieve specific education goals (Pelgrum & Law, 2004).

Recommendations

In this situation, the decision about the application of ICT and their relation with improving quality of secondary education can be considered in view of overall strategies and goals of education development, including the following aspects;
Not limiting the application of ICT exclusive to the learning process in secondary schools. The use of ICT in the administration and management of secondary schools and local community could save time, improve performance of staff and allow to devote more energy to overcoming student learning problems.

Providing teachers, in the context of pre-service education and prolonged professional development the opportunity of mastering on ICT competence for educational application and of contribution to the development of methodology and educational information environment. Special attention should be pad to distance methods of teacher vocational development.

Using ICT to encourage communication, networking, exchange of information and experience among teachers, student and schools at both national and international level.

Introducing new ways of using ICT based on the idea of commonly available technological resource centre.

Harnessing the potential of this use of technology in order to create easily accessible services which are designed to help and advise teachers in their daily work.

Strengthening joint efforts among government, educational authorities and teachers organizations, business and industry to ensure availability of adequate ICT at secondary level of education.

Developing research and information exchange on the impact, role and limitation of ICT application in secondary education.

References


