

A SURVEY STUDY ON AVAILABILITY AND UTILIZATION OF
SATELLITE TELEVISION EDUCATION IN OROMIA AND
ADDIS ABABA SECONDARY SCHOOLS.

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SCHOOL OF GRADUATE STUDIES

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ADDIS ABABA SECONDARY SCHOOLS.

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Acronyms

CAI	Computer – Aided Instruction
CAL	Computer – Assisted Learning
CATT	Computer – Assisted Teacher Training Project
CBT	Computer – Based Training
CMC	Computer – Mediated Communications
GW	Computer – on wheels
CSCW	Computer – Supported Collaborative Work
DOS	Disc Operating System
DVD	Digital Video Disk
EBS	Educational Broad-Cast Services
EDS	Educational Development Center
EdTech REtD	Educational Technology Research and Development
EDE	Educational Object Economy
ERIC	Educational Resource. Information Center
ESCOT	Educational Software Objects of Tomorrow
FQEL	Fundamental Quality an Equally Levels project
GPL	General Public License
ICT	Information and Communication Technology
TDG	International Development Goal
IESA	Institute de Studios Superiors Agra la Administration
IMS	Instructional Management System
IP	Internet Protocol

IRI	Interactive Radio Instruction
ISDN	Integrated Services Digital Net work
ISP	Internet Service Provider
ISTE	International Source for Technology in Education
LAN	Local Area Network
LGPL	Lesser General Public License
MERLOT	Multimedia Educational Resource for Learning and Online Technology
PC	Personal Computer
PC 3	Public Computer and Communication Center Program
PLN	Power Line Networking
PTA	Parent Teacher Association
RAM	Random Access Memory
REDUC	Red Latinamericano de Information's Documentation in Education
TCP	Transmission Control Protocol
TCO	Total Cost of Ownership
TV RQ	Television Receive Only
UNDP	United Nations Development Program
Ups	Uninterruptible Power Supply
VSAT	Very Small Aperture Terminal

ABSTRACT

This study was set out to examine the availability and utilization of satellite TV education in Oromia and Addis Ababa secondary schools, employing a descriptive survey method. Data were gathered from MOE-CEICT, OROMIA Regional state and ADDIS ABABA City government education bureaus, five secondary schools, through questionnaire, structured interviews, and pertinent reference documents from secondary data sources. The study presented details of Satellite TV in education on the basis of data and hence in gathering pertinent to ICTs'/TV implementation [including the benefits, challenges and opportunities] for effective and efficient utilization of ICTs resources to enhance ICTs supported quality education. Concerning the benefits of ICTs: Assisted subjects require laboratory experiments in the absence of equipment and chemicals in the schools; ICT provided an opportunity to communicate with other educational institutions and professionals, leading to experience sharing and problem solving, The plasma TV exists in all secondary schools, to broadcast uniformly all over the country, has provided equal opportunity for students of the country, where there is no equal availability of text books, materials and other related resources required for imparting knowledge and skills. ICT, as a whole have provided a range of opportunities in obtaining latest publications that not available in the school. Besides benefits, there were challenges such as: the shortage and lack of ICTs hardware and/or infrastructure and spare parts, lack of awareness and trainings of the users and implementers, high turn over of trained ICTs human resources, lack of adequate ICTs knowledge and skills to handle maintenance of equipment and training computer failures, shortage and frequent interruption of electric power, weak education ICTs management found to be some of the major challenges that negatively affected the effective utilization of ICTs resources, particularly plasma TV instruction in the schools. The findings concluded major benefits, challenges, and opportunities. Based on findings/outcomes of the research/, installing and constructing hardware & infrastructure needs to be in place with the supporting elements such as: sustainable electric power, maintenance and technical service, trainings for teachers in utilizing ICTs for education should be exhaustively organized and integrated with courses given in the teachers colleges/or universities, organizing responsible and professional bodies at all levels for fast access, that are capable to solve problems, as well as employing regular monitoring and evaluating the progress achieved, problem encountered and impacts resulted from the implementation of ICTs for education, were among the forwarded recommendations.

CHAPTER ONE

1. THE PROBLEM AND ITS SETTING

Background

Education is a corner stone for economic, social, political, and cultural development of a country. To lay down this corner stone all concerned bodies should be committed to play their role. By doing so improving the quality and equity of education is the concerned task, so that, as Dhamarajan [2002:41] states'' the acquisition of knowledge, skills, and attitudinal changes can address the development goals of the country''.

ICT plays a role in improving the quality and equity of education. In this information and knowledge age, provision of ICT assisted education has become necessary. That is why considerable attention is given to expand ICT infrastructure (such as the plasma TV, Internet, computers etc) in schools in our country, even though so much effort remains.

The ever increasing importance of ICT is evident in promoting diversity, sharing of resources and communication among local and international communities (ibid. 41). All over the world, most nations are introducing ICT in their education system step by step, although, the degree of access and advancement obviously varies from nation to nation mainly due to differences in economic development.

In Ethiopia, educational technology was introduced in 1961, (Petros (1996:2) when the audiovisual center was established for the first time. At that time, the center produced and distributed, film, slides, models, charts, etc. for schools.

The audiovisual center expanded its activities to the production and distribution of TV programs in 1965, and Radio programs in 1970 respectively. Since then both of the broadcasting technologies have contributed in supporting the instructional process in some subjects.

According to EMA (1996 :) in its wider coverage, the radio programs have provided opportunities through distance education for secondary education to some extent: it has also been decentralized to the regions, and educational programs for primary education have been produced and distributed through various local languages. Educational Television program, which is one of the visual communication technologies, had delivered some subjects for secondary schools. Although Radio and Television programs have played important role in supporting the instructional process in the classrooms, the evaluators from former Educational Media Agency (E.M.A.) in the area identified a number of limitations. The major problems associated with the technologies were: Limited receiving equipment, inadequate scheduling broadcasts, and shortage of power, increased number of sections and grades, lower quality and attractiveness of the programs.

To realize this, former EMA (now CENTER FOR EDUCATIONAL ICT [CFRICT]) which has been reorganized in order to make best utilization of ICT and exploit its immense potential in education development in cooperation with Science and Technology Authority (STA) made a detail study on how to utilize ICT in education system. The target of the study was to propose the best appropriate educational technology in education system of Ethiopia; as a result, the satellite TV education program was proposed to be tested in secondary education.

The components of this satellite education Television broadcasting technology include:-

- Digital video cassettes from ICT Department

- Telecommunication at Sulululta Ground station International Telecommunication satellite (INTELSAT)
- School satellite receiving dish
- Telecommunication receiving equipments
- School net work system and
- School plasma display panel (PDPTV)

After detail design was approved, program for six subjects English, Mathematics, Biology, Chemistry, Physics, and Civics for grades 9-12 were provided in collaboration with experts in Johannesburg (South Africa). The transmission of satellite Television education program started in 1997 in all most all government secondary schools of Ethiopia.

ESDP-III [1998:16] states:

“...secondary schools are provided with necessary ICT infrastructure to receive satellite Education transmission in Six subjects. Moreover, the facilitation of Internet laboratory in high schools is underway. This is believed to bring about improvement in the quality of education, as it will enable students to utilize on-line and electronic libraries and information. It will also assist the professional development of teachers.”

It is over six years since the satellite TV education program was started and the department of ICT has designed to start computer assisted instruction (digitization) side by side. It has been planned to be expanded to all school soon. However, nothing has still been seen. Since it is new innovation, there is a need for investigation on its implementation and delivery.

Hadad & Dexler (2002;) state:

Experience shows that effectively integrating technology in to learning systems is much more complicated. It involves

a rigorous analysis of educational objectives and changes,
a realistic understanding of the potential of technologies,
a purposeful consideration of the pre-and co-requisites of
effectiveness of ICTs for education, and the prospects of
this process within the dynamics of educational change
and reform.

Thus, this paper tried to investigate availability and utilization of ICT in general and satellite TV education in particularly contributing in improving the equity and quality of education.

1.2 Statement of the problem

The satellite TV education program was introduced in 1997, (MOE) benefiting almost all secondary schools in Ethiopia.. Though its some extent contribution in improving qualities and equity cannot be denied, difference implementation problems are being observed. Former Educational Media Agency (EMA:2000) made field evaluation and identifies some factors affecting the program such as problems of scheduling, shortage of teachers, and training in utilization, interruption of programs due to meetings, and shortage of power, delay of transmission programs and other materials from ICT Department, (ICT center) delay of maintenance of dysfunctional plasma display penal, shortage of display plasma panel in some schools, in appropriate time allocation for difficult and easy content over speedy of the presentation to deal with exercises and to take notes and the like.

More over, though there was a design & plan to start computer assisted instruction [digitization] to be expanded to all schools step by step soon, nothing has been implemented up till now. Even though, there were a lot of benefits, there were/ are also challenges [problems] such as: the

shortage and lack of ICTs hard ware and/or infrastructure and spare parts, lack of awareness and utilizing trainings of the users and implementers, lack of adequate ICTs knowledge and skills to handle maintenance of equipment, computer failures, shortage and frequent interruption of electric power.

Most of the problems are associated to physical, technical, and financial factors. ICTs process of integrating in to our education system in general, and satellite education TV programs in particular should be seen, evaluated, and the short comings and gaps identified and in the mean time should be measured and evaluated by seven parameters necessary for the potential of ICTs to be realized in knowledge dissemination, effective learning and training, and efficient education services in order to realize the role of ICTs in improving equity and quality education for utilizing it, as much as possible.

As UNESCO [2002] put in ``Technologies FOR EDUCATION''

The problem is not strictly technological, it is educational
and contextual:

Constraints must be alleviated and conditions met

Knowing the potential and potency of ICTs for education is not enough to be effective. Its complementary should be seriously focused on prerequisites [such as access, acceptance and availability] and constraints that influence the use of ICTs as a tool to expand and improve education, with an emphasis on current status and existing trends, and on possible ways to overcome identified barriers.

Some researchers were already conducted in Ethiopia on the use of Plasma TV instruction. For example, Getnet [2007] indicated in his findings from MA research study entitled ``the attitude of teachers and students toward using plasma TV instruction'' that the majority of his respondents did not have positive attitude toward it.

The work of Dr. Amare[1998] in his article entitled ``A habit of learning with least effort; TV method of learning `` indicated that the technology of TV is a reflection the application the least-effort principle in education, this is due to transfer of learning the fact that students avoid to learn material that require mental effort.

Even though these works and other wider literature are a good deal contribution to the study on the plasma TV instruction, no profound study was conducted on the necessities of the pre-requisites in the choice technologies and the modalities use-which have affected the availability and utilization of satellite TV education.

Hence this study was to investigate the availability and utilization of satellite TV education, and identify problems encountered in the process of implementing ICTs in general, plasma TV assisted education in particular in secondary schools of Oromia and Addis Ababa to infer to country wise level backing by supplementary secondary sources. In due course, it would attempt to answer the following basic questions.

1. To what extent have all secondary schools been furnished with ICT hardware in general & satellite Television sets and school net systems in particular?
2. To what extent are students` and teachers` guides and other supportive materials distributed to schools and utilized?
3. To what extent have users and implementers been coping up with the required training and awareness on how to utilize ICT in general and satellite Television in particular?
4. What roles are expected from subject teachers? And are they playing those roles?
5. How is implementation of the whole process being monitored, supported and managed?
- 6.

1.3 The Objective of the Study

1.3.1 General Objective

The general objective of this study is to assess the availability and utilization of ICTs in general; satellite Television education in particular and identify the problems encountered in the process of implementation with remedial recommendations.

1.3.2 Specific Objective

- To check the availability of ICT hard wares (with accessories & spare part) and skills in all secondary schools.
- To assess if the school level implementers have training and awareness on utilization of ICT in general, satellite Television education in particular.
- To investigate the extent of the role of teacher in teaching learning process.
- To identify the strength and the weakness of monitoring system and supporting mechanisms of the ICT management.

1.4 Significance of the study

This study was supposed to identify the problems encountered in the process of implementation of satellite Television education, and then, the researcher believes that the findings/ outcomes of the study would provide some contributions for effective & efficient utilization of ICTs in general, satellite TV education in particular. The study would be important in utilizing the parameters which are necessary for the potential of ICTs to be realized in knowledge dissemination, effective learning and training, and efficient education services. The researcher believes that the study would also serve as the basis for those who are interested to conduct further and broader study in the area.

1.5 Delimitation of the Study

Though currently Ethiopia is divided into 9 regional states and 2 city administrations, to make it manageable, this study was delimited to one regional state & one city administration. The Oromia Regional State was purposely selected, because of its size, and as it the largest region, the researcher believed that it could have wider impact and its proximity. Addis Ababa city administration was selected to have a comparative look into elements of city administrative, and because of its proximity. Both of them have close relationships with study.

1.6 Definition of key terms

- **Computer** is: an electronic device, which accept inputs (Data information), process (computer) them according to re defined rule (logic) and gives the desired and accurate outputs (results) (Vandaba 2003)
- **Educational technology** is a systematic way of designing, implementing and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning communication and employing a combination of human and non human resources to bring about effective instruction (Vandaba 2003)
- **Hardware:** a generic term for a piece of equipment used to handle or transmit information stored on materials of some sort (vandaba 2003)
- **Plasma display panel (PDP TV)**= An emissive display, as compared to LCD panel which a Tran missive display, using a process similar to that found on fluorescent lightening, but with thousand of pivots much lighter than LCD technology and has a wider viewing angle (<http://www.Stanford>).

- **Satellite TV** is a television delivered by a way of communications satellite, as compared to conventional terrestrial television and cable television. Wik, ipedia, org/wiki/satellite television-6-ken
- **Software** a general term applied to teaching materials that store information informs that are computable with new information technology (video tapes, video discs. Films, multimedia packages etc.) Often used in conjugation with hardware (vandaba [2003]

1.7 Organization of the study

The main objective of the study was to conduct a survey study on the availability and utilization of ICTs in general, satellite TV instruction in particular, and identifying encountered problems. In this regard, the first chapter of this paper introduced the problem and its setting, the second chapter consisted the treating review related literature, the third chapter dealt with the research design and methodology, the fourth chapter was present data, analysis and interpretation of the results.

Finally the last chapter[five] dealt with the summary of the main findings, major conclusion and certain recommendations.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. The Concept of ICT

ICTs refer to the various technologies that enhance the creation, storage, processing, communication and dissemination of information. As indicated in the draft of the FDRE ICT policy (June 2002: unpublished) ICTs represent the convergence of information technology and communication technology; and they are the combination of networks, hardware and software as well as the means of communication, collaboration and engagement that enable the processing, management and exchange of data, information and knowledge. They also refer to different infrastructure used in these processes, their applications and numerous services these infrastructures render.

ICTs are not single but combination of hard ware, software media and delivery system.

As indicated in UNSCO [2002]:

ICT is an umbrella term that includes any communication device or application, encompassing radio, television, cellular phones, computer and net work hardware and software, satellite systems, and so on, as well as the various services and application associated with them, such as video conferencing, and distance learning. ICTs are often spoken in a particular context, such as ICTs in education, health care, libraries etc.

ICTs include various elements such as media of communication (e.g. Radio and TV) information machine (e.g. Computer), telecommunication technologies and equipment (satellite, fiber optic cable) phones, facsimiles machines).

Information technology (IT) has been supplemented and developed into information and communication technology (ICT) as the level of interaction between the user and the world increases from time to time concerning the two terms. Trend, Roger (1919), Earning wood, and Niki (2000) state that the former term suggested that there was a one way flow of information with the user being a passive recipient. The supplementing of the word, Communication “implies a more dynamic interaction (e.g. e-mail www [world wide web], computer conferencing).”

ICTs are the computing and communications facilities that variously support teaching/learning and range of activities in Education.

2.2. The ICT Revolution: a revolution in learning

Hernes (2002:21-25) has analyzed the emerging trends in ICT and challenges to educational planning. According to him there are two points concerning the issues. They are:-

1. The speed with which the revolution in information and communication technology (ICT) has taken place is phenomenal. Telephone, radio, television, and the Internet.
2. ICT transforms all sectors of economy. The changes have been faster, deeper, and more sweeper, and more sweeping than any imagined as late as two or three decades ago even by those who have pushed the new frontier.

Hernes (2002) also argued that about there has been ICT revolution, so far the computer, the PC, the microprocessor, the Internet and wireless links. He has come to link the ICT revolution with a revolution in learning. Since the ICT revolution is a revolution in learning, it also has transformed available technologies, the means and methods of studying, the modalities of school operations, the manner of investment and expenditure of resources, and the very way we think about what education could be and should do.

Hernes {2002:25} continues to elaborate:

“The Internet also changes the ways of schools work by making possible closer cooperation and interaction within the same country and across continents and oceans. One example is joint “virtual projects.” Like wise, parents can be kept informed via the websites of school virtual PTAs, so to speak.

According to Hernes (2002): ICT has become a medium in the original sense of the word: something in the middle, between the substance to be learned and the students who is to master it. First, it liberates provision of education from the constraints of time and place: many courses can be accessed from more or less any where and at any time. Second, training can be customized, by allowing material to be adapted to individual levels and tasks to be paced according to personal progress. Hence, the new education technologies alter the means and mode of studying. Students can link to other students across boundaries and across continents. Children can take part in the development of learning materials for each other in other classroom or countries. Teachers in the remotest places can be encouraged to take part in important professional development projects. The internet also can become a net work for humanity or altruism[for common advantages]. Institutionally, so much on the web is therefore for free and for all. A large part of the available educational resources is created by groups outside of schools and academic institutions, yet is free for all and provides excellent inputs for learning educational resources and using them for educational enrichment is a necessary educational task.

2.3 ICT and Education

2.3.1. ICTs potentials for Education.

Since education has, fortunately, come to be considered as a human right, the main instrument of delivery of basic education is the school. So the tension between continuity and change is played

out in an important way in the classroom. Thus it is extended to the need to simultaneously expand access, guaranty uniform quality and leave room for diversity of results.[UNESCO [2002: 3)] Different ICTs have the potential to contribute to different facts of educational development and effective learning: expanding access, promoting efficiency, improving the quality of learning, enhancing the quality of teaching and improving management system. Planning for effective use of ICTs in education necessitates an understanding of the potential of technologies to meet different educational objectives and, consequently, to decide which of these objectives will be pursued. This decision affects the choice of technologies and the modalities of use. The following table may indicate different levels of different ICTs potential in teaching/learning process.

Table-1 ICTs and Their potential for Education

<i>Roll. no.</i>	<i>Technology</i>	<i>Outreach</i>	<i>Flexibility</i>	<i>Sensorial</i>	<i>Interactivity</i>
1	Radio	High	Limited	Audio only	Limited
2	Television	High	Limited	Audiovisual	Limited
3	Video	Low	High	Audiovisual	Limited
4	PC	Low	High	Audio visual	High
5	Internet	Higher	High	Audio visual	Highest

Source UNISCO (2002:9)

Limited = Students and teacher must be present during transmission.

- High = Students can access the material at different times.

As UNESCO (2002) states in its website, policy makers and practitioners tend to refer to ICT as one monolithic entity; in which case they question the potential of technology-in the singular. Such inquiry is unanswerable because technologies are very different in their potential and use.

The potential of different technologies depends on what we use them for. The word technology has always had a variety of connotations, ranging from mere hardware to a way of solving problems. Concerning the notion to a way of solving problems, economist John Kenneth Galbraith (1965:12) states that. Technology is the systematic application of scientific or organized knowledge to practical tasks.

According to Barbra Ay eels and Rita Richy (1994:9) the notion of technology being a process is highlighted in the definition of instructional technology giving by the leading professional association in that field. This professional association is an association which set up in Washington DC and known as Association for Education Communication and Technology.

According to this association technology is also considered as the theory and practice of design, development, utilization, management, and evaluation of the processes and resources of learning. Accordingly the developers to programmed instruction called it a technology for learning. They believed that what was really important has been the process of analyzing learning tasks, breaking them down into their components, and then devising the steps necessary in order for the learner to master these tasks.

History shows that over the past 200 years, vast efforts have been made to perfect the education services provided by schools. UNESCO (2002) states that:

"As rapid as knowledge is being generated, there are growing means by which to disseminate that knowledge through print, audio, video and electronic media; Enter ICTs: compact discs, and CD. ROMS, video discs, microcomputer- based laboratories, the Internet's virtual reality, local and wide area networks, instructional software, Macs, PCs, laptops, notebooks, educational television,

voicemail, e-mail, satellite communication, VCRS, cable TV, IRI, etc the list of hot technologies available for education goes on and on."

All these are able to expand educational opportunities; promote efficiencies improve Quality of education, prepare for life long learning; enhance training for the workplace and Improve management.

2.4. ICT for Education: The parameters

By asking and answering the following questions Haddad and Draxler {2002 :} explaining the parameters of ICT for education:

...If ICTs possess all the potential to improve the teaching /learning process significantly, and revolutionize education enterprise, in the same manner they revolutionized business and entertainment, why have we not experienced such drastic effect? If technologies are the solution they claim to be, then what or where is the problem?

According to Haddad (2002) it is essential to make a distinction between potential and effectiveness. No ICT potential is realized automatically not in education, in business or in entertainment; many computerized businesses are managed badly and go bankrupt, and many movies are a complete failure. Placing Radio and TV in every school, putting a computer in every classroom, and wiring every building to the Internet will not solve the problem automatically. The problem is not strictly technological; it is educational and contextual; constraints must be alleviated and condition met; to facilitate the analysis the factors identified are organized schematically in three broad areas; namely, access, acceptance and availability. Access includes the basic requisites for the installation of use technology. Acceptance implies cultural &political factors that create or promote barriers to technology. Availability includes all

technologies related factor that facilitate or hinder project implementations. Experiences points to seven parameters necessary for the potential of ICTs to be realized in knowledge dissemination, effective learning and training, and efficient education services.

The Parameters are: - Educational policy, Approach, Infrastructure, Content ware, Committed and trained personnel, Financial resources, and Integration.

Parameter 1: Educational Policy

Technology is only a tool: no technology can fix a bad educational philosophy or compensate for bad practice. As UNESCO (2002) elaborates the idea:

The first question that has to be answered by National and educational Authority is "How essential are ICTs to national Goals?" Is the introduction of ICTs into education driven by vendors, by the need to conform to world trends, is it derived from national education objectives? Getting answers from educational ICT policy of a country is one of the seven parameters. It includes strategy questions.

Strategic planning for inclusion of ICTs in educational system is likely to be based on number of perceptions, such as

- Acceptance of a learner-centered educational approach that involves the use of multi-media resource for self paced, self directed, flexible learning;
- Acceptance that the role of teachers is changing from transmitters of knowledge to mediators in learning from a variety of information sources,
- The belief that systems that include technology can improve efficiency and/or effectiveness of student learning and
- A perception of accelerated growth in demand among stake holders for access to technology coupled with a rise in availability and use of ICTs else where in society.

Educational choices have to be made first in terms of objectives, methodologies and roles of teachers and students before decisions can be made about the appropriated technologies.

Parameter 2 Approach

Effective and efficiently utilizing ICTs in education needs to be able to animate, stimulate, capture reality, add movement to static concepts, and extended out touch to the whole universe, with imagination and appropriate tools. We can steal the thunder and touch the lightening, improve the way we teach our students and teachers, also improve the efficiency and effectiveness of how we run our schools. Hadad (2002:13)

If the ICTs fulfill their potential, innovation and change are called for at all levels the school environment, and that requires' a far reaching review of teaching policies and methods: The challenge, therefore, is to rethink, learning objectives and teaching methodologies, and to align learning technologies with them. As knowledge itself becomes a perishable item, the ability of learners to think independent, exercise appropriate judgment and skepticism, and collaborate with others to make sense of their changing environment is the only reasonable aim for education: Haddad (2002:13) continues his explanation on the issues. Perhaps the most profound shift is from systems of teaching and supervision of learning to systems of learning and facilitation of learning. These shifts will be difficult in different ways for both rich and poor school systems. In advantage communities, change is an upheaval for established authorities, systems, and capacities. In disadvantaged communities, the infrastructure must be put in to place along with serious attention to pedagogy.

Parameter 3: Infrastructure

The application of each technology falls over a wide spectrum, Haddad (2002) continuing his explaining on the issues in technology for Education from the simplest to the most sophisticated.

It is important, therefore, to identify the most appropriate, cost-effective, and sustainable technology and level of application for the different educational objectives. Then the whole pre requisites hardware infrastructure needs to be in place with the supporting elements such as electricity, maintenance and technical services. ICTs in schools require supporting infrastructure that includes electricity, communication, wiring and special facilities.

Parameter 4: Content ware-

Development of content software that is integral to the teaching/learning process is a must. It should be developed in accordance with its cullicular and instructional frame work. There are also important suitability issues both from the point of view of learning/ teaching objectives and acceptability of the means of communication.

- Reliable information on available audio video and digital materials, as well as relevant educational websites; any sources exist, such as the educational resource information center (ERIC) and the Latin net work of information and documentation in education[in UNESCO{2002:}.[Biotical, L.G martini L.Et. walt.L (2001)]
- An evaluation scheme to association the quality of available materials or website here again, there are groups that provide objective assessment of available materials. [Jackson, G.B{ 2000)]
- Identifying specific section of websites and relating them to curricular and instructional needs. Selecting relevant websites is like building a large reference library that is cumbersome and over whelming to the user. Experience is proving that students and teachers make better use of the website their needs are linked to specific sections. One of the most interesting examples is scilink (www.scilink.org)quoted in UNESCO[2002] , an innovative initiative by U.S National Science Teachers

Association, which links, relevant, age-appropriate, peer-reviewed web pages to the pages of science text books by placing scilinks icons and codes in textbooks margins at key subject areas (Brown,T.2001)

Parameter 5: Committed and trained personnel

Cuban L. [1986:] puts the issues:

People involved in integrating technologies in to the teaching/learning process have to be convinced of the value of the technologies, comfortable with them, any skilled in using them. Therefore, orientation and training for all concerned staff in the strategic, technical, and pedagogical dimensions of the process is a necessary condition for success.

Cuban {1986 :} has examined the history of attempts to use technology to promote reform of schools. He concludes that most of these attempts failed to adequately address the real needs of teachers in the classrooms. Instead, the efforts too often attempted to impose a technologists or policy makers vision of the appropriateness of the technology in the school. Teachers were provided inadequate assistance in using the technology, and the technology itself was often unreadable. As a consequence, the technology was not used by teachers or become very marginal to the schools instructional activities.

Cuban (1986) states:

Most teachers want to learn to use educational technology effectively, but they lack the conceptual frame work, time, computer access, and support necessary to do so. A well planned, on going professional development program grounded in a theoretical model, linked to curricular objectives, incorporating formative evaluation activities, and sustained by sufficient

financial and staff support is essential if teachers are to use technology effectively to improve student learning.

Carlson and Gadio (2002:122) explain that while technology increases teachers' training and professional development needs, it also offers part of the solution. ICTs can improve and preserve teacher training by providing access to more and better educational resources, offering multimedia simulations of good teaching practice, catalyzing teacher-to-trainee collaboration, and increasing productivity of non-instructional tasks. ICT channels enable in-service teacher professional development at a distance, as asynchronous learning, and individualized training opportunities. Finally, ICTs can overcome teachers' isolation, breaking down their classroom walls and connecting them to colleagues, mentors, curriculum experts, and the global teacher community.

Carlson and Gadio (2002) go on to state:

School directors, finance officers, and other administrative personnel also need professional development in the use of technology for instructional purposes. Technology can improve significantly the productivity of activities related to financial management, class schedules, personnel management, student ranking, administrative reporting, communicating with parents, etc.

Parameter 6 Financial resources

In selecting technologies for education, their beneficial sustainability should be considered and should also be cost-effective. Whenever education institutions invest in buying and networking technologies for educational activities, they should also budget sufficiently for their maintenance and technical support. It is important to plan and budget for the total cost of ownership (TOC) (Moses, K [2002]).

As indicated from the experience elaborated in literature, it is estimated that the annual costs of maintenance and support for a healthy education computer system can range between 30% and 50% of the initial investment in computer hardware and software. This make some donated computer quite expensive, especially when they are old, outdated, and require a lot of maintenance.

Parameter 7 Integration

There are two ways to integrate ICTs in the school curriculum. These are “disciplinary” and “integrative” forms respectively as referred by Talmi and Abron (2005). The “disciplinary” form considers ICTs as a discipline in itself, where as the integrative refers to utilizing ICTs for the teaching and learning of curricular subjects. ICTs as a curricular subject or “disciplinary” include some specific activities such as data processing, typing, internet use, and programming. The integration of ICTs in the context of other subjects a very sophisticated, multifaceted process and many aspects of it need to be tested on small scale before implementing in broad scale.

Haddad and Drax/er (2002) wrote:

From an instructional architecture perspective, technology enhanced materials may be designed in one of three ways:

1. They can be enrichment materials that may be used in addition to existing materials at the discretions of the teacher or learner in the same manner as a library book is used. In this case ICTs can be used as additional layer of educational inputs, which leaves the current system in tact but adds hardware and software for enrichment.
2. They can be structured multi media program that covers a particular course similar to a text book plus that is followed by all students in all schools in the same way. In this case

ICTs can be treated as an integral part of the existing instructional system. Under this option, the process involves articulating learning objectives, translating objectives/standards into teaching/learning activities: producing multi media curricular materials, training staffs, establishing a distribution communication network, assessing learning achievements, and evaluating the program. Here, ICTs are not a substitute for the classroom setting; rather, they enhance the role of the teacher as a facilitator and the role of student as a learner.

3. They can be multimedia modules that are constructed in a flexible way so as to serve as building blocks of different curricula and teaching practices. In this case, ICTs can be introduced through a parallel system such as distance education or e-learning. This option may be used in institutions where schools are not available or can not be provided, or where individuals can not enroll in regular schools because of lack of availability or personal reasons, as in case of working youth and adults.

To conclude the parameter of realization sets for reduces. The required competence and commitment can not be inserted into a project as an after thought, but must be built in to conception and design with participation of those concerned.

The challenge to integrate ICTs into education is enormous, but so are the potential benefits. As professionals agree with technology the sky is the limit, but with educational technologies, the sky is not the limit. The limit is human imagination and societal creativity.

2.5. Quality and Equity in Education through ICT

According to Rusten and Ehudsen (2002): Education systems must help to build higher order cognitive abilities, strengthen Processes of inquiry, enable collaborative problem solving, and prepare people to compete in local and global markets and become productive members of

society. Providing citizens with quality education is becoming ever more important with globalization and the increasingly dominant role information, knowledge, and digital technologies play in all economies. A new gap arising between those who have access to and can use modern information and communication technology (ICT) system and those who lack the access and ability to participate actively in the information age. Rusten and Ehdson (2002:77) explaining the solution to the problem no single solution exists to address immense challenges of providing quality education and bridging the ICT gap. One possibility is to develop and apply new approaches and strategies for teaching and learning that integrate computers, Internet enabled collaborative learning, and related educational technologies with routing teaching and learning. When used effectively and integrated into education, computer and Internet technologies can improve teaching and learning, strengthen teacher professional development, support broad educational reform, enhance school, Community partnerships, and improve school management. Cesar A.A, Nones and Gaible (2002:95-96) indicated that many nations are increasing their investment in education and education technology to support the transformation of teaching and learning. Yet, not enough attention is given to the development and availability instructional content ware that makes the investment in hardware economically useful or educationally meaningful. One possible reason is that equipping schools with radios, televisions, and computers, and connecting them to Internet is simple, compared to developing corresponding instructional materials. To build resources that enable learners to build knowledge, we must broaden our perspective beyond building skills and memorizing facts in the abstract: if these are our educational goals, technology will prove neither cost-effective nor effective in absolute terms. If our goals include enhancing analysis, synthesis, communication, and the grasping of interrelationships in the ways in which we represent our world, we will find that technology supports and empowers all our efforts along these lines.

The use of multi media as engine of learning is conditioned by several dynamic contexts, including evolving understanding of cognitive factors with direct bearing on learning and changes in school environment, ranging from infrastructure to resources to teacher development.

As explained in the report of 40th SEAMEO council conference [2005:3]:

“All of these can be done and effective through ICTs which have great potential for reaching out beyond the classroom and for improving educational quality. A great deal the value of ICT in education lies in its capacity to stimulate innovation and creativity in all areas of pedagogy and management. The ICT of the 21st century offers new ways of managing educational processes and the ability to access and analyze vast data and information quickly and efficiently enables better decision making as indicated in final report 40th SEAMEO council conference “

The report (2005) continues to state

ICT can help to deliver learning programs not only at school levels but at adult and professional levels too, such as teacher education through distance education. It can promote continuing education or life long learning for out of school children, youth, illiterate adults, out of school learners, parents, families, business people, community leaders, local villagers tribal people, and the population in rural areas, and involve families and youth in community education

In many parts of the world learning is increasingly taking place in an informal, media based context, especially through the Internet. This wealth of information resources must be accessible by all, and the digital divide between the rich and poor; the urban and the rural, the physically fit and disabled, and those with sensory impairments, and gender balance, must be taken in to

account when policies about ICT are formulated. In addition, these information resources must be accessible in an equitable and structured way to ensure overall improvement in learning achievement.

2.6. The Concept of New Media and Multi-Media in Education

Using new technologies can not be taken as replacement conventional teaching and teachers roles but rather transforming (revolutionizing) them into a more scientific approach and roles. The introduction of improved hardware and software can increase the quality of instruction. According to Flew (2003) the new media can be thought of as digital media. Digital media are forms of media content that combine and integrate data, text, sound, and images of all kinds; are stored in digital forms, and are increasingly distributed through networks such as those based upon broadband fiber optic cables, satellites and microwaves transmission system.

Therefore, multi-media refer to technologies that present information in more than one medium. Multi-media is a means of constructing flexible and attractive teaching and learning resources that integrate text, pictures, graphics, animation video, music and sound" (Crawford, 1997). According to Nunes and Goable (2002) By establishing the potential the artful interaction between learners and content intertwining information, skills, and even the synthesizing vision that is so important to comprehension-multimedia "content ware" is effective across the wide range

- Enhance learning in different location in schools of diverse quality.
- Present opportunities for students working at different rate and levels,
- Provide (tirelessly, without holding up other students) repetition when repetition is warranted to enforce skills and learning; and

- Compensate, the short term, for high student population and limited numbers of trained and experienced teachers- in combination with robust teacher development initiatives improvement teachers' working conditions.

In summarizing the potential and the realization of multimedia knowledge dissemination, effective learning and training and efficient education services; the following should be clear for each stake holder.

Multimedia resources considered in terms of both products and process has great potential to enhance education. New modalities and instruments for development and delivery have radically increased the support that these resources can give students across a wide range of learning activities. Despite the glamour of technology rich environments, focuses remain on learners, and their motivation and challenge; on the knowledge domains to be explored, and on the communities in which learning will take place. We also must keep in mind that developers, teachers, and students all have roles to play in the creation of multimedia, and one of the chief goals of policy must be to support appropriate activities by each of these groups.

Despite the complexity of their interaction, the contexts for development and implementation- cognitive, instructional, and technological can be balanced so as to advance strategic goals and plans with in our education systems. Cognitive science, in particular can guide and give shape to innovation is the development of learning environments, multimedia resources, and teaching learning practice.

Authoring tools support increased ease- of use and increased power, creating change in development term; and processes at all levels, from the professional to the students. As the above quoted writes mentioned. These tools also give rise to new economies, based on reuse, shared code, and more flexible plat forms. Institutional and professional developers can create resources

that are compatible with the computing platforms and communications infrastructures available to their target populations. Development at all levels by students, teachers, and professionals can be promoted through the establishment of libraries or repositories of multimedia resources. Such repositories become focal points for active collaboration, sharing of information, and reuse of materials. Appropriate protection of intellectual property and of public access must be balanced, using mechanisms that may include the LGPL or GPL

2.7A Brief Review of Experiences from others

Opportunities in education, training and research are critical for the development of any country. In countries with restricted access to secondary and tertiary education, the human capital for these activities is often lacking (UNDP, 2007:173) for developing countries ICT has the potential for increasing access to and improving the relevance and quality of education. Thus, ICT represents a potentially equalizing strategy for developing countries Tinio, (2002:

6) Studies conducted in several African countries have indicated that the deployment of ICT in education plays an important role in helping teachers and students in their teaching and learning process. For instance, according to open university (2005:72), ICT use enhance teachers' professional knowledge and capability by permitting new forms of teacher to teacher cooperation, extending subject knowledge, enabling planning and preparation for teaching to be more efficient, and for developing the range of the teachers' existing pedagogic practices. Similarly the deployment of ICT in schools has been identified as enabling students to develop confidence in using the tools themselves and in gaining advantage within and out of lessons.

Siddiqui (2004:1) has also pointed out that new technology based models of teaching and learning has the power to dramatically improve educational outcomes. Thus, ICT facilitates students centered strategies and provides students with highly flexible system of learning geared

to individual life learning styles. H.etal, {2005:34) Thus in the current knowledge society schooling is becoming a life long endeavor, and schools are becoming accountable for performance and results. This situation necessitates a significant change in the Ethiopian education system so that ICT can be fully and effectively in education institutions. However, deployment of ICT alone can not bring the required changes in the system, unless student needs are addressed and productivity of the education system is ensured. Increased productivity of the education system, according to David (2004:50), comprises appropriate combination of the following three things.

1. Students have to learn better and faster with increased understanding;
2. The content of what students learn has to be improved so that is becomes more appropriate to produce a productive citizen in our information age society,
3. The educational system should become more accountable for its performance and results as it accomplishes 1 and 2 with fewer employees and/or with less labor costs.

In this regard one can appreciate the Mexican Telesecundaria and BRAZIL's Telecurso2000.

According to UNESCO [2002; 146] Mexican Telescundaia's programs are aired from 2 pm to 8 pm. a second shift of students. At eight o'clock the teachers in all of Telesecundaria schools in Mexico turn on the TV. The students then watch 15 minutes of television. At the end TV session, the set is turned off, and the book, work book, and teacher take over, following detailed instruction on what to do in the remaining 45 minutes. At first, the teacher asks whether students need a better understanding of the concepts just seen. Then, they might read aloud, apply what was taught in practical exercises, and participate in brief evaluation of what has been learned. To finish, there is a review of the materials taught. At 9 Am., another subject starts, following the same routine.

In contrast with traditional schools, where students use a separate text for each subject, Telesecundaria students use two: a book of basic concepts that provides explanations of the televised lessons and covers all core subjects, and a student learning guide used to engage students in group activities to apply lesson contents to practical situations. Teachers follow a guide that contains instructional strategies and learning objectives. The guide also helps teachers to overcome some of the limitation they may encounter because of unavailability of teaching materials or learning tools and provides strategies for adapting the lesson to local context and individual student needs.

Telesecundaria teachers and supervisors also receive in service training through televised programs that are broadcast during afternoons or on Saturdays. In addition, Telesecundaria is implementing a training program designed to update teachers on teaching techniques and materials.

Considering, Brazil Telecurso 2000, it is a condensed version of a basic curriculum for secondary education, to be provided through combination of direct television, videotaped classroom sessions, and books. Thus, both television sets and video cassette equipment are used. In addition, an optional curriculum is offered that focuses on teaching basic mechanical skills {the vocational course on mechanics}.

Initial discussion on development of a curriculum for the three courses to be offered by Telecurso 2000 {Level one, Level two, and the vocational course on Mechanics} were led by education specialists who wished to define basic skills in the context of a postindustrial society. With that beginning the following guiding principles for educational program of Telecurso were developed:

1. **Job -oriented education** Educating workers to enable them to relate in a meaningful way to life in society, bearing in mind the fundamental role of education in ensuring worker productivity.
2. **Development of basic skills.** Enable people to learn how to organize their thoughts, solve problems involving numbers, interpret what they read and apply it in different situations, read and express themselves in another language, understand manuals, develop basic know-how in economics and quality control to be able to produce more and better products and eliminate waste, and hold discussions by making use of cognitive and social skills.
3. **Citizenship education.** The nature of the new relationship among science, technology, and society makes it necessary for workers in all categories and at all levels to broaden the scope of their learning, so they can play an active role in the political and cultural life of their countries. **Production- oriented skills** must go hand-in-hand with civic responsibility.
4. **Contextualization.** The most advanced teaching theories stress the importance of applying what is learned in class to situations that arise in daily life. In other words, life provides the material for the teaching of specific skills.

All these enormous and rich experiences can be taken, tested and contextualized; so we are resourceful if proper effort is exerted.

2.8. Benefits, challenges and opportunities of the Ethiopian School Net project [Education ICTs net working system]

Berhan (2008:11) states that: The Ethiopian government and UNDP acknowledge the fact that poverty reduction and sustainability of development can be geared through the successful integration of ICT in to the education system for improving the quality of education.

According to UNDP program support Document, Quoted in Berhan (2008)" the objective the school Net, Ethiopia component of the ICT support program is to (i) create access and initiate ICT capacity building in secondary schools in Ethiopia, (ii) provide teacher development in the use high information ad communication technology (ICT) as a teaching learning tool; and (iii) expand ICT opportunities for communities through school based information center. Through UNDP's country cooperation Framework (CCF2) project, more than 3000 computers and 196 heavy duty laser jet printers were supplied to 196 preparatory secondary schools, more than 2400 teachers directors and woreda administrators were trained, while local Area Networks and Internet connection have been achieved in 181 schools. UTP cable, RJ-45, complete toolkit, crimping tools were also distributed to 161 preparatory secondary schools (which were first covered by the project) via the regional Education Bureaus. (Ibid: 12)

The UNDP's DELCAD (Developing Local capacity for the Achievement of the MDGs project #00061016 assistance helped the school net project to work hard for the realization of the Governments and UNDPs dream of enhancing the quality of education through the utilization of ICT. in 1999 E.C (2006/07) there were 19,070 primary and 777 secondary schools in the country (MOE, 2008:73) out of these, only the secondary schools provided plasma TV assisted education. Further more, only 196 of the preparatory secondary schools are covered by the UNDP assisted school Net project, and only 181 of them had access to the Internet. The plasma

TV assisted education and access to the internet in most of the schools was realized through VSAT (Very small aperture Terminal) and related telecommunications equipment. The education Sector Development programs (SSDP I-III) have emphasized the role of ICT and the need to use it to improve the quality of education (MOE, 1994, 1998, 2002 2005)

A study based on the project monitoring and evaluation mission conducted from 04MAY – 04 AUGUST 2008 initiated by Government and UNDP indicated in elaborated ways. The results and discussion in relation to the benefits/ strengths, challenges and opportunities of the implementation of the Ethiopian school Net project on the basis of the collected and analyzed monitoring millennium Development Goals and evaluation data are summarized as following:-

Benefits of the project

The internet line provided to use 24 hours, users have the opportunity to use it at any time they want to down load notes/references, School computer and Internet laboratories increase access to ICT for education,--On-line communication has opened opportunities for teachers in distance and summer education. The plasma Television exists in all preparatory and high schools, to broadcast education uniformly all over the country, By establishing ICT clubs in some schools there is an attempt to share ideas and experiences for enhancing the use of ICT in education as well as to train community members coming from outside of the schools. Provided equal opportunity for students learning in different corners of the country, where there is no equal availability of textbooks, references material. The plasma TV assisted teaching learning process was particularly found instrumental for subjects that require laboratory experiments in the absence of equipments chemicals in the schools. It has demonstrated a very effective and efficient way of teaching and learning process by displaying latest instrument used as teaching materials. Latest development in the sector can be learnt easily and timely ICT, specifically the Internet has provided a wide range of opportunities in obtaining latest publications not available

in the school libraries. ICT provided an opportunity to communicate with others educational institutions and professional, leading to experience sharing and problem solving. The plasma assisted teaching has greatly helped students and teachers presenting ideas that may not be easily presented and explained by the classroom teacher.

Major challenges of the project

Shortage of computers, failure of ICT equipment (such as computers, printers, networks, plasma TVs, etc) due to virus, dust, mishandling and other technical problems; Lack of trained teachers leading to a serious human capacity gap; over worked/ over load of ICT focal persons leading to closure of ICT laboratories; Lack of Internet access and technical support from Ethiopian Telecommunication corporation (ETC); Lack of ICT related text books and reference materials, electric power interruption; Miss match between the transmitted contents and the schedule of plasma TV transmission given to schools, lack of latest syllabus for the plasma assisted lessons; Complete absence of student centered approach making students passive listeners and adversely affective active learning; lack of student teacher interaction during lessons due to the short time allocated for students to do exercise (to ask and answer question) for teachers to explain, and summarize lessons; Lack of computer drivers' and other software resources for reinstalling device drivers and other operating systems and applications so that computers cannot function properly; Lack of awareness of computer security leading to accessing illegal sites and downloading harmful contents/ software; etc.

Although there are CDs containing the contents; including workbooks, teachers guides and other supporting materials the lesson of the subject that are transmitted using the plasma TV, teachers could not make use of them due to several factors. The factors range from shortage resources to lack of comprehensive ICT skills. For instance, teachers mentioned that there is no budget for

printing the contents that contain four components for each subject taught using the plasma TV. These are some of the major challenges faced by schools & revealed by the study; according to Berhan (2008) considering the opportunities of Ethiopian school Net project, comment and suggestion was forwarded. Based on the literature reviewed in the study, inferring that! ICT plays an important role in strengthening the teaching and learning process, and hence ensuring better student achievement. Thus, if the above draw backs or challenges are corrected, there are a variety opportunities that ICT in general and school Net project in particular can play to enhance quality education. But if it is not handled systematically to address individual and social needs of quality education, it would be useless and leads to wastage, Berhan (2008)

Even though this is the strong pressing recommendation given as the results of the study conducted before about three years, the study did not deal with the decisive role of education ICTs management should be played. The basic question that should be raised and answered is: how much has been done to handle it systematically up till now.

Brook {2006} says in his study focused on the evaluation of school settings, administrative structures, reaction of students, teachers and school administrators through school and classroom observation:

Teachers and students in public schools with surrogate teaching are growing reluctant to use their free time namely evenings and weekend for tutorials, makeup classes and examination sessions. The teacher load becomes easier do not make any plan for teaching, do not preparing teaching aids or experiments and field activities. Since students spend watching TV all day and are not engaged in any activity that makes teaching lively process``.

The research conducted by EMA on 11 regions, 54 schools to evaluate the merit demerit of the satellite TV instruction and using the result for the improvement of the program, has indicated the weakness and strength of the plasma TV instruction. The study indicates the failure of the plasma instruction intrinsically and rationales given, had been more of technical and power failure, pacing of the program, attitude of the teachers, back ground of students etc...More over, the study encourages the plasma instruction in teaching learning process, because, the result of study shows that it can be best for the future if properly utilized. But the study did not indicate the whole and clear educational and contextual meaning of the proper utilization of the technology in full-fledged.

As the document from CEICT [former EMA]{2003/2011} indicates, the plasma TV assisted education discontinued the transmission of most of the programs except economics, business and technical drawing in 2003/2011; because the subjects are in the process of being improved based on the improved curriculum. As the document from ICT center (EMA) indicates, 50% of the subjects lesson topics were remaining to the classroom teachers as non-plasma class, and the other remaining lesson topics are treated as plasma class with the maximum of 20 minutes transmission and the remaining 20 minutes left to the classroom activities of students facilitated by the subject teacher. The effectiveness of intended programs must be tested before implemented

As a whole using the experiences of others, hitherto practical and theoretical instruments and research findings/outcomes as string board, a study should be conducted on availability and utilization of satellite TV education.

2.9. Television as Instructional Medium

The subject matter or what the instructional Television is according to the International Encyclopedia of Education (1994:2891) generally refers to the programming designed for a specific instructional task. It is a term used to describe formal school, college or university instruction via television.

Instructional Television is a medium which provides better ways of the subject matter to students by combining sound and visuals so that complex or abstract concepts can be illustrated through visual simulation. It has the potential to enhance the quality instructional programs in schools by way of providing a change from traditional classroom teaching and actual textbook learning. According to Wills (2002) ITV is a teaching media that can be integrated into a curriculum at three basic levels; single lesson, selected unit, and full course. Single lesson refers to ITV programs addressing one specific topic or concept by way of providing a lesson introduction, overview, or summary. Selected units are series of programs providing the content foundation for a learning unit in the course curriculum. Full course programs are one or more ITV series that are integrated into a full semester course in conjunction with the printed textbook.

The utilization of Instructional Television programs can be either passive or interactive. To raise the idea of Wills (2002) again, passive programs are distributed through video cassettes, Interactive ITV programs, however, provide opportunities for viewers' interaction either with a line instructor a participating students' site. For example, two way audio allows all students to view and interact with the teacher. At the same time, cameras at remote sites allow the teacher to view all participating students.

In the case of our Satellite TV education currently implemented in secondary schools, there is expectation of developing to this level by using computer assisting digitization process, though,

it is lagging behind. Based on the experiences, findings or outcomes of other studies and also recommendations which would be the result of this study, it can contribute a lot in educational development.

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

3.1 Research Method

Descriptive survey approach was employed in the course of the research work for the purpose of study to investigate the extent of ICT in general, satellite educational TV in particular contributes for the equity and quality of education and what short comings and gaps observed in the process from qualitative and quantitative data. This approach is useful to present a complete description of phenomenon (problem) with in context

3.2 Sources of Data

There were primary and secondary sources in this research study. The primary sources are students, teachers and directors of Sheno, Sendafa, Ambo Menelik II, Kokkebatsibah secondary schools, educational media representative of Oromia and Addis Ababa Education Bureaus, and members of ICT department management of MoE.

The five secondary schools were purposely selected for their having different experience on the utilization of plasma TV instruction and characteristics.

So from Oromia, western shoa Ambo high school selected among 11; sendafa among 15 special zone schools and sheno among 19 schools of north shoa.

From Addis Ababa kokkebatsiba among 5 schools of Yeka and Menelik among 5 schools of Arada sub-cities.

Government relevant policy documents, annual statistical abstracts and wider literature were used to be secondary data sources in the study.

3.3 Sample and Sampling techniques

There are nine regional states and two city administration in Ethiopia. Because of their large size and the assumption for having wider impact, Oromia regional state and Addis Ababa city administration are purposely selected for the study. Oromiya has 17 administrative zones and two zones, namely, Finfinee zuriya, west Showan (Ambo) and North Showa zone are selected purposfully. One secondary school from each zone was selected using purposive sampling technique. Similarly two sub-city administrations Arada and Yeka were selected and one secondary school was selected from each sub-city. The directors of the schools were selected purposefully, because they have much to do with management of the teaching-learning process in the schools a total of 132 students and 42 teachers were selected randomly from each school and the following table shows total number of respondents.

Table: 2 Sample schools & respondents

Regional state	Secondary school	Sample				Media experts
		Principals	Teachers	Students	Total	
Oromia	Ambo	-	9	23	32	1
	Sheno	1	7	30	38	
	Sendafa	1	10	27	38	
Addis Ababa	Kokkeb Tsibah	-	9	29	38	2
	Minilik K 2 nd	1	7	23	31	
Total		3	42	132	174	3

In addition, two media experts and concerned persons from each education bureaus of Oromia & Addis Ababa and ICT department of MOE were selected using purposeful sampling technique. 10 students from each grade from 10 to 12 grade of Sheno, Sendafa and Kokeba Tsibah totally

90 students while, from Ambo and Menelik II preparatory schools 25 from each of the School, In addition sample random sampling technique was used to select 10 teachers from each school.

3.4 Data collection Instruments

Denzin,(1970) in Mariam (1998) states that, the use of multiple methods of data collection is useful for triangulation. The rationale for this strategy lies in the fact that limitations of one method are often the strength of another and by combining methods, researchers can achieve the best of each, while over coming the deficiencies (Mariam 1998) Hence a combination of instruments namely; questionnaire, interview and review of documents were used in the study

To obtain primary information from students, teachers, school directors, ICT focal person, media officials and experts, open and close-ended questionnaires for students and teachers, structured and semi structured interviews for the remaining respondents, prepared, organized, and relevant documents were collected. On top of this, document analysis was employed to generate information from secondary sources.

3.4 Method Of Data Analysis

Both quantitative and qualitative method was used to analyze Data collected from primary and secondary sources. Responses collected from the teachers and students through questionnaires were tallied and summarized. Thus, the data were interpreted by using descriptive analyses, i.e. frequency and percentage data was entered into the statistical package for social science (SPSS) computer program and quantitatively support the result the descriptive statistical analysis.

CHAPTER FOUR

4 PRESENTATIONS, ANALYSIS AND INTERPRETATION OF DATA.

This chapter presents data, analysis of data and major findings of the study

4.1 CHARACTERISTICS OF RESPONDENTS

The respondents are categorized into six major groups. They are Students of secondary and preparatory schools, Teachers of secondary and preparatory schools, directors of the schools, Addis Ababa City Government Education Bureau media experts, Education Bureau media Experts of Oromyia national state, and Educational media expert of MOE ICTCE, who renders technical support to Education Bureaus . The recent annual statistical abstract concerning facility of educational ICTs produced by EMIS of MOE was used in analyzing the availability of the technologies.

Table 3 Characteristics of Respondents [teachers& students]

No	Item	Education officials		Principals		Students		Teachers	
		No	%	No	%	No	%	No	%
1	Sex Male	3	100	3	100	66	50		
	Female	-		-	-	66	50		
	Total	3	100	3		132			
2	Age 15-16 years	-	-			13	10		
	17-18					98	74		
	19-20					21	16	2	5
	21-22					-	-	-	
	23-24					-	-	5	12

No	Item	Education officials		Principals		Students		Teachers	
		No	%	No	%	No	%	No	%
	25-26					-	-	-	
	> 26					-	-	35	83
	Total					132	100	42	100
3	Qualification					30	23		
	Grade 10								
	Grade 11					42	32		
	Grade 12					60	45		
	Certificate					-	-		
	Diploma					-	-		
	1 st degree	1	25	2	75	-	-	40	
	2 nd degree	2	75	1	25	-	-	2	
	Total	3	100	3	100	132	100	42	
4	Service[Experience]	3						5	12
		4-6						8	19
		7-9						3	7
		10-12						2	5
		13-15						3	7
		>16						21	50
	Total							42	100

The questionnaires prepared and administered for randomly taken sample teachers, who are teaching in those schools grade 10th to 12th shown in the same table 4.

Out of the planned 50 teachers 42, responded, and questionnaires were collected. This is indicating that 84% of the planned sample was completed

As it shown in the Table 3, 50% the teachers (respondents) have an experience of above 15 (fifteen) years. All of the respondents (100% of them) are first degree holders with their respective specialization of subjects, which they are teaching now.

Concerning the interviewees two types of structured questions were prepared and administered. The first type was prepared for 5 secondary and preparatory directors/As-directors only 3 of them responded, recorded and analyzed. The second type was prepared and administered for two education Bureaus and for one CEICT of MOE. Media experts' _3_ of them responded, recorded and analyzed.

4.1.1 Students and teacher

Two secondary and preparatory schools and one preparatory school from Oromia were selected and then randomly selected student and teachers from each were given questionnaires. The same was done by selecting one secondary and preparatory school and one preparatory school from Addis Ababa.

Questionnaires were prepared and administered to students as indicated in the table 3 questionnaires were distributed and collected.

As it can be seen from the table, from out of the planned 140 sample students' data were collected from 132 which indicating a response rate of 94%. It indicates that 50% of the respondents are males and (50%) are females. Concerning their ages (74%) of them are between 17 and 18 years old!

Therefore, the data show that almost above three-fourth of them are in proper secondary and preparatory school admission age. In regarding their grade level (41%), of them from grade 12, (37%) of them are from grade 11, and 29 (22%) of them are from grade 10. It indicates that most of the students from grade 12 imply that most of the students have experience in utilizing plasma TV education programs.

ANALYSIS OF DATA

Table 4 Availability of ICT facilities in-secondary schools (2009/10)

Regional States	Total no of schools	Total no of classrooms	No of schools with electricity		Schools with Internet		Classrooms with plasma TV	
			No	%	No	%	No	%
Tigray	109	1342	51	47	24	22	813	746
Affar	13	71	9	69	5	38	61	469
Amhara	262	4682	173	66	59	27	1771	676
Oromia	461	6835	370	80	83	18	3395	736
Somali	34		7	21	1	3	97	285
Benishangul	37	209	21	57	4	11	130	351
SNNP	228	3007	181	79	52	23	2097	920
Gambella	21	81	8	38	1	3	7	88
Harari	8	98	8	100	7	88	71	888
Addis Ababa	166	4581	158	95	50	30	618	
DireDawa	16	2105	16	100	4	25	80	500
	1352	23,011	1002	74	340	25	9548	705

Ratio to 2ndry schools			0.74	0.25	7			
Total classes of schools			Radio of Plasma TV to the class	Ratio of Internet to the classes				
23011			0.41	0.015				

Source Statistical Abstract MOE (2002/2010)

The shortage of ICT infrastructure table shows availability of facilities such as electricity and internet and plasma TV that is required for plasma education program to be transmitted. It

indicates that considerable schools have not been furnished with ICT hardware infrastructure .Among them the basic are electric power & Internet. Without electric power Satellite TV [plasma] can not be operated, and transmission is impossible. How one can talk about quality & equity of education through ICTs in such status?, even the schools which have been furnished with full ICTs hardware & software were & are troubled and interrupted frequently for technical and physical problems

In Oromia 20% of secondary schools are without electric power and 82% of them are without Internet. In Addis Ababa 15% of secondary schools are without electric power and 70%of them are with out Internet. These data enable to infer some one that the students of those schools can not compete with the students' access to these facilities.

Table5. Availability of ICT facilities in sample schools (2009/10)

Regional State	School	Total No. of classrooms	Classroom with plasma TV		Electricity		Internet	
			No	%	No	%	No	%
Oromia	Ambo	43	43	100	Yes	-	-	√
	Shano	23	23	100	Yes	-	-	√
	Sendafa	23	23	100	Yes	-	-	√
Addis Ababa	KokkebTsibah	72	70	97	Yes	-	Yes	-
	Minilik Secondary	61	54	89	Yes	-	Yes	-

Table 5, sample schools have all most sufficient plasma relatively but, most of the plasma TV is dysfunctional, because of lack of net work, and accessories. As indicated in table except in Addis Ababa the remaining sample schools in Oromia are not access to Internet.

4.2.1 Teachers\ responses

Regarding the question posed to the teachers to suggest on expanding ICT, especially Internet for educational activities, most of the respondents suggested that it is unquestionably, is necessary for educational activities. However, its expansion and implementation for education

must be bladed with the solutions for the problems have still been seen, available hardware based on sufficient infrastructure such as uninterrupted electric power, wiring and with sufficient spare parts, accessories should be fulfilled....

Internet Facilities

Table6: Internet Facilities in sampleSchool

Item	Responses	Respondents		
		In number	In %	Remark
Is there internet access in the school	Yes	8	19	
	No			
Do you utilize internet for the enrichment of instruction activities	Yes	8	19	
	No	23	55	
	No response	11	26	
	Total	42	100	

Table8 shows that the number of teachers’ gets access of internet at their school is insignificant. Thus, majority of the teachers do not get opportunity to update their knowledge and skill using technologies in their schools.

Table 7: Availability of Support Materials in sample Schools

<i>Item</i>	<i>Responses</i>	<i>Respondents</i>	
		<i>In number</i>	<i>In %</i>
Are you provided with other support materials Teachers guide	Yes	17	40
	No	20	48
Instruction (plasma) video series provide by DPICT (ICT center of MOE) teachers manual	Yes	0	0
	No	31	74
cassette recorder	Yes	11	26
	No	21	50
play books	Yes	1	2
	No	31	74
Do all classes utilize plasma TV	Yes	28	64
	No	9	21

In responding for the question supportive material, almost all of the respondents were not able to get supportive materials in their schools, so one can judge that the teaching learning process lacks so many crucial materials for the effective and efficient implementation of ICT program. In utilizing plasma TV 21% of the teachers responded that all classes do not utilize because of trouble and dysfunction of plasma TVs.

Table8 Depicts teachers responses concerning the technologies utilization training

<i>Item</i>	<i>Responses</i>	<i>Respondents</i>		
		<i>In number</i>	<i>In %</i>	<i>Remark</i>
In-service training related to the ICT /plasma/ assisted education programs	Yes	10	24	
	No	32	76	
	No response	-	-	
Total		42	100	

Table8 indicates that about 76% of the respondents did not take in service training. This indicates the existence of training gap for school teachers regarding the utilization of

technologies in education. Out of 42 respondents only 10[24%] of them have in service training related to ICT[plasma] utilization. The responding for question posed to whom having trained depicted in the table:

Item	Responses	Respondents		
		In number	In %	Remark
Do you think the training Was enough to utilize the Programs properly	Yes	9	90	
	No	1	10	
	-	-	-	
	Total	10	100	

As illustrated in Table among the teachers who have taken in service ICT/plasma program utilization training, 9 [90%] of them agreed that it is enough to utilize the program properly. Whereas, 1[10%] of them said that it is not enough. The remaining 32[76%] teachers who have not taken training, in responding to open ended question, suggested that training at once is not enough. They have suggested that utilization training should be continuous in teaching-learning process.

Major problems Raised by Teachers while Teaching with ICT (plasma) Assisted lessons are electric power interruption, lack of program guide and other support materials, the time allotment that makes students passive, shortage of computers and connectivity of internet, lack of spare parts (accessories) for maintaining hardware.

Possible temporary Solution forwarded by teachers is, talk and chalk soon take place, using text book and plasma program guide [Where it may be available] conducting tutorial class, always ready to have a preparation to take over teaching in case of power interruption, and some also says no alternative other than waiting for the next..

Some other solutions for the above problems are described by teachers as followings:

power substitution for example generator and the like should be reserved, programs should be supplementary and interactive with in enough time, video cassette or CD (recorded programs) should be distributed to schools, searching/ looking for options to get spare parts for plasma and for other ICTs spare parts in case of dysfunctional plasma and other ICTs.

Similar question posted to students, that “Whenever there is program interruption, how can you get the lesson again?” In responding to this question, most of the respondents said by tutorial period, by their teacher at a moment, and some said we do not get it again.

Teachers requested to respond their experiences what would suggest in regarding of utilizing the followings, for improving quality of education. Accordingly they responded as follows.

Regarding plasma assisted education programs summarized responses: They are good, if time management and interactivity is improved. The programs should be produced in such as supplementary to the teaching/learning process, without replacing a classroom teacher depending totally on plasma and exclude interactivity, which hamper the quality of education If awareness, program guide, program video and sustainable power are available, can contribute in improving quality of education, enables providing standardized education. Computer assisted instruction (digitized) program is necessary and instrumental for improving quality of education; it may give opportunities for students as they can do tasks by themselves essential and enable them to develop all round capacity.

Internet connectivity is unquestionably an instrumental for improving quality & equity of education, it paves the way to enrich learning/teaching activities, and its availability helps students/ teachers in getting further information from web.

It helps the users and implementers to employ the technology properly; however still there is lack of training in utilization of software and maintenance of hardware.

In addition to that, teachers also requested for other comments on the improvement of ICT for education briefly, so they replied that.

Students can get opportunity to exert their potential and innovate different activities, is not comparable with any, if it is managed appropriately ICTs should not replace the teacher rather than supporting him or her.

In generalizing the teachers present status and the expect role they should play must be clear.

Effective utilization may not be possible without the desire on the part of the classroom teacher to utilize the ICTs for education in general, satellite TV Education program (plasma) in particular. The desire may exist if the teacher is aware of the advantages of using technologies whenever instructs the subject. Thus, providing teachers with awareness raise and utilizing method training is crucial. Otherwise, teachers may resort to (oppose to) what they feel is the way to use it. .

4.2.2 Students Response

Students' Level of ICT Awareness

For the question posed in relation to the level of awareness on ICT, the respondents replied as shown in Table.8

Table .9 Rating scale of ICT Awareness of Students

<i>Item</i>	<i>No. of Respondents</i>	<i>Percentage (%)</i>	<i>Remark</i>
High	31	23	
Medium	59	45	
Limited	30	23	
Low	12	9	
Total	132	100	

NB!:- 75 – 100 High
 50 – 74 Medium
 25 – 49 Limited
 < – 25 Low

As shown in the Table 9, 45% of the respondents responded that they are in the medium level of awareness; students belong under high and limited levels of ICT awareness share equal percentages (23% each) and the least 9% of the respondents leveled themselves at low level of ICT awareness.

Chi-square test was applied to test the influence of sex and grade level on students' ICT awareness level

Table 10: ICT Awareness of Students by Sex using Chi- square Test Analysis

Grade	Frequency of Rating Scale				Chi-square	df	Sig. (2 sides)
	High	Medium	Limited	Low			
Male	15	30	15	6	1.00	2	0.000
Female	16	29	15	6			
Total	31	59	30	12	132		

The calculated Chi- square is 1.0 at 95 degree level of confidence, whereas tabulated value of Chi-square is 5.99. This implies calculated Chi-square is less than the tabulated value. Therefore, null hypothesis is accepted i.e. there is no variation on awareness of ICT among students by their sex. This means, sex has no influence on ICT awareness of students.

Table 11: ICT Awareness of Students by Grade Level using Chi- square test analysis

Grade	Frequency of Rating Scale				Chi-square	df	Sig. (2 sides)
	High	Medium	Limited	Low			
10 th	7	11	10	2	27.5	6	0.000
11 th	11	19	8	4			
12 th	13	29	12	6			
Total	31	59	30	12	132		

Table 11 indicates that calculated Chi-square is 27.5 at 95 degree level of confidence. However, tabulated value of Chi-square is 12.592. This implies calculated Chi-square is greater than the

tabulated value. Therefore, null hypothesis is rejected i.e. There is a variation on awareness of ICT among students by their grade levels. This infers, with increasing educational level of students there is a better understanding of ICT application.

For the question raised about the role of ICT in education, students give responses as follows in Table 8.

Table12: Responses Given on ICT Roles in Education from the Total of 132 Students

<i>S/N</i>	<i>Roles of ICT in Education</i>	<i>Yes</i>	<i>%</i>	<i>Remark</i>
1	ICT is an aid (supportive) for teacher	78	59	
2	ICT makes teaching-learning conducive and easier	74	56	
3	ICT helps to present information of new discoveries	82	62	
4	ICT makes complex ideas clear and concrete	84	64	
5	ICT helps to present unusual pictures and examples	88	67	

As shown in the Table.12, most of students 67% replied that ICTs help to present unusual pictures and examples; 64% responded ICT makes complex ideas clear and concrete in education and 62% responded that ICT helps to present information of new discoveries. In addition, 59% replied that ICT is used as an aid for teacher and the least in contrast to the above, 56% agreed that ICTs make teaching-learning process conducive and easier. This reflects that some aspects of the roles of ICTs in education are well recognized by students.

Satellite TV Education Program

Randomly selected students (total 132), requested to respond whether they provided supportive materials or not during satellite TV education program at their schools. Accordingly their responds are presented in Table 13.

Table 13: Provision of Supportive Materials

Supportive Materials Available	No	Percentage (%)
For each student	16	12
For group of students	40	30
For subject teachers only	50	38
None	26	20
Total	132	100

As seen in the Table13, most of the students responded that supportive materials including program guide are only in the hands of their teachers. Small numbers of students got the materials and some of them owned by group and a considerable number of students restrained themselves to respond. All these conditions indicates that there was no a systematic way of distributing the materials equally.

Problem Encountered

When every supportive material does not available to students what negative impact would be on learning process? For this open ended question the respondents put the following suggestion from their experience.

- a) They cannot prepare for the next lesson
- b) They cannot develop of confidence & good attitude towards the program
- c) They do not know what lesson is incase it is missed
- d) They cannot refer the concepts, pictures models and charts they may miss in the classroom.

- e) In generalizing their suggestions, due to the absence of supportive materials such as program guides and the like, student could not access to missed programs and resulted remaining without learning the missed lesson.

Question also posed if there is negative impact on plasma TV assisted programs in understanding of the content of the lessons. In view of that 62% of students responded affirmative and 2.8% of students said there is no negative impact. The rest 10% of them do not respond.

For the question posed to these who responded affirmative in the above question, to rank in numerical order inhibiting learning situation in the programs. The following results in Table 11 are obtained.

Table 14: Inhibiting learning situation

<i>Rank given</i>	<i>Item</i>	<i>Frequency</i>				
		<i>1st</i>	<i>2nd</i>	<i>3rd</i>	<i>4th</i>	<i>5th</i>
1	Absence of interaction between students and presenter	4	9	8	13	14
2	The shortage of time shared for the teacher	8	3	13	11	6
3	Listening difficult of English language	24	8	5	6	6
4	Due to not sufficient notes is given	1	9	5	9	16
5	High speed during transmission	12	16	10	7	1

As can be seen in the Table.14, listening difficulty of English is asserted as first, by 24 respondent; high speed during transmission is ranked as 2nd by 16 respondents, the shortage of time shared for the teacher is leveled as 3rd by 13 respondents, Absence of interaction is leveled as 4th by 13 respondents, and due to not sufficient note is given is made the leveled by 16 respondents.

For the question posed, are TV assisted programs interrupted frequently? About 55% of respondents replied yes (affirmative), 34% respondents responded rarely interrupted and 11% of respondents not responded.

In the question putting in numerical order of the following causes for interruption based on the level of frequencies

-Table 15: Causes of Interruption

	Item	Leveling based on frequencies		
		1	2	3
1	Power interruption	32	20	5
2	Trouble of plasma TV	14	22	19
3	Trouble of net work	11	16	27

As seen in the Table.15, electric power interruption is leveled as the first; trouble of plasma TV is as the 2nd causes, and trouble of network is the 3rd levels for interruption frequencies.

Whenever there is trouble of plasma TV, is there frequent troubleshoot (maintenance)? In responding to this question, 22% of respondents responded affirmative (yes) and 48% of respondents replied no. The rest 30% of respondents did not respond or couldn't respond.

4.3 Responses of interviewers

Regarding the implementation of ICTs for education in general, plasma TV assisted education in particular carried out interviews with three principals of schools, two media experts of Oromia &Addis Ababa Education Bureaus, and one MOE(ICT)expert, and their responds summarized as following:

17. Responses of interviewers

No	Item	Condensed Response
1	Concerning constrains in implementing Satellite Education TV program in the school level:	Common responses to the item under discussion include, though it has contributed a lot to the quality & equity of education, there were and are constrains such as: lack of spare parts, power interruption, etc., though schools have maintenance budget for ICTs they can't get spare parts for plasma, they can use most of the budgets only for the maintenance of printers, photocopy machines and the like; -regarding school net UNDP installed in the school, but it didn't continue apply, it doesn't work at a day time. Tele-com is not willing to response for the request. There is no internet service in most of the schools, shortage of plasma TV accessories makes frequent transmission interruption; in adequacy of maintenance & skilled human power; shortage of teachers guide, supportive materials & work books; problem of overturn of the trained teachers and focal persons
2	The action to be taken so as to improve ICT for education in general; plasma TV education program in particular:	supply of and /or purchase of improved plasma TV sets and accessories and timely repair of troubled equipments Supply and/or reproduction of adequate number of supportive materials which are necessary to enrich and strengthen the teaching learning process solving problems of mismatch b/n plasma assisted education program time to be and schools schedule in collaboration with ICT center of MOE. -----
3	1. Resolving problem of mismatch b/n plasma assisted education program time to be and schools schedule in collaboration with ICT center of MOE.	Even though there were efforts to solve the multifaceted problems in fulfilling ICTs\ facilities in all secondary and preparatory schools of the country, the followings have had serious attention: The responsibility of installing satellite TV technologies in schools and school nets was vested in MOE and carrying out by Ethio-Tele-com. But TELE-COM did not accomplish as expected from the organization. VSAT facilities were being installed after planned year or four years, in 1999 EC. 504 schools had requested ETC to install VSAT in the year , but in installing was done 2002 EC. in only 120 schools the other problems were, when ever installed equipments and facilities troubled in schools, ETC is not willing to support (troubleshooting) , so obligated remaining without maintenance , turn over of ICT utilization trained teachers and focal persons were uninterrupted to be solved soon, but are still un solved one,

		the ongoing plasma TV assisted program was to improve step by step and digitized (computerized) program was designed to implement side by side , but remaining with nothing.
4	Concerning the benefits of ICTs in general, plasma TV in particular for education	If the plasma TV exists in all secondary schools , to broadcast uniformly all over the country ,has provided equal opportunity for students of the country, where there is no equal availability of textbooks, materials, and other related resources required for imparting knowledge and skills; assisted subjects that Require laboratory experiments in the absence of equipments and chemicals in the schools; ICT, as a whole have provided a range of opportunities in obtaining latest publications not available in the school libraries. ICT provided an opportunity to communicate with other educational institutions and professionals, leading to experience sharing and problem solving.
5	Concerning the challenges;	Failure of ICT equipments such as computers, printers, net works, plasma TVs etc due to mishandling and other technical problems; .lack of trained teachers leading to a serious human capacity gap, lack of Internet access and technical support from ETC, lack of awareness of computer security leading to accessing illegal sites and down loading harm full contents/software. Most of the interviewers have suggested that if timely corrective measures are taken ICTs in general, Satellite TV in particular can play a role of enhancing quality education.
6	Information gap and work relation ship	There is information gap and lack of keen work relationship among ICTs [Media] professionals, teachers, principals, educational planners and managers at all levels. Most of the respondents agreed that monitoring, evaluation and supporting system of ICT assisted education is weak, and should be strengthened For example the number of secondary schools in Oromia recorded by Education Bureaus's EMIS [2003/2011] IS 461; where as data from educational Media indicates 476. .The gaps are going on like that in all aspects and can be resulted negative impact on resolving the problems encountered in all round educational activities.

CHAPTER FIVE

5. SUMMARY, CONCLUSION AND RECOMMENDATION

In this chapter the summary of major findings, and conclusion followed by recommendations are presented.

5.1 Summary

The study was designed to survey availability and utilization of satellite TV education in Oromia and Addis Ababa secondary schools. Based on the basic questions: Concerning the extent of ICT hard ware (infrastructure) in general, satellite TV and school nets in particular, the extent of students and teachers' guides and other supportive materials distributed and utilized; the level of the required training and awareness of the implementers and users in utilizing technologies, how the teachers are playing their role and how the whole process is being monitored and supported, primary & secondary data were collected and descriptive survey method employed in analyzing and interpreting data. As a result the following findings were obtained.

5.1.1 The Study revealed that considerable schools have not still been furnished by necessary ICTs hardware, infrastructures such as: electric power [20%] in Oromia, 15%] in Addis Ababa. VSAT, wiring {73%] in Oromia and {10%} in Addis Ababa, plasma TV sets and the like without which the transmission could not be done. Even the schools which were said to be fulfilled by ICTs facilities have been troubled frequently, by power interruption, TV sets and computers troubles. Dysfunctional TV sets were remaining without working for the lack of spare parts [accessories]. Lack of technical skills also negatively contributed to the problems.

5.1.2 Sufficient supportive materials, teachers and students guides as well as work books are indispensable in using ICTs in general, plasma TV in particular for educational programs. How

ever, the study revealed that; no sufficient materials distributed to schools. The paper indicates that; even where ever they reached there was also no a systematic way of distributing materials equally.

5.1.3 Having the required training and awareness of how to utilize & use ICTs in general, plasma TV in particular for education is crucial. Effective utilization may not be possible without the desire on the part of users and implementers. The paper revealed that: the awareness of above 50% of the students is limited. In regarding about 76% of the teachers did not take training of utilization of ICTs for teaching/learning process. All these indicate needs of awareness of students; and training gap for school teachers in the utilization technologies in education.

5.1.4 The roles which are expected from subject teachers in utilizing ICTs for teaching learning process, is also crucial. The teachers should know how to cope with ICTs in their classrooms, how to compete with students in accessing the enormous body of information –particularly via the Internet, and how to use the hardware and software to enhance the teaching/ learning process. They should transform themselves from as provider of all knowledge to a tutor & a facilitator. The paper revealed the status of them regarding this, indicating that the way in which plasma TV education program was designed, made them passive in the classroom with their students. The paper indicates that, most of them were not given awareness and training on the advantages of the ICTs being with that one way as well as passive approach made to resort to the way to use it. Therefore they were not playing their roles because neither the plasma TV assisting teaching learning process is interactive nor does it allow the interaction of students and teachers by allocating some intervals in the process.

5.1.5 Regarding the system of monitoring, evaluating and supporting mechanism in implementing the process of ICTs for education, the twins of management: planning and controlling are seriously in need of improvement.

Due to inadequacy ,as findings revealed ,of in financial capacity and lack of awareness among educational planners and managers ,weak attempt has been made to strengthen and introduce newly emerging technologies [computer/Internet] to improve quality of education and the methodology of the traditional teaching /learning process in secondary schools . The follow- up and evaluation activities are not well organized; for example because its weak capacity of coordinating the schools to import the spare parts of ICTs facilities from abroad was not applied. Though more than other technologies, computer-related technologies have the potential to support the management of complex, standards-related instructional process in simple ways; ours could not catch up with it. ICTs can be valuable for storing and analyzing data on education indicators; student assessments; educational; physical; and human infrastructure; and cost and finance. How ever the paper exhibited that there is weak education ICTs management with out efficient computerized networking system and trained human resources. Turn over of trained personnel has made it more complex. Because of lack of strong management, there is information gap and lack of keen relationship among ICTs [Media] professionals, teachers, principals, educational planners and managers at all levels .Because of this gap they were not able to design and coordinate schools to import spare parts [accessories] and other ICTs facilities from up roads and utilize education ICTs effectively. That is why most of the dysfunctional plasma TV sets in many schools are there as they were.

5.2 CONCLUSION

Education is a key to open and facilitate growth & development for all sectors, mainly as a source of human power. Therefore great attention and effort should be given to the sector more ever; especially concerning in assuring quality and equity education. For ICTs have considerable contribution in this regard, the technologies have to be deployed effectively and efficiently in education sector more than ever before.

Having this issue in mind, the paper has tried to point out benefits, challenges, and opportunities of using ICTs in general, Satellite TV in particular for enhancing quality education in secondary schools. The paper was able to identify the major benefits and the bottlenecks that hinder the effective and efficient implementation of programs in utilization of available ICT resources in the schools, and the existing gaps needed to be fulfilled..

The implementation of ICTs for education demands a number of factors, but inter-dependent factors; such as: access, acceptance and availability, access-includes: the basic requisites for the installation and use of technologies, acceptance-includes: cultural and political factors that create or promote barriers to technologies project and availability –includes; technology related factors that facilitate or hinder project implementation. Especially these factors could be seriously seen in due concern [in light] of ICTs implementation status in our educational system.

These are:

- CONTENT WARE: what the technology can offer in terms of content, language, quality and relevance of materials
- EXPERTS: presence or absence of qualified staff [technicians, support personnel, and trained educators] who can implement quality education programs,

- **CAPACITY BUILDING:** desirability and capability in building or ability to build expert workforces.

The lacks and gaps which were revealed by the paper and as well as the strong side and the stringboard to begin from are concluded on the basis of findings.

5.2.1 Ministry of education through CEICT [center for education ICT], and with Regional Education Bureaus has exerted some efforts to implement ICTs in general, Satellite TV programs in particular for enhancement of quality education. It is said that for over six years since Satellite TV Ed. Program transmission has started almost in all government secondary schools. However, ICTs hardware with all infrastructures in general, VSAT and Satellite TV sets in particular, school net system as a whole have not still installed in considerable schools. Considerable installed ICTs equipments troubled and Dysfunctional for lacks of technical skills and accessories. Lack of spare parts for maintenance has made the problems more serious. Technical support from the government organizations such as: Ethio-TELECOM and EEPCO that have a key role in the bases of implementation seems to be negligible or at a verge of non at all.

Plasma TV assisted education was found to be a much better educational media with compared to conventional TV in many aspects. However, many factors have been identified to be solved as soon as possible; otherwise the expected contribution to wards teaching/learning activities can be in question.

Along with the Plasma TV assisted instruction there has been a design [a plan] to start computer assisted instruction [digitization], however nothing has been materialized up till now.

As a whole about above 50% of the hardware and infrastructure ICTs for education system must be fulfilled and the remaining must be strengthened.

5.2.2. There are no adequate number of teachers and students guides and supportive materials for many of subjects transmitted by the plasma TV. Although there are CDs containing the contents of the lessons of the subjects that are transmitted, teachers could not make use of lack of comprehensive them due to lack of ICTs skills and shortage of budget.

Because of different problems, the difficulty of English language it has also become a barrier for not easily understanding the transmitted lessons

Some times the transmission is not clear and discontinued due to power interruption, and troubles; when ever a lesson is missed due to such reasons, it is difficulty to catch up the missed lesson.

5.2.3 Even though there was effort to train teachers in utilization of ICTs in general, PLASMA TV assisted program in particular, most of the trained teachers have left the schools for different reasons. So mechanism should be designed to alleviate the problem.

Students as users of ICTs for education should also be aware of the advantages of ICTs and should know how to use them. Even though considerable of them have a medium awareness of the advantages of the technologies, almost all of them do not know how to use them. There fore great efforts needed to be exerted to increase the awareness of them and train them how to use the technologies.

The other people, who involved in integrating the technologies into the teaching/learning process, stake holders at all their levels, unquestionably have to be trained and convinced the value of the technologies, comfortable with them, skilled in using them.

5.2.4 The existing system [plasma TV instruction] keeps the teachers and the students as passive observers of the transmission. The study has identified that it does not provide the opportunity for teachers conduct in class evaluation as required, and assist students during the lessons. As a

matter of fact technology can assist the teacher but can not totally replace him/her. However that was not designed in this way of modern method. Therefore the teachers role has not been recognized and due attention has not been given so that she/or he could not serve as a good facilitator and dynamic professional in guiding students.

5.2.5 Due to inadequacy in financial capacity and lack of awareness among educational planners and managers, weak attempt has been made to solve the existing problems and to introduce newly emerging technologies to improve quality education in secondary schools. The follow-up and evaluation activities are not well organized. There is no efficient computerized networking system and trained human resource. frequent turnover of trained personnel has made the situation more complex.

There is information gap and lack of keen relationship among ICTs [Media] professionals, teachers/principals, educational planners and managers at all levels.

Inadequacy for continues monitoring and evaluation as well as impact assessment at different levels of deploying and implementations have made the situations acute and in need of concern..

5.3 RECOMMENDATION

As far as the ICTs have much more potential to improve quality and equity of education, effective and efficiently utilization must be made through proper mobilizing every human, material and financial resource available. The hitherto employed educational ICTs have not been in pace with the fast moving advancement in the technologies of the time. New media technologies such as computer assisted [digitized] and/ or Internet systems have not still been used in full-fledged for enhancement and improvement in teaching/learning process all over the country. Even though there were and still are efforts exerted in the sector, there are a lot of

problems to be solved in utilizing ICTs in general, Satellite TV in particular for education in all secondary and preparatory schools.

There fore in order to alleviate the problems in general and there by enhance the technologies implementation, educational managements at all levels in especial case, and all stake holders who involved in the process {Ethio-Telecom, EEPC, educators, learners, parents, curriculum developers, planners, educational media professionals and the society at large] must play their appropriate roles and responsibilities.

Based on the finings the following Recommendations were made to solve the existing problems in utilizing ICTs in general, Satellite TV in particular for education as well as to increase their benefits in ensuring Standardized quality and equity of education in secondary and preparatory schools.

5.3.1 Research section should be established to carry out the continues study for identifying the most appropriate, cost-effective, sustainable and relevant to level of application for different educational objectives; and for ensuring sustainable innovations in the field of ICTs for education. BASED ON FINDINGS of the research, installing and constructing hardware & infrastructure needs to be in place with the supporting elements such as: sustainable electric power, maintenance and technical service. With investing, buying and networking ICTs in schools must be sufficiently budgeted as indicated in TCO.[TOTAL COST OF OWNESHIP].

Education planners should also focus-no longer just on how to secure implementation, they need to arrange for continuous experimentation and innovation to learning by doing an ever changing environment where even what is being learned and done is changing.

- Initiating schools to training for non – school societies on ICTs basis and how to use Internet as well as providing service to generate income [fee from service rendering] as a mechanism of ensuring sustainability.

- ETHIO-TELECOM cooperation in re-establishing Internet connection in the schools is one of the key issue for sustainable use of ICTs for education; there fore there must be an article in the agreement that confirms commitment and based on that there should be monitor and evaluation system to be productive in the field.

5.3.2 The awareness raising and training in using ICTs for education must be planned, programmed and applied at all levels, so that all users and implementers can be convinced in that, ICTs are essential and resourceful inputs; as well as enabled them success with capacity building in utilizing skills, giving due attention to students [the main users] in providing training how to use ICTs is also crucial. As experience points out, it can be continued at advanced level. They should be capacitated to demonstrate new software applications, building educational websites, and handling administration of networks/serves/ IP/Internet Protocol/etc. Having students take on these responsibilities can free up time for teachers, to focus on pedagogical issues, and empower them to promote a more interactive learning environment. Strengthening and establishing ICTs clubs can help the students and school societies at large in sharing ideas and experiences for enhancing the use of ICTs in education as well as to train community members coming from outside of the schools, supportive materials, guides for using programs, INTRNATIONAL rules [policy] and agreements on using INTERNET and/or WEBSITES should be distributed to users and implementers of ICTs for education. To make the materials sufficiently available the schools should be equipped by necessary facilities like photocopy machine, printers and all related facilities as much as possible, appropriate language teaching methodology and tools have to be used to improve teachers English language capabilities and pronunciation skills at all levels so that students do not face difficulties in coping up with the plasma TV assisted lesson,

5.3.3 Regular on job skill development training should also organized provided teachers that the contents in CDs can be loaded on a computer and projected to the plasma by linking the plasma TV and computer containing the contents, trainings for teachers in utilizing ICTs for education should be exhaustively organized and integrated with courses given in the teachers colleges/or universities ,so the teachers can play their roles in teaching/learning process and there by solving the problems of turn over.

5.3.4 Organizing responsible and professional bodies at all levels for fast access that are capable to solve problems, as well as employing regular monitoring and evaluating the progress achieved, problem encountered and impacts resulted from the implementation of ICTs for education, on the issue of EMIS greater attention needs to be paid to the role and quality of data EMIS will need to deal with.. Diagnosis of the EMIS using systems approach is essential to find the bottlenecks in the information system. Thus to analyze the situation or set up a diagnostic is a necessary and fundamental step in the planning process. It is important to note that informatics and telemeters constitute the essential elements of the data collection process evolving, provision of questionnaire in electronics form and constant updating of information on schools will inevitably improve the efficiency of data collation process, and the quality and reliability of data which without the scientific base line of planning and the educational management is impossible. Finally, it should be emphasized that this study was a very limited scratch on the iceberg of the multi-faced phenomena of the role of ICTs in improving quality and equity of education .Even though it is a drop of water on a lake, may be the string board for the further research to enrich the subject matter. Hence all concerned bodies are called up on to engage in timely research endeavor on the role of ICT in improving quality and equity of education [QEE $\Leftrightarrow$ ICTs] in secondary schools, and in the whole activities of the education system of the country..

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ጴጥሮስ ፋልታሞ (የካቲት 1996) በኢትዮጵያ የትምህርት ጥራትና ፍትሃዊ ሥርዓት
የኢንፎርሜሽን ኮሚሽኬሽን ቴክኖሎጂ ሚና ለመምህራን ና የትምህርት ባለሙያዎች
የቀረበ አዲስ አባባ

ለበስቤ ለማ(ታህሳስ 1992) ትምህርት ለቴሌቪዥን ሥልጠና የቀረበ በአዲስ አባባ

ትመዘድ(መስከረም 2000)የሁለተኛ ደረጃ ትምህርት ቤቶች (9ኛእስክ 12ኛ) የሳተላይት
ትምህርት ቴሌቪዥን ፕሮግራሞች የአጠቃቀም ግምገማ ጥናት ሪፖርት አዲስአባባ

Addis Ababa University
Faculty of Education
Department of EPDA Dep. Dm.

Questionnaire for Teachers

Dear Teachers

The objective of this questionnaire is to gather information regarding the Role of ICT in improving quality and equity of Education in general, and plasma assisted programs in particular.

Thus, I kindly request you to give the required information based on your experience of using this medium. Please show your answers, in the space provided, Your contribution is highly important for the success of this study You don't have to write your name.

Thank for your cooperation

Part 1. Back ground information

1. School _____
2. Qualification _____
3. Teaching experience ≤ 3 years ☐ 10 – 12 years ☐
4 – 6 years ☐ 13 – 15 years ☐
7 – 9 years ☐ > 15 years ☐

Part One

1. Have you ever received in service training related to the utilization ICT assisted education program in general, plasma assisted education program in particular?

ICT assisted Yes ☐

No ☐

Plasma assisted Yes ☐

No ☐

2. If you took any in service training on how to utilize ICT or plasma programs indicate the training and its duration in the table below

Utilization training		Duration
Work shop	In ICT as a whole	
	In plasma	
Seminar	In ICT as a whole	
	In plasma	

3. Do you think the training was enough to utilize the programs properly?

Yes ☐ No ☐

4. Do you believe that the training helped you to implement the programs and consolidate the actual lessons in the textbooks? Yes ☐ No ☐

5. Do you think continuous utilization training is necessary Yes ☐ No ☐

6. Do you get the assistance on ICT utilization from ICT center for Education or from Education Bureau Yes ☐ No ☐

7. Please write if you have further comments on the utilization training.

Part 2

Items/Regarding ICTs and the provision of support materials

1. Do you have teachers' guide for plasma assisted lessons?
Yes ☐ No ☐

2. If your answer for question is no, how can you facilitates the plasma assisted programs?

3. Do all classroom have Plasma TV

Yes ☐ No ☐

4. If the answer for question 3 is No how do you make up is write brief answer? _____

5. Are you provided with other support materials such as

	Yes	No
--	-----	----

a) Instruction (plasma) video series provided by DPICT	☐	☐
b) Teachers manual	☐	☐
c) Cassette recorder	☐	☐
d) Play books	☐	☐

6. What alternative do you have when ever electric power interruption ? _____

7. Is there internet access in the school? Yes ☐ No ☐

8. Do you utilize Internet access for the enrichment of instruction activities

Yes ☐ No ☐

9. Please, write five major problems your face while teaching ICT (plasma) assisted lessons

1. _____
2. _____
3. _____
4. _____
5. _____

10. Please write five possible solutions for the a same problems

1. _____
2. _____
3. _____
4. _____
5. _____

11. From your experiences what would you suggest in respect of utilizing the following for improving quality of education.

a) Plasma assisted education programs

b) Computer assisted instruction (digitized) programs

c) Internet connectivity

d) Availability of hardware and soft ware

e) training in utilizations of software and maintenance of hardware

f) Training in managing ICT for educational to quality and equity to the maximum

12. Write other comments on the improvement of ICT for education briefly.

ለርዕስ መምህራንና ምክትል ርዕሰ መምህራን የተዘጋጀ ቃለ-መጠይቅ:-

- 1 የሥራ መ.ያዎ ምንድነው ?
- 2 በት/ቤት ያለዎት የሥራ ኃላፊነት/ ድርሻ/ ምንድነው?
- 3 የሣተላይት ቴሌቪዥን ት/ት ፕሮግራም በዚህ ት/ቤት ተግባራዊ በማዳረግ ላይ ያጋጠሙ ችግሮች ምን ምንድናቸው ?
በኢሌክትሪክ ኃይል አቅርቦት በኔት ወረክ ዝርጋታ በፕላዝማ ቴሌቪዥን Panel ዝርጋታ በኢንተርኔት አገልግሎትና ፍትሐዊነት / እኪዩት/ ውጤታማነትና ጉድለት እንዴት ይገልፁታል፤
በየክፍሎቹ የፕላዝማ ቴሌቪዥን ተሟልቷል ርይ ?
- 4 Hard wore / መሣሪያዎችንና ማሽኖችን/ የውጣንና የመለዋወጫ እቃዎችን የሚማላቱ ሁኔታስ እንዴት ነው ?
- 5 ICT /ኢ.ኤም.ቲ/ ክበቦች ተቋቁመዋል ?
ከተቋቋሙ የክበቡን ዓላማ ምን ያህል ተግባራዊ አድርጓል ?
- 6 በጠቅላላ በአይሲቲ ኢ.ኤም.ቲ/ ለትምህርት ፕሮግራሞች ላይ የሚሰጡት አስተያየት ካለ

ለርዕስ መምህራንና ምክትል ርዕሰ መምህራን የተዘጋጀ ቃለ-መጠይቅ:-

- 1 የሥራ መያዝ ምንድነው ?
- 2 በት/ቤት ያለዎት የሥራ ኃላፊነት/ ድርሻ/ ምንድነው?
- 3 የሣተላይት ቴሌቪዥን ት/ት ፕሮግራም በዚህ ት/ቤት ተግባራዊ በማድረግ ላይ ያጋጠሙ ችግሮች ምን ምንድናቸው ?
በኤሌክትሪክ ኃይል አቅርቦት በኔት ወረክ ዝርጋታ በፕላዝማ ቴሌቪዥን Panel ዝርጋታ በኢንተርኔት አገልግሎትና ፍትሐዊነት / እኪዩት/ ውጤታማነትና ጉድለት እንዴት ይገለፁታል?
- በየክፍሎቹ የፕላዝማ ቴሌቪዥን ተሟልቷል ርይ ?
- 4 Hard wore / መሣሪያዎችንና ማሽኖችን/ የውጤትና የመለዋወጫ እቃዎችን የሚመለከቱ ሁኔታዎች እንዴት ነው ?
- 5 ICT /ኢ.ኤም.ቲ/ ክበቦች ተቋቁመዋል ?
ከተቋቋሙ የክበቡን ዓላማ ምን ያህል ተግባራዊ አድርጓል ?
- 6 በጠቅላላ በአይሲ.ቲ ኢ.ኤም.ቲ/ ለትምህርት ፕሮግራሞች ላይ የሚሰጡት አስተያየት ካለ

አዲስ አበባ ዩኒቨርሲቲ

የሥነ ትምህርት ፋክልቲ

የትምህርት ዕቅድና አመራር ክፍል

በሁለተኛ ደረጃና መሰናጽ ት/ቤቶች፣ ኢኮኔ /ICT/ በትምህርት ጥራትና ፍትሐዊነትን ለማረጋገጥ በሚጫወተው ሚና ላይ ለሚደረገው የገላጭ ዳሰሳ ጥናት መረጃ ለመስብሰብ የቀረበ

ቃለመጠይቅ

በዚህ ቃለ መጠይቅ ዋና ዓላማ ከላይ በተጠቀሱ የት/ት ደረጃዎች ኢኮኔ/ICT/ በአጠቃላይ፣ የሳተላይት ቴሌቪዥን ትምህርት ፕሮግራሞች ሥርዓት በተለይ የትምህርትን ጥራትና ፍትሐዊነት /Quality and equity of Education = QEE) ለማሻሻል የሚጫወተውን ሚና ለማረጋገጥ በትግበራ ላይ ያጋጠሙ ችግሮችን ለይቶ ለማወቅና የመፍትሔ ሃሳቦችን ለመጠቀም ነው። ስለዚህ የሚሰጡት ትክክለኛ መረጃና መያዣ አስተያየት ለጥናቱ መሳካት ከፍተኛ አስተዋጽኦ አለው።

ትክክለኛ መረጃ በመስጠት ለሚያደርጉት ትብብር በቅድሚያ አመሰግናለሁ። የቃለ መጠይቅ ተሳታፊዎች፣ የኢኮኔ መምሪያ (DP ICT) አሁን የኢኮኔ ትምህርት ማዕከል ከፍተኛ ባለሙያዎች የአዲስ አበባ ከተማና የኦሮሚያ የትምህርት መገናኛ ዘዴዎች ተጠሪዎች

1. የሥራ ሙያዎ ምንድን ነው?
2. በመ/ቤቱ ያለዎት የሥራ ኃላፊነት/ድርሻ/ ምንድን ነው?
3. የሳተላይት ቴሌቪዥን የትምህርት ፕሮግራምን ለሁለተኛ ደረጃ ት/ቤቶች በአመርቂ ሁኔታ ሥራላይ ለማዋል ያጋጠሙ ችግሮች ምንድናቸው?
4. ያጋጠሙ ችግሮችን ለመፍታት ምን እየተደረገ ነው?
5. ቀደም ሲል ከሳተላይት ቴሌቪዥን ትምህርት ፕሮግራም ጎን ለጎን ዲጂታይዝድ ፕሮግራሞችን (Computer assisted educational programs) እንደሚጀመር የተገለፀ ዕቅድ ነበር እስካሁን ለምን ምክንያት ዘገየ? አሁንስ በምን ደረጃ ላይ ይገኛል?

6. ሀ. የክትትልና የግምገማ ሥርዓቱ የሥራውን ውጤት በሚገልፅ መልኩ የተዘረጋ ነው ብለው ያምናሉ? ከማዕከል እስከ ትምህርት ቤት ትምህርት ቤት ያለው አካሄድና ክት/ቤት እስከ ኢኮኔሚክስ ያለው ግብረ መልስ ወቅቱን ጠብቆ የሚፈፀም ነው ወይ?
- ለ. ውጤቱን ችግሮቹንና የመፍትሔ አቅጣጫዎች የሚያመለክቱ ወቅታዊ ዘገባዎች የጊዜ ሰሌዳውን ተከትሎ ለየእርከኖቹ ይቀርባሉ?
7. ከሁለተኛ ደረጃ ት/ቤቶች በመረጃ መረብ (School Net) ግንባታ በኢኮኔ ለማጠናከር በUNDP ድጋፍ ፕሮጀክት ተዘርግቶ ብዙ እንደተከናወነ አንድ ጥናት ያመለክታል በዚህ ፕሮጀክት የድርጅቱ ድርሻ ምንድነው? የፕሮጀክቱ ስኬትስ ምን ያህል ነው?
8. ኢኮኔ በአገሪቱ ትምህርትን በማስፋፋት ጥራትና ፍትሐዊ ልማትን በማረጋገጥ ሚናውን እንዲጫወት ለወደፊት ምን ታቅዷል?

አዲስ አበባ ዩኒቨርሲቲ

የሥነ ትምህርት ፋክልቲ

የትምህርት ዕቅድና አመራር ክፍል

ለሁለተኛ ደረጃና መሰናዶ ት/ቤቶች፣ ኢኮቴ /ICT/ በትምህርት ጥራትና ፍትሐዊነትን ለማረጋገጥ በሚጫወተው ሚና ላይ ለሚደረገው የገላጭ ዳሰሳ ጥናት መረጃ ለመሰብሰብ የቀረበ

ቃለመጠይቅ

በዚህ ቃለ መጠይቅ ዋና ዓላማ ከላይ በተጠቀሱ የት/ት ደረጃዎች ኢኮቴ/ICT/ በአጠቃላይ፣ የሳተላይት ቴሌቪዥን ትምህርት ፕሮግራሞች ሥርዓት በተለይ የትምህርትን ጥራትና ፍትሐዊነት /Quality and equity of Education = QEE) ለማሻሻል የሚጫወተውን ሚና ለማረጋገጥ በትግበራ ላይ ያጋጠሙ ችግሮችን ለይቶ ለማወቅና የመፍትሔ ሃሳቦችን ለመጠቀም ነው። ስለዚህ የሚሰጡት ትክክለኛ መረጃና መያዣ አስተያየት ለጥናቱ መሳካት ከፍተኛ አስተዋጽኦ አለው።

ትክክለኛ መረጃ በመስጠት ለሚያደርጉት ትብብር በቅድሚያ አመሰግናለሁኝ። የቃለ መጠይቅ ተሳታፊዎች፣ የኢኮቴ መምሪያ (DP ICT) አሁን የኢኮቴ ትምህርት ማዕከል ከፍተኛ ባለሙያዎች የአዲስ አበባ ከተማና የኦሮሚያ የትምህርት መገናኛ ዘዴዎች ተጠሪዎች

1. የሥራ መያዣዎ ምንድን ነው?
2. በመ/ቤቱ ያለዎት የሥራ ኃላፊነት/ድርሻ/ ምንድን ነው?
3. የሳተላይት ቴሌቪዥን የትምህርት ፕሮግራምን ለሁለተኛ ደረጃ ት/ቤቶች በአመርቂ ሁኔታ ሥራላይ ለማዋል ያጋጠሙ ችግሮች ምንድናቸው?
4. ያጋጠሙ ችግሮችን ለመፍታት ምን እየተደረገ ነው?
5. ቀደም ሲል ከሳተላይት ቴሌቪዥን ትምህርት ፕሮግራም ጎን ለጎን ዲጂታይዝድ ፕሮግራሞችን (Computer assisted educational programs) እንደሚጀመር የተገለፀ ዕቅድ ነበር እስካሁን ለምን ምክንያት ዘገየ? አሁንስ በምን ደረጃ ላይ ይገኛል?

ለርዕስ መምህራንና ምክትል ርዕሰ መምህራን የተዘጋጀ ቃለ-መጠይቅ:-

1 የሥራ መ.ያዎ ምንድነው ?

2 በት/ቤት ያለዎት የሥራ ኃላፊነት/ ድርሻ/ ምንድነው?

3 የሣተላይት ቴሌቪዥን ት/ት ፕሮግራም በዚህ ት/ቤት ተግባራዊ በማድረግ ላይ ያጋጠሙ ችግሮች ምን ምንድናቸው ?

በኤሌክትሪክ ኃይል አቅርቦት በኔት ወረክ ዝርጋታ በፕላዝማ ቴሌቪዥን Panel ዝርጋታ በኢንተርኔት አገልግሎትና ፍትሐዊነት / እኪዩት/ ውጤታማነትና ጉድለት እንዴት ይገልፁታል?

በየክፍሎቹ የፕላዝማ ቴሌቪዥን ተሟልቷል ርይ ?

4 Hard wore / መሣሪያዎችንና ማሻሻያችን/ የሙጠገንና የመለዋወጫ እቃዎችን የሚማላቱ ሁኔታስ እንዴት ነው ?

5 ICT /ኢ.ኤም.ቲ/ ክበቦች ተቋቁመዋል ?

ከተቋቋሙ የክበቡን ዓላማ ምን ያህል ተግባራዊ አድርጓል ?

6 በጠቅላላ በአይሲ.ቲ ኢ.ኤም.ቲ/ ለትምህርት ፕሮግራሞች ላይ የሚሰጡት አስተያየት ካለ

አዲስ አበባ ዩኒቨርሲቲ

የሥነ-ትምህርት ፋካልቲ

የትምህርት ዕቅድና አመራር ክፍል

አሮሚያ ክልልና አዲስ አበባ ከተማ የሚገኙ ሁለት ሁለት የሁለተኛና የመስከረም ት/ቤቶች ኢ.ኮ.ቲ. (ICT) የትምህርት ጥራትና ፍትሐዊነትን ለማረጋገጥ በሚጫወተው ሚና ላይ ለሚደረግ የገላጭ ዳሰሳ ጥናት መረጃ ለማሰባሰብ ለተማሪዎች የቀረበ መጠይቅ፤

ውድ ተማሪዎች፡-

የዚህ መጠይቅ ዓላማ በሁለተኛ ደረጃ ት/ቤቶች ኢ.ኮ.ቲ. (ICT) በአጠቃላይ፣ የሳቲላይት ~~ቴሌቪዥን~~ ትምህርት ~~ፕሮግራም~~ በተለይ፣ የትምህርቱን ~~ጥራትና~~ ፍትሐዊነት ~~ለማሻሻል~~ የሚጫወተውን ሚና ለማረጋገጥ በትግበራ ላይ ያጋጠሙ ችግሮችን ለይቶ ለማወቅና የመፍትሔ ግላቦችን ለመጠቀም ነው። ስለዚህ የምትሰጡት ትክክለኛ መልስና አስተያየት ለጥናቱ መሳካት ከፍተኛ አስተዋፅኦ አለው።

መመሪያ፡-

- አማራጭ መልሶች ለተሰጡባቸው ጥያቄዎች በተሰጡት መልስ መስጫ ሳጥኖች ውስጥ የ “✓” በመጻፍ መልስ ስጡ።
- ምርጫ ላልተሰጠባቸው ጥያቄዎች አጭርና ግልጽ መልስ ይጻፉ።

ትክክለኛ መረጃ ለመስጠት ለሚያደርጉት ትብብር መቅድሚያ አመሰግናለሁ።

ሀ/ አጠቃላይ መረጃ

1. ያታ፡- ወንድ ☐ ሴት ☐
2. ዕድሜ፡- 15-16 ☐ 17-18 ☐ 19 እና ከዚያ በላይ ☐
3. የክፍል ደረጃ፡- 9ኛ ☐ 10ኛ ☐ 11ኛ ☐ 12ኛ ☐
4. ስለ ኢንፎርሜሽን ኮሙኒኬሽን ቴክኖሎጂ (ኢ.ኮ.ቲ. ICT) በትምህርት ያለህ/ሽ ግንዛቤ፡-
 ከፍተኛ ☐ መካከለኛ ☐ መጠነኛ ☐ ዝቅተኛ ☐

5. እንጂርማችን ኮመኒኬሽን ቱክኖሎጂ (ኢ.ኮ.ቲ.) በትምህርት ላይ ያለው ሚናና ጠቀሜታው ምንድነው? /ያመነብትን ሁሉ መምረጥ ይችላል/

- ኢ.ኮ.ቲ. የመምህራን አጋዥ መሣሪያ ነው ☐
- ኢ.ኮ.ቲ. የመማር ማስተማን ሂደት ቀላል ያደርገዋል ☐
- ኢ.ኮ.ቲ. አዳዲስ ግኝቶችን ለማትረብ ይረዳል ☐
- ኢ.ኮ.ቲ. ውስብስብ ሐሳቦችን ግልፅና ተጨባጭ ለማድረግ ይረዳል ☐
- ኢ.ኮ.ቲ. በተለመደው የማስተማር ዘዴ በከፍተኛ ውስጥ ሊቀርቡ የማይችሉትን ምስሎችና ምሳሌዎች ለማትረብ ይረዳል ☐

የተለየ አስተያየት ካለህ/ሽ ይገለጽ _____

6. የሳተላይት ቱሌቪዥን ትምህርት ፕሮግራም መመሪያዎች (Program guides) በየትምህርት ዓይነቱ፡-

- ለእያንዳንዱ ተማሪ ተዳርሷል ☐
- ለተማሪዎች በቡድን ተዳርሷል ☐
- ለስንት _____ /ይጻፍ/
- ለየትምህርት ዓይነቶቹ ለመምህራን ጥቅም ተዳርሷል ☐
- ሌላ _____

7. የመምሪያዎቹ ለተማሪዎች አስመዳረስ ካለ በመማር ማስተማሩ ላይ ያስከተለው አሉታዊ ተፅዕኖ ይገለጻል፤

ሀ/ _____
 ለ/ _____
 ሐ/ _____
 መ/ _____

8. የሳተላይት ቱሌቪዥን ትምህርት ፕሮግራም የትምህርቶቹን ይዘት ለመረዳት በተማሪዎቹ ላይ ያሳደረው ተፅዕኖ አለ?

አለ ☐ የለም ☐

9. ለ8ኛው ጥያቄ አዎን/አለ ከሆነ ከሚከተሉት እንደችግር ክብደታቸው ደረጃ በቁጥር ቅደም ተከተል አስቀምጡ፤

- በተማሪውና በትምህርት አቅራቢው መካከል ቀጥተኛ ግንኙነት አለመኖሩ ☐

- የክፍል መምህሩ የማሰታሰቢያ ሚና በክፍል ውስጥ በቂ ባለመሆኑ ☐
 - የተማሪዎች በእንግሊዝኛ ቋንቋ የማዳመጥና የመረዳት ችሎታ ዝቅተኛ በመሆኑ ☐
 - የክፍል መምህሩን ለተማሪዎች በቂ ማስታወሻ (note) ያለመስጠት ☐
 - በአቀራረብ ወቅት ያለው ክፍተት ፍጥነት ☐
- ሌላ _____

10. የሳተላይት ቱሌቪዥን ትምህርት ፕሮግራሞች ይቋረጣሉ?

አይቋረጡም ☐ አልፎ፣ አልፎ ☐ ብዙ ጊዜ ☐

11. ለፕሮግራሞቹ መቋረጥ ምክንያቶቹን እንደ ችግራቸው ክብደት ቅደም ተከተል በቁጥር ያስቀምጡ፤

- በኢ.ሊ.ክትሪክ ኃይል መቋረጥ ☐
- በፕላዝማው መበላሸት ☐
- በኔት ወርክ መበላሸት ☐

12. ፕላዝማው በሚበላሸበት ወቅት ፈጣን የጥገና ሥራ ይከናወናል?

አዎ ☐ የለም ☐

13. ፕላዝማው ትምህርት ሲቋረጥ በምን የማካካሻ ፕሮግራም እንደምታገኙ ግለጹ፤

14. ICT (ኢ.ኮ.ቴ.) ክልብ በትም/ቤታችሁ ተቋቁሟል?

አዎ ☐ የለም ☐

15. በትም/ቤታችሁ የኢንተርኔት አገልግሎት ይሰጣል?

ይሰጣል ☐ አይሰጥም ☐

16. ኢ.ኮ.ቴ. (ICT) (ቱሌቪዥን የኢንተርኔት...) በትምህርት አሰጣጥ ሂደት ውስጥ መስፋፋት ያለህ/ሽ አስተያየት _____

DECLARATION

The thesis is my original work, has not presented for a degree in any other university and that all sources of materials used for the thesis have been duly acknowledged.

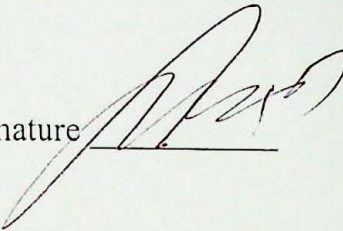
Declared by Girma Hurrisa

Signature 

Date _____

This thesis has been done under my supervision as university advisor and approved by the examining board.

Confirmed by Dr. Taddalee Hagos

Signature 

Date _____