The plasma-based instruction in Ethiopia: Utopia or Dystopia?

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This article highlights the utopian and dystopian viewpoints held on the plasma-based instruction in Ethiopian by looking into the existing literature works and by analyzing attitudes of implementing bodies and implementers towards the program. The article identified that though implementing bodies were enthusiastic in developing and expanding the plasma mode of instruction across the country, the key implementers were apathetic in using the medium. These two extreme views (utopian viewpoints of implementing bodies and dystopian viewpoints of key practitioners) are found to be a great impact on the effective practice of the program. Based on the results, the study suggests a few practical ideas for the successful integration of the technology into the conventional instruction.

Key words: Plasma-based instruction, utopia, dystopia, information and communications technology, school net.

INTRODUCTION

Educational technology has evolved and become more central to teaching and learning nowadays. Before the twentieth century, the three primary means of instruction were the teacher, the textbook, and the chalkboard. For most of the twentieth century, this remained largely true, with print media the predominant technology in education. Books, paper, pens, and pencils were the fundamental means for accessing, communicating, and otherwise sharing information. While many would argue this is still true today, technology's increasing influence and impact on education cannot be doubted. Since the turn of the century, teachers have used a variety of audio and visual aids to supplement instruction, including film, radio, slides, recordings, and the overhead projector (Farenga and Ness, 2005). Clearly visible during the 20th century is the growth in complexity from the early stereographs, through to radio, film, and TV, to personal computers, CAI (computer-aided instruction), and the Internet (Whelan, 2005). Technology resources- e-mail, Weblogs, game-based learning tools, the Internet and the World Wide Web (WWW), and multimedia - are also increasingly common components of the instructional experience in the millennium (21st century) globally, especially in technologically advanced countries. With instructional technologies perceived potential to improve educational effectiveness and access, in developing counties this trend has increased as well. This implies that through movements of theories of learning, the use of instructional technologies has become a trend even if educators are still concerned with the conventional instruction.

New initiatives have also been in place to improve the ‘quality’ of secondary education by using ICT in Ethiopia like rest of the world. The country sets ICT for education policy and implementation plans. One of the plans main streams is National School Net Initiative which is aimed at the deployment and exploitation of ICTs to facilitate the teaching and learning process within primary, secondary, technical and vocational schools (Ministry of Capacity Building, 2006). The initiative recognizes ICT as an enabler for widening access to education for the Ethiopian population, for supporting literacy education, and for
facilitating delivery and training at all levels.

A report on the development of education in Ethiopia also indicates that the main activities that are accomplished in the country’s ICT project includes, production of Educational TV programs, installation of satellite receiving devices known as Plasma Display Panels (PDPs) in every classroom at secondary level, establishing a computer network system, and installation of satellite TV programs transition system at the center Educational Media Agency (EMA) (FDRE, 2004). Concerning this, Jeylan (2006) maintains that teaching through Digital Video Broadcasting (DVB), Plasma Display Panels (PDPs), is one agenda, which the government applauds as a transformative leap in the country’s education development.

It has been believed that plasma instruction helps to offer quality and equitable education for all children in the schools. For instance, Demissew (2006) wrote that ICT has gradually been introduced in the country: starting with instructional TV (Plasma TV) followed by computer based instruction, ultimately, multi-modal or all ICTs that contribute to the achievement of educational goals and targets in schools. This is to mean that the government recognizes the benefit of ICT for education and makes some remarkable efforts to use it in education system of the country. For this reason, the government has launched the plasma mode of instruction since September 2004 in secondary educational system of the country and planned to implement other applications of ICT step by step.

According to Media Club South Africa (2009), when the plasma project began, Ethiopia’s Ministry of Education requested two South African companies (Kagiso and Sasani) to produce 2978 individual programs of 6 subjects (English, mathematics, physics, chemistry, biology and civics and ethical education) in 12 months. In response, Kagiso and Sesani created what they called ‘a television factory’ in Lyndhurst, Johannesburg, naming it ‘Memar TV’ which means ‘to learn’ in Amharic. During production, 60 teachers, scriptwriters and subject experts, and 80 full-time technical staff participated. The programs included graphics, studio presentations and visuals taped in both South Africa and Ethiopia. At the end, 450 schools were equipped with 8000 plasma screens. The project was supported by a US$80-million World Bank loan.

In 2004 the plasma-based instruction was launched throughout the country in the aforementioned 6 subjects. Later in 2006, three other school subjects (technical drawing, general business and economics) were also added for preparatory students. All programs have only been delivered to governmental secondary schools in the country through a closed-circuit system using very small aperture terminal (VSAT) satellite dish. This system provided a narrowcast facility that extended across the country. The signals were broadcast from EMA which is found in center of the country, Addis Ababa. The centerness of the area makes it ideally suited to transmission system. The program is expected to transmit uniform education to many students to have access to model and competent teachers, provide standardized education to all high schools, present abstract concepts in a simplified manner, and overcome the problem of qualified teacher (FDRE, 2004).

The Plasma TV program is organized around lessons presented by a plasma teacher and performed by students. A classroom teacher is assumed to facilitate and monitor the lessons. Each lesson lasts forty (later forty-two) minutes long and has a regular structure. In the first five minutes, the classroom teacher is expected to introduce the lesson to be transmitted, and then switch on the television. For the next thirty minutes, the plasma teacher delivers the lessons. The classroom teacher and students listen to the presentations and perform different activities as they are instructed (the teacher facilities and/or monitors; the students perform tasks). After the presentation, the classroom teacher switches off the television and is expected to spend the last five minutes bringing the session to a close. Two minutes have also been added for transitional period from lessons to lessons.

Although six subjects have been selected to be aired via satellite (plasma display panel) from the beginning, the transmission of English language and Civics and Ethical Education has been interrupted since September 2009. The transmission of other subjects with the exception of three subjects (technical drawing, general business and economics) was also terminated in September 2010. It is said that the reason for the termination of the plasma program was to improve the problems encountered during the implementation and to produce the plasma lessons in a better way. Then after, the plasma-based instruction has resumed since September 2011 in 6 subjects.

In this article, an attempt has been made to examine the country’s education system and then the nature of the plasma-based instruction. Following this, the *utopian* and *dystopian* perceptions on the plasma-based instruction are discussed. Finally, the implications of the research findings are forwarded.

**Statement of the problem**

Digital culture and digital education are often described as either utopian (creating highly desirable social, educational, or cultural effects) or dystopian (creating extremely negative effects for society, education or culture). For instance, Hand and Sandywell (2002) describe utopian and dystopian claims about information technology. They claim that information technologies possess intrinsically democratizing properties and democratizing global forces of information creation, transfer and dissemination. On the contrary, they also possess
intrinsically de-democratizing properties and are intrinsi-
cally neutral, but inevitably lend themselves to control
by de-democratizing forces (hardware and software
‘ownership’ equals anti-democratic control). Similarly,
important assertions have still been made about the
potential contribution of Plasma TV to students’ learning
by the proponent of the program, which is utopian view
point. It is claimed by EMA, now called Center for
Educational Information and Communication Technology
- CEICT, of Ministry of Education (MoE) that the plasma
TV program in Ethiopia is to be an amalgam of instruction
and entertainment, capitalizing on the reputation of
television and the nature of the medium to bring
excitement to the teaching and learning process in class-
rooms. Consequently, CEICT continues to expand the
program throughout the country. On the other hand,
considerable debates have also been made by different
stakeholders about the plasma-channeled instruction,
which is dystopian view point. Specifically, the researcher
heard different complaints about the program from front
line users of the plasma TV instruction, teachers and
students. They complained that they have encountered
several challenges while using the medium. Most of
previously conducted studies on the plasma program
revealed that the use of plasma-based instruction is
much more a series of problems than successes (Ali,
2005; Kassahun and Zelalem, 2005; Misganaw, 2005;
Mathewos, 2006; Brook, 2006; Kedir, 2006; Tewodros,
2006; Jeylan, 2006; Berhanu, 2007; Habtam, 2007;
Getnet, 2008). It seems to be inefficient in enriching the
intended purpose. This implies that there is a disparity
between the rhetoric and the reality (the intended and
implemented plasma mode of instruction). Therefore, in
this article an attempt has been made to look into the
utopian and dystopian view points of advocators and/or
practitioners of the program. In doing so, the investigation
attempts to answer the following basic research
questions:

1. What is the plasma-channeled instruction like?
2. Why the program is preferred over the conventional
   instruction?
3. What perceptions have been held about the program?

In answering these research questions, it is expected that
this piece of work could give a clear picture of the
plasma-based instruction in Ethiopia, and the attitudes of
proponents of the program and practitioners. From such
a condition, it is assumed that the study finds answers for
the ongoing debate on the use of the plasma-based
instruction and gives an idea about the disparity and
parity between the practice of the program and its
objective. The investigation also increases awareness
among material developers, curriculum designers, policy
makers and media experts in updating and/or restruct-
turing the televised instruction in a way that could bring
tangible change in enhancing teaching-learning process
through the technology. Other researchers may also
under take other study in this area based on the finding of
this study or they may further investigate on the subjects
of this study.

Objective

The main objective of this article is to highlight the
utopian and dystopian viewpoints held on the plasma-
based instruction program in Ethiopian secondary edu-
cation system by looking into the existing literature works
and by analyzing attitudes of implementing bodies and
implementers towards plasma program.

LITERATURE REVIEW

This section surveys relevant literatures from the major
subject fields underlying the study to justify its various
conceptual foundations. It presents a brief description
of education in Ethiopia, Ethiopian ICT for education
policies, theoretical framework of the plasma mode of
instruction, and previously conducted studies on the
plasma TV instruction.

A brief description of education in Ethiopia

Historical studies of education in Ethiopia indicate that
the traditional education system of the country was
religious oriented; and the two institutions that mono-
polized traditional education for centuries were the
Orthodox Church and the Mosque (Teshome, 1979;
Teklehaymanot, 2001). The major objective of education
in these institutions was to promote their respective
religious doctrines.

Girma (1967) in his article on aims and purposes of
Church Education in Ethiopia clearly states that
elementary level of church education consists of learning
the alphabet (or syllabary), committing to memory the
Acts of the Apostles and the Psalms of David, and
teaching moral. It is completed in two or three years
depending on the child’s ability. The secondary stage is
given in what is known as Zema Bet or School of Music.
It takes about fourteen years to complete this part of
church education. Very few students ever reach the third
level (Kene School) which is a prerequisite for further
study at the university level, and it is at this stage that
students are introduced to Ge’ez grammar, the transla-
tion of Ge’ez into Amharic and the composition of verses.
Thereafter, students begin to specialize: those who wish
to specialize in Kene remain in the Kene School or move
onto a similar school of greater renown. While those
endowed with good voice and a talent return to a Zema
School for more extensive and specialized study of
Church music and dance; the philosophically-inclined
entered a Meshaf Bet. This tradition is still in practice in Ethiopian Orthodox Church. In relation to church education, Bridges (2009) says that if we think back to the great intellectuals of Ethiopia's own history, they were almost without exception educated through the long and arduous system of the Kene school, which encouraged questions and discussion (and includes a sophisticated form of adversarial debate), and also reflection.

Like the church in Ethiopian Orthodox faith, the mosques in the Muslim religion had parallel function in running Islamic education. It is highly dominated by its counterpart traditional church education (Muhiddin, 2010). As for Yaley (1976), Islamic education has two levels: the primary and secondary. The Qur’an education (Lufzeal-Quran) is the primary level of education system where students begin to learn Islamic education similar to the elementary Church education. This level of education is conducted in the regular school, Zewiya (small Mesgid) at Khalwa (private service) at home or working places. It can last for two-to-three years depending on the regular attendance of the teacher and the students (Muhiddin, 2010). After the primary level, few students join the higher schools known as ilm, the opportunity to learn more knowledge (Haile-Gebreal, 1976). However, many students would drop out before achieving this level while a few would go on for continuous study (Temam, 2005). Students in this level are assumed to learn advanced level subjects, such as Fiqh (Islamic jurisprudence), Arabic linguistics Nahw (grammar) and/or Sarf (morphology), and Qur’an and Hadith exegesis (Tefsir) according to Muhiddin (2010). Above all, a student in the advanced level is expected to master a particular subject before moving onto another subject; that is, a learner has to begin to specialize in Fiqh, then Nahw, and finally Tafsirs (Hussien, 1998).

This implies that both Church and Mosque educations begin with language education; they recognize the alphabets and phonology of Ge’ez and Arabic languages respectively. Later they give emphasis to morphology and syntax of these languages. Their levels of schooling also signify the intellectual level of students and their mental maturity. These types of education contribute to the development of the country’s education.

Apart from religious education in Ethiopia, the first modern school in Ethiopia, Menelik II, was opened for the public in 1908 (Teshome, 1979; Girma, 1967). The school curriculum was intended to supplement, not to replace, the traditional instruction given in the church schools (Bender et al., 1976). However, the curriculum (the essence of the curriculum and the curriculum materials) was predominantly influenced by Western traditions (Teshome, 1979; Getnet, 2008).

In the period of 1964–1974, during the regime of Haile-Selassie I, attempts were made to ‘Ethiopianize’ the country’s education system in the involvement and participation of educated Ethiopians though Ethiopian experts were not yet left alone to do by their own from beginning to end, either in the development or implementation process of the curriculum (Solomon, 2007). After the outbreak of the 1974 revolution, Ethiopia took the doctrine of Marxism-Leninism as a guiding force for its political, economic and social life; the Ministry of Education was engaged in working out a transitional curriculum in place of the imperial policy. In doing so, new curriculum was designed which could provide students with general education, vocational education, and ideological education (Tekeste, 1996; Teshome, 1979; Solomon, 2007). In 1983, parallel to the experimentation of the General Polytechnic Education, the Ministry of Education of the then ex-military government (Derg) launched a project known as the Evaluative Research on the General Education System of Ethiopian (ERGESE). However, later, the General Polytechnic Education was officially declared as null and void in August 1990 (Solomon, 2007). Derg was overthrown in May 1991. Soon afterwards, the Ethiopian People’s Revolutionary Democratic Front (EPRDF) established a Transitional Government. EPRDF, as a major leading force in this Transitional Government, has exploited the opportunity to inculcate its ideological and philosophical foundations to serve as underlying assumptions for a series of national policies. Then, the new Education and Training Policy was issued and published in April 1994 (TGE, 1994).

According to the 1994’s policy, the structure of the Ethiopian education system has been changed from 6 + 2 + 4 + 2 + 2 to 4 + 4 + 4 + 2 + 2. That is to say, 8 years of primary education from year 1 to 8, and subdivided into two cycles: First cycle (basic education) – from year 1 to 4, and Second cycle (general education) – from year 5 to 8; and 4 years of secondary education; that is, again, subdivided into two cycles: general secondary education for years 9 and 10, first cycle, and preparatory senior secondary education for years 11 and 12, second cycle (TGE, 1994). The second cycle prepares students to continue their studies at the higher education level or select their profession. It offers a science option and a social science option. At the end of this cycle, students take University Entrance Examination.

Along the lines of Education and Training Policy of April 1994, rolling Education Sector Development Program (ESDP) was launched in 1997/98 to meet the Education for All (EFA) and Millennium Development Goals (MDGs) by 2015 (MoE, 2008). The first ESDP (1997/98 to 2001/02) derived its goals and strategies directly from the Education and Training Policy. Subsequently, the Government developed a second comprehensive Five-Year Education Program (2000/01 to 2004/05) to align it with the five-year term of the government. ESDP III, which spans five years (2005/06 to 2010/11) was developed and implemented (MoE, 2005). Besides, the new curriculum framework for Ethiopian education was also formulated in 2009 and has currently been underway (MoE, 2009). The Government has developed and employed another five years program action plan, ESDP IV.
(2010/11-2014/15) which capitalizes quality of education to meet the country’s education needs along the country’s five years growth and transformation program (MoE, 2010).

Specifically, ESDP III and ESDP IV (the Ethiopian national action plans on education), emphasize the integration of ICT infrastructures to support the country’s education system with ICT. In view of this, ICT infrastructures are provided to schools to receive satellite education transmission (plasma instruction) to enhance the quality of education at secondary level since September 2004. The ICT for education policy which extends from these education action plans also recognizes ICT as an enabler for widening access to education for the Ethiopian population, for supporting literacy education, and for facilitating delivery and training at all levels.

The abovementioned discussions imply that the traditional church and mosque education is the pioneer in the Ethiopian education system. Since the introduction of western type modern education, the country's education has changed time to time as per the ideology and political wish of governors of the country. Educational policies have also been set and implemented time to time. It is a fact that even though the country's education has passed through several vicinities, educational policies and/or programs formulated so far have their own relevance and contribution to the development of today's educational sectors. They have indispensable contribution to the modern ICT for education initiatives of the country.

**Ethiopian ICT for Education Initiatives**

The Ethiopian Education Sector Development Program III (ESDP III) discusses that ICT infrastructures are provided to schools to receive satellite education transmission to enhance the quality of education at secondary level. Moreover, with the objective of improving the quality of education and supporting teachers, the process has started to make use of School Net service for the 161 preparatory schools (grade 11-12(MoE, 2005)). As stated in the document, ESDP III, the objective of the School Net program is to support the country’s education system with ICT. This involves providing personal computers to schools to set-up internet laboratories, organizing training for teachers, digitization of existing video-based educational contents for web access and eventually facilitating community access to ICT. In addition to enhancing the quality of educational delivery in the schools, the Internet facility provided through the School Net project would enable teachers to develop their professional qualifications. It would also allow students to access the Internet and other online resources as well as to access global knowledge services and also display and download the content broadcast through the satellite television from Center for Educational Information and Communication Technology (CEICT) to their Local Area Network (LAN).

This is to mean that the national e-education initiative (the School Net) has been in place to improve the ‘quality’ of secondary education by using ICT. In line with this, Hare (2007) mentions that Ethiopia sets ICT for education policy and implementation plan to become a model ICT user on the continent. In the same way, Frith (2005) explains that the country has been trying its best by developing curricula for ICT and facilitating with technologies like computers, internet, satellite TV so as to make every individual knowledgeable and skillful in applying ICT in his/her day-to-day activities.

The Ethiopian ICT for education policy aims at ensuring ICT as an integral part of education and training at all levels (Hare, 2007). The policy indicates what the country intends to do with information communication technologies in educational settings. It is formulated by the Federal Government and has a national wide application. The wider Ethiopian national e-learning initiative which extends from the country’s ICT for education is the plasma TV program (FDRE, 2004). The implementation action plan which extends from the country’s plasma TV program provides how the televise lessons are utilized. This document includes the plasma–based instruction implementation strategies and the roles of the practitioners (EMA, 2006). It extends from program formulation to incorporation and performance at the school level.

**Theoretical Framework of the Plasma Mode of Instruction**

Chen (2005) suggested that the conceptual framework for program theory should make clear how components of the action model are interrelated in order to activate the transformation process of the change model. A program starts with the acquisition of resources from the environment which provides the program with necessary resources and support (in other words, its inputs), and the development of an action model. The action model can be implemented in order to activate the change model. It is the operation of the change model that leads to the attainment of program goals. Whatever effect the program has on the outcomes is not due to the implementation of intervention alone but to a joint effect of the implementation of intervention and the implementation of other factors in the action model. The program theory of the plasma TV instruction is summarized in Figure 1, using Chen’s (2005: 31) model.

As mentioned, the plasma TV program in Ethiopian saw educational television being delivered to government secondary schools in the country through a closed-circuit system using Very Small Aperture Terminal (VSAT) satellite dish. This system provided a narrowcast facility that extended across the country. The signals were broadcast from CEICT which is found in the center of the country, Addis Ababa. The program is
expected to transmit uniform education to many students to have access to model and competent teachers, provide standardized education to all high schools, present abstract concepts in a simplified manner, and overcome the problem of qualified teacher (FDRE, 2004).

In the televised program, it is expected that Center for Educational Information and Communication Technology is the key implementing organization of the program. It is responsible for designing, preparing and transmitting televised programs throughout the country. Moreover, others associate organizations and community partners like the regional, zonal (sub-city)/woreda(kebele) educational experts are assumed to collaborate with CEICT in developing, supervising and monitoring the implementation of the program. Classroom teachers, students, and school directors are also responsible for utilizing the program. That is, the plasma TV is organized around lessons presented by a plasma teacher, facilitated/ supported by the classroom teacher, and performed by students.

As illustrated in Figure 1, the conceptual framework for program theory of the plasma television (PTV) should make clear how components of the action model are interrelated in order to activate the transformation process of the change model. In the figure, the large square around the program represents its boundary. Everything within the large square is part of the program; all that is outside the square is ‘environment,’ providing the program with necessary resources and support (in other words, its inputs), or, perhaps, working against implementation of the program. It shows that, generally, a program starts with the acquisition of resources from the environment and the development of an action model. Fueled by the acquired resources, the action model can be implemented in order to activate the change model. It is the operation of the change model that leads to the attainment of program goals. Solid arrows joining an action model to a change model in indicate that, strictly speaking, whatever effect the program has on the outcomes is not due to the implementation of intervention alone but to a joint effect of the implementation of intervention and the implementation of other factors in the action model. Evaluation feedbacks are represented in dotted arrows. The evaluation feedback in the figure comprises information about how the action model was implemented in the field, such as whether the program reached the right target population (learners and teachers).

Similarly, the dotted arrow from the implementation to action model indicates that evaluation feedbacks from the implementation can be used to improve the planning or the development of the action model. The dotted arrows from the change model to the implementation and action model indicates that the information from the causal
process of the change model can be used to improve or modify the implementation process or the planning of the action model.

The conceptual framework of a program, Chen explains, provides two distinct general evaluation feedbacks: the internal and the external. The dotted lines in the figure represent evaluation feedback and feature two sets of 'feedback loops.' Each set of evaluation feedback loops indicates one path that program evaluation can follow to obtain information vital to program improvement. The remaining set of feedback loops passes to the environment and then back again to the program, as illustrated in the figure. This is the external feedback loop, incorporating both scrutinies by the environment and improvements from the program itself.

In general, the program theory of the plasma instruction is expected to show remarkable results in school education if the components of the action model are interrelated in order to activate the transformation process of the change model.

**Studies on the Plasma-based Instruction**

Research findings provided some evidence to the positive effects of the use of information and communications technology (ICT) on students' learning (Mumtaz, 2000). In line with this, UNESCO (2002) reports that educational systems around the world are under increasing pressure to use the new information and communication technology to teach students the knowledge and skills they need in the 21st century. Dominguez et al. (2005) similarly state that the application of ICT is, these days, widespread throughout all types of teaching institutions. In spite of such projects, the effects of numerous training programs and an investment by schools in ICT resources, there has been a disappointingly slow uptake in schools (Passey and Samways, 1997).

Specifically, primarily when TV was introduced as instructional tool, numerous large scale projects and individual investigations have sought to determine the effectiveness of this form of instruction in the classroom (Beisenherz, 1972). Many researchers have placed more and more emphasis on the study of faculty and student attitudes towards televised instruction. The reported surveys indicate that the majority of both groups do not favor total teaching by television (Livingston, 1968). Many of the earliest studies on instructional TV compared children who had access to the medium with those who did not (Corteen and Williams, 1986; Hornik, 1978) without examining particular programs or content type.

For example, Stickell (1963) reviewed 250 comparisons of educational television and conventional/faceto-face instruction from 31 research reports. Overall, 75% of the studies showed no difference, with equal percentages favoring TV over face-to-face instruction. Chu and Schramm (1968) found that in 73% of studies there was no significant difference between traditional and television methods. Ayers (1972) also concluded that teachers rejected the ideas that television destroyed the norm teacher-pupil relationship created by face-to-face instruction. He also reported that teachers did not perceive television as a threat to their employment and advancement. They saw the studio teacher as a possible source of help in improving the level of achievement of children. However, a study conducted by Bessent et al. (1968) revealed that prominent among the reasons given by teachers for using instructional television were that they were following orders or expectations of supervisors. Moreover, Schramm (1962) reviewed several studies on learning from television and concluded that under some conditions and used in some ways, instructional television can be highly effective and that the pertinent question is no longer whether a teacher can teach effectively on television, but rather how, when, for what subject, and with what articulation into classroom activities instructional television can most effectively used.

Similarly, during the debut of the plasma TV instruction in Ethiopia several perceptions were pointed out by most students, classroom teachers, school communities, parents and politicians. To mention some of them at a glance, at that time, students were expressing their oppositions using expressions like: "They [the educational officials] are experimenting the program on us," they added, "it [the plasma lesson] ran as fast as a train." When they returned home they said, "We have been watching pictures the whole day." Furthermore, during their lessons when the plasma presenter appeared on the screen, they said, "Quiet! The plasma woman is coming." And then when she started to speak, they yelled, "May God exterminates you!" After the end of the transmission, they nattered as, "When does we get relief from this talkative mirror?" They also wished the screen were broken (Ali, 2005; Berhanu, 2007).

As Berhanu (2007) found out, some students also sang songs that reflect their internal feelings in the school during break time and their thoroughfare. For instance, the following Amharic song was widely vocalized by plasma students:

- S’q g”“ ða”
- øeÄµ x’d” Åwj
- S˚È “< KØ’° ø³T
- ø’A— "M’×G<T::
- wT’U ýl’T” ‘U-
- JU_ LejU”’<
- fMI” λ’U’f u’`@ LÄ-
- ØK³M U” Pkv”’<:
- ŶuÀ” ... ýl’T fU’f
- ŶuÀ”... λ’@ ST_
- ŶuÀ”... øeo u’”
- ŶuÀ”... K’f HN
- ŶuÀ”... Tfe” λ’ÖK=’
- ŶuÀ”... λ’Ç=G< U ø²=’j
- ŶuÀ”... ST” eØL”
- ŶuÀ”... ýl’T dÃ”e::
My father encourages and let me go school with bag and exercise books. It is shame on me if I don't rank first. My father expects my great success even though he doesn't know plasma. Plasma lesson is difficult for me. I can't learn properly. I can't understand the subjects: English, mathematics, and sciences. I can't take notes. It makes me hopeless.

Teachers as well talked informally their hates towards the program in their staffrooms. They chewed the fact, “I enjoyed, thanks to the plasma.” Teachers also joked, “DJ, how is it?!” They said this because their students name them after DJ-Disc Jockey- as their task was to switch on and off the plasma, maximizing and minimizing the volume of the plasma TV mounted in front of students (Berhanu, 2007).

Plasma was also a big deal of politicians at the time of the 2005 national elections in the country. Most opposition parties failed to appreciate plasma TV in their debate on the country’s education policy while the ruling party appreciated it. As Eskinder (2006) wrote on a website during the disturbances in the country (June, November 2005) following the May 2005 elections several high school students’ rioting had resulted in schools’ furniture and windows destruction including the Plasma TVs. Following the edition, several visitors of this site reflected their commentaries towards plasma. Following the edition, several high school students’ rioting had resulted in schools’ furniture and windows destruction including the Plasma TVs. A visitor considered plasma as an advance technology of looting, kickbacks and overcharging. Another individual wondered why plasma TV was chosen instead of LCD and added that plasma degrades the picture quality throughout its life span - few years pass by, plasma would be good just for picture frame. Moreover, huge amount of money spent for the plasma screen, obsolescence of the medium, mismatch of low level of students’ English proficiency to follow plasma lessons, etc. were amongst most of the visitors reflections on the site towards plasma.

Moreover, three studies conducted in the eastern part of the country found that the plasma TV dehumanized and deskilled teachers and it had a negative impact on teachers training programs, practicum-teacher candidates practiced operating TV to fit into the existing reality instead of exercising how to teach (Brook, 2006; Kedir, 2006; Jeylan, 2006). Also a study carried out on selected high schools around Jimma University centers for practicum training, specifically mathematics education, showed that students encountered difficulty in understanding the TV lessons. It made teachers negligent, not punctual, not active, coming without preparation, too (Kassahun and Zelalem, 2005).

Some other researchers conducted on the plasma-based education by graduate students in Addis Ababa University for partial fulfillment of the requirements to the Degree of Masters revealed that the program has faced obstacles and challenges. Ali (2005), in his qualitative case study on the use of satellite TV instruction, identifies that important educational objectives like understanding, critical and creative thinking skills were barely addresses, students were disengaged and teachers appeared to be de-skilled and de-professionalized. Similarly, Tewodros (2006) found out that both teachers and students were not engaged in the teaching and learning process. Mathewos (2006), in his case study on this instruction, concluded that the rhetoric transmission of satellite TV instruction was predominantly suitable for uniformity of transmission throughout the country from the same center, but not uniformity of learning. As a result, learning lacks cooperative and collaborative experiences and the functions and roles of rhetoric transmission of satellite TV instruction tend to victimize effective teaching and learning rather vitalizing it.

In sum, the impact of the plasma TV instruction on students’ learning has been a topic of much of interest over the past years since the introduction of the medium. Even though very few researches indicated that plasma television is beneficial for our students (EMA, 2005; Information Communication Technology Department, 2007), and though few of the aforementioned studies tried to specify some of its relevancies, the majority of earlier studies the researcher consulted showed that the use of plasma-based instruction is much more a series of problems than successes. Students and classroom teachers have encountered various difficulties. It seems to be inefficient in enriching the intended curricula. The recommendations of all these studies emphasized that the need for further research on the area.

Analysis of viewpoints of implementing bodies and implementers towards the plasma instruction

To generate data about the awareness and attitudes of key implementers and implementing bodies, a questionnaire were distributed to students and teachers; interviews were made with experts of the plasma instruction. Results of data obtained though these tools are analyzed and discussed below.

METHOD

Literature works on instructional technologies in general and instructional television in particular were reviewed. Besides, documents such as Federal Democratic Republic of Ethiopia Ministry of Education ICT for education policies, previously conducted studies on the plasma TV instruction were assessed. Moreover, a structured questionnaire was distributed to 100 students and 90 experienced teachers who have passed through the program for two to five years. In addition, an interview was conducted with 8
students, 6 classroom teachers, and 3 experts.

The data analysis was basically carried out qualitatively. In addition, to identify the awareness and attitude of front-line practitioners (students and teachers), mean scores were used.

RESULTS

Purposefully selected 100 students and 30 classroom teachers in four government preparatory schools in Addis Ababa were requested to fill in a questionnaire. The questionnaire is similar in structure and content, but some of the items were worded and added considering their suitability to the respondents. The questionnaire basically comprised background of the respondents, and their awareness and perceptions about the program. Before administrating the questionnaire, it was piloted on a small group of teachers and students. After the pilot had been completed, the reliability of instruments was calculated to be Cronbach Alpha ranged from .70 - .90. Then, the questionnaire was modified and distributed to purposefully-selected 100 students and 30 language teachers. The researcher in collaboration of department heads and unit leaders of the schools did the distribution of the questionnaire. The entire distributed questionnaire was collected. In analyzing and discussing the data, only valid results were used, missing values were disregarded. For this reason, the total number of respondents might be varied.

The data obtained were analyzed using Statistical Package for Social Sciences version 20.0. The mean scores of the responses were calculated and interpreted.

The first part of the questionnaire asked information about informants' personal data, such as sex, years of experience with the plasma instruction, and the like. The result showed that 53% of student respondents were females while 47% of them were males. The majority of the students learnt via plasma TV for two years (54%) in their previous grade levels while 42% of the participants passed though the medium for one year and 4% of them for three years. From teacher respondents, 65% of them were also males while 35% of them were females. The majority of the teachers had experience of teaching English though plasma TV (55.6% taught though the medium for 4 years, and 33.3% of them for 5 years). The remaining 7.4 and 3.7% of the respondents used the plasma-based instruction for a year and three years respectively. From the total of the teacher respondents, 82.2% of them were first degree holders while respondents with second degree consisted of 14.8%.

Awareness of teachers and students about the plasma-channeled instruction

Lee (2000) states that lack of technical and theoretical knowledge is one of obstructions to the use of televised instructions. That is, many teachers do not understand how to use the new technology. Furthermore, practitioners may not know about integrating these new means of learning (ITV) into an overall plan. This improper use of technologies can affect both the teacher and learner negatively in their teaching-learning process. In line with this, Samuel and Bakar (2008) assert that knowledge of technology, pedagogy and content is a crucial factor in technology based instruction. Bearing this in mind, respondents were asked to rate the awareness they have about the plasma-based instruction using the following five-level Likert scale (0=Strongly Disagree; 1=Disagree; 2=Undecided; 3=Agree; 4=Strongly Agree) with 0 being the nil rate and 4 being the highest rate. The mean ratings of the responses are calculated and analyzed in Table 1.

As shown in the table, the mean value of students (\( \bar{X} = 0.75 \)) depicts that learners had low information about how the plasma program was organized. What is more, their knowledge about how the transmission process of the program was minimum – below average – (\( \bar{X} = 1.54 \)). Furthermore, the mean values of students’ knowledge of the rational of the plasma-based instruction, the reasons the plasma TV was used instead of the conventional instruction and how the televised program was utilized showed their average awareness towards the medium. All the mean values of teacher respondents also indicated as classroom teachers had average awareness about the program. In addition, the grand means of both students and teachers inclined to average awareness of the program.

Students’ and teachers’ attitudes towards plasma-channeled activities

The Plasma Television (PTV) based lessons in Ethiopia are organized around tasks to be performed in English language medium. It integrates group activities, pair works and individual exercises. Students are provided with different explanations and tasks by plasma presenter. The responses of the students and teachers related to their perceptions towards the plasma-based lessons are presented in Table 2.

Table 2 shows that considerable number of respondents indicated that the plasma-based lessons were interesting. That is, the mean value of teachers and students which are above the average mean value inclined to the rating scale ‘agree’. Though teachers rated that the televised lessons were well organized, students rated for this scale average mean score. Both student and teacher respondents indicated that the organization of televised lessons in reasonable amount of time and, the suitability of the lessons to internalize newly introduced concepts were average.

Moreover, the majority of the respondents believed that the plasma-channeled instruction presented abstract concept in a simple manner. That is, the mean value of...
students and teachers indicated that the plasma lesson delivers abstract concepts in concrete way. However, the mean score of both students and teachers showed that the contribution of the medium to achieve good results/ marks was average. Though teachers indicated that the plasma-based instruction assists students to learn more effectively, helps students to have quality lessons and provides students standard education, students rated the televised instruction to have unremarkable contribution to their education. This is also proven by the aggregate mean of teachers (\( \bar{X} = 2.89 \)) inclined to the frequency ‘agree’ and students (\( \bar{X} = 2.17 \)) which is average.

The program is designed to fulfill the following objectives: to present abstract concept in a simple manner, to transmit uniform and standardized education to many students to have access to model and competent teachers, and to demonstrate laboratory equipment found in one place (classroom) to their learning classroom (FDRE, 2004). To assess the attitude of students and teachers regarding the intended and implemented plasma-based instruction, in the questionnaire, students and teachers were asked. Their responses are given in Table 3.

As shown in Table 3, the majority of the respondents replied that the plasma-channeled instruction was relevant to improve students’ knowledge. That is, the mean value of students and teachers indicated the relevance of the plasma instruction in promoting students’ understanding of the subjects they were learning through the plasma. However, the mean score of both students and teachers showed that the contribution of the medium to achieve good results/marks is average. Though teachers indicated that the plasma-based instruction assisted students to learn subjects more effectively, helped students to have quality lessons and provided students standard education, students rated the televised instruction to have unremarkable contribution to their education. This is also proven by the aggregate mean of teachers (\( \bar{X} = 3.09 \)) inclined to the frequency ‘agree’ and students (\( \bar{X} = 2.17 \)) which is average.

### Table 1. Students’ and teachers’ reactions towards their awareness about the plasma-based instruction.

<table>
<thead>
<tr>
<th>Item No</th>
<th>Details</th>
<th>Students’ responses</th>
<th>Teachers’ responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N (Valid)</td>
<td>Mean (( \bar{X} ))</td>
</tr>
<tr>
<td>1</td>
<td>I have information about how the plasma program is planned</td>
<td>95</td>
<td>0.75</td>
</tr>
<tr>
<td>2</td>
<td>I know the reasons the plasma TV is used instead of the conventional instruction</td>
<td>95</td>
<td>2.12</td>
</tr>
<tr>
<td>3</td>
<td>I know the goals and rational of the plasma-based instruction</td>
<td>95</td>
<td>2.24</td>
</tr>
<tr>
<td>4</td>
<td>I know the transmission process of the program</td>
<td>95</td>
<td>1.54</td>
</tr>
<tr>
<td>5</td>
<td>I have awareness about how the televised program is implemented</td>
<td>95</td>
<td>1.68</td>
</tr>
<tr>
<td></td>
<td><strong>Grand Mean</strong></td>
<td><strong>1.67</strong></td>
<td></td>
</tr>
</tbody>
</table>

Where 0= Strongly Disagree; 1=Disagree; 2=Undecided; 3= Agree; 4= Strongly Agree.

### Table 2. Responses of students’ and teachers’ attitude towards plasma-based lessons.

<table>
<thead>
<tr>
<th>Item No</th>
<th>I think that the plasma-based lessons are:</th>
<th>Students’ responses</th>
<th>Teachers’ responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N (Valid)</td>
<td>Mean (( \bar{X} ))</td>
</tr>
<tr>
<td>6</td>
<td>well organized.</td>
<td>99</td>
<td>2.30</td>
</tr>
<tr>
<td>7</td>
<td>interesting to learn.</td>
<td>99</td>
<td>2.57</td>
</tr>
<tr>
<td>8</td>
<td>organized in a reasonable amount of time.</td>
<td>97</td>
<td>1.88</td>
</tr>
<tr>
<td>9</td>
<td>easy to perform.</td>
<td>98</td>
<td>1.79</td>
</tr>
<tr>
<td>10</td>
<td>conducive to internalize newly introduced concepts.</td>
<td>99</td>
<td>2.35</td>
</tr>
<tr>
<td>11</td>
<td>I think that the plasma-based instruction:</td>
<td>95</td>
<td>2.55</td>
</tr>
<tr>
<td>12</td>
<td>presents abstract concept in a simple manner.</td>
<td>95</td>
<td>1.88</td>
</tr>
<tr>
<td>13</td>
<td>enables students to achieve good results/marks.</td>
<td>95</td>
<td>2.20</td>
</tr>
<tr>
<td>14</td>
<td>assists students to learn more effectively.</td>
<td>95</td>
<td>2.01</td>
</tr>
<tr>
<td>15</td>
<td>helps students to have quality education.</td>
<td>95</td>
<td>2.19</td>
</tr>
<tr>
<td></td>
<td><strong>Grand Mean</strong></td>
<td><strong>2.17</strong></td>
<td></td>
</tr>
</tbody>
</table>

Where 0= Strongly Disagree; 1=Disagree; 2=Undecided; 3= Agree; 4= Strongly Agree.
Table 3. The attitude of students and teachers regarding the domino effect of the plasma-channelled instruction.

<table>
<thead>
<tr>
<th>The plasma-channelled instruction:</th>
<th>Students’ responses</th>
<th>Teachers’ responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (Valid)</td>
<td>Mean ((\bar{X}))</td>
</tr>
<tr>
<td>i) was relevant to improve students’ knowledge.</td>
<td>95</td>
<td>2.55</td>
</tr>
<tr>
<td>ii) enabled students to achieve good results/marks.</td>
<td>95</td>
<td>1.88</td>
</tr>
<tr>
<td>iii) assisted students to learn subjects more effectively.</td>
<td>95</td>
<td>2.20</td>
</tr>
<tr>
<td>iv) helped students to have quality lessons.</td>
<td>95</td>
<td>2.01</td>
</tr>
<tr>
<td>v) provided students standardized education.</td>
<td>95</td>
<td>2.19</td>
</tr>
<tr>
<td>Grand Mean</td>
<td></td>
<td>2.17</td>
</tr>
</tbody>
</table>

Where 0= Strongly Disagree; 1=Disagree; 2=Undecided; 3= Agree; 4= Strongly Agree.

In addition to the above close-ended questions, informants were provided with some open-ended questions. The respondents were asked to mention their perceptions towards the televised instruction. The subsequent results were obtained. A respondent said, “I don’t think plasma is better than face-to-face learning as it doesn’t have enough time.” The other respondent also mentioned that students were not given enough time. Much time was given to the plasma teacher. This respondent added that it was difficult to follow the plasma lessons due to speedy presentations of the plasma teachers. A student respondent outlined that their classroom teachers were very tired of the plasma TV. Due to this, they did not give attention to the lessons, and they did not give them the required assistance. Another student also answered that their classroom teaches often sat at the back of the students and watched the program. Teachers in their part mentioned that students did not prefer to learn through the plasma. They preferred to learn in conventional instruction. As a result of this, almost all of the students had negative attitude towards the program. They considered leaning via the plasma TV as time wastage; they considered as if they were watching movies.

To consolidate what the respondents revealed through the questionnaire, interviews were conducted with students, classroom teachers and experts. The interviewees were provided with similar questions. The researcher himself interviewed the informants one-by-one. The following are the summary of the results of the interviews.

The first question of interview was intended to know respondents’ perceptions towards the plasma TV program as instructional tool. Both teachers and experts pointed out that the program is a very important pedagogical device. It gives a good assistance to the classroom teacher and improves students’ various learning. Student respondents, however, mentioned that the plasma TV instruction caused a lot of problem in their day-to-day learning. They did not think that plasma is a good instructional tool; they preferred the face-to-face instruction.

In the second item, interviewees were asked how the plasma-channeled program was planned and why it was preferred over the conventional instruction. Students and teacher respondents said that they did not have clear information how it was planned and why it was preferred to the conventional instruction. They also uttered that they did not know why the government launched such a program through the country. The experts, on the other hand, mentioned that the reasons why the program was preferred over the conventional instruction were to transmit uniform education, to provide standardized education to all high schools, to present abstract concepts in a simplified manner, and to overcome the problem of qualified teacher. They were also asked whether front line practitioners (teachers and students) were aware of these. They confidently mentioned that both students and teachers had clear information about the purposes of the plasma program.

In the third place, informants were also interviewed to share their views on the appropriateness of televised activities for the secondary school teaching-learning process. All of the respondents replied that the televised activities were suitable to secondary schools lessons. Students and teachers, however, expressed that they were in trouble using the plasma lessons appropriately as many of the lessons were covered by the plasma teacher and as the classroom conditions were not suitable to conduct the plasma lessons effectively. In relation to this, experts condemned the classroom teachers. They mentioned that even though plasma transmitted carefully, designed, motivating lessons, teachers in the classroom made them boring. Instead of implementing plasma lessons as they were instructed by the screen teacher, they simply made their students watch the screen throughout the lessons; they did not provide the necessary assistant to the learners.

In the fourth item of the interview, respondents were asked whether or not students and teachers were interested in the plasma-mode of instruction. As their responses show, most of students were not interested in the medium. They wished the transmission was interrupted. Classroom teachers in their part replied that they were interested to work with the plasma since it gave them...
relief.

What is more, respondents were asked the extent in which the televised activities were appropriate for students’ learning. Most of the respondents mentioned that the activities displayed on the plasma screen seem to be suitable to learn their lessons. Respondents were also asked if classroom teachers could teach lessons that combine their subject matter contents, the plasma-based instruction and teaching approaches appropriately. Both students and experts were indecision to utter their views towards this issue while classroom teachers gave the subsequent responses:

It is not difficult to teach contents using plasma, but the classroom is not suitable to practice the programs effectively.... ... Plasma is not suitable to teach all contents. It is good to teach some contents which need laboratory work. The approach plasma follows is not suitable to teach the since most of the lessons are covered by the lecture of plasma teacher. ....This is a difficult question to answer. I cannot say I am teaching using plasma. I am looking after students since the whole lesson is lectured by the plasma woman. She says do that and don’t do that. Only very few minutes are given to me to repeat [revise] what the plasma teacher has delivered.... I don’t think that it is possible to teach contents using plasma. It kills students’ and teachers’ time....

NB: The dots denote that responses were extracted from different respondents

Furthermore, respondents were asked concerning the major problems of the plasma-channeled instruction. In reply, they said that the pace of the plasma teacher mismatched the students pace of learning. Moreover, insufficient time was given to students to do tasks and to them to give the necessary support to students. Students' poor English language ability to understand screen teachers' language was also mentioned as a major drawback.

Eventually, respondents were interviewed concerning the overall effectiveness of the practices of the plasma-channeled instruction and its development. The subsequent responses were obtained:

Plasma is good, but if they [producers] improve some of the problems that I told you earlier that would be very good for Ethiopian students. I mean as a verity...So that I like them to continue and do in the future. ...it was effective for some students especially for outstanding students.... but [for] those who [are] medium and low I don’t think it was effective... I don’t think it was effective. It killed students’ and teachers’ time. It should be used as support of them rather than as teaching tool.

Concluding thoughts

In light of the above data, the following conclusions might be drawn:

1. A retrospective look at of the Ethiopian education shows that traditional church and mosque education is the pioneer in the Ethiopian education system. Since the introduction of western type modern education, the country’s education has changed from time to time as per the ideology and political wish of rulers of the country. Educational policies have also been set and implemented from time to time. It is a fact that even though the country’s education has passed through several vicissitudes, educational policies and/or programs formulated so far have their own relevance and contribution to the development of today’s educational sectors. They have indispensable contribution to the modern ICT for education initiatives of the country. Even though such initiatives have been made in educational systems of the country, there is still low level of integrating these instructional technologies.

2. A widely used instructional technology in the secondary education system of the country (plasma TV instruction) is expected to transmit uniform education to many students to have access to model and competent teachers, provide standardized education to all high schools, present abstract concepts in a simplified manner, and overcome the problem of qualified teacher. However, there are still disparity and parity between the practice of the program and its objectives.

3. There is much enthusiasm amongst implementing bodies (the proponent of the plasma-channeled instruction) in developing and expanding the potential of the medium though the country. They thought that the use of ICT in education can increase access to learning opportunities and help to ensure the quality of education with advanced teaching methods and improve learning. In view of this, they have allocated a huge amount of money and resources to integrate the technology into the country’s education system. They claimed that the plasma TV program in Ethiopia is to be an amalgam of instruction and entertainment, capitalizing on the reputation of television and the nature of the medium to bring excitement to the teaching and learning process in classrooms (which are utopian claims of the plasma-channeled instruction).  

4. On the other hand, the plasma-based instruction is found to be beyond classroom teachers’ philosophy of teaching and the students’ philosophy of learning. Teachers perceived that students learn from their explanations, face-to-face interactions and book-board sources. They realized that the plasma-based instruction gave them relief by covering their teaching times (it covers their tasks no matter how students understand the lessons). A similar perception also held by students, they preferred to learn in conventional instruction. They considered leaning via the plasma TV as time wastage; they considered the medium as a talkative mirror and thought as if they were watching movies. This is to mean that these key implementers of the televised instruction
have seen it as trivializing or demeaning the profession of teaching as these tools are becoming substitutes for some of the classroom content, thereby requiring less of the teacher to actually teach, as Hoon (2008) asserted, which is dystopian claim of the plasma-channeled instruction.

In a nutshell, this implies that the two extremes views (utopian viewpoints of implementing bodies and dystopian viewpoints of key practitioners) have great impact on the effective practice of the program.

**FUTURE DIRECTIONS AND CONSIDERATIONS FOR FUTURE RESEARCH**

Throughout the investigation of this topic, some gaps have become clear. What seems to be missing is an overall awareness of the use of the plasma-mode of instruction. Therefore, much has to be done on awareness creation towards the functions and aims of new technology. Moreover, since the teaching-learning process is different from the teaching-learning philosophies students and teachers have, trainings should be given to key practitioners in order to retain philosophies of technology-based instructions. In addition, teacher preparation program should integrate teachers’ knowledge of technology (using the plasma-based instruction in teaching), pedagogy (teaching how to teach) and content (teaching about the subject matter).

Though it is believed that this study has helped to fill some gaps, there are remaining areas that are yet unexplored or not fully understood. That is, it would be extraordinarily important that future studies should investigate the impact of the plasma TV instruction on students’ learning. Further studies can also be carried out to investigate the technological pedagogical content knowledge of classroom teachers.

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