

Integration of ICT in Education: the Plasma Mode of Education in Ethiopian High Schools

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Research Context

Ethiopia is located in East Africa with a population of 70 million. Ethiopia is a federal government and has 14 regional states. Each region has some autonomy to implement a customized educational system based on the national framework. Each region has its own working language and culture.

One of the main challenges of the country is to create equal access to education to all citizens of the country. The absence of interrelated contents and mode of presentation that can develop student's knowledge, cognitive abilities and behavioral change by level, to adequately enrich problem-solving ability and attitude, are some of the major problems of our education system (MOE, 2006). Scholars in the field also mentioned shortage of teachers, schools and other educational logistics as serious bottlenecks of the country's educational services.

In 1994, the Ethiopian Government revised and issued a new educational policy that can address the country's development needs. The new policy emphasizes the development of problem solving capacity and culture in the content of education, curriculum structure and approach, focusing on the acquisition of scientific knowledge and practicum (MOE, 1994). Recently the Ethiopian government introduced Plasma Mode of Education to all high schools of the country to provide standardized education to all high schools students despite their location in the capital city or in the remote village at the periphery of the country. The new intervention is designed to overcome the problem of qualified teachers in the remote villages where qualified teachers are not willing to work there. The Plasma Mode of education is delivered in five subjects: chemistry, biology, physics, English, civics and Ethical education from grade 9 to 12.

ICTs Application in Education

The main reason I have selected this research question is that the Ethiopian government recognized that though the government is making strong effort to create education access to all potential students, the quality is becoming deteriorated from time to time and now it has become the critical problem facing the country's educational system.

In the sector of teaching, ICT has brought many opportunities to improve student learning. Internet, which hosted billions of documents, allows students to have wider source of information for their learning. "Students' hovering over books in the library has given way to reading e-texts on a tablet PC or listening to them on an MP3 player" (Daniels & Pethel, 2005). Teachers are no more the only source of knowledge for students. As a result of this technological impact, the role

of teachers has become a facilitator in networked classroom. The teachers suggests and guides students to access relevant sources of information in their learning process.

ICT presents information in the form of multimedia or hypermedia. It includes text, image, sound and video. This adds new value to information to make meaning by the readers. All students don't have the same capability to make meaning from one form of information. The multimedia form of information address the different students need. Yusuf cited in Dawit, (2006) also asserted that ICT can enhance teaching and learning through its dynamic, interactive, and engaging content; and it can provide real opportunities for individualized instruction. In addition, the hypermedia's non-sequential nature of presenting and accessing information enable learners to freely move through information based on their own specific needs and at their own pace (Marchionini cited in Chao, Yang and Chiang, 2006). One can present the learning event in the form of simulation so that students can better easily grasp abstract concepts which was not possible in the traditional content. As Williams (2003) pointed out simulations "... represent a major addition to the intellectual repertoire that will increasingly shape how we communicate ideas and think through problems." Therefore students are motivated to be engaged actively in the learning process.

The flexible communication facility offered by ICT such as e-mail and chatting creates better collaboration between teachers and students as well as among students. Students are not constrained by time and distance to communicate with their peers. In addition it allows students to learn in more convenient locations and often at more convenient times and offers new opportunity of learning in the form of distance education for those disadvantaged populations (Daniels & Pethel, 2005).

The traditional mode of teaching, which focuses on mere knowledge transfer, is not appropriate to prepare students for complex modern society. Students should have problem solving capability to be a competitive citizen As Aginam (2006) pointed out, unless IT education is integrated into African educational system, the quest for global competitiveness may not be achieved. They reasoned there is an urgent need to empower African youths with basic IT tools and knowledge that will need a long way in preparing them for the challenges ahead. UNESCO (2005) also noted "The use of information and communication technologies (ICTs) in and for education is rapidly expanding in many countries, and is now seen worldwide as both a necessity and an opportunity".

Every government recognizes the benefit of ICT for education. Some remarkable efforts are made to integrate ICT in education by training their staff with basic computer courses, providing computers and creating Internet access. The Ethiopian government is being engaged to expand ICT penetration in the high school through different measures. It introduced new mode of teaching in the high schools through Plasma Television and installed one or two computer labs with Internet connection in all high schools of the country.

Despite the claims for many opportunities of ICT in education and many efforts made to integrate ICT in education, the contribution of ICT in addressing real educational problems in the schools is not promising. One of the main problems is the focus on "techno-centric policy" to ICT integration in the schools (Hepp K and others, 2004). Developing countries like Ethiopia believe that by placing the basic ICT infrastructure (computer hardware and software), they can

acquire the benefits of ICT. This is far from what is actually happening on the ground. Within a short time of the Plasma project implementation, the decision makers have realized that it is not the appropriate solutions to address the current educational problems in the high schools. A pilot project is implemented one in Awassa and the other at Bahirdar to make content accessible through Internet so that students can access the teaching materials anywhere and anytime (EMA, 2007). In a situation where there is severe shortage of computer access by students and low and deteriorated internet bandwidth, alternative solution is not a better solution to address the current educational problems.

Research questions or Problems

- I. Can Plasma Mode of Education improve student performance compared to face-to-face teaching?
- II. What is what is the attitude of teachers and students' towards Plasma Mode of Education?
- III. Can Plasma Mode of Education be considered as remedy for current educational problems in Ethiopian High Schools?
- IV. What cultural factors affect use of Plasma in the classroom?
- V. How can the present one-way delivery of education through Plasma be redesigned to support interactive teaching-learning process?

Expected Results

The main findings of this research is to describe the Plasma mode of education project design and implementation process and its impact on the overall educational service in Ethiopian high schools. This will help to increase the understanding of new instructional intervention among policy makers, school administrators, teachers and students to identify what is working well and what is not working well. The reaserch finding will inform decision makers for further intervention and refinement of the new educational mode of delivery. It will also help them to consider the voice of powerless stakeholders in the redesign of the new interventions.

My study will also find answers to some the critics to the current Plasma Mode of Education in Ethiopian high schools. The current mode of education is critized as it could not address the real educational problems of the highschoools. My research will inform how the current installation can be used in a different way to assist student learning.

I will also develop a theory that can portray realities of technological based instructional delivery in the developing countries context. The developing countires have unique context in terms of managerial efficiency, capacity to using installed technologies, resource constraint and cultral traditions. My theory will also inform other practioners and researchers what cultural factors hinder integration of ICT in the developing coutries.

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