Some Latent Problems for Utilizing the Plasma-Based Instruction in Ethiopia

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Abstract: *A surprising evolution of instructional technologies has significantly emerged with the aim of making teaching and learning more productive. Throughout the world, policy programs exist that aim to stimulate the use of information communication technologies in education. Countries have incorporated the Information Communication Technology for Education policy (the acronym ICT4E) as part of their national plans. Like rest of the world, Ethiopia has designed strategies and has allocated a huge amount of resources in a bid to integrate information and communication technologies into the country's education system. One of the main activities that are accomplished in the country's ICT project is the plasma-based instruction which has widely implemented throughout the country since September 2004. By using facilitating and inhibiting factors for technology-based instructions, this paper tries to identify some salient challenges for utilizing the Plasma-based instruction in Ethiopia. To arrive at the intended purpose, the existing literature works related to technology-based instructions were consulted and documents such as published and unpublished Federal Democratic Republic of Ethiopia Ministry of Education policies/strategies on education and ICT for education, CEICT's plasma TV programs implementation manuals, training materials and recorded televised lessons, and syllabi of some subjects were reviewed. Moreover, in order to validate the information obtained from documents, interviews were made with implementing bodies and implementers followed by observations at the transmission areas and the recipients of the programs. The study identified some latent problems for utilizing the Plasma-channeled instruction. Based on the results, the study suggests a few practical ideas for the successful integration of the technology into the conventional instruction.*

Keywords: *e-Education, Plasma-based instruction, technology-based instruction, School Net*

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1 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 bused 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 the rest of the world. The country sets ICT for education initiatives 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 were participated. The programs included graphics, studio presentations and visuals taped in both South Africa and Ethiopia. In the end, 450 schools were equipped with 8000 plasma screens. The project was supported by a US$80-milion World Bank loan.

In 2004 the plasma-based instructions 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 the then Education Media Agency (EMA) now called Center for Educational Information and Communication Technology (CEICT) of the Ministry of Education, 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).

In this paper, an attempt has been made to examine the country's education system and then the nature of the plasma-based instruction. Following this, some latent problems for utilizing the Plasma-based instruction in Ethiopia are identified. Finally, the recommendations of the research finds are forwarded.

2 Statement of the Problem

The use of technologies of instruction, such as radio, TV, computer, etc., in the teaching-learning is well known. The major reason to use instructional technologies is to improve educational effectiveness, access and reduce costs. Like any instructional technologies, ITV, at the time of its creation was regarded as a means of increasing the quality of teaching by replacing the traditional classroom teacher. Today, though teachers (classroom teachers) remain at the heart of the education system, instructional technologies still have roles in modern education (Hendry, 2003). Similarly, the proponents of the plasma TV program have still been made important assertions about the potential contribution of Plasma-based instruction to students' learning. They claim 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. In view of this, they continue to expand the program throughout the country. For instance, in the plan period of ESDP V (2015/16 - 2019/20) it is planned to equip all secondary schools in the country with the plasma-channeled instruction (100% of secondary schools will access television-assisted instruction in the target year) (MoE, 2015).

Conversely, different stakeholders have complained about the plasma-channeled instruction and hesitated to utilize the medium. 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. Directors and supervisors have also questioned the implementation of the program. Furthermore, 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; Habtamu,2007; Getnet, 2008). It seems to be inefficient in enriching the intended purpose. This implies that there is

a problem in using the plasma TV as instructional tool. Therefore, in this study an attempt has been made to identify some latent problems for utilizing the plasma-based instruction. In doing so, the investigation attempts to answer the following basic research questions:

- What is the nature of the plasma mode instruction like?
- How is the plasma-based instruction utilized?
- Which are the major problems that students and teachers have encountered in using the plasma-channeled instruction?

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 identify some latent problems for using the medium as instructional tool. From such a condition, it is assumed that the study finds answers for the ongoing challenges 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 restructuring 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.

3 Conceptual Model and Research Methodology of the Study

3.1 Conceptual Model

Different factors can play a great role to facilitate or hinder the implementation of e-learning in general and instructional television (ITV) in particular. Usun (2004) concludes that political, economic, cultural, technological, human and administrative factors can play a major role in the application of information and communication technology instructions. Furthermore, according to Naimova (2008), time factors, teacher attitudes, software factors, availability issues,

personal unfamiliarity with technologies, lack of training, attitudes of administrators, a teacher's level of education, years of experience, languages taught, school setting, type of school, social factors, cultural factors, and psychological (or human) factors have all been shown to affect the use of technology in the classroom. Andersson (2008) further lists 37 factors, which affect and facilitate e-learning, belonging to 8 different categories: student, teacher, institution, support, course, technology, costs and society.

The abovementioned factors can be considered in the practice of the plasma-based instruction in Ethiopia. That is, to utilize televised instructions efficiently and effectively, various elements can play important roles. The primary elements are learners. According to Littlewood (1981), they need to have the interest to learn. Students must also be active participants; they should not be passive recipients during the broadcasting. Apart from the students, teachers (screen and classroom teachers) play significant roles. Specifically, classroom teachers, in televised instructions, function as motivators, mediators, and designers of tasks rather than mere knowledge providers (Spodork, 2001). The classroom teachers are required to do these roles before, while or after the TV teachers' presentations. The availability of activities in the teaching materials and on the TV screen is the other crucial element in televised instructions. Moreover, the program cannot be effective unless support materials, such as satellite TV manual, students' textbooks, and teacher's guide are provided. These support materials can be provided by the school, parents or government. In addition, classroom settings, finance, acceptance of the technology, and technological and theoretical knowledge of the technology are the core elements to employ the telecasted instruction program effectively.

Based on these inhibiting and facilitating factors, the following conceptual framework was used in the study as a model. The model represents a number of variables which were investigated in the study. These variables are interrelated to each other as demonstrated by arrows in the model (Fig. 1).

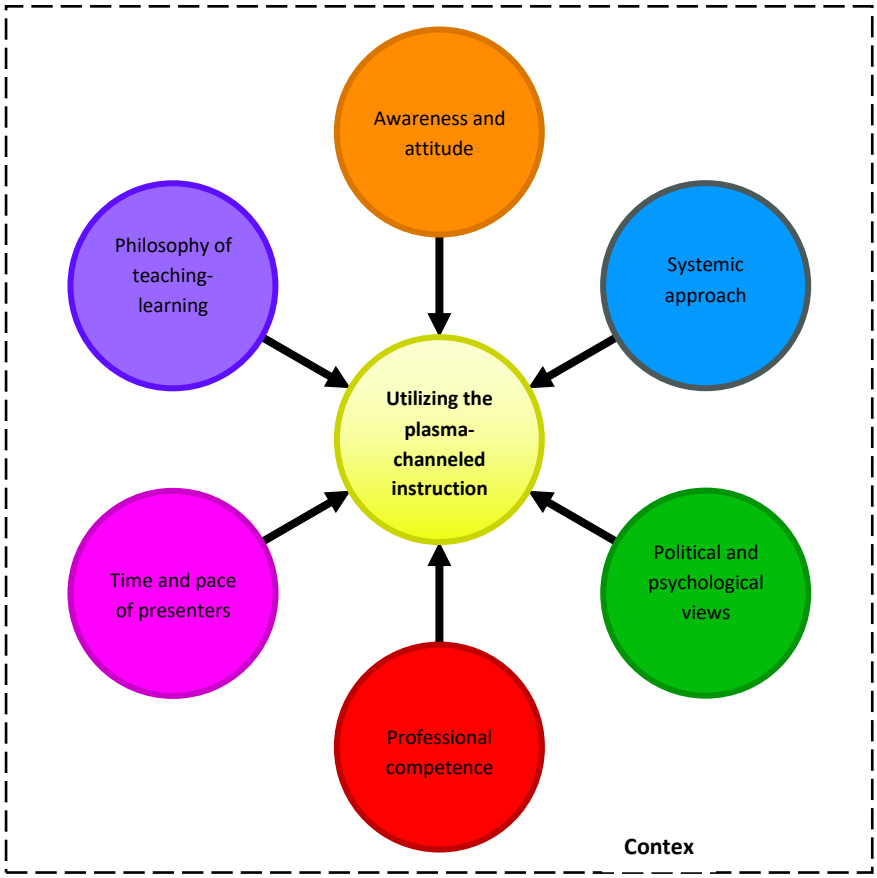


Figure 1: Conceptual Model of the Study

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 countrywide application. The wider Ethiopian national e-learning initiative which extends from the country's ICT for education policy is the Plasma TV program (PTV) (FDRE, 2004). Therefore, the investigation looked into the formation of the plasma-based instruction at large; that is, the study was concerned with the design, development, production, transmission, scheduling (the length of a period, repetition, broadcasting hours), type, flexibility, organization and localization of the program. The PTV program extends from program formulation to incorporation and performance at the school level. The study, hence, examined the practice of the program in school context in terms of the objectives and strategies of the program,

and instructional use of it. Moreover, inhibiting and facilitating factors, such as awareness and attitude of front line workers (students and teachers) to use the technology, systemic approach, political and psychological views, professional competence (technological pedagogical and content knowledge), time and pace of presenters and philosophy of teaching-learning can affect for the effective implementation of the program. These factors were studied and analyzed during the study.

In general, to gain insights on some latent problems for utilizing the Plasma-based instruction, the framework has been used throughout the study.

3.2 Research Methodology

To achieve the intended purpose and to answer the basic questions of the study, a descriptive research design has been employed. A qualitative approach was used to collect the relevant data. That is, documents such as Federal Democratic Republic of Ethiopia Ministry of Education ICT for education policies, CEICT's plasma TV programs implementation manuals, recorded televised lessons, syllabi of some subjects, and previously conducted studies on the plasma TV instruction were assessed. Moreover, focus group discussions were carried out with 30 experienced teachers who have passed through the program for two to five years. The participants were from different parts of the country who had attended their summer in-service teacher education program at Addis Ababa University in the year 2014/15. In addition, interviews were conducted with 20 students (who were first year students at Addis Ababa University 2015/16 academic year and had learnt via plasma TV in their secondary school study), and 3 experts who were in charge of the Plasma program production, transmission and evaluation. All of the participants of the study were selected purposively. Besides, to validate the information obtained from documents and informants, observations at the transmission areas and the recipients of the programs were conducted and a

detailed record of the observations was made. Some of them were backed up with video recording and photographing.

All data obtained were analyzed qualitatively comparing and contrasting the information obtained by means of all the tools. Finally, based on the findings of the study conclusions were drawn and recommendations were forwarded.

4 Results of the Study

4.1 Formation of the Plasma Mode of Instruction

The plasma TV program in Ethiopia is an instructional television with one way communication channels, the students who watch the television were unable to interact with the plasma teacher. It is an integrated and comprehensive program providing a complete package of distance and in person support to students and teachers. It puts teachers and students on the screen; brings context and practical uses of the concepts taught; uses images and available clips extensively to illustrate and help students. The program has been developed as a blended approach. It combines televised instructions with face-to-face instruction, originally with a 75% and 25% and currently with a 50% to 50% ratio of plasma lessons to face-to-face instruction (Berhnau, 2012). That is, the terminated plasma instruction covers 30 minutes of the total 40 minutes in a regular manner. The remaining 10 minutes are given for the classroom teacher (5 minutes for introduction of the lesson to be transmitted and 5 minutes for recapping). The improved plasma instruction (started in September 2011), on the other hand, lasts for 20 minutes and gives the remaining 20 minutes for the classroom teacher based on selected contents.

The program with its 12 channels is aired from 8:02 a.m. to 05:00 p.m. for regular students and from 5:35 p.m. to 8:00 a.m. for evening classes in almost all of the government secondary schools throughout the country. The program is also broadcasted on Saturdays for grade 9 and 10 students from 8:00 a.m. to 12:15 p.m. (CEICT, 2011). It is integrated into the whole academic year typically in

conjunction with instructional print materials. The formation of the plasma-based instruction is summarized in Figure 2 below.

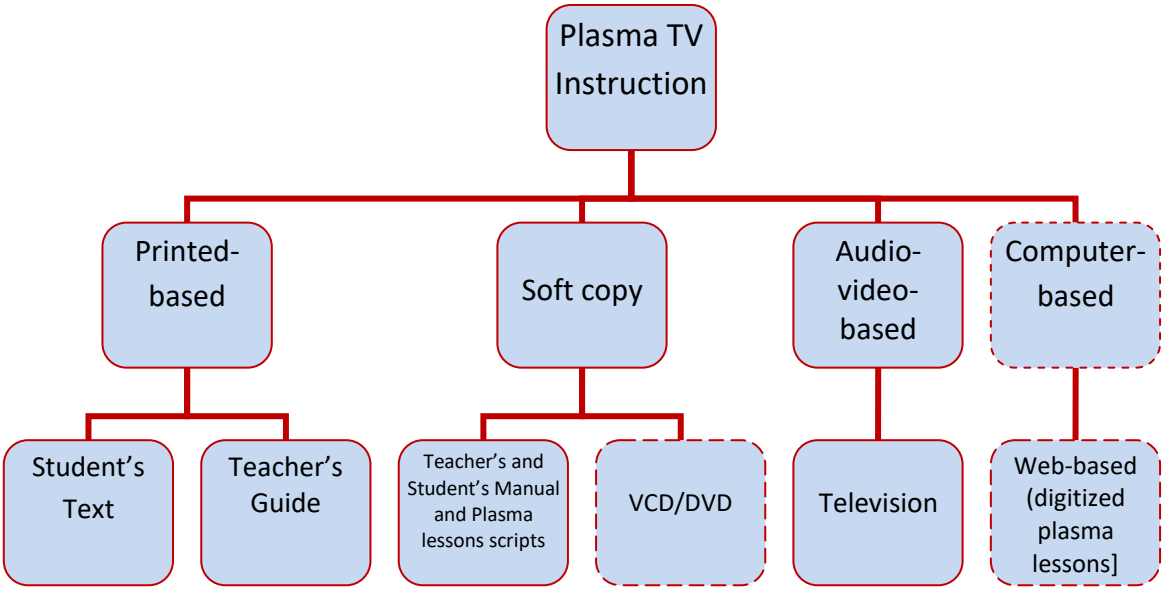


Figure 2: Formation of the Plasma-channeled Instruction

As illustrated in the figure, the plasma TV instruction is combined audio-video classroom session and accompanied by printed and soft copy materials corresponding to the curricula. The primary mode of content delivery during each plasma broadcast alternates between visual-aural delivery and conventional explanations. Contents are delivered by a screen teacher in the form audio-video with the help of a classroom teacher monitoring and explanations. All contents are provided with complementary written materials, student's book and teacher's guide. Moreover, opportunities are given for classroom teachers and learners to review the contents of plasma lessons in the form of soft copy materials such as CD-ROMs beforehand or after contents are delivered.

At present, according to CEICT of MoE, it is plan to make available programs using VCD and DVDs, and the digitization process is underway to computerize plasma lessons as indicated by the doted boxes. That is, the Center of Educational Information and Communication Technologies is starting computer assisted

instruction based on demo projects. As a result, computers and the network thereof will be installed in all secondary schools. In the ESDP V period, according to MoE (2015), it is planned the 'SchoolNET Cloud-Computing' infrastructure, which will be the portal through which students and teachers have access to a range of centrally stored, digital content will be employed. For this, a fully functional and well-equipped data centre and network operation centre, supported by a learning content management system, will be established.

4.2 Utilization of the Plasma-based Instruction

As was said, the plasma TV program has delivered lessons to government secondary schools in the country through a closed- circuit system using Very Small Aperture Terminal (VSAT) satellite dish. The signals were broadcast from CEICT which is found in the center of the country, Addis Ababa (MoE, 2006a; 2006b; CEICT, 2011a).

During the study an attempt was made to observe how televised lessons were delivered. It was observed that plasma teachers lectured the lessons, demonstrated students how to do the activities and allowed the classroom teachers to assist the students. However, students were also observed struggling to comprehend the instructions forwarded by the plasma teachers; before doing the activities, they asked their classmates in their first languages for clarification about the instructions. The classroom teachers often also repeated what the screen teachers presented and wrote the plasma teachers' speeches on the blackboard. Student respondents were also interviewed to have their views the plasma lessons ways of delivery. Almost all of the students uttered that the ways of delivery were good, but it was very difficult for them to follow the plasma teachers due to their speed of presentation and their pronunciation. For example, the interviewees had to say the following:

> *The approach is good, but it needs your good English language background. If you have good English background, you like it. If not, you are confused [S_1]… It is good, but the language is difficult to understand [S_4]…. The plasma teachers' way of delivery is good for fast learners. This is because the plasma teachers are very fast. Their accent is difficult to understand. The concepts are also difficult to comprehend [8]….I think that it is good, but the presenters were a little bit speedy. Most of the students are not interested to learn by plasma because of their poor English background [S_{10}].*

An attempt was also made to examine the roles of the classroom teachers before, during and after televised lessons. Though teachers reported they played their roles properly, students indicated that the roles of their teachers were not satisfactory enough. That is, almost all classroom teachers replied that they played their roles properly. The majority student interviewees, contrary, mentioned that most of the classroom teachers turned on the TV, sat/stood at the back and watched the programs with the students. This tended to have been shared by the classroom observations, most of the teachers were observed that they stood at the back of the class and watched the televised lessons throughout the transmission. Even instead of guiding or assisting the students to perform the exercises as per the screen teachers' instructions, some classroom teachers told the students as they would get the answers of the exercises from the screen.

In televised instruction, students are expected to actively participate, to give attention to the concepts delivered by the screen teacher and to perform activities as they are instructed. The plasma-channeled instruction also demands the students' active involvements before-, while- and post- the transmission (MoE, 2006a, 2006b). However, students were not seen to perform the aforementioned actions. Some of the students were reluctant to participate actively during the plasma TV instruction as far as the classroom observations are concerned. Even if they were asked to perform exercises based on the televised lessons, some of them chatted with nearby students issues out of the lessons and gazed at the countdown clock on the screen time to time. When the screen teacher started giving answers to the activities, everybody was in hurry to copy down them. Some

teachers' responses, similarly, reflected that students were passive during the plasma lessons. They did not actively participate.

Moreover, regarding the arrangements made for effective utilization of the plasma-channeled instruction, experts pointed out that if the lessons have not been properly broadcast or if there have been channel malfunctions, schools have been provided with the necessary help from the broadcasters. Broadcasters have also prepared schedules, plasma manuals and trainings and arranged to be used by the reception ends. To counter check the data obtained from experts, an attempt was made to consult teachers. Teachers reported that their schools were received plasma guide in soft copy by CD-ROMs and the timetables were arranged beforehand though teachers have not used them properly. However, they were not provided with any on job-trainings related to the utilization of the plasma TV programs. The results of the observation also revealed that schools were provided with plasma program and scripts of plasma lessons in soft copy. However, arrangements were not made to access televised lessons in video and audio format. The technical support provided from broadcasters was also minimal.

The aforementioned results indicate that the screen teachers' ways of delivery tended to mismatch with students' level of comprehending the language of plasma presenters so that most students cannot grasp screened lessons. Students have also been provided with less support from their classroom teachers while they were learning through plasma. Moreover, the arrangements made for utilizing the plasma-based lessons were not satisfactory.

4.3 Problems Encountered by Students and Teachers in Using the PTV

As was discussed, different factors can play a great role to facilitate or hinder in using instructional technologies in the education world. Factors like political, economical, cultural, attitudinal, psychological, technological, administrative and the like can play a major role in technology-based instructions (Usun, 2004; Andersson, 2008; Naimova, 2008; Bakar, 2008). With specific reference to the use

of instructional television, several practical factors might hamper its practices. Bearing in mind facilitating and inhibiting factors for technology- based instructions, efforts have been made to identify the major problems students and teachers encountered while using the plasma technology as instructional tool. Based on the data obtained in the study, the following major problems were obtained among others.

Awareness and Attitude towards the Plasma TV Instruction

In order to know the awareness of teachers and students, interviews and FGDs were conducted with students and classroom teachers respectively. That is, students were asked whether or not they have any information about why the plasma program is preferred to the conventional (traditional) instruction. The results revealed that most of the respondents did not have clear information why the medium is chosen as instructional tool. They uncertainly articulated that the program was launched to deliver equal education throughout the country. Their teachers also asked about why the technology was preferred as a pedagogical tool and how it was planned. Teachers pointed out that they did not have clear information how it was planed and why it was preferred to the conventional instruction. It is to mean that the students and teachers have low awareness of the plasma–channeled instruction. This may create negative attitude towards the use of the plasma TV instruction in their teaching-learning process.

Responses of teacher informants further indicated 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 have negative attitude towards the program. They considered leaning via the plasma TV as time wastage; they considered as if they were watching movies or watching football competitions at DSTV houses. Students in their part also stated that they did not think plasma is better than face-to-face learning.

Moreover, student and teacher respondents were asked whether or not they were interested in the plasma-mode of instruction. Even though classroom teachers in their part replied that they were interested to work with the plasma since it gave them relief, their students responded in the contrary as:

> *Not all of them some of them have competence because most of them do not have confidence to use plasma. They don't like to use it [S_1]. I think that most teachers are not interested to work with plasma. They thought that as it hasn't relevance [S_2]. I don't think because they often prefer to teach by themselves. You see, they open [turn on] it for formalities [S_6]. Most teachers preferred to teach face-to-face, because their students prefer to learn without plasma [S_8]. I don't think that they are interested because the plasma teachers dominated them [S_9]. No. they are not interested you see, plasma over took teachers part. It makes the teacher learners not teachers. But it gives relief to the teachers [S_{10}].*

As their responses show, most of students were also not interested in the medium, they have negative attitude towards it. They wished the transmission was interrupted. During field works it was observed that students disconnected the plasma TV connectors and broke electric lines in order to distract the broadcasts. In relation to this, a teacher respondent mentioned, "they [students] took some measures; they broke the plasma and they are non-functional. This shows how they hate it." Students also reflected their negative attitude towards the plasma instruction informally talking to their fellows.

The aforementioned findings suggest that though implementing bodies have developed and expanded the medium throughout the country, the awareness of the key practitioners (students and teachers) towards the integration of the plasma-based instruction seemed low. This made students and teachers have negative attitude towards the technology.

Teachers' and Students' Philosophy of Teaching-learning

More importantly, classroom teachers' and students' philosophy of teaching-learning can affect the practices of the plasma-channeled instruction. As far as the classroom observations are concerned, classroom teachers still viewed their role as technicians, operating the plasma screen. They were observed turning on the

television and getting students watch the programs. Most of them were not well prepared to facilitate or monitor the plasma-channeled lessons. A response obtained from the mouth of one of teacher respondents is a good example of this. It reads, “The teachers do not pay attention [to the program], they are passive. Not only passive teachers are negligent. Even when there was electric power interruption; teachers know the way how they left out the class [they left the class if the transmission was interrupted]....” Students in their part still named teachers after DJ (Disc Jockey) as their task was limited to switch on and off the plasma, maximizing and minimizing the volume of the plasma TV mounted in front of students.

Most of the classroom teachers believed that their students gained better knowledge from their face-to-face explanations as most of student and teachers respondents mentioned. Students also preferred learning from their face-to-face teachers. That is, a large number of teachers and students wanted to deal with people not machines.

This indicates that the plasma-channeled instruction mismatched with teachers’ and students’ philosophy of teaching-learning. For this reason, teachers were still engaging with their traditional approaches to instructive teaching and simply using technology as an effective supplement for conveying information to their students.

Systemic Approach to Implement the Plasma Instruction

During the study, an attempt was made to assess the program plan of the plasma television instruction. As was discussed, for the televised program, it is expected that Center for Educational Information Communication Technologies of the Ministry of Education is the key implementing organization of the program. It is responsible to design, prepare and transmit televised programs throughout the country. Moreover, others associate organizations and community partners like the regional, zonal (sub-city)/*woredal*(*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 to utilize the program at school level (MoE, 2006a; 2006b; CEICT, 2011a). In order to look into the linkage between implementing and implementer bodies (the broadcasting center and the reception ends) and to identify the problems encountered, interviews were made with the respondents, on site observations were carried out and documents were reviewed. The results are presented as follows.

As far as the documents reviewed and responses of the informants are concerned, the plasma program was planned and produced at federal level without involving frontline practitioners, considering the interest of students, teachers, parents and other school community and/or conducting pilot tests and researches. After one year programs production in top-down approach, the plasma TV instruction was widely launched in 2004 across the country.

It is a fact that before a new project or program has been widely implemented; pilot testing has to be conducted since this is the critical initial step for future effective implementations of a program. It also ensures empirical knowledge about the implementation of the project to be employed in the actual practices. During the study an attempt was also made to look into whether or not the plasma-based instruction in Ethiopia was pilot tested before its actual practices. The literature works the researcher consulted and the data collected from informants revealed that the plasma-based was not pilot tested. The program was widely launched in government secondary schools across the country without pilot test. The program was underway for five consecutive years and interrupted for revision (primary English and Civics and Ethical Education in 2008/09 academic year and other subjects- mathematics, Biology, Chemistry and Physics in 2009/2010 academic year). The revised plasma lessons have also been resumed since September 2011 without a wide trial and giving trainings to front line workers before the actual practices.

It was noticed in the study that the linkage among different stakeholders of the program was loose. For example, with respect to the televised ELT, it was identified that in 2005 and 2006, the Institute of Curriculum Development and Research (ICDR) made revision of the English textbooks of grades 9 – 12, although significant changes were not made. The revised versions compiled originally prepared two texts (book one and book two) of grades 9 -11 into one book. Furthermore, some topics and language items were canceled and replaced by new ones. This caused problems in the implementation of plasma-channeled English language teaching which was prepared based on the texts books since the revised books did not coincide with the plasma lessons(pages were completely changed and the new portions were not incorporated in the plasma lessons). This caused a great problem during the practices of the plasma-based ELT. This indicated that the ICDR and CEICT (both are under Ministry of Education) had not discussed or worked together before the revisions were made. They were not working in coordination. One of the interviewees replies strengthen this as:

> *…Finally, what I want to comment is that there should be a cooperative work among different directorate or different sections of Ministry of Education. You see, Ministry of Education has different directorates. All of them are working for the same ultimate goal. They have same objective. If they have the same objective, they should struggle [strive] to achieve this goal. But they never discuss the problem by sitting together. For example, CEICT produce these programs; ICDR produced students' and teachers' books, and the syllabi, but they never discuss with this Center [CEICT]. [E_3]*

What is more, the researchers attempted to ask informants at school level (teachers and students) where or not they were provided the necessary support from the implementing bodies. Most of them said that they were not provided with the necessary support they need to from the higher bodies. They mentioned that the linkage between their schools and broadcasters was loose.

From the above results it seems that there is lack of systemic approach to implement the plasma-channeled instruction which embraces the effectiveness of the practices of the plasma-channeled ELT.

Teachers' Professional Competence

It is a fact that integrating the plasma-based instruction in the teaching leaning process requires teachers' knowledge of the technology along with their subject matter and pedagogical knowledge. It requires the professional competency of teachers, such as the use of the plasma TV, how it differs from conventional classroom teaching, how to manage and administrate the technology, etc.

Having this in mind, efforts were made to explore teachers' professional competence while they were using the plasma TV instruction in their lessons. As the results shows, teachers' professional competency in using the plasma-channeled instruction was identified as a major problem. It is evident from the following classroom teachers and students reactions that teachers' professional competence is one of the problems of the effectiveness of practicing the plasma-channeled instruction. Teachers mentioned that they were confident enough to teach via plasma, but they had problem of professional competence to employ the technology. For instance a teacher respondent mentioned, "According to the instruction of the plasma, I know nothing. But I know what to do as a teacher. We don't have any information why they installed the plasma. They enforce us to use it." Another teacher respondent also articulated that "we have a problem of how to use plasma. Even most teachers have not the necessary skill how to operate the plasma. May be 'on' 'off' is the elementary. Apart from that, to select or search whatever programs, they have a problem. Students are better than them."

During the observations at schools level, an attempt was made to observe the professional competence of teacher in using the technology as instructional tool. The results revealed that teachers' knowledge of the technology, such as, turning on/off, muting, and searching for the appropriate channel, adjusting the required

volume and contrast and so on was found to be minimal. Even some of them were seen requesting their students to give them a hand in order to search for the appropriate channel and to adjust any technical problems they encountered. Even though using any technology for instructional purpose demands understanding and negotiating the relationships between content knowledge, pedagogical knowledge and technological knowledge (technological pedagogical content knowledge), observations results in relation to the application of these knowledge areas in the real plasma-based instruction showed that teachers infrequently applied them. That is, classroom teachers rarely demonstrated their knowledge of using the plasma-based instruction and employed the plasma-based instruction effectively to different teaching activities. What is more, they hardly used the plasma-based instruction in their classroom that enhances what they teach, how they teach, and what students learn.

However, experts believed that the plasma instruction itself contributes to teachers' professional competency. They pointed out that plasma makes the teachers knowledgeable by updating their knowledge of content and language skills.

The above results revealed that lack of teachers' professional competency of how to use the plasma instruction in their classrooms seemed to hinder the effectiveness of utilization of the plasma-based instruction.

Pace of the Plasma Presenters and Time Allocation

Speed and accent of the plasma presenter, shortage of time to do exercises, and mismatch of the students English language ability and the plasma presenter's English were among the major problems respondents mentioned. That is, almost all students mentioned that the pace of the plasma presenters mismatched their pace of learning. Students mentioned that the medium is more appropriate to fast learner students. Teachers' responses also support this. Experts also admitted that the speed of the presenters was beyond most of the students and they tried to improve this in the new plasma lessons. The insufficient time given for the students to perform activities was also the major problem. That is, inadequate time was allocated for classroom teachers, especially in the old plasma lessons, so that teachers were in difficulty to assist their students or to fill the gaps students encountered. The frequency of transmission of the new plasma lessons were also raised as a problem. That is, the new plasma lessons have not been presented regularly, so teachers and students have not known clearly which contents covered by plasma. They have also faced problems of covering portions before the next plasma has been broadcasted.

Furthermore, most of students and teachers indicated that the plasma teachers' explanations were beyond students' English language proficiency. Even some students wished the lessons were presented by Ethiopian teachers though experts capitalized the delivery of the lessons by native speakers. Students, for example, say:

> *There were lots of contents that I haven't understood. The language was difficult to understand, we didn't know the meaning of most of the words; therefore, we missed most of the plasma explanations [S_1]. The other problem was the accent of the presenter was difficult to comprehend to some students they often said, "What did she say?"[S_3]. The other thing is it was difficult to understand the language of the plasma presenters… [S_4]. Ehhh…the weaknesses are it was very fast and the language of the presenters were difficult to understand. [S_5]*

To triangulate the preceding responses of students, teachers and experts, the contents of 20 sample televised lessons of various subjects were randomly reviewed. As per video of sample televised activities, it seems that students were provided with insufficient time to accomplish the activities. Most of the lessons were covered by the TV teacher's explanations. That is, most of the activities to be accomplished by students were given 3 minutes and below that. Only few of them covered above 5 minutes. The minimum time given for a given task in the old plasma lessons was 30 second. This is 2 minutes in the new plasma lessons. It was also noted that the plasma presenters depended on lecturing concepts to the students, which makes the students passive recipients of knowledge. They were not interactive. In fact, the activities displayed on the screen were found be lovely and relevant to provide knowledge inputs.

This is to mean that mismatch of the pace of plasma presenters with students pace of learning, insufficient time allocations and disparity between the accent of the plasma presenter and the students' poor English language background hampered the use of the plasma TV instruction as pedagogical tool in the teaching-learning process.

Political and Psychological Views

Local studies showed that when the program was launched throughout the country in September 2004, there were resistances to use the plasma as a medium of instructions. It was thought that the technology was launched to replace classroom teachers (Ali, 2005; Kedir, 2006; Jeylan, 2006; Berhanu, 2007). Plasma was also a big deal for politicians at the time of the 2005 national elections. 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 abhorrence of

plasma TV. 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, obsoleteness of the medium, mismatch of low level of students' English proficiency to follow plasma-based lessons, etc. were amongst most of the visitors reflections on the site towards plasma.

During the study, it was identified that some of the teachers perceived the technology as issue of politics. One of the informants' responses seemed to support this. It reads, "It [Plasma] is for political target. They [Government bodies] do have a sort of belief, teacher are migrating from teaching profession. They assume that the plasma can replace teachers, but never in history had the plasma replaced the teacher. They don't know this core point". Another respondent also reflected as plasma came again for political target. This is to mean that some of the practitioners considered the technology as an issue of politics than as a pedagogical tool which enhances the teaching learning process.

The other problem identified in the study was students' psychological problems. That is, the majority of the students were preconceived as the technology hampered their learning. They thought that lessons delivered using the technology are beyond their level of understanding. They also perceived that it is difficult to learn from the medium. From their precursors 'plasma students', they were informed that the contribution of plasma for their learning was nothing as it was hard to follow plasma lessons. This makes them 'techno-phobic'; most of the students simply hate plasma. The responses of one of student respondents seemed to support the same. It reads, "Most of the students are anxious of plasma. I think that this is because of the problems they heard about the plasma instruction."

It seems to mean that the political interpretations of teachers and psychological problems of students contributed to the impediment of the practices of the plasma-channeled instruction.

5 Concluding Thoughts

Based on the findings of the study, it can be concluded that the plasma TV program is developed as a blended approach. It combines televised instructions with face-to-face instruction; contents are delivered by a screen teacher in the form audio-video with the help of a classroom teacher monitoring and explanation. The practical delivery of the plasma-channeled instruction showed that there are still incongruities between the intended and implemented plasma-based instruction. The major challenges to utilize the plasma TV instruction effectively were found to be closely linked with problems like awareness, attitude, teaching-learning philosophy, administrative linkage, professional competency, time, pace, psychology and politics.

6 Recommendations

In this study, some latent problems of utilizing the plasma-based instruction have been identified. To minimize the problems and to use the plasma-channeled instruction effectively, the following recommendations are suggested:

- In using the plasma TV as instructional tool, what seems to be missing is an overall awareness of the use of the medium. Therefore, much has to be done on awareness creation towards the functions and aims of new technology. Moreover, since the teaching-learning processes of the plasma-based instruction are different from the teaching-learning philosophy students and teachers had, trainings should be given to key practitioners in order to retain philosophies of technology-based instructions.
- The results revealed that lack of teachers' professional competency of how to use the plasma instruction in their classrooms seemed to

hinder the effectiveness of utilization of the plasma-based instruction. Teachers need to develop their technological pedagogical content knowledge (TPACK). Therefore, on-job trainings should be given to in-service teachers so as to develop their knowledge of TPACK in the form of workshops and seminars, using the plasma TV or the Continues Professional Development program. Teacher preparation programs should also integrate teachers' knowledge of technology (using the plasma-based instruction in teaching), pedagogy (teaching how to teach) and content (teaching about the subject matter).

- It was found that the link between implementing and implementer bodies was loose. Thus, think tank at the every level and the practitioners at schools level should work in harmony.
- The study revealed that most of students could not seem to comprehend screen activities. Self-access centers (SACs) should also be arranged in schools which enable teachers and students to review broadcasted and/or will be broadcasted lessons. Moreover, a habit of using a mix of technology such as Internet, Intranet, CD-ROM, Digital Video Disc (DVD) format and others should be developed.

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