A STUDY ON THE UTILIZATION OF EDUCATIONAL TELEVISION (PLASMA) IN THE SECONDARY SCHOOLS OF EAST GOJJAM ZONE

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A Thesis Submitted in Partial Fulfillment for
The Degree of Master of Arts in
Educational Planning and Management

ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

March 2007

Acknowledgments

First, I would like to express my deepest gratitude and indebtedness to my thesis advisor, Professor (Dr.) Manishaa Pandey for her unreserved constructive comments, suggestions and encouragements through out my study. Her frequent and intensive comments were really instrumental to manage this multi-variable study.

Next, it is my pleasure to express my profound indebtedness to my mother W/o Esseyinesh Wassie, my sister Tigist Amsalu and my brother Anteneh Embeale for their encouragements to further my educational level and for their financial assistance.

Finally, I would like to express my gratitude to the respondents at EMA, East Gojjam Education Desk, woreda education heads in East Gojjam Zone, and secondary school principals, teachers, and students for their welcoming approach during my stay for data collection and timely responding to the data collection tools.

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ABBREVIATIONS AND ACCRONYMS

AREB	Amhara Regional Education Bureau
BBC	British Broadcasting Corporation
CETO	Center for Educational Television Overseas
EMA	Educational Mass Media Agency
ETV	Educational Television
ITV	Instructional Television
MOE	Ministry of Education
TV	Television
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
USA	United Sates of America

Abstract

This study was set to examine the status quo of variables in the utilization of instructional TV as a direct medium of teaching in the Secondary Schools of East Gojjam Zone. Educational expansion in the study zone has considerably increased the number of students up to 122 in a class, which in turn inevitably need increment of teachers' number, classrooms and other teaching materials. However, educational resources both the human and materials are lacking behind to support the educational expansion and quality envisaged with the aim of universal education declaration in the country. In this regard application of educational technologies can be conceived for the amelioration of educational resource constraints such as insufficiency of teachers both in numbers and qualification, teaching materials for demonstrations and experiments, lack of well-facilitated libraries and laboratories, and others. In order to address such constraints the MOE has decided to change the medium of instruction from conventional teaching to TV as a direct medium of teaching in the secondary schools as of 2003.

In order to assess the contribution of ITV to students' learning and impediments facing in its application, this study was envisaged. The study used survey research method. Representative sample students and teachers were systematically selected through the combination of simple and stratified random samplings in successive stages. Team leaders at EMA, Zone Education Desk, woreda education heads and principals were selected as interviewees through purposive sampling. Both primary and secondary, including quantitative and qualitative data were collected from the sample population through two types of questionnaires, one for the students and the other for the teachers. In addition interviewing, classroom observations during TV instructions, and documentary analysis were carried out. The data were analyzed using percentage, counts and t-test statistical tools. The analysis and interpretation of the study resulted in the following major findings:

More than half percent of the classroom teachers were found underqualified for the grade level they teach. There is a limitation in orienting students, teachers and parents about the benefits of applying ITV. As a result some students and some teachers do not perform their roles properly. Majority of the students and the teachers prefer TV instruction to conventional classroom teaching. Inappropriate time planning for introduction and follow up phases, carrying out activities and observing visuals was identified as a major problem for efficient utilization of ITV. Classroom assessment tests were not properly administered due to lack of time. There is acute shortage of technicians, TV instruction guides for teachers and students', and TV sets. TV teachers were acknowledged for their good qualities of appropriate content selection, arousing students' interest for learning, well-organized working habits, preparation TV teachers' guides and command of knowledge they teach (in most cases). On the other hand, TV teachers were criticized for committing errors in some programs that hurdle easier assimilation of knowledge. There are no efficient feedback mechanisms between TV teachers and/or EMA; and students, teachers, and educational managers at operational level. Electric failures and mix up channels were identified as the major causes for TV instruction interruption.

Even though utilization of TV instruction had faced many problems, its benefits out weigh the limitations. Most of the existing problems identified in the findings can be minimize through continuous monitoring mechanisms. So, it is concluded that Plasma TV instruction should be used as a direct teaching medium of instruction both intensively and extensively.

CHAPTER ONE

1.0 THE PROBLEM AND ITS APPROACH

This chapter deals with the problem and its approach. It treats the introduction, the statement of the problem, objectives of the study, significance of the study, delimitation of the study, the sampling techniques and design of data collection tools. Further, it states the methods used for analyzing the data.

1.1 Background of the Study

Education is a mechanism by which and through which human beings acquire knowledge, skills and attitudes in order to sustain friendly natural and social environments with ultimate desire for safe and secured life. However, since ideas, attitudes and skills undergo alterations through time, life necessarily demands constant and continuous modification of knowledge, skills and attitudes as well. In such ever-changing world, education can be considered as the process of helping the child to adjust to its social and physical environment. Such an adjustment in turn needs the best type of education that guides the immatured child to live his/her life richly and abundantly, at the same time to contribute to social betterment.

Educational adjustment of the child in turn is conditioned by the nature and demands of society to which the child should get adapted and attuned. So, what was a superior adjustment a few centuries ago will be valueless in the society of today. In traditional society before few centuries the stock of knowledge was limited and grew slowly. On the other hand, in the modern society knowledge is cumulative in every discipline due to knowledge explosion. Thus, as each year passes there is more to be learnt. However, knowledge explosion has helped modern society to rely on science-based technology that enables to increase their production spectacularly and simplify ways of production. Since one of the main tasks of education in modern society is to keep pace with this advancement in knowledge, such modernization also inevitably affects the educational system (Sampath et al., 1984:1).

In order to furnish quality education that sustain developments in economical, political, social and cultural aspects the education should emphasis on the awakening of curiosity, the stimulation of creativity, the development of proper interests, attitudes and values and the building of essential skills such as independent study and capacity to think and self-judgment. The education system has also to assure the educational expansion to realize the Human Rights Declaration of 1948 that states the rights of citizens to have at least primary education. Regardless of this declaration, development of a nation necessarily demands the contribution of every citizen who is well quipped with modern skills, knowledge and attitudes. Such endeavor for universal education entails many minds to be educated through educational expansion through out the country. In the realization of these duties, the education system faced multitude of problems, to cite some, curing of illiteracy, insufficiency of qualified teachers and shortage of teaching materials for demonstrations and experiments. In order to mitigate such problems, educators sought application of educational technologies with the aim of not only of making education more widely available but also improving the quality of education, which is already available.

Although there are many educational media such as pictures, graphs, models, radio, television, field study and computers which significantly contribute to the promotion of educational quality and expansion, efficient utilization of these media demands for critical examination on their level of complexity in delivering the intended educational messages. In this regard, audio-visual materials vary from the extremely realistic (sound motion pictures and the school journey) to largely symbolic materials (charts, maps, and graphs). Regarding the latter case, at one end letters and numbers, which are the most symbolic, with no meaning in them. Charts, maps, and graphs are partly symbolic and partly realistic; the meaning must be attached to these symbols. At the other end of the scale are the highly realistic audio-visual materials, which are close to life experience such as field trips and ITV. Thus, when we decide which materials to use we should consider the amount and kind of realism (simplicity in communicating the massage) needed for teaching purposes, Wendt (1957:8). As remarked by Cross and Cypher (1961:8), child's organized learning must be based upon controlled sensory experiences rather than word and symbols. In line with this, as TV has an attribute of combining visuals and sounds together using instructional television as a medium instruction

can help students learn most readily from actual experiences involving their senses, particularly their senses of sight and hearing.

The rationale for this is that, we acquire knowledge, skills and attitudes through the exposure that we have with our social and physical environments. Such accumulation of experiences is in turn gained through the senses. However, sensory impressions by themselves are not enough to give complete understanding of the experiences we perceived. It is the brain that receives and organizes sensory impressions into a meaningful order for the formation of concepts. Stated differently, perception is the foundation for understanding. Exposure to concrete experiences is the basis for conceptualization. Thus, with the absence of multi-sensory experiences abstract conceptualization by the students is inadequate or may not take place at all.

Instruction is a complex process that basically needs the systematized interrelation of lesson content, teaching method, instructional media, teacher and students. As instructional media are the main component of instruction, their selection and application in the teaching-learning process should be given serious consideration. Because, the right audio-visual materials can communicate information, teach skills and provide general cultural experiences that the learners need, Wittich and Schuller (1979:9). In connection to this as clarified by Bryce and Stewart in Blythe-Lord (1991:9-10), there is no single method of instruction; no single audio-visual medium can possibly meet the widely differing demands of the many instructional tasks and multitude interests of the learners. Cross and Cypher (1961:23), also conform that education and the teaching process are necessarily concerned to using and helping learners learn to use all means and media of communication efficiently.

In the search for optimum instructional medium that can save time, and energy; promote educational quality and expansion; the unique advantages of educational television could attract the attention of many educational planners, curriculum experts and subject specialists to use television as main instructional medium. The most cited advantages of instructional television include quality of immediacy, cost reduction of demonstration through recordings, means of economizing the use of scarce teaching potential and of increasing the number of

students to whom a teacher can have access by recording lectures and to provide in-service training for teachers, CETO (1969:44). It is reasoned out by UNESCO (1985:170-171) that mass media have the capacity to met the challenge of the growth in the number of persons to be educate, as they are able to transmit the same message in millions of copies. Media have also acknowledged for their contribution in resolving the problems arising from the volume of material to be included in syllabuses as it is possible to have access both to the best specialists in all fields, persons who are familiar with the most recent findings in their particular disciplines and to constantly update data banks, and also because audio-visual materials for use by teachers and students can be produced, stored, catalogued and distributed. Although TV broadcastings for schools are costly, TV instruction can decrease economic disparities as so many pupils are reached by this medium that coat per pupil is very low.

Instructional television has advantages over other media in transporting the entire audience to wild, hostile or inaccessible locations; enlarging the microscopic and reducing the immense; and combining text and images, encourage learning and understanding through different channels, Blythe-Lord (1991:32). Sampath, et al. (1984:203), also assert that the vast potentialities of the facilities of the TV studio, the possibility of mixing images from two or more cameras fitted with zoom lens, super imposing images, fading, cutting, and others, can be used to advantage in television. Television has also the added advantages of a projected aid and the dynamism of motion picture.

As a result of the aforementioned advantages of televised instruction, developed nations started utilizing instructional television around the mid of 20th century. UK was the first country in applying school TV in May 1952 by the BBC (Cassirer, 1962:287) followed by the USA as the first TV instruction was sent on the air in April 1953 at Houston, Texas. Now a days, television is playing major role in the instructional process of many countries' educational systems. Television is without doubt one of the most versatile audio-visual aids ever developed. Because of its ability of conveying life and events in action will have a profound influence upon what teachers and students think and do in the future. It offers vitality and newness, which attracts attention, creates interest and stimulates a desire to learn, Hass and Packer (1955:258). An instructional television series coming from outside sources can also complement the

capabilities and energies of the classroom teacher by providing expertly planned and presented lessons in a wide variety of subjects, Haney and Ullmer (1970:71).

However, according to the argument of some researchers TV instruction is not significantly different from classroom teaching. Citing series of researches made on comparing TV instruction to conventional teaching managed with the same instructors and teaching methods Cassirer (1962:67) states that there was no significant difference between students level of achievement. Haney and Ullmer (1980:112) have also noted that no significant difference between the two medium of instructions.

In fact in the education system that have adequate teachers both in quantity and quality, teaching materials for demonstrations and experiments, well-equipped libraries, and other educational inputs, TV instruction may not have significant difference to the conventional teaching. Whereas, in a school systems like that of ours where there is acute shortage of educational inputs TV instruction has a potential to bring about meaningful change in the quality of education by availing expertise, varieties of teaching materials for demonstrations and experiments to wide range of students allover the country.

However, as remarked by Inlow (1963:113) TV as a medium of instruction can be efficient only when there is integrated work among the four instructional personnel: (1) TV teachers, who prepare TV lessons; (2) classroom teacher who monitors or proctors in the respective receiving rooms, keeping order, collect and distribute materials and equipments, answer question, evaluate, and record progress; (3) students, for whom the whole process is conceived and who must know their expected roles; and finally, (4) engineering personnel, who advise on mechanical matters, maintain equipment and make needed repairs.

As noted by Mozayen in Teshome (1998:72), television came to Ethiopia in 1964. The purpose of television broadcasting as stated by the imperial government was to educate, inform and entertain the citizens in that order of priority. It is also stated that there were two basic reasons that led to the decision to use television for education. The first has to do with the difficulties of the post-war (Ethio-Italy) expansion of the education system in the 1960's. According to

Gartely in Teshome (1998:72) the second reason for adoption of educational television was related to the resolutions of the UNESCO sponsored conference of African States on the development of education, which is held in Addis Ababa in 1961. This conference referred to Ethiopian education not only as one of the most backward system on the content, but also suggested the attainment of universal primary education by 1980. Thus, the pursuit of this goal required that Ethiopia plunge into a policy of more expansion through a series of efforts including broadcast television. As a result, the first experimental program went on air for schools around the capital from 1965 to 1968, Simreta in Teshome (1998:72). From this time onwards-instructional television has been used as educational supplement.

Starting 2003 a new instructional television program called Plasma began in secondary schools of the country. In this program, TV is used as a complementary basic resource that is the TV acts as a basis for total teaching process. The program is provided by the Educational Media Agency in collaboration with the Ministry of Education. The subjects delivered through this program are English, Mathematics, Civics and Ethical Education, Physics, Chemistry and Biology for all secondary school grades (9 through 12). An instructional television lesson in this program has thirty minutes duration.

As stated by Ato Abera Belete - head of ITV programs at the EMA - Plasma TV displays are distributed for 606 secondary schools through out the country. Whereas, satellite receivers were installed only for 432 schools by the Ethiopian Telecommunication Authority. The EMA broadcasts instruction through eight channels in the morning and the afternoon sessions. In a year, the EMA delivers about 2,978 programs consisting of six subjects. Two educational consultancy companies prepare instructional programs: Me-mar TV Company from South Africa and Shells Communication Company from Canada.

A 42-inch-Plasma TV, made of Japan, is used for broadcast receiver. The purchase of the Plasma televisions and satellite receivers are covered by the MOE. The MOE also covers the cost of technical assistances given by the Ethiopian Telecommunication Authority.

In the near future the EMA tends to broadcast Geography and History for all grade levels; and business, economics and technical drawings for preparatory grade levels.

1.2 Statement of the Problem

According to the East Gojjam's Zone Education Desk second-quarter-statistical report of 2005/6, most of the secondary schools in the zone are understaffed and overcrowded due to educational expansion. As pointed out by this report, student-section ratio is 1:79 and that of teacher-student ratio is 1:61. Students' enrollment is accelerating reaching up to 122 students in some schools. Moreover, most of the teachers are underqualified for the grade levels they teach. From this one understands that teachers are overloaded with classroom related tasks that in turn inhibit them from giving individual based assistance to their students. Such high number of students in a classroom is not convenient for different types of teaching methods such as demonstration of visuals, carrying out experiments and individual based assistance to the students.

Further, there is technical limitation in the appropriate utilization of the available teaching materials such as laboratory equipments. Libraries were not well equipped to furnish supplementary materials. Most of the schools in this zone faced budget deficiency for the procurement of teaching materials and services for repairing TVs. Such pressing problems and quality matter, besides to training a large number of teachers, necessitated application of different teaching materials including electronic educational media and distance education.

To combat problems related to educational quality and expansion the Ethiopian education system envisaged Plasma-instructional television program for the secondary schools through out the country since 2003. Though it is a great leap in optimizing opportunities for students learning instead of heavy reliance on face-to-face oral learning, as suggested by Derick and McAleese (1978:30) the selection of any medium of instruction, precedence should be given to the identification of performance objectives to be addressed by the students; and student characteristics and learning environments. Further, assessment of cost effectiveness of the

desired medium and the preference of implementers are critical issues that should be carried out before hand.

Conversely, the use of a traditional, non-logical approach might suggest selecting the medium first. Having noticed unsystematic approach to design of TV as a medium of instruction in many countries early in the 1970s, World Bank was warning potential users not to give precedence for the hardware installation to programme planning and production, organization and teacher training and equipment maintenance, which are essential to the effective utilization of hardware (Ibid, 1978:243).

Definitely, television must be considered with reference to what is being done with it, for whom, under what conditions, and for what reasons. Televised learning experiences will contribute little to the learning process unless they become an integral part of each individual classroom situation and have purpose and meaning in that situation. Instructional television should also consider individual differences among students.

A well-designed instructional television has a potential to supplement under qualified teachers, promote educational quality and expansion. As reasoned out by Murphy and Gross (1966:60), instructional television brings better instruction to students than in the average classroom, because television teachers are most likely the best available, excellent visual aids are used, special guests and current events enrich students' experiences, and courses are better organized and presented. Wittich and Schuller (1979:267) also affirmed that instructional television is an efficient way of bringing carefully planned multimedia-learning experiences to a wide group of learners.

Although television has valuable contribution to instruction it has certain limitations. Limited interaction during the transmission between students and television teacher is one of the major disadvantages of TV instruction. Regarding this Cross and Cypher (1961: 39) advise that since the television teachers have little or no face-to-face contact with their students, some procedures must be set up so that they have feedback on the learners' reactions to the lesson. Similarly, Wittich and Schuller (1979: 262) suggest that the producers and supervisors of

instructional television must communicate constantly with classroom teachers in order to secure reactions to program content, the quality of study guides, and how the educational media affect pupils' performance. However, the real practice is not in line with this principle. TV teachers and EMA do not have firm supervisory relation with students, teachers and educational managers at school and woreda levels. Thus, such loose relation between the producer and implementers of TV instructions does not allow mutual understanding of students' learning problems.

Consequently, complaints are heard from students and teachers against incompatibility of speed of television teachers' in lesson presentation; insufficient time given for responding to questions and note taking during TV instruction. They were also condemning TV lessons for making students passive participants, insufficient number of TVs due to high purchasing cost and absence of maintenance personnel. Most of the complaints, however, could have been managed through continuous monitoring TV lesson programs and acculturation of students, teachers and parents about the benefits and purposes of utilizing TV instruction. The fact that first self-image developed in these individuals towards TV as a medium of instruction can affect students' learning, efficient and timely orientation is very essential for efficient utilization of this new medium of instruction (TV). The main objection of students is, however, absence of interaction between television teachers and students to exchange feedback about their learning difficulties. It is obvious that full potential of instructional television in the zone, even at the country level for that matter, will not be realized until the above problems are resolved or at least minimized. To this effect, continuous assessment of instructional programs and securing initial acceptance of main users of instructional television, that is, teachers, students, planners and subject specialists is very essential.

1.3 Objectives of the Study

TV as a complementary basic resource is a new phenomenon for our schools; so backing up this medium of teaching through continuous study would be very essential. Having this in mind, this study was initiated. The study has two objectives: general and specific objectives.

1.3.1 General Objectives

The major objective of this study was to investigate the extent of systematic coordination of educational inputs for efficient utilization of television instruction in the secondary schools of East Gojjam Zone. It also tried to identify difficulties faced in utilizing instructional television for teaching and learning. Further, the research result is expected to forward constructive suggestions to policy makers, subject specialists, directors and teachers for better teaching-learning process with ultimate benefit of students.

1.3.2 Specific Objectives

In order to understand problems with regards to TV instruction the study is designed with the following specific objectives:

1. To examine the level of classroom teachers' educational qualification in working as team teachers with TV teachers.
2. To assess the extent of orientation given to teachers, students, educational managers and the community about the benefits of ITV.
3. To examine appropriateness of time planning for the phases of TV instruction (introduction, telecast and post telecast phases).
4. To verify suitability of instructional TV scheduling for classroom tests administration.
5. To examine extent of students' participation during the delivery of televised instruction.
6. To verify availability of sufficient feedback mechanisms among TV teachers and implementers of TV instruction and educational managers.
7. To assess availability of technicians for timely repair TV sets.
8. To assess sufficiency of TV instructional materials.
9. To examine suitability of classroom arrangements to TV instruction.

Although continuous studies need to be carried out for betterment of instructional television there is no research attempt on the status of this medium of instruction in East Gojjam Zone. Thus, this study is initiated to examine the status of ITV utilization in the teaching-learning process. The study attempted to answer the following research questions:

1. How efficient is the provision of orientation in acquainting educational personnel with the necessity of utilizing ITV?
2. How effective was TV instruction design in integrating educational inputs for smooth coordination of TV instruction?
3. How competent are classroom teachers to work as team teaching member with TV teachers in helping students learn from TV instruction?
4. How efficient are TV teachers in the application of TV as a medium of instruction?
5. What are miscellaneous impeding factors to the application of TV as a teaching device?

1.4 Significance of the Study

Since 2003 educational television has been the major medium of instruction in the Secondary Schools of East Gojjam Zone it is liable to incoordination of components of TV instruction. This being the case, continuous assessment on the effectiveness of instructional television is essential for timely adjustment of some impediments to instructional process. Having this consideration in mind, this study was initiated in such a manner that help inclusively examines the components of TV instruction with major intention of providing insights to educators (educational planners, curriculum specialists and media specialists) about current status of TV instruction so that they can take actions accordingly for the improvement of TV instruction.

1. The study may acquaint educational administrators and media specialists with hindering factors to active engagement of students and teachers in carrying out their respective roles in TV instruction.
2. Students' learning is highly affected by the professional competency and personality of both the TV and classroom teachers. Teachers' competency in commanding the subject matter they teach, planning, selecting appropriate contents and methods of teaching is very crucial for effective teaching. Thus, the research result may contribute to the improvement of ITV by providing genuine information about the professional competency and personality of both the TV and the classroom teachers for efficient application of ITV.

3. The study may provide pertinent information as to how the instructional inputs including time, materials, financial, technical personnel and feedback loop are integrated in such a way that help to run smooth functioning of ITV.
4. TV instruction at school level can be obstructed by different factors such as electric failure, mix up of channels, meetings, and others. In this regard the study may have added importance in identifying miscellaneous impeding factors to ITV application.
5. Interested individuals and / or institutions may use the study as input for further study.

1.5 Delimitation of the Study

This study is delimited to examine the status of ITV application in the Secondary Schools of East Gojjam Zone. Status in a sense is to mean the systematic design of necessary inputs such as materials, technical personnel, time, learning environments and monitoring mechanisms in such a way that enable smoothly functioning of TV instruction. It also paid great concern to trainings given for teachers to help effectively utilize the hard ware, orientation made for familiarizing the necessity of applying ITV and the respective roles expected from students and teachers. However, the study does not include:

i. Development of the main curriculum and its relevance both to the students and the nation at large.
ii. Academic achievements of students both in classroom and standardized exams.

The major reason that made undertaking to this study in this geographical area is that, as expressed at different conferences and by the Zone's Second-quarter report of 2005, there is acute shortage of teachers both in number and required qualification in the secondary schools. According to this report asserted through classroom observation, students are highly crowded in a section up to 122 in a class. Concomitant to these, there is serious shortage of teachers in some subjects such as Civics and Ethical Education. For these reasons, the study is delimited to Secondary Schools of East Gojjam Zone.

1.6 Limitation of the Study

Since the study had many respondents (students, teachers, principals, woreda education heads and EMA team leaders) it was unmanageable to include parents (community) as data sources. Rather, the study tried to include the attitudes of parents towards ITV through the interviews conducted with principals and woreda education heads. However, had they been included the study would have primary information.

1.7 Research Design

This part of the study presents the research method used, sources of data, sample sizes and the sampling techniques employed.

1.7.1 Research Method

The study was undertaken using descriptive survey method. The reason why descriptive survey method was preferred is that the study does not focus in depth but tries to describe the nature of existing conditions in the application of TV as a direct teaching medium for the secondary schools. The other reason for using descriptive survey study is that the population of the study is numerous and relatively widespread to undertake in depth study.

1.7.2 Sources of Data

In order to secure as much relevant data as possible, the study has included both primary and secondary sources of data.

i. Primary sources. Data were collected from primary sources comprised of students, teachers, directors and woreda education heads, the Zone Education Desk and Educational Mass Media Agency through questionnaire and interviews. Moreover, to get extra information through systematic noting events and behaviors in the TV instructional settings during pretelecast, telecast and post telecast phases the researcher conducted structured classroom observations. Classroom arrangements including suitability of students' seating arrangements, TV placement, conduciveness of classrooms for clear reception of audios and visuals, and background noises and glare were also critically examined through classroom observations.

ii. Secondary Sources. To supplement data gained from primary sources, documentary analysis was made on secondary sources comprised of teachers' TV guides, TV lessons schedules, and statistical reports; and opinions of principals and woreda education heads about the attitude of parents about the application of ITV.

1.7.3 Samples and Sampling Techniques

There are sixteen secondary schools in East Gojjam Zone. Out of these only ten schools utilize instructional television. In order to secure necessary data from the students and the teachers' population, obviously, demands selecting representative samples through appropriate sampling technique. This is because, as stated by Cohen and Manion (1994:87) in a survey research due to factors of expense, time and accessibility it is not always practical to obtain data from a population.

For that reason, in the selection of representative samples for students and teachers as the sources of data, combinations of both simple random and stratified samplings were employed. In the selection of representative sample schools, six schools that do not apply ITV were crossed out. Then, six out of ten secondary schools were selected through simple random sampling. Having the required sample schools are secured, students' samples were identified using stratified random sampling method. Students were stratified with respect to their grade level (9 through 10 or 12), field of stream (for Preparatory students), section and sex. Then, the required numbers of sections were identified through stratified random sampling. Finally, 250 male and 110 female sample students were selected through stratified random sampling out of 11117 male and 3,733 female students.

Table 1: Selected Schools and the Students' Sample

Name of Schools	Grade	No. of Sections	No. of Students			No. of Sections Selected	Number of Students Selected for Sample		
			Male	Female	Total		Male	Female	Total
Debre Markos Preparatory Secondary School	11	17	915	172	1087	4	46	10	56
	12	12	567	152	719	4			
Mota General and Preparatory Secondary School	9	21	1942	963	2905	5	48	24	72
	10	21	1120	668	1788	4			
	11	14	635	69	704	4			
	12	11	493	52	545	4			
Ginbot Haya General and Preparatory Secondary School	9	13	732	487	1219	5	37	23	60
	10	9	552	263	815	3			
	11	4	263	29	292	2			
Gojjam Ber General and Preparatory Secondary School	9	14	549	381	930	5	42	26	68
	10	16	611	408	1019	5			
	11	5	214	40	254	3			
Amanuel General Secondary School	9	15	800	395	1195	5	46	22	68
	10	15	709	306	1015	5			
Belay Zeleke Preparatory Secondary School	11	10	603	65	668	4	31	5	36
	12	19	412	83	495	5			
Total		**216**	**11117**	**3733**	**15650**	**67**	**250**	**110**	**360**

To determine the sample size of teachers, the student researcher used the following formula

$$nk = \frac{N^k}{N} \quad n$$

Where N^k = the population size of the K^{th} strata

nK= the sample size of the K^{th} strata

N = the total population size

n= the total sample size (Abebayehu et al., 1999:108)

As a result 120 teachers were randomly selected as sample of teachers.

Table 2: Sample Teachers Selected from Each School

Name of Schools	Number of Teachers in the Schools			Number of Teachers Selected for Sample		
	Male	Female	Total	Male	Female	Total
Debre Markos Preparatory	42	4	46	20	2	22
Mota General and Preparatory Secondary School	82	9	91	23	5	28
Ginbot Haya General and Preparatory Secondary School	32	8	40	14	4	18
Gojjam Ber General and Preparatory Secondary School	40	5	45	19	2	21
Amanuel General Secondary School	30	7	37	13	3	16
Belay Zeleke Preparatory School	34	4	38	13	2	15
Total	**260**	**37**	**297**	**102**	**18**	**120**

For the identification of school principals, woreda education heads, Zone Education Desk and team leaders at Education Media Agency purposive sampling was employed. The reason why these individuals are purposely selected as samples is that their positions afford them to give invaluable data for the study.

1.7.4 Data Collection Instruments and Procedures

Data from the subjects were collected through questionnaires, interviews, classroom observations and documentary analysis. Questionnaires were employed to collect data from teachers and students as the number of respondents are relatively large, whereas interviews were conducted for directors, woreda education heads, zone education desk and the Educational Media Agency team leaders since their number is manageable for interview. Besides, six classroom observations during televised instruction and documentary analysis were employed.

Selection of data collection instrument is, obviously, influenced by the number of samples. Since the number of sample students and teachers was high, two types of questionnaires were prepared one for the students and the other for the teachers' respondents. Then, before the distribution of these data collection instruments, pilot studies were carried out to test the reliability of the questionnaires taking ten students and ten teachers samples from Menilik General and Preparatory Secondary School in Addis Ababa. Their responses were computed with test and retest method of testing reliability. They had reliability scores of 0.8 for the students and 0.86 for the teachers. These pilot studies helped in correcting some confusing words and statements in the data collection tools. The same was applied for the interview instruments. Finally, questionnaires were distributed to respective student and teacher samples of the selected schools. Interviews were conducted to school principals, heads of woreda education, the zone education desk, and two-team leaders of Educational Media Agency. Classroom observations by the researcher were employed during television instruction. Lastly, relevant documents such as teachers' guides for TV instruction, statistical reports, school calendar and schedules of TV lessons were analyzed.

1.7.5 Methods of Data Analyses

In order to facilitate data analysis, first, questionnaires were edited with the intention of identifying the completeness and accuracy of responses and eliminating errors made in the responses. Then, data were coded in terms of their categories. For the analysis of data both

quantitative and qualitative analysis were applied. In the analysis of quantitative data, the study employed counts, percentage and t-test as statistical tools. Counts and percentage were applied to examine the number of individuals who respond in favor of a certain alternative or category. Whereas, t-test was used to examine extent of correspondence or difference of responses given by the two respondent groups, and to show the extent of its effect to the variables under considerations. Moreover, judgments on data gained through documentary analysis and classroom observations were used to arrive at certain conclusions.

1.8 Definition of Terms

Audio Visual Materials	any device by means of which the learning process may be encouraged or carried on through the senses of hearing and /or sight, (Goods, 1973:23).
Broadcast	any transmitted radio or television program, announcement or signal (ibid, 1973: 71).
Closed Circuit Television	a television system, which limits distribution of an image to those receivers that are directly connected to the origination point by coaxial cable or microwave link (Ibid, 1973: 593).
Educational Managers	principals and woreda education heads that carry out supervisory activities at operational level.
Educational Television	non-commercial broadcast transmitting the broad range of educational cultural, and entertainment programs and also programs designed for use by schools in connection with regular school courses (Goods, 1973: 593).
General Secondary School	fist cycle level of secondary school that include grade 9 and 10 at which students gain general knowledge for latter field of study.
Implementers of TV Instruction	personnel at school level (classroom teachers and students) who are directly engaged in TV instruction.

Instruction	consists of leading the learner through a sequence of statements and restatements of a problem or a body of knowledge that increase the learner's ability to grasp, transform, and transfer what he is learning (Bruner in Heinich, 1970:112).
Instructional Design	systematic process of translating general principles of learning and instruction in to plans for instructional materials and learning (Internet).
Instructional Materials	TV sets and students and teachers' guides for TV instruction.
Instructional Television	lesson planned programs, systematically developed and conducted largely in schools systems or universities, (Goods, 1973:593).
Preparatory School	a second cycle level of secondary school including grade 11 and 12 with specified stream of studies, Natural Science and Social Science, that prepare students that achieved passing marks at National General School Leaving Examinations for further education at colleges and universities.
Secondary School	a public or private school providing instruction on the level of grade 9 through 12 (Hawes, G and Hawes, L, 1982: 197).
Television	the transmission and reception by electromagnetic waves of moving visual images and of the sound produced by or accompanying them (Ibid, 1973: 593).
Telecast Lesson	a televised broadcast lesson (Goods, 1973:336).
Woreda	administrative entity between Zone and the smallest unit, Kebele.

1.9 Organization of the Study

The study is sub divided in to four chapters. The first chapter deals with the problem and its approach, that is, variables, considered in the study, source of data, sampling technique, data collecting tools, methods of data analysis, and so on. The second chapter presents supporting ideas gathered from different theoretical and empirical related literature. The third chapter treats presentation of data through tables, graphs, chart and statements, and analysis of the data. Lastly, the fourth chapter describes the summary, conclusions and recommendations of the study.

CHAPTER TWO

2.0 REVIEW OF RELATED LITERATURE

This chapter presents different concepts, which are gathered from different literature. These concepts are synchronized from theories and empirical research results.

2.1 Concepts and Definition of Instructional TV

The term "Educational Television " (or ETV) covers all non-commercial television. While commercial televisions are privately owned and derive their income primarily from broadcasting programs which are sponsored by advertisers (Cassirer, 1962: 17). ETV is some times applied more narrowly to cultural and educational programs for at-home viewers in contrast to "instructional" television (or ITV), which is a term used to describe formal school, College, or University instruction via television (Murphy and Gross, 1966:9). ETV includes programmes, the primary interest of which is to educate rather than entertain. ETV generally includes ITV and non-commercialized TV programs (Sampath k. et al., 1984:203).

As Kinder (1959:134) points out, an outstanding development in modern education is the increased use of supplementary devices by which the teacher through the use of more than one sensory channels helps to clarify, establish and correlate accuracy, concepts, interpretations and appreciations; increases knowledge, rouses interest and even evokes worthy emotions and enriches the imagination of children. Kinder further clarifies the levels at which learning takes place into three: direct experiencing, vicarious experiencing and symbolic experiencing. This implies that audio-visual materials are quite helpful in instruction. Because they supply a concrete basis for conceptual thinking, they give rise to meaningful concepts towards enriched by meaningful associations. Thus, teachers should appeal to the mind chiefly through the visual and auditory sense organs, since it is possible that 85 percent of our learning is absorbed through these.

Having this in mind, however, in the application of ITV we do not intend to do any thing, which the good average teacher could do herself. We must do something extra. First broad

casters of instruction should ascertain how a specific subject is handled in the classroom, what material is normally covered in the curriculum, and ask teachers what TV could do things they are unable to do themselves. Only after receiving answers to these questions they prepare the programs (Cassirer, 1962:189).

The good instructional telecast takes full advantage of the unique audio-visual characteristics of the TV medium, leaving to the classroom situation those things best taught and learned in the conventional class room situations, and assigning to the TV medium those parts of the total teaching–learning process that are appropriate to the TV medium (Diamond, 1964:64). Utilization of mass media (ITV) for direct teaching purposes arises when specific educational tasks cannot be met by conventional mode of teaching. The question would then be: How effective can ITV be? To what extent can they be successful in attaining educational objectives? How efficient are they? However the answers to these questions cannot be given in a general way. There are a number of things that ITV can do as well or better than the average teacher and traditional teaching methods and facilities.

Many educators claim that whatever can be taught in a classroom can be taught by TV. One can hear what the TV teacher says, and can see him and what he is doing as well as, or even better. On the other hand, there are a number of things that ITV cannot do as well as the classroom teacher. As there are a number of things ITV can not do at all, our decision to use this medium will depend on the kind of education, the kind of objectives, subject matter, audience and so on, with which ITV will be expected to deal with (Waniewicz, 1972:35).

TV is particularly considered good medium for demonstrations than in a face-to-face situation, since the camera can look down a microscope, peer in to corners and give close-ups of things which could never be so closely or accurately observed in a normal classroom situation (Clarke, 1968:37). Besides the voice and personality of effective teachers will be available to great audiences. Specialists in all fields of endeavor will be seen and heard all over the country. TV as a medium of instruction acknowledged by UNESCO, (1962:37), because of its effectiveness in directing and controlling the attention of the pupil. Further TV magnifies objects in a clear, accurate and telling way, and encourages sustained attention, careful

observation and attentive listening. Details of this would be discussed on advantage and disadvantages of ITV.

Wood and Wylie (1977:181-182) affirmed that application of telecommunications media needs basic understanding of educational goals and objectives before looking for the specific tools that will be used for achieving those objectives. Further several elements related to total educational situation such as specific community and societal needs, the finances of the local schooling system, the specific characteristics of the students in the learning situation (age, economic background, academic abilities, and others) and the status of the present schooling situation- plant and facilities, special programs, community involvement, strengths and weaknesses of the teacher.

Securing the administrative support including from top level to low level of educational management has determinant influence on the success of planned instructional media. It is also pointed out that plans must be outlined for the specific uses of various media regarding what jobs the media can do, the best way of utilizing them and the nature of the learning situation-large group instruction, small group patterns, and individual instruction. Specific curriculum planning procedures must be initiated with the team members, which involve curriculum administrators, consultants, teacher committee, the TV teacher or content authorities, and the media production staff.

TV as a means of instructional medium in Canada was inspired not by any particular shortage of qualified teachers or classroom space, but by a desire to exploit the contribution which TV can make, even to best class room. In using ITV the main emphasis was given to the needs in elementary schools where the individual teacher has to prepare eight or even nine lessons a day (Cassirer, 1962:188).

2.2 Historical Development of ITV

The historical development of ITV at worldwide and its inception in the education system of our country is discussed here under.

2.2.1 ITV in the World Wide Context

Television was first made available to the general public in 1936 by the British Broadcasting Corporation and soon thereafter introduced in all the highly industrialized countries of the world. Then TV became a major source of entertainment and information in the post Second World War. As noted by Cassirer (1962:287), the first pilot experiment in the use of school television in UK was carried out in May 1952 by the British Broadcasting Corporation through closed- circuit transmission. At first TV was confined to its industrial base in the major countries of northern Europe, North America and Japan. Then it was established in almost every economically developed nation of the world. At last, the establishment of TV stations has been reality in what are known as technically underdeveloped countries through out Asia, Latin America, and Africa.

Television hoped to bring about profound positive changes in the cultural and educational resources of the United States. The production and dissemination of programs which serve the educational institutions in the United States is the responsibility of three types of television systems: commercial broadcasting stations, noncommercial educational broad casting stations and closed – circuit television.

After the Second World War those concerned with the use of broadcasting for education in USA concentrated their efforts on the use of radio channels, especially frequency modulation (FM) stations (Cassirer, 1962: 16-20). With dedicated efforts of proponents of TV broadcasting in September 1948 Federal Communication Commission (0f USA) imposed a "freeze" – a legistilative action – on all further TV stations on the air in the USA, of which only one (the Iowa states station) was licensed to an educational institution (Schramm, et al., 1963:3). The USA experience shows that the first educational TV station to go on the air was at Houston, Texas, in April of 1953. However, Iowa state university, Ames, Iowa, was operating a TV station several years prior to 1953, but it operated on a commercial TV license (Kieffer and Cochran, 1962:205). Such attempts really signify that TV as an instructional device has relatively long years of age in developed nations.

2.2.2 ITV in The Ethiopian Context

TV appeared in Ethiopia in 1964. As stated by the imperial government the purpose of TV broadcasting was to educate inform and entertain in that order of importance, Mozayen in (Teshome, (1998: 72). The first experimental program went on air for school around Addis Ababa from 1965 to 1968, Simetra in (Teshome, 1998: 72). From 1965 on wards TV function as educational supplement. TV as a supplementary device was acknowledged for its contribution in improving students' reading speed through "a television course in faster reading" for Ethiopia at Junior Secondary Schools (Sherrington, 1967:82). However, in the recent years due to educational expansion emanated from universal education in the country students' enrollment became increasing year after year. This enormous number of students, obviously, needs more teachers, teaching materials, classrooms and demonstration devices. As stated by the Ethiopian Education and Training Policy (1994:27) the education system would underline the application of educational technologies in order promote quality, expansion and relevance of education. So, in response to the constraints to both human and material educational inputs from 2003 on wards ITV (plasma) has been used in massive for both town and rural secondary schools of the country as a direct teaching medium.

2.3 The Need for Using ITV

Application of ITV in the school systems varies from country to country according to the actual problems faced by the concerned country. The school enrolments were accelerated from year to year after the Second World War while schools were suffering from shortage of teachers and classrooms. Attracting and retaining highly qualified teachers was a formidable problem. Besides the body of knowledge that a secondary school must pass on to its students had expanded tremendously. Schools were frequently faced with obtaining the best possible results from financial resources that were too often inadequate. Efforts had to be made to provide for differences between individual students and to determine which types of instruction were most important for the success of the individual. These being the case, education was expected to contribute to the progress of society. So, American educators were exploring many ways to make better used of available funds and facilities. Consequently, TV was considered as

one of the instructional media for overcoming the aforementioned educational problems (Cassierer, 1962:26-27).

Introduction of ITV in Japan schools emanated from the new emphasis on democratic principles that brought a change in the content and methods of education after the Second World War. Before the war, Japanase education was based on textbooks, while teaching emphasized cramming and memorizing of facts.

The post-war reform of Japanase education resulted in the introduction of new courses into school curricula. Subjects such as social studies, child psychology, vocational education and home economics required qualified teachers and new teaching materials, which were normally not available in the schools. To supplement existing textbooks the Japanese education system sought help in audio-visual education; as a result TV was introduced to accomplish the following tasks:

1) To make teaching more effective in schools, which suffer from, limited budgets and crowded classrooms.
2) To promote the teaching of science, and help overcome the lack of facilities in many schools.
3) To serve the in-service training of teachers, especially in the use of audio-visual techniques.
4) To enhance the education of farmers, factory workers and other young people to whom school TV gives a new orientation (Ibid, 1962: 244).

2.4 Educational Values and Limitations of ITV

Instructional television has both advantages and limitations in utilizing as educational resource.

2.4.1 Educational Values of ITV

There are times when the content of learning materials necessitate the unitization of audio-visual materials. In this case ITV has the greatest potential of all the audio-visual aids in the field of education. In this regard Blythe-Lord (1991:32) points out the suitability of ITV for:

1. Transporting the entire audience to wild, hostile or in accessible locations;
2. Enlarging the microscopic and reducing the immense; and
3. Combining text and images to help explain and delineate involved processes, so encouraging learning and understanding through different channels.

As stated out by Diamond (1964:20-26) the educational values of ITV includes:

1. Demonstration time can be reduced through ITV. Instructor fatigue is reduced and the instructor's time and energy more efficiently utilized.
2. ITV provides a strong focus of attention. It becomes possible to emphasize a single point, direct the student's attention to a particular area, and to avoid unrelated considerations.
3. ITV has an immediacy that spans time and space and brings to the viewing audience thousands of miles away (Kieffer and Cocaran, 1962:205).
4. ITV relieves classroom teachers for repeated exhaustive preparation of material.
5. ITV permitted the sharing of the special talents of scholars and gifted teachers with a large number of pupils and teachers (Wood and Wylie, 1977:126).
6. ITV can employ all other audio-visual aids and combine their effectiveness in the one medium (Cable, 1965:88).

2.4.2 Limitations of ITV

Instructional television's effectiveness is usually criticized by educators for the following reason:

1. Rigidity of timetables in the case of schools and rigidity of schedules in the case of media programs, which do not correspond to school time tables (UNESO, 1985:166).
2. The classroom teacher has no control over the pace of development of a television lesson.

3. It is difficult to take account of variations and ability within an age group.
4. Interruption and distractions at the receiving end can seriously impair the effectiveness of a lesson (Cable, 1965:88).
5. ITV is a one -way- communication. It does not allow readily class discussion.
6. ITV encourages passive form of learning rather than active seeking. It also precludes individual and group activities.
7. The equipments for ITV are costly and complicated for use (Sampath, et al., 1984:209).
8. ITV gives little opportunity to adjust to individual differences, rates, and needs.
9. The student cannot so readily feedback his responses, or signals his lack of understanding, or clear things up with a question with instructional teachers (Hobam in Haskew and Mclendon, 1968:390).

2.5 Types of ITV Programs

Instructional television can be used in different ways according to the necessity of the school system. Martha Gable categorizes ITV programs in three: total TV teaching (direct TV teaching), TV as a complementary basic resource, and TV as a supplementary resource.

2.5.1 Direct Teaching by TV

It is a type of ITV program in which the TV teacher presents the major part of a course of study. This configuration has been variously described as "major resource", "basic" or "direct" teaching by television.

Experience of a secondary school shows that seven classes were scheduled in an auditorium three days a week. The telecasts occupied twenty-five of the forty-two-minute periods. A teacher selected for his /her experience and competence was assigned to conduct the preparation and follow up activities, the rest six teachers assisted with individual questions, the distribution of materials, and home work assignments.

In another secondary school, a multipurpose room with adequate desk facilities for 240 pupils replaced the auditorium. Schools had sets of rooms with movable walls so that three classes can be converted into one. This permits six classes to receive telecasts simultaneously, in two groups of three classes each. One experienced teacher is assigned to each large group while the remaining teachers released for increased work with small groups or with individual students. The role of the experienced teacher is to conduct the preparation and follow-up activities for the large group while leaving the other two teachers in the room, to assist when needed, but mainly to observe the telecasts and the techniques of the follow up teacher. The obvious emphasis here was up on in-service training for newer teachers.

2.5.2 Television as a Supplementary Teaching Aid

As a supplementary teaching aid, ITV is used where an expert to augment classroom offerings presents lessons related to the course of the study once or twice a week. Such types of programs can relieve the class room teacher of repeated exhaustive preparation of material; they permit the sharing of special talents of scholars and gifted teachers with a large number of pupils and teachers, who recognize and appreciate the talent- yet such sharing could have been achieved by no other technique.

2.5.3 Television as a Total Teaching

This is a type of ITV program, where an entire course is taught over television, with out assistance from classroom teachers. It may be convenient when it is not economically feasible to hire a teacher for the few pupils who require certain courses. In this type of ITV arrangement no classroom teacher assumes any instructional responsibility for the actual presenting of material. A teacher or monitor for that matter is usually present, especially at lower grade levels for obvious administrative and supervisory purposes (Wood and Wylie, 1977: 176).

2.6 Alternative Time Durations for Telecast

As stated by Wood and Wyllie (1997:258-259) the length and number of lessons should be determined based on the instructional objective to be attained. It should not be determined on the conveniency of scheduling. Attention span of students is another major aspect that need, to be taken into account in designing TV broadcast duration. At the lower primary levels fifteen to twenty minutes may be considered maximum. Thirty minutes would normally be the limit at upper elementary levels. At the secondary schools viewing periods could reach a maximum of forty to fifty minutes. However, the aforementioned time lengths for a lesson will depend upon content, the quality of the students' attention, their degree of motivation, their interest in the subject at hand, the skill of the teacher and production staff, and the quality of the television system.

The Hagerstown's experience (USA) around the end of 1950s shows that the normal high school class period was 60 minutes. When TV is used, the first five minutes were generally set in getting ready for the programme. Then come the telecast (25 to 30 minutes) and the classroom teacher devoted the remaining 25 to 30 minutes to a follow-up. Actually administrator were interested to see the first 15 minutes in the hands of the class room teacher for revision of problems which arose in home work assignments. However, it had frequently been found that teachers are not sufficiently qualified to make good use of this introductory period. In arithmetic teaching on the elementary level, the teacher normally refers during a preparatory period of 10 to 15 minutes to the advance information given in the teachers' manual and seeks to clarify certain difficulties, which may be encountered by at least part of the children. Then follows the telecast (20 to 25 minutes), during which children take notes in the semi-lighted room. Afterwards, the teacher makes a check to ascertain which children have understood the concepts contained in the programme. For those who understood, follow up work is planned; while the teacher works for 20 to 30 minutes with the other children who had encountered difficulties (Cassirer, 1997: 31-33).

2.7 Technical and Economic Feasibility

CETO (1968:37) states that in the industrialized countries TV was so widespread that its application to education was obvious. However, in Africa it is a difficult matter. Very few countries can yet use TV efficiently for education. Where a service exists the problems of sets distribution and maintenance are enormous. Cassirer (1962:41) giving high concern for costs of TV instruction notes that when TV is used to provide better and extra services with superior teaching materials combined with the most effective use of personnel, it is not less expensive. Any improvement cost money. The same was true of TV. Thus the claim raised TV will save money is misleading.

Technical competency of class teachers in efficient utilization of TV as a teaching medium is another great concern. Emphasizing this Wood and Wyllie (1977:304-305) advises that the classroom teacher certainly should be aware of the opportunities for receiving training in the proper utilization of TV in the classroom. In this attempt of acquainting specialized training we can consider two realms: preservice education which are given by teachers' colleges before teachers are certified and start their actual professional careers and in-service education while he or she is a practicing professional in the field.

Regarding prospective teachers' pre-service training, Charles Hunter in Wood and Wylie pointed out some of the important points which should be included in such curriculum:

1. A full discussion of the advantages of TV as a teaching tool.
2. Proper attitudes toward ITC and toward the non-camera teacher.
3. Basic production training and knowledge of studio procedures- so that the classroom teacher can better appreciate the total ITC endeavor.
4. The results of the vast amounts of research conducted in the TV area.
5. Emphasis on creativity and imagination in the utilization process.
6. Viewing conditions in the learning situation.
7. Special ITV- related problems such as equipment malfunction, scheduling complications, and related aggravations.

While a teacher is in the field there are many opportunities for various kinds of in-service media programs. Local schools and districts often establish do-it-yourself in-service workshops; state departments of education and state ETV networks in USA have been instrumental in holding workshops and utilization training programs.

Activities and programs of in-service training may take different forms such as after-school meetings and seminars; district and state meetings and workshops during one-day teacher institutes or "professional days" of various descriptions; weekend sessions, summer workshop and institutes; and open circuit broadcast in service programming. These in-service opportunities deal with ITC utilization in general, preparing classroom teachers for their first experience as receiving instructors.

Sustainability of running cost for ITV is one of the crucial issues in the application of TV to education. In connection to this, Martin (1964:222) clarifies that capital investments and support budgets for implementing instructional TV are major items and should be on a continuing basis. It is neither practical nor economical to buy equipment, employ personal, and initiate ITV programming as a short-term project. Thus TV's contribution to instruction, the technical and economical factors involved require analysis and careful projection before TV accepted and get support with full justification. Justification for economical feasibility in using educational technologies is also shared by Schramm (1977:106) as he pointed out the necessity of reliable information on the cost of both capital and recurrent costs. By capital cost we mean the costs of equipment and facilities that will be in use for than the current budget year buildings, considered the "hardest" (most reliable cost figures the educator will have to work with: and it is relatively easy to cost out the necessary components and the expenses of delivering and installing them at a given place.

2.8 Logistical Arrangement for ITV

According to Wood and Wylie (1977: 302), availability of logistics for ITV varies according to economical and technical development of a nation. In many single classroom ITV applications, the classroom teacher has few logistical problems: the overhead camera and the TV set are

permanently assigned to the room always ready for immediate utilization. Whereas in many schools ITC situations there are many different elements and personnel to be scheduled, moved, coordinated, and meshed together. A school utilization specialist or building ITV coordinator inherits a logistical assignment that resembles a juggling act.

I. Four Physical Elements. Basically, there are four different physical ITC utilization elements to be coordinated-brought together-at the same time: the viewing room, TV receiver (s) students, and teacher.

a) Viewing Room. Schools may use varying sort of TV viewing rooms such as an AV room, or auditorium or parts of library or learning resource center or classrooms based on technical and economical affordability.

b) Receivers. In many schooling situations the administration may equip each classrooms with TV receivers, whereas in other situations there might be shortage of receivers with perhaps three or four teachers sharing one TV set which is moved from room to room. This pattern can be worked out logistically, but it takes careful scheduling and juggling of the receivers.

C) Students. The learners must be in an equipped room, with a receiver; at the right time using off-the-air programs can become an especially crucial scheduling problems. However if the school systems can record the programs off the air and make arrangements to play them back at times more convenient to the class and the classroom teacher, the scheduling problem is alleviated some what. But this requires more of an investment in video recorders, videotape stock, and technician time.

d) Teacher. The classroom teacher needs to be scheduled as one of the four physical elements and all these elements would be considered together as a single unit.

II. Usage Patterns. Frequent disruption of TV lessons may cause classroom teachers feel that TV not worth. What ever the advantages of the particular ITV series are, the discontinuity to

learning situation may offset the benefits from the point of view of efficient ITV utilization; it would be helpful to think in terms of priorities of desirability in the logistical arrangements.

a) **Receiver-Equipped Classroom.** Obviously it would be most desirable arrangement to have a TV receiver permanently placed in every classroom where the teacher might want to use ITV. Ideally it is believed that each classroom (viewing room) should equipped with two receivers in order to guarantee the best possible viewing angle for every student and to provide a redundant back-up system in case of malfunction. Although it might be prohibitively expensive in most situations, this would certainly make for the greatest accessibility and convenience for the students, the teachers and the TV coordinator.

b) **Moving Receivers.** The next desirable alternative would be to have every classroom equipped with an antenna terminal connection. This enables receivers to be scheduled and moved in to the classrooms on portable stands as needed. As a result one receiver may be able to serve three or four rooms. However, it causes some wear and tear on the equipment, this being the case still it is less expensive than buying three times as many TV sets.

c) **Moving Students.** It is less desirable than moving receivers. It would be preferred when the facilities are limited and lack of well equipped rooms with either receivers or antenna connections, so it will be necessary to move the students to the equipped viewing rooms. This arrangement is criticized for the interruption in the learning situation. Students must be moved out of a viewing room as soon as the ITV presentation is over, with resulting loss in motivation and interest as the students are shuffled back to their class room. The four or five minutes immediately following the television can be the most valuable period for capitalizing on the students' TV inspired interest answering their immediate questions, getting started on related projects, etc. If this time is lost, and myriad distractions are introduced as the students are herded back to their own room, the immediate follow-up to television is severely hampered.

d) **Large Group Viewing.** Moving of the class-along with several other classes into large group situation to view the program in the auditorium, cafeteria, or other big viewing room is more distracting. This type of viewing arrangement causes for learning interruption and need

firm supervisory activity. It is the least attractive of the various usage patterns. However, when the situation is carefully designed and thoroughly controlled, the large-group viewing arrangement can work out quite satisfactorily.

III. Viewing Conditions. In the facilitating effort for convenient viewing conditions there are many parameters that should be assessed. Some of these are: What about the actual viewing conditions in the classroom or other viewing center? Where should the TV set be placed in the room? How near and how far away should the viewers be seated? At what height should the set be placed? How many students can view a single set? What about lighting conditions?.

IV. Placement of the Receivers. Several considerations can determine where in the classroom the TV set, or sets, should be placed: glare and lighting conditions, maximum viewing area, and size and age of students to mention some of them.

V. Glare. The principal source of glare on the face of a TV tube is likely to come through the windows. Thus the easiest remedy for this problem is to place the TV in such a position that the back of the TV is against the windows or in a corner primarily facing away from the windows.

VI. Height of the Receiver. Generally, it is believed that the TV set to be placed from four to six feet above the floor. However, some practitioners offer the common sense observation that the receiver should be placed about eye level of the standing teacher.

VII. Lighting. The most common mistake relative to lighting in a TV viewing situation is the tendency to cut down on the lighting too much. Television should never be viewed in a dark room. This is because for one thing the picture brightness on the face of the tube is so intense that viewing in a darkened room greatly accentuates the contrast between the TV tube and the rest of what the eye perceives. For another, viewing TV in a normally lighted room will not cause eyestrain and it is better for taking notes or referring to other materials and for better disciplinary reasons.

VIII. Ancillary Materials. To get the most out of the potentials of TV as a means of instructional medium, it would be very essential to fulfill at least ancillary or supplementary materials needed during ITV application. Wood and Wyllie (1977:273) point out most of these materials are produced for the classroom teacher. However, some are produced for the direct use of the learner.

a) Classroom Teachers' Guide. Haney and Ullmer (1971:76) advise that teachers should be provided with teaching manuals that are ordinarily related with a TV series. Manuals are of critical importance for televised lessons because televised instruction received from a broadcast or cable source cannot be previewed directly by the teacher as a regular part of lesson preparation. A good TV manual will give the objectives of the lesson, the special vocabulary used, key questions that pupils usually ask (with suggested answer) out line of the content, bibliography, the charts and diagrams that are displayed during the televised lessons and which should be available later for reference, additional readings, follow-up activities, and tests. A teacher who has this material is in a position to determine prospective values of the lesson for particular pupils at a particular time, and to plan what to do in class immediately prior to the televised lesson, during pupils viewing, and immediately afterward. Giving high concern for teacher's guide Wood and Wylie (1977:304) state that in the applications of ITC the single most important aid to the reception teacher is probably the classroom teacher's guide. Before starting the series the teacher should study the guide thoroughly, determine the scope and purpose of the entire series, decide on his or her own direction and what needs to be accomplished with the telelessons. What should the students know before starting with the first telecast?

Further individual guide pages for each lesson should be carefully scrutinized far in advance of the scheduled telecast. What vocabulary terms need to be introduced? What needs to be done to prepare the students for today's lesson? What reinforcement activities should be planned? What additional materials will the class need? These are some of the questions to be considered. The teacher's guide typically contains some general information about the series- its purpose and design usually a general introduction or foreword including a few platitudes and words of encouragement from the TV teacher to the classroom teacher. However the real

value of the guide is in its specific information about each lesson Consequently, the teacher's guide is expected to include the following about each separate program.

1. **Objectives**: The clear purpose or learning objectives for the individual telelesson.
2. **Vocabulary**: A list of all new terms or words that are introduced in the TV lesson.
3. **Materials Needed**: A list of all materials and tools that will be needed by both the teacher and the students during the actual telecast.
4. **Lesson Summary**: Out line of the content of the telelesson and some important points the classroom teacher should know such as a math formula, or important dates.
5. **Suggestions for Preparation**:- Ideas and activities for the classroom teacher to use in preparing the students for the telelesson.
6. **Follow-up Activities**: Suggestions for reinforcement and follow -up classroom activities, including quizzes, home work assignments, readings, projects, etc.
7. **Reference Material**: A bibliographic list of readings, films, and other sources of background information for the classroom teacher.

In addition to classroom teacher's guide, other materials might also be produced and distributed to the schools for teacher and classroom use, these may include: charts, overhead transparencies, slides or audio materials to be used in the classroom to accompany a given ITV series; written supplements giving additional background information on a particular program or series; testing materials to be used with the students.

b) Students' Supplementary Materials. A variety of ancillary materials might also be produced and distributed to students for their use and consumption. Syllabuses, reading lists, charts, and diagrams are most frequently supplied to students to enhance their understanding of TV instruction. Workbooks in which the students figure out problems might be included. Sometimes "structured note taking" worksheets are used in which the basic outline of the program is produced and students fill in blanks and take notes during the course of the telelesson. Short excerpts and readings might be availed. It is also important to prepare self-testing materials to the students. Self-teaching "programmed" materials might also be considered as supportive to the telelesson.

2.9 The Role of TV Teachers, Classroom Teachers and Students in TV Instruction

Instructional TV to be meaningful there should be team approach work relation among TV teachers, classroom teachers and students. With the application of educational technology role of educators and students will vary from the conventional classroom teaching approach. Consequently, all the above-mentioned components of TV instruction need to fulfill their respective roles.

2.9.1 The Role of TV Teachers

The TV teacher usually fulfills two primary roles:

1. That of producer, and
2. That of on the camera "talent" presenter.

As producer, the TV teacher is responsible for the content of the program. He or she is the content expert who ultimately pulls the program together as researcher, writer, and authority who makes the final decisions. As on the camera talent, the TV teacher has much more of an identifiable image. His or her face is the one that carries message to the multitudes. (Wood and Wylie, 1977:260). In most programmes the TV teacher concentrates on giving the necessary information in the most interesting manner possible. He brings his specialized knowledge in to the classroom. He demonstrates, reasons and proves, he may raise questions, suggests activities and stimulates the students to look for answers on their own. He takes the lesson to the point where classroom teacher and students take over (Cassirer, 1962:166).

According to Diamond (1964:246) the TV teacher has several basic responsibilities: selecting and designing the program content, writing the study guide, preparing the production out line, and finally, presenting the lesson it self on television.

2.9.2 The Role of Classroom Teachers

Emphasizing the burden of classroom teachers Wood and Wylie state the multitude role of teachers posing questions, how long can we continue to consider the teacher a pedagogical jack- (or jill)-of-all-trades? Can the teacher realistically be expected to fulfill the role of information giver-counselor-manager of learning situation-tutor-discussion leader-curriculum planner-writer-evaluator-demonstrator? Moreover teachers must carry out array of non-teaching responsibilities: custodian, clerk foster parent, disciplinarian, examiner, audio-visualist and technician, librarian, student adviser, therapist, recreation leader, and responsible citizen. Thus application of technological devices to assume more of a central place in the dispensing of information will enable teachers to concentrate on those areas in which individual contact and human leadership are needed (Wood and Wylie, 1977:220). Cassirer (1962:254) suggests that TV instruction cannot be fruitful unless there is mutual understanding and cooperation between broadcasters and implementers (teachers). He adds that educational reform always require the understanding and support form teachers who have ultimate control what happens in the classroom.

2.9.3 The Role of Students

Students as one part of human elements in the TV instruction session have many activities to do students are expected to pay their TB teachers and classroom, teachers, actively respond to questions raised, ask questions, discussion each other for idea sharing, take notes, etc. Thus, as stated by Blythe–Lord (1991:14) teachers or designers of instruction have to consider thee role that the audiences of instruction are going to play during instructional sessions. The teaching learning process should create active interaction of students with their teachers and peers. Active students the one who get encouragement from their teachers to some contributory activity such as discussion, experiments, practical or physical activity, group work and so on. Such engagements have advantages of developing personal discovery, interaction, simulation and the free interchange and development of ideas among the students.

2.10 The Three Phases of TV Instruction

Effective application of TV as teaching device obviously requires active participation of classroom teachers in all phases of TV instruction. As stated by Wood and Wylie (1977:306) since the earliest audio-visual days, the actual implementation of the mediated learning material (or the utilization session) has traditionally been broken down in to three periods:

1. Preparation, and/or activities before the telecast or media presentation,
2. The presentation it self; and
3. Post lesson, or follow-up activities after the telecast.

These instructional broadcast phases are labeled the "three R's of utilization" readiness, reception and reinforcement.

2.10.1 The Readiness Phase

In the readiness phase, first the classroom teacher must be sure of exactly what is to be accomplished during ITV utilization session. He or she is expected to know clearly the lesson objectives as listed in the classroom teacher's guide.

Next the classroom teacher will want to consider general preparation for the viewing session. He or she will work to instill positive attitudes to ward the concept of TV instruction, as well as toward the on-camera TV teacher. The receiving teacher will work on general motivation, creating a constructive classroom atmosphere including all aspects of the physical viewing conditions. He or she is expected to stimulate and reinforce interest in this particular subject matter- the importance of the content, the thrill of discovery of concepts and principles, and the excitement of today's topic.

Finally, the receiving teacher need to identify what things to be done in order to achieve the learning objectives planned for this presentation. There are many activities, which might be fitting for this specific preparation- depending up on the nature of this particular session. It may be appropriate to review the last lesson; what issues were raised that need further

exploration, previously assigned student projects should be assessed and there may be reports that were assigned last week should be given before the day's lesson.

In many instances, specific items of information or back ground data will need to be given to the students before they can get the most out of the day's telelesson. A most obvious area would be new terms and vocabulary words that should be introduced before the telecast. Other information possibly should be reviewed in specific preparation key dates, important formulae a summary of main points or concepts. Perhaps new personages or locations should be introduced to the students before the lesson. Much of this information can be presented on the chalkboard or by use of an overhead projector or perhaps may be prepared and handed out in photocopied format (Wood and Wylie 306-307).

As stated by Brown, et-al (1977: 252) the role of classroom teachers in the readiness phase include:

A. Physical Arrangements: Arranging the students' seats to the appropriate angle, and distance and places for equipments must be properly arranged for optimum viewing. Plan to have some daylight or artificial light in the room, but avoid destructing reflections on the TV screen image.
B. Check Equipment: Before the program begins, the classroom teachers should test the receiver and make necessary adjustments.
C. Prepare Students: classroom teachers give a suitable lead-in before the program starts. Help your students' approach the viewing session with anticipation of what they are to see and what the presentation may contribute to their understanding of the subject under study.

2.10.2 The Telecast (Presentation) Phase

Classroom teachers have many important things to do during the presentation phase of TV instruction. Giving high concern for this role Wood and Wylie (1977:307-308) note that many neophyte classrooms (receiving teachers) have made the initial mistakes of assuming that during the actual telecast the classroom teacher was relatively free. However the presentation

phase itself can be a very hectic time for the classroom teacher especially at the lower elementary levels. In this phase the teacher has two definite roles to play: active participation and attentive observation. The teacher as a participant, he or she must be a model viewer. The receiving teacher should set the tone for the viewers, showing interest, paying attention to the screen, radiating encouragement for both the on camera instructor and for the viewers. Up on occasion, it may also be appropriate for the classroom teacher to participate as instructor. Depending up on the grade level and type of presentation, it might make sense for the classroom teacher to serve as a clarifier (interpreter). Perhaps he or she can work at the chalkboard during the lesson jotting down key phrases, making an outline, in essence helping to take notes for the class. Some times, even oral comments might be appropriate-underscoring an important point, urging students to remember a key fact, relating what the TV teacher said to something covered in the preparation period. Obviously, if the telelesson is being played back on a video recorder in the classroom then the teacher has control over the presentation and can stop the tape to make or clarify a point.

The classroom teacher as observer must also constantly be an observer of the students gaining every bit of feed back possible from the pupils. The teacher can be noting when the class becomes perplexed, what parts of the telelesson need to be explained, where there are contradictory statements, where individual students are having trouble.

2.10.3 The Reinforcement Phase

It is generally agreed that of the three utilization phases the reinforcement or follow–up phase is probably the most crucial. The heaviest emphasis is usually placed on reinforcement; the most time is usually spent on reinforcement; and classroom teachers direct most of their creative energies toward enforcement. The starting point, as with the readiness phase, is with the learning objectives that the classroom teacher wants to achieve. Objectives may be taken directly from the classroom teacher's guide and it is important that the classroom teacher keeps these objectives clearly in mind as activities for the follow-up phase are planned.

Haney and Ullmer (1970:78) stressing the importance of post telecast phase describe that immediately with the set turned off the teacher can begin with the questions and other activities planned to clarify, reaffirm, expand and apply the material of the lesson. However, the teacher should not reteach the lessons in different words. Instead the teacher should immediately apply the content by working problems and engage students in purposeful discussion to check whether students have understood the TV lesson.

2.11 Provision of Orientation to Stakeholders of ITV

The successful use of TV in a school or a school system requires advance orientation of administrators, parents, citizens, teachers and students. In other words, a receptive climate needs to be created. In addition the involvement of the TV teachers, the classroom teachers who receive the programmes with the children, the curriculum subject specialists who write courses of study, is of prime importance, if there is to be general acceptance of the TV lessons. This may be done in regular planning meetings or in workshops (Cassirer, 1962:39).

Diamond (1964:208) underlines the necessity of proper curriculum planning, staff orientation, and acquisition of technical staffing before the application of TV as instructional medium. Decision to use TV should be reached after alternative solutions have been investigated otherwise as we rush blindly in to TV there can be only one result: disaster, resulting low quality of education.

2.12 Attitudes of Teachers, Students, Parents, and Educational Administrators towards TV Instruction

Efficient utilization of ITV needs positive attitude from all teachers, students and parents towards. TV as instruction is a function of awareness given about the possible advantages of TIV. It is stated by Murphy and Gross (1966:11) that education is slow to accept innovation. According to these authors on the average, an educational innovation takes fifty years to trickle down to schools and colleges. This signifies the need for provision of extensive orientation to administrators, teachers, students, and parents.

2.12.1 Attitude of Teachers towards TV Instruction

Hagerstown's experience in USA showed the resistance of teachers and students to changes in established routines and to learning techniques associated with mechanical and electronic devices. Teachers are more accustomed to instruct groups than to guide individual pupils in the self-help type of situation created by many TV techniques. The high school teacher is, at least theoretically, better trained in subject matters they teach and therefore less ready to welcome the TV teacher in to his classroom. However it has frequently been found that a well-qualified teacher is often more prepared to accept outstanding TV programmes than other teachers who feel that their authority and competence may be challenged in the eyes of children (Cassirer, 1977:35 and 61).

Resistance of teachers to the application of ITV was also noticed by the national program (USA) especially from the secondary schools, because most classroom teachers resisted the sharing of responsibility with the studio teacher. It became clear; too, that televised mass teaching was unworkable unless the programs were of high quality. Thus the emphasis of the National Program shifted from the large-class objective to that of achieving quality, and of supplementing and enriching regular classroom (Murphy and Gross, 1966:37).

Research has shown that the attitude of the classroom teacher plays a substantial role in the final success of any TV lesson. ATV lesson viewed by the class of a teacher who is resistant toward TV has little chance of being effective. It is believed that teachers must not only informed of the potentials of TV but must also helped to develop a positive attitude to ward exploring the use of the medium with in their own classrooms. This awareness creation falls in to two distinct parts – that which takes in the prospective teacher's undergraduate program, and that which is designed for teachers already in the field (Diamond, 1964:204).

2.12.2 Attitude of Students towards TV Instruction

Attitude of students towards TV instruction from the point of view of Chicago's experience split depending upon the academic level of students. Students in elementary and high schools are largely in favor of TV instruction while those in colleges and universities react for the most part unfavorably (Murphy and Gross 1966:59). This implies that pupils may have a tendency to attribute undue authority to the TV teacher, to accept uniformity and submission, or to be told about experiences rather than to search for their own answers. Such tendencies must be countered by constant care on the part of TV and classroom teachers (Cassirer, 1962:35).

2.12.3 Attitude of Parents towards TV Instruction

Communicating the importance of instructional TV in the teaching-learning process is highly accepted by educators. In this regard Cassirer (1977:28) notes that when the community plays an integral part in the education programme, there will be better understanding of what teachers do, what is expected of students, and what it costs to provide an education Programme that will produce superior results.

2.12.4 Attitudes of Educational Administrators towards TV Instruction

Any educational endeavor in the application of educational innovation regardless of the importance in the instructional program usually will not succeed unless it has the support of the school administration. In terms of TV utilization for instructional purpose, regardless of how convincingly research indicates that the media work, the facts are meaningless unless the decision makers think it is a good idea to use the media.

There are essentially three different levels of necessary administrative support. First, there is the top-level policy support. Second, there must be support of the top administrative level-the chief executive (supervisor, president, and principal) and his immediate subordinates. Third, the project must have support from the local or immediate management level-department chairman, dean and curriculum supervisor (Wood and Wylie, 1977:181).

2.13 The Experiences of Some States in USA

From the experiences of some states in USA, Murphy and Gross (1966:60) concluded class room teachers and parents generally believed that there were disadvantages for the pupil who got TV instruction because absence of contact between students and television teacher and failure to meet the needs of the non-average students on the other hand, administrators and TV teacher disagreed. They believed that students did not suffer from the reduced contact with teachers or from the curtailed attention to non-average students. From the students' part the chief objection to ITV was that they could not ask questions, this reaction pertained to math courses rather than to ITV as a whole.

2.14 Feedback Mechanisms

TV instruction as any kind of communication needs to be evaluated if it had given meaning to the receiver as intended by the sender of the message. Any form of instruction be it TV or conventional class room instruction there should be firm two way communication channels that enable communicants to have the same meaning in their minds. In this regard Wood and Wylie (1977:338) state that students can learn better from mediated instruction if they can actively respond to the material being presented. Learning can be improved simply by using the practice of stopping a presentation periodically to ask the students a question. ITV has a potential to stimulate teachers, supervisors and administrators to examine more closely the teaching learning process and to pursue curriculum development with a new interest (Murphy and Gross, 1966:53). Emphasizing feedback as one of the major components of instruction, Kibler, et al. (1981:39) state that feedback in the instruction process has two major functions. First, it serves to remind teachers if other components of instruction such as objectives, teaching materials and teaching methods need modification. Second, it is concerned with the issue of providing students with feedback about their progress in learning.

2.15 Design of TV Instructions

Broadly speaking, the procedure for the design of instruction can be summarized in to three procedural phases:

1. Determining the desired outcomes of learning and the measures that will be used to assess their achievement by learners.
2. Designing instruction and planning the means for accomplishing it.
3. Implementing and evaluating the instructional program.

However, the aforementioned procedural phases can further be stipulated in to nine steps of the process of instructional design.

1. Command of a subject matter to be taught. Having the subject matter to is an obvious necessity for any teacher. For becoming a good teacher, taking courses in a certain subject is non sufficient. A teacher's subject matter preparation really has two aspects:

i. A study of the subject matter itself, and
ii. A judicious selection of the materials that can be transmitted successfully to the students.

Although college courses taken in disciplines help teachers acquire an understanding of their basic concepts, and their modes of inquiry, what should be taught is obviously much less extensive and advanced than the content of the college courses and requires that teachers know the school curriculum as well. Therefore, teachers must rethink much of the content of a particular discipline as it relates to the lives of their pupils. To be effective communicators, teachers need an understanding of both children and subject matter and in addition, special training in linking the two.

2. Defining instructional objectives. Clearly stated objectives enable students to know about outcomes expected of them. That is, statements of objectives should be stated in such a way that identify the competency to be acquired by specifying what a student must do or produce to provide evidence of learning. Meaning, statements of instructional objectives should always include a verb denoting observable performance. Objectives can also aid teachers in planning instructional strategies and in developing test instruments.

3. **Developing test items and instruments**. Since the primary purpose of testing is to confirm the achievement of objectives, constructing of test items should be considered immediately after setting instructional objectives.

4. **Developing the method of instruction**. Defining appropriate method of instruction relative to each competency to be taught can contribute to easily achievement of the intended instructional objective.

5. **Selecting the media and materials of instruction.** Teaching materials should planned with respect to their contributions in communicating the intended message in a clear and efficient way.

6. **Programming the Events of Instruction.** It is an arrangement of events made by the teachers for facilitating students' learning. The first and most important thing during instruction is to motivating and getting students'. Second, determining what out comes are expected from the upcoming lesson. Third, orienting students by providing an "advance organizer" of the scope and content of the lesson. Fourth, presenting the content stimuli essential to the lesson. Fifth, designing some means of integrating students participation in to the lesson so that they can learn by doing.

7. **Defining an Instructional Management Plan.** Management of time available for instruction is a critical issue, because teachers must work with in the rigorous schedule. So, the time allocated to ensure that everything needed is in the right place at right time. The other management factor is the need for assistance from other people such as students' assistants, audiovisual specialists, guests and others.

8. **Implementing the Program of Instruction.** It is the time when the actual implementation of instruction begins. In the implementation of instruction with the help of audiovisuals the first step should presentation be informing students want they learn from the media presentation. That is to ensure maximum comprehension, new terms and concepts should be introduced before the presentation. During instruction students involvement should be given due consideration. Finally, after the implementation of the course of instruction, we must think of two big questions: How well did we do? How much did the students learn? The answer to the first question is dependent on the answer to the second. These two question lead to one last procedure in the instructional development process called evaluation.

9. **Evaluating the Program of Instruction.** This is the mechanism by which we assess the over all success of instructional development plan. Evaluation may include developmental evaluation of teaching components and evaluation of student achievement. The former is concerned with trial sessions for the application of mew educational materials or methods of teaching before full-scale implementation begins. And the latter measures the learning that has taken place as a result of instruction (Haney and Ullmer, 1980, 182 -199).

CHAPTER THREE

3.0 PRESENTATION AND ANALYSIS OF DATA

This part of the thesis deals with presentation and analysis of the data collected from sample respondents and documentary review to seek relevant responses for the basic question raised at the beginning of the research. For the analysis purpose data gained through two sets of questionnaires were tabulated in terms of their similarity and presented in the tables. Further, data collected through interviews, classroom observations and documentary analysis were categorized in to main themes to facilitate analysis of data. These data were interpreted by using percentage and t-test statistical tools.

3.1 Description of the Study Population

Respondents were examined from the point of view of their educational level, teachers' work assignment in terms of field of study, schooling time, years of service and teaching load per week because, these variables have their implication to the students' learning through Plasma instruction.

Table 3 on page 50 is specifically designed to provide general information about the target population Students, teachers, school principals, woreda education heads, zone education desk and team leaders in EMA were the target groups of this study.

For data collection purpose 480 questionnaires containing both closed end and open-end questions were distributed to two categories of respondents: students and teachers. 360 students and 120 teachers from six secondary schools were considered as target groups for this study. In order to enhance returning rate the researcher could administer all student respondents in classrooms and teachers who took questionnaires were listed out. As a result the designed number of samples could be secured. Further, interviews were made to the six school principals, five woreda education heads (representatives), zone education desk and two team leaders in EMA.

Table 3: Frequency and Percentage Distribution of Respondents with Regards to Sex, Educational Level and Years of Experience

No.	Items	Students N=360		Teachers N = 120		School Principals N = 6		Woreda Education Heads N = 6		Educational Mass Media Agency Team Leaders N = 2		Zone Education Desk N = 1	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	Sex:												
	Male	250	69.4	102	85	6	100	5	83.3	2	100	1	100
	Female	110		18	15	_	_	1	16.7	_	_	_	_
	Total	360	100	120	100	6	100	6	100	2	100	1	100
2	Educational level:												
	Master's Degree	_	_	0	0	0	0	0	0	_	_	1	100
	Bachelor's Degree	_	_	58	48.3	5	83.3	5	83.3	_	_	_	_
	Diploma	_	_	62	51.7	1	16.7	1	16.7	_	_	_	_
	Others	_	_	0	0	0	0	0	0	_	_	_	_
	Total	_	_	120	100	6	100	6	100	_	_	1	100
3	Years of Service:												
	Below 3 years	_	_	33	27.5	_	_	_	_	_	_	_	_
	3-5 years	_	_	29	24.2	_	_	_	_	_	_	_	_
	Above 5 years	_	_	58	48.3	_	_	_	_	_	_	_	_
	Total	_	_	120	100	_	_	_	_	_	_	_	_

As clearly seen from Table 3 on page 50, males in all positions dominate the number of educational personnel with respect to sex. This unbalanced distribution of number, specifically limited number of female teachers, may affect female students in setting role model for future advancement in their education. Moreover, female students usually have a tendency of creating close attachment with their same sex groups, that is female teachers than males, to consult with about their personal problems. So, such limited number of female teachers would hinder female students from easily getting advises and guidance about their learning problems.

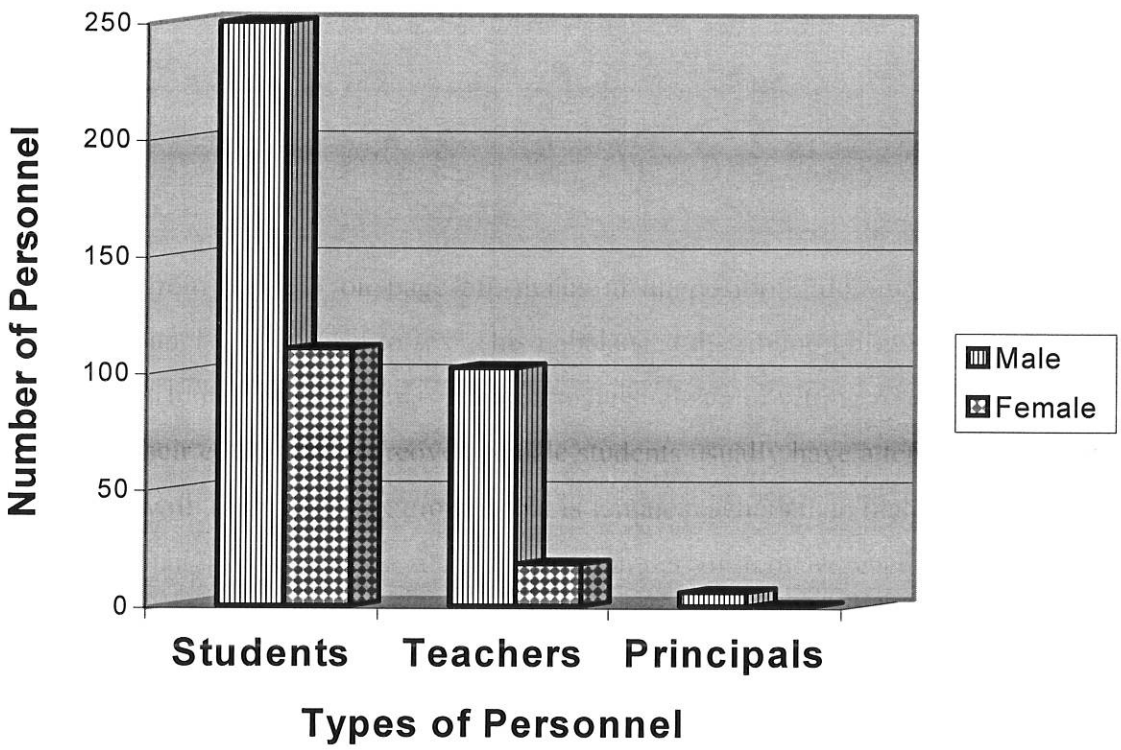

Figure 1: Bar graph Sowing Sex Composition of Personnel at School Level

Teachers' education level has implication to students' successful learning. In view of this the Education and Training Policy has put great emphasis to teachers' professional development through education and training. To this effect the MOE has declared that secondary school teachers should have a minimum of Bachelor's Degree education level. Although this attempt

of securing educational quality is being effected through the training of many teachers in different teachers' colleges through out the country, as depicted in item two of Table 3 almost 52% of the secondary school teachers in the sampled schools are diploma holders, which is below the requirement of MOE.

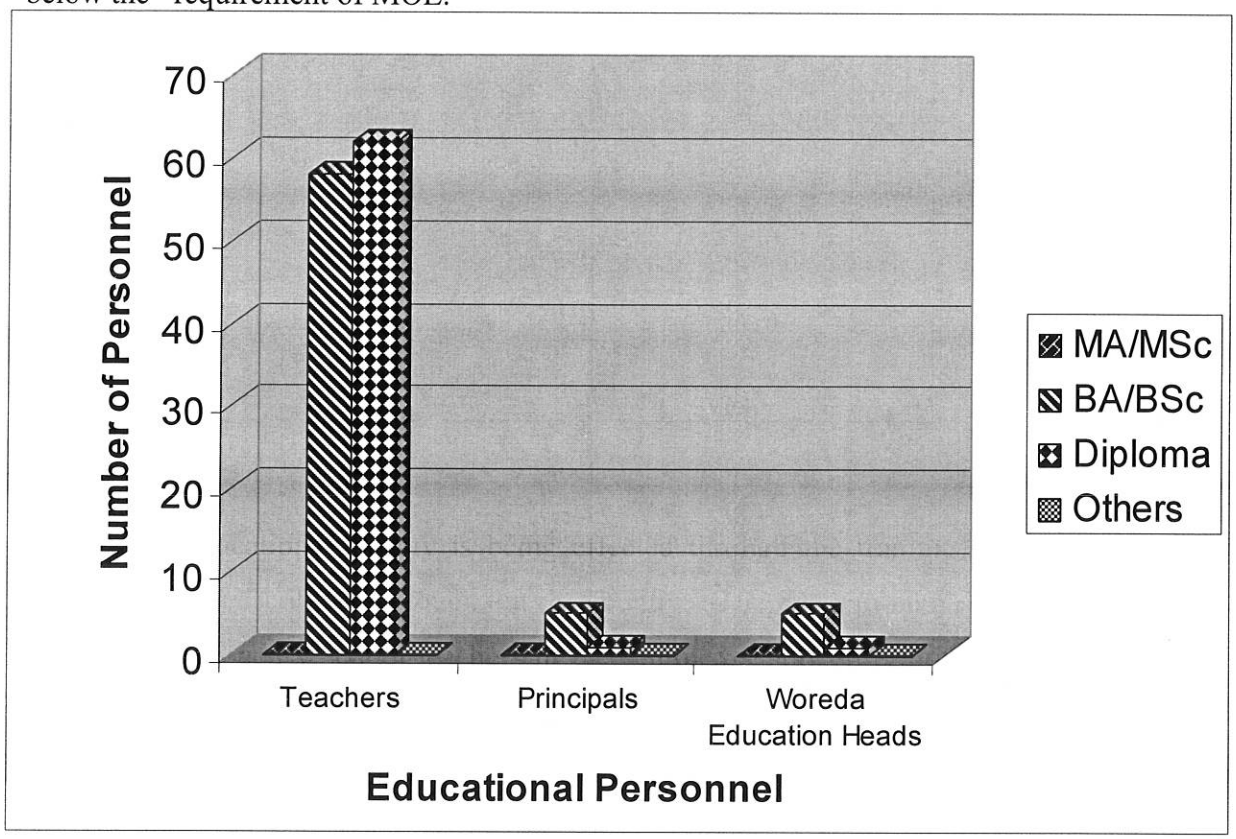

Figure 2: Bar graph Showing Education Level of Teachers, Principal and Woreda Education Heads

As teachers are major role-players in education, they should fulfill the minimum criteria so that they can help students to bring about the desired change stated in the instructional objectives. Hence, the zonal education desk in collaboration with woreda education offices needs to maximize teachers' educational upgrading mechanisms such as distance education and summer course program. Whereas educational managers at school level and woreda education office have better educational back ground that may help to give better leadership ability.

From item three of Table 3, more than half of the teachers (nearly 52 percent) have teaching experience of below 5 years. Thus, teachers of this service category really need continuous supervisory for the successful accomplishment of their teaching tasks.

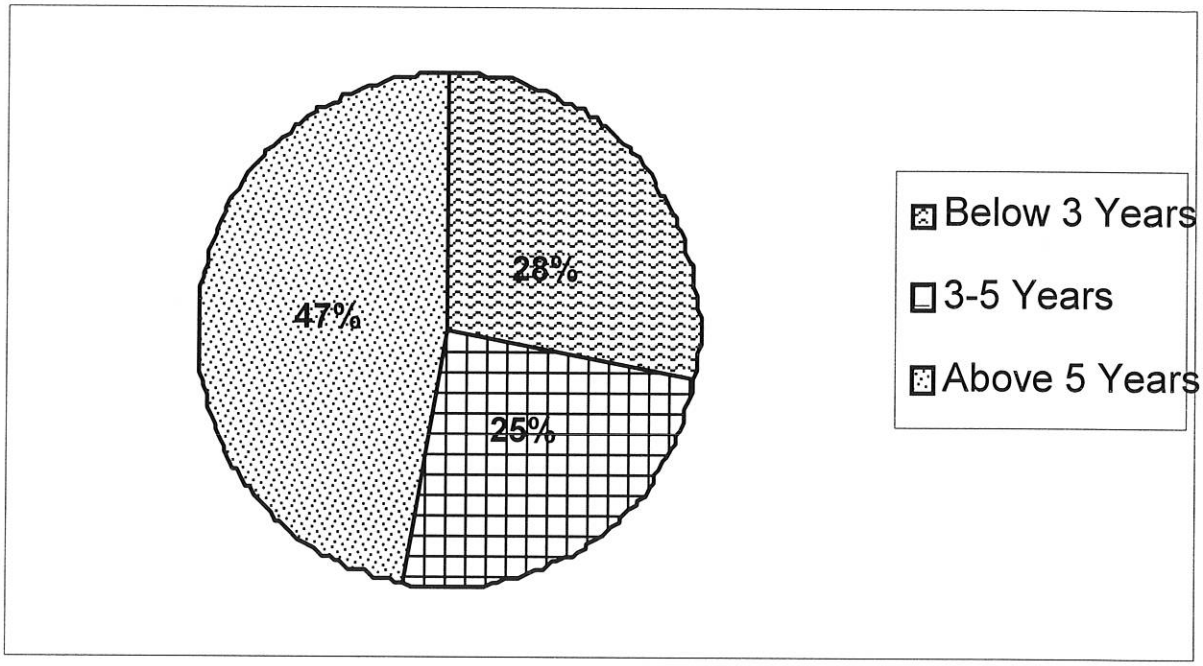

Figure 3: Pie Chart Showing Teachers' Years of Service

Besides, the beginning teachers that is teachers of below 3 years service need to be assigned low teaching loads, probably below 18 periods as they need more time to prepare on the subject they teach, and selection and preparation of teaching materials. Giving high concern to this issue Ayalew (1991: 112) suggests that beginning teachers should be given more time for preparation and planning of their teaching duties. He further remarks the beginning teachers should not be assigned to high teaching loads just for the sake filling the gap occurred due to shortage of teachers. However, this is not the case in the target schools as more than 81% percent of the teachers have teaching load of more than 21 periods a week. That is most of the teachers are over burden by teaching load and full day engagement in teaching that hider their preparation on the subject matter and of teaching materials.

Table 4: Frequency and Percentage Distribution of the Respondents with Regards to School Related Factors

No.	Items	Students N = 360		Teachers N = 120	
		No.	%	No.	%
1	Schooling time: Full day	191	53	71	59.2
	Half day	169	47	49	40.8
	Others	—	—	0	0
	Total	360	100	120	100
2	Teachers' assignment in terms of their field of study: Major	—	—	105	87.5
	Minor	—	—	2	1.7
	Other than their field of study	—	—	58	48.3
	Total	—	—	120	100
3	Teaching load per week in periods: Below 15	—	—	4	3.4
	15-20	—	—	18	15
	21-25	—	—	70	58.3
	26 and above	—	—	28	23.3
	Total	—	—	120	100

Regarding schooling time, more than half of the students and the teachers (about 53 and 59.2 percent respectively) are engaged full day. Moreover, nearly one-fourth (23.3 percent) of the teachers have teaching load of above 26 periods. The cumulative effect of these full day schooling and high teaching load would hinder arrangement of tutorial classes in order to give individual assistant by the classroom teachers and may have adverse effect on preparation of teachers' on TV programs.

Teachers can contribute high when they are assigned to teach with their majors, if not it with their minors. The major beneficiaries from this arrangement are, obviously, students who can gain better knowledge and skills from teachers who have thorough understanding on the

subject they teach. Signifying the importance of teachers' assignment based on their specialization Ayalew notes that, as teaching requires expertise knowledge, specialized skills and feeling of responsibility high regards should be given for the subject area assignment of teachers. In this regard item two in Table 4 reveals that majority (87.5 percent) of the teachers teach in their majors. This signifies that such teachers' assignment in their majors can significantly reduce the teaching burden of teachers as it afford teachers easily manage their preparation on the subject matter and teaching materials. In addition it enables teachers to give better assistance to students' learning. However, some 11 percent of the teachers assigned to teach subjects out of their specializations. Such miss-assignment was resulted mainly because of the assignment of geography or history teachers to teach civics and ethical education owing that shortage of qualified teachers in this subject. Here quality of education may suffer, as teachers might not have thorough understanding of the subject matter; besides as most of the teachers are under qualified its adverse effects will be very high when they are assigned out of their specialization.

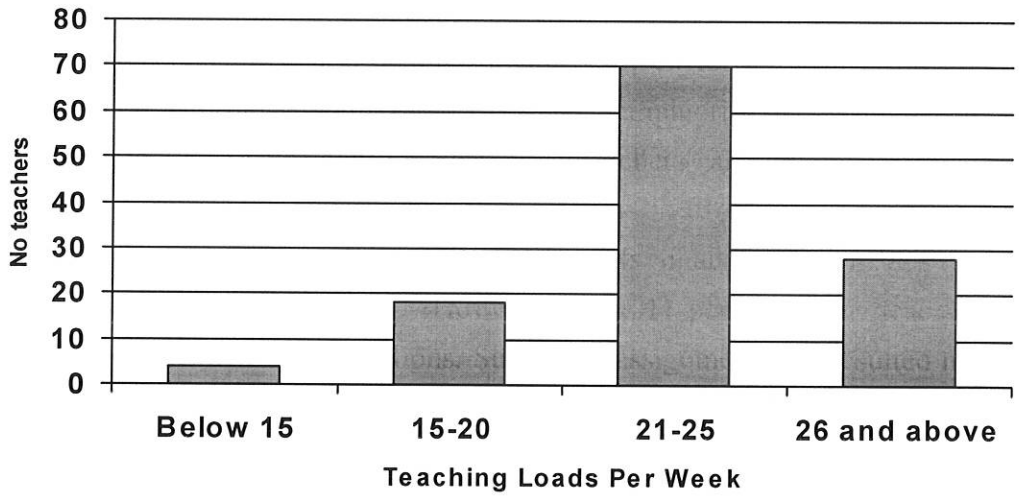

Figure 4: Bar graph Showing Teachers' Teaching Load

Generally, teachers with such educational level and experience are not expected to secure educational quality. This is because most of the teachers lack deep knowledge on the subject they teach in order to help students master what they learn.

3.2 Provision of Orientation

Since the application of TV instruction as a direct teaching medium is a new phenomenon to our education system, the major beneficiaries, meaning students and parents; and implementers of this change that is teachers, principals and woreda education heads should have been oriented prior to commencement of TV instruction. Through orientation these individuals would acquaint the purposes and benefits of using ITV and what role is expected of them in the utilization of TV as a teaching medium. Diamond (1964: 60) asserts that the success and failure of a project, in our case application of ITV for direct teaching, would depend upon the way in which the project was introduced to teachers, parents and the community at large.

Table 5: Frequency and Percentage Distributions of Respondents with Regards to Orientation Earned about Application of ITV

No.	Items	Students N = 360		Teachers N = 120		Principals N = 6		Woreda Education Heads N =6	
		No.	%	No.	%	No.	%	No.	%
1	Orientation provided about the purpose and benefit of applying ITV Got orientation	183	49.2	33	27.5	4	66.7	4	66.7
	Not got orientation	177	50.8	87	72.5	2	33.3	2	33.3
	Total	360	100	120	100	6	100	6	100
2	Sufficiency of the orientation provided: Sufficient	21	11.5	14	16.1	—	—	—	–
	Insufficient	162	88.5	73	83.9	4	100	4	100
	Total	183	100	87	100	4	100	4	100

Change in education usually faces resistance from teachers, students, educational administrators and the community. Since application of TV as a direct-teaching medium is a new phenomenon in our country, it certainly needs continuous and intensified orientation provision to students, teachers, principals, educational administrators at different echelons of educational management, and to the parents (community). Securing the good will of these major stakeholders towards this medium of instruction greatly matters. So, in order to clarify the purposes and benefits of applying

ITV as a teaching device necessarily needs intensified orientation provision before applying this new technology (ITV). Having this in mind, the study paid attention to the efforts done in making the stakeholders aware about the necessity of ITV. However, a clear examination on the data given in item one of Table 5 shows that more than half of the students (50.8 percent) and 72.5 percent of the teachers did not have orientation about the need for utilizing ITV. Even those who got the orientation as identified in item two of Table 5, majority of the respondents were not sufficiently oriented. But, more number of the principals and woreda education heads were oriented and understand the purposes and benefits of ITV.

Table 6: Frequency and Percentage Distributions of Respondents with Regards to Attitudes Towards TV as a Teaching Device

No.	Items	Students N = 360		Teachers N = 120	
		No.	%	No.	%
1	Preference over medium of teaching: TV instruction is better	255	70.9	79	65.8
	Classroom instruction is better	74	20.5	40	33.3
	Both are the same	31	8.6	1	0.9
	Total	360	100	120	100
2	Beneficiary groups of students from TV lesson: High achievers	216	60	112	93.3
	Medium students	7	1.8	6	5
	Low achievers	10	2.9	—	—
	All are equally beneficiaries	127	35.3	2	1.7
	Total	360	100	120	100
3	Opinion about subjects that need to be taught through ITV: All the subjects being given through TV	230	63.9	69	57.5
	Some of the subjects	87	24.1	45	37.5
	None of the subjects	43	12	6	5
	Total	360	100	120	100

In attempting to understand the disposition of students and teachers towards TV as a teaching medium they were asked to compare TV instruction with that of conventional classroom teaching. Their responses to item one of Table 6 are favorable as about 71 percent of the students and 66 percent of the teachers give preference to TV instruction over conventional

classroom teaching. As their responses to the open end question, they attributed to reasons such as availability of necessary facilities and materials for demonstration, organization of the lesson, the teaching methods used, deeper clarification given by TV teachers and the motivational effect of TV lessons. This implies that, TV lessons could compensate scarce educational materials that may not be available in most schools for practical experiments. TV teachers could also assist the classroom teachers, as about 52 percent and 11 percent of the teachers are teaching beyond their qualification level and specification respectively.

For question raised on item two of Table 6, 60 percent of the students and about 93 percent of the teachers responded that higher achievers are benefiting most from ITV. Only about 35 percent of the students and about two percent of the teachers believed that TV lessons give equal benefit to all the three student groups. Most of the teachers are of the opinion that low achievers are the lowest beneficiaries from ITV. The major reasons for the above responses might be that higher achiever groups have basic understanding of the perquisite knowledge for those specific lessons, have good language skills to grasp the subject matter delivered through ITV and have potentials to relate what was taught through TV with that of their textbooks.

The responses of most of the students and the teachers (63.9 and 57.5 percent respectively) to item three of Table 6 signify that TV instruction in all subjects helps students' learning. The reason for this preference perhaps may be attributed to the availability of teaching materials for demonstration, better-specialized teachers, and motivational effect of TV as it presents visual aids that may not be brought into the real classroom situation. Further, for the open-end question if they need other subjects taught through TV a number of social science students claim that other subjects such as history, geography and economics too need to be taught through TV. However, nearly one-fourth of the students and more than one-third of the teachers preferred some of the subjects need to be taught through ITV with varied choices, it was difficult to tabulate the number of respondents because some prefer certain subjects while others prefer some other subjects. The reason for their preferences of classroom teachers teaching may be mainly associated with better accomplishment of skills that need practical work than in the TV classes. However, this might be the concern for further study.

As reported by all the principals and the woreda education heads, ITV has great capacity to enhance quality of education, to use available educational facilities equally among students, to

assist teachers who teach beyond their qualification level, for course coverage and to reduce teachers working loads. However, these respondents do not notice TV's contribution for educational expansion. TV instruction can contribute to educational expansion by availing quality education supported by varied teaching materials, methods and better-qualified teachers.

Table 7: Distributions of Mean Values with Regards to Opinions of Students and Teachers about Assumptions Held by Some Educators on TV Instruction

No.	Items	Mean Values of Students	Mean Values of Teachers	t- obtained
1	ITV negatively affects students' classroom participation	2.9	3.4	3.11*
2	Some students consider TV instruction as an entertainment rather than a teaching tool	3.02	3.75	5.01*
3	Some teachers leave the classroom having set on ITV	3.57	3.01	4.82*
4	In their absence some teachers represent non subject teachers in order to monitor TV instruction	2.57	2.42	1.82

Note * t-obtained significant at $\alpha = 0.05$, t- critical = $\pm$ 1.96

Rating Values

5 stands for strongly agree		4.20 — 5.00
4 >> >>	agree	3.40 — 4.19
3 >> >>	undecided	2.60 — 3.39
2 >> >>	disagree	1.80 — 2.59
1 >> >>	strongly disagree	1.00 — 1.79

Active involvement of learners during instruction is an important factor in the development of students learning ability. Haney (1980:21) advises that instruction should be learner-centered. The focus of instructional planning should on what happens to the students and on what they do will perform, that is, focus should be on the students' achievement of the desired objectives rather than what the teachers will do. Burton (1964) also asserted that learning process should be experiencing, doing, reacting and undergoing. Taking this concept into account a question

on item one of Table 7 was raised to students and teachers if TV instruction hinders students from active participation. The statistical result shows that there is a significant difference between the responses of students and teachers (t-obtained is greater than t-critical). Students felt undecided whether ITV affects students' participation.

Whereas, teachers agreed that students' active involvement is limited in TV instruction. Classroom observations gave additional evidences for low involvement of students in TV instruction mainly due to lack of time for classroom activities. From this one can understand that active involvement of students was not that much encouraging. That is, students are kept more of passive attendants to either for theoretical or practical instructions delivered through TV rather than actively seeking knowledge through classroom exercises, experiments in laboratories, assignments, and so on. Thus, TV teachers have to maximize opportunities in which students involve in interaction among themselves and students with classroom teachers. This might be effected through students' active involvement in answering questions, asking questions, engagement in hands on activities, group discussion, field trips and projects done in groups.

In order to benefit from TV instruction, students should develop firm conviction on TV as a teaching device. In line with this, the student and the teacher respondents were asked if there are students who consider TV instruction as entertainment rather than as a teaching device. Their responses were significantly different. Students found it difficult to decide on the issue under consideration, whereas teachers agreed that some students consider TV instruction as opportunity for entertainment rather than as a means for acquiring knowledge. It connotes that such students are not gaining benefit from TV instruction. That is they do not set the objectives to be achieved, do not pay attention to what was presented during TV instruction and they do not organize ideas in a meaningful order. This partly may be due to lack of orientation about the necessity of using of TV in the education system. Thus, such students would cause disciplinary problem during TV instructions.

Obviously, TV is not completely a substitute to classroom teacher. Rather they are complementary to each other. So, classroom teachers are expected to act as teaching team with the TV teachers in the three phases of TV instruction. According to the statistical result on item

three of Table 7, the responses are significantly different. Students asserted that some teachers leave classrooms having set on IT, whereas teachers felt difficult to decide on the issue. TV instruction with the absence of classroom teachers would not be fruitful as many activities would be limited and classroom discipline would not be maintained. With the absence of classroom teachers students would not be introduced about the new lesson, there is no any person to assist in answering for classroom activities, and stabilize the lesson through TV. Students cannot also pay their attention to the TV instruction because of disciplinary problems.

Experience of TV instruction gave indication that some teachers have opinion of setting on TV sets to students by self-instructing them. With this in mind respondents were asked whether teachers assign their fellow teachers of little knowledge when they are absent for substitute. However, both the students and the teachers asserted this was not the case in their schools.

As change from a customary way of doing usually faces resistances from implementers and those who have stake, it necessarily need timely explicit explanation about the need for that change. However, more than half of the students and majority of the teachers were not oriented about the necessity of utilizing ITV. Accordingly, misconception occurred among some students and teachers. Some students do not consider ITV as a source of learning rather some sort of entertainment. They reluctantly attend TV lessons without being aware of the role they are expected to play. Similarly, many teachers are of the opinion that TV a substitute for classroom teachers. They do not prepare well relaying on TV instructions; they leave classes switching on TV to students, and leave the classes immediately after TV instruction came over with out stabilizing the lesson. These wrong deeds are really result of lack of awareness about what TV as instructional device can and cannot do. The same is true for parents (community). For this reason, parents in some places were complaining the use of TV as a teaching device for their children.

3.3 Instructional Design

A well-organized instruction can facilitate easier mastery of the subject matter intended to be achieved. In this regard, to secure good coordination of TV instructions both the TV teachers and the classroom teachers are expected to perform synergetically towards the successful

accomplishment of desired learning out comes. TV instructions were assessed paying major emphasize on lesson organization and determination of desired objectives; time planning; material, financial and technical capacity to understand TV lessons; classroom arrangements; feedback mechanisms; professional competency and personality of TV teachers; and effectiveness of classroom teachers as team members with TV teachers.

3.3.1 Time Planning

While appropriating time for different activities, due consideration should be given for activities that are to be carried out and their extent of complexity. In TV instruction the three phases, that is, pretelecast (introduction), telecast and post telecast (follow up) need appropriate time for smooth functioning of students' learning. It is also equally important to give time gap for both classroom exams and national exams in the preparation of ITV schedule.

Table 8: Distribution of Mean Values with Regards to Respondents' Opinions on Time Given for Different Activities

No	Items	Mean Values of Students	Mean Values of Teachers	t-obtained
1	Time given for exhibiting of experiments on TV screen	2.44	2.53	0.83
2	Responding time given for classroom activities (questions) during telecast	2.21	2.48	1.06
3	Time given for short note taking during telecast	2.46	2.52	0.25
4	Time given for lesson summary or applying the lesson through practice	1.66	2.24	0.16
5	Time given for discussion on question raised by students/teachers	2.3	2.56	0.53

Note * t-obtained significant at $\propto = 0.05$, t- critical = $\pm$ 1.96

Rating Values

Very Long 4.20_5.00 ; Long 3.40 — 4.19; Medium 2.60 — 3.39; Short 1.80 — 2.59; and Very Short 1.00 — 1.79

For a question asked about the appropriateness of time planning for viewing experiments in TV lesson it was reported to be short by both the students and the teachers. This implies that students were facing difficulty in accurately grasping the steps to be followed in doing experiments, understanding necessary components to be added in the experiment, and end result of the experiments. Interaction through questioning and answering is one of the major means for acquiring knowledge. So, allocation of appropriate time for responding to questions raised by TV teacher can contribute to students' interaction and to evaluate the extent of their understanding. This being the case, according to the data on item two of Table 8, the students and the teachers indicated lack of time for classroom activities. From this it can be concluded that the time given for classroom activities gets over before students get chance of attempting the activities given by the TV teachers. That is, students could not be aware of their learning progress and they would be discouraged while the answers are told TV teachers before they had finished the activities.

Students should get time to take short notes during TV instruction for later review. Time planning for TV instructions should give considerable time for the slow learners to finish activities and avoid the fast learners becoming bored. Meaning students pace of understanding need to be taken into consideration during TV instruction. In relation to this both the students and the teachers responded that the time given for short note taking during TV instruction was short. It implies that students need to be given time to take short notes for later references. The responses given to item four of Table 8 indicates that both the students and the teachers complained regarding insufficiency of time given for lesson summary or application of the lesson into practice. Lesson summary is the major instructional phase on which the classroom teachers judge students' level of understanding on the subject matter presented during TV lesson. Moreover, it is the time when the students clear up questions with their classroom teachers. From this one can conclude that classroom teachers do not have time to give exercise and check them. Meaning they are unable to give individual assistance based on students' individual needs.

Classroom interaction among students can be the means of acquiring knowledge. This implies that students have to get time for questioning and for attempting questions asked by their peers. However, the data on item five of Table 8 reveals that the time given for discussion on questions raised by students or teachers was short. From this it can be concluded that students have difficulty in clearing up vague concepts with classroom teachers.

Table 9: Frequency and Percentage Distributions of Respondents with Regards to Convenience of ITV Schedules for School Based Schedules

No.	Items	Students N = 360		Teachers N = 120		Principals N = 6	
		No.	%	No.	%	No.	%
1	Convenience of ITV broadcasting schedules in providing time for administration of classroom tests Gives time for final exams only	131	36.5	25	20.8	0	0
	Gives time for mid and final exams	170	47.1	85	70.8	6	100
	Gives time for tests, mid exams, and final exams	59	16.4	10	8.4	0	0
	Total	360	100	120	100	6	100
2	Number of days a TV program is repeated in a week (in average) Repeated in the same day in the opposite shift	345	95.7	116	96.7	-	-
	One day	9	2.5	4	3.3	-	-
	Two days	6	1.8	0	0	-	-
	Not repeated at all	0	0	0	0	-	-
	Total	360	100	120	100	-	-
3	Missed TV lessons are compensated through different mechanisms Agree	47	13	73	60.8	-	-
	Disagree	313	87	47	39.2	-	-
	Total	360	100	120	100	-	-
4	Schools do not have problems in arranging TV programs in their time table Agree	-	-	-	-	2	33.3
	Disagree	-	-	-	-	4	66.7
	Total	-	-	-	-	6	100

Classroom test is one of the mechanisms by which teachers, instructional planners and even the students can judge and get feedback about the realization of the intended objectives. Students' learning proceeds best when the learner can see results, has knowledge of ones status and progress, when one achieves insight and understanding, that is, personal meaning. Aided by the information gained through classroom tests about the successful performances, mistakes and improvements the learner develops desirable self-concept, which in turn affects how and what he learns (Burton, 1964:19).

Regarding time planning for classroom tests administration on item one of Table 9, most of the teachers (70.1 percent) and all the principals responded that the ITV schedule gives time gap only for mid and final exams. However, more than half of the students (almost 53 percent) and some teachers' response were other than this. This must have been caused by information gap as all the principals have assured the absence of time for administration of continuous assessment tests. Although 40 percent of the students' result is supposed to be taken from continuous assessment, this has obviously been overlooked. According to the principals, most of the teachers try to evaluate their students by giving projects rather than administering tests due to lack of time for both the teachers and the students. Still these teachers lack time to have projects presented in the class in order to assess individuals' participation in the assignments. Some teachers, on the other hand, try to evaluate their students at the end of schooling days while the students are in the afternoon session or at the weekend according to agreement between students and subject teachers. But from pedagogical point of view it would be unfair to evaluate students when they are tired of learning. From this it can be concluded that continuous assessment of students is obstructed by lack of time to administer tests.

If alternative repetitions time for an ITV program were available in different days within a week, it would help to ease flexibility of scheduling at school level. It would also help to make up the programs lost because of different obstacles in TV instruction such as failure of light, malfunction of TV, etc. However, according to item two of Table9, 95.7 percent of the students and 96.7 percent of the teachers asserted that an instructional TV program is not repeated in another day. But an instructional TV program is repeated on the same day with different

channels in the two opposite shifts. Thus, if the students lost a TV lesson there is no chance of getting that lost program in other days.

TV lessons might be missed due to many reasons. However, they should be compensated so that students can acquire the desired learning objectives. In light of this, students and teachers have different responses. Most of the students (87 percent) feel missed classes are not compensated where as 60 percent of the teachers justify that they compensate missed classes using teachers' guides. Nevertheless, as assured by most of the principals and the students, many teachers do not get prepared to cover interrupted TV lesson on that specific period. Most of the teachers, as reported by students, try to compensate missed TV lessons in the weekend when they can get prepared for the same rather than using the allotted period. That is students are forced to spend their time on make up classes. Therefore, teachers should get prepared on the TV lessons to play active role in TV lessons and to save time wastage.

As the statistical figures in Table 9 item four show most of the schools (66.7 percent) have scheduling problems in arranging TV programs in their school timetable. The most mentioned scheduling problems were the presence of many sections in the school, shortage of teachers and lack of TV program repetition. Moreover, as reported by the principals, telecast schedules were arranged to suit to full day schools. So, there is difficulty in preparing school timetables based on the guiding schedule sent from EMA. Therefore, in order to decrease difficulties related to scheduling problem at school level the existing eight TV lesson broadcasting channels should be increased, and TV lessons should be repeated on other days for ease arrangement of timetable.

A certain TV instruction usually has three phases (rationed times): pretelecast, telecast (actual presentation of the lesson), and post telecast. According to the data gathered from principals, a period through out the zone has 42 minutes. Out of this, the two minutes are allotted to the pretelecast phase, 30 minutes for telecast phase and the remaining 10 minutes for post telecast phase.

Table 10: Distribution of Mean Values of Respondents with Regards to Time Given for the Three Phases of TV Instruction

No.	Items	Mean Values of Students	Mean Values of Teachers	t- obtained
1.	Pretelecast time	1.92	2.05	0.82
2.	Telecast time	2.89	3.95	3.90*
3.	Post telecast time	2.18	2.27	0.20

Note * t-obtained statistical at ∝ 0.05, t-critical ± = 1.96

Rating values:

Very Long	4.20__5.00
Long	3.40 — 4.19
Medium	2.60 — 3.39
Short	1.80 — 2.59
Very Short	1.00 — 1.79

Regarding to time planning students and teachers were asked whether the time given to the pretelecast (introduction) phase is appropriate. Thus, as indicated in Table 10 of item one, both the students and the teachers group complained that the time should be increased. Apparently, it is difficult to introduce the objectives of the day's lesson, new concepts and vocabularies, and formulae with in two minutes. Moreover, teachers are expected to make remarks primarily to attract or hold the attention of the pupils so that they get prepared for the message still to come (Stubbs and Delamont, 1976:159). Through classroom observation the researcher reaffirmed that most of the teachers could not use the time efficiently. Rather the two minutes allotted to introduction lost while the teachers are moving from class to class for exchange classes at the end the periods. From this it could be safely concluded that the introductions by the classroom teachers are not that much effective in providing preliminary highlights. Since good introduction has motivating effect on students, lack of adequate introduction by the teachers would have adverse effect on students' learning. This is because students may not be aware what they are going to learn from TV lessons so that they frame their minds towards the desired objectives.

Students and teachers were also asked if the time for telecast phase was satisfactory. According to the statistical result in Table 10 item two, there is a significant difference between the responses of the responding groups. Students need the 30 minutes duration to remain the same, whereas, teachers want the time to be reduced. On the part of students, their desire for long time for telecast phase could be the benefits they gain from TV instruction over conventional classroom teaching, that is, well-organized lesson detailed clarification supported with demonstration and experiments, fluency of language, and so on. The main reason why teachers want reduction of time from telecast might be their need to maximize time for pretelecast and post telecast phases. However, the reduction of telecast phase would create other problems such as the content would not be covered, students cannot get sufficient time for classroom activities, and short note taking.

With regard to the appropriateness of time given for post telecast (follow up) phase as indicated in Table 10 of item three, both the students and the teachers are in favor of the increment of time to this lesson phase. The responses to this item seem fair because this phase is the longest time when classroom teachers have direct contact with students to provide individualized assistance to students. Teachers often summarize something that has been said or read, or summarize the situation reached in a discussion or lesson; or they may ask a pupil to give a summary of something that has been said or read. It is also the time when the students supposed to be evaluated on the accomplishment of instructional objectives. From this point of view, it is hardly possible to accomplish such essential activities with 10 minutes. The worst thing reported by the students is that some teachers leave the classroom just the telecast is over. Such teachers might be of the opinion that TV is the substitute of classroom teachers, which is absolutely wrong. This might occur due to lack of orientation on the application of TV as a medium of teaching.

3.3.2 Material, Technical and Financial Capacity (Logistics) of Schools to Run ITV

Effective application of ITV needs fulfillment of material, technical and financial resources of right amount, right quality and at right time. Schools should have sufficient number of teachers'

guides, students' guides, TVs and other installation facilities. There should also be adequate technical and financial capacity to run TV instruction in a coordinated working condition.

Table 11: Frequency and Percentage Distribution of Respondents with Regards to Availability of Supplementary Materials to Teachers and Students

No.	Items	Students N = 360		Teachers N = 120		Principals N = 6	
		No.	%	No.	%	No.	%
1	Teachers' guides for ITV programs are available in the school						
	Available	-	-	120	100	6	100
	Not available	-	-	0	0	0	0
	Total	-	-	120	100	6	100
2	Number of teachers' guides in the school is:						
	Enough for all teachers	-	-	0	0	1	16.7
	Inadequate for all subject teachers in one-to–one base	-	-	120	100	5	83.3
	Total	-	-	120	100	6	100
3	Availability of supplementary materials to students for TV lessons other than the main text books						
	Available	9	2.5	18	15	1	16.7
	Unavailable	351	97.5	102	85	5	83.3
	Total	360	100	120	100	6	100

Teachers' guide is one of the major material components for effectively supplement the TV as a teaching tool. Giving high concern for necessity of teachers' guide, Diamond (1964:255) notes that teachers' guide is the major contact between television teacher and classroom teachers. This is because teachers' guide, among others, helps to inform classroom teachers as to what activities are suggested for use before, during, or after the program, and what related materials can be found or made that will assist the classroom teachers in using the program.

Based on this understanding questions were raised to teachers and principals if teachers' guides are available to classroom teachers. On item one of Table 11, 120 (100 percent) of the teacher and six (100 percent) of the principal groups affirmed the presence of teachers' guides. However, regarding their numbers, 120 (100 percent) of the teachers and 83.3 percent of the principals claimed acute shortage of teachers' guides. According to these respondents the major coping up mechanisms are putting a single teaching guide for each subject in teachers' staff or deputy principals' offices, or in the libraries so that all teachers of a subject can use for preparation on the programs. The major reasons cited for unavailability of teachers' guide are shortage of photocopy machine in the school and financial constraint to get duplicated.

However, preparation of teachers on each program on sharing basis at department level will be questionable, as teachers might not get the guides as per their disposable spare times. As a result teachers may tend merely to depend on TV presentation rather than active role player in the three phases of TV instruction.

Concerning the questions raised on item three in Table 11 on the availability of supplementary materials given to students; majority of the respondents groups, 97.5 percent of the students, 85 percent of the teachers and 83.3 percent of the principals felt the absence of supporting materials to TV instruction. However, in one of the sample schools there is an attempt of duplicating students' guides and such guides are put in library for students' references. This implies that in most of the schools students do not have short notes or references for later review and students' guides are not assessable for preparation on the programs before the broadcasting.

Table 12: Frequency and Percentage Distribution of Respondents with Regards to Availability of TVs and Means of Financing

No.	Items	Principals N = 6		Woreda Education Heads N = 6	
		No.	%	No.	%
1	Availability of TVs as per the needs of schools Sufficient	—	—	—	—
	Insufficient	6	100	6	100
	Total	6	100	6	100
2	Financial capacity of school for running TV instructions Do not face financial problems	2	33.3	2	33.3
	Face financial problems	4	66.7	4	66.7
	Total	6	100	6	100

For appropriate utilization of TV as instructional medium schools need timely acquisition of TV sets as per their request. However, according to the responses of all the principals and the woreda education heads, schools have shortage of TV sets. As a result students' number in a section reaches 122 in some schools. Since the number of students in each grade level usually tends to increase, the MOE is expected to make progression for future need of TV receivers. At school level, as stated by woreda education heads many schools still did not get TV sets at all. Thus, provision for equity utilization of educational facilities would be questionable. This is because as reported in this paper by majority of the students and teachers TV instruction has better contribution to students' learning over the convectional classroom teaching. Thus, students who are not getting TV instruction obviously lack opportunity of getting better instruction. According 66.7 percent of both the principals and woreda education heads most of the schools, especially General Secondary Schools, lack the required finance for running ITV. This implies that TV sets cannot get maintenance services timely, duplicating ITV guides, and others.

Table 13: Frequency and Percentage Distribution of Respondents with Regards to Technical Capacity for ITV Utilization

No.	Items	Teachers N = 360		Principals N = 120		Woreda Education Heads N = 6	
		No.	%	No.	%	No.	%
1	TV instruction is negatively affected by lack of maintenance personnel Hampers smooth function of TV instruction	-	-	6	100	6	100
	Does not hamper TV instruction	-	-	-	-	-	-
	Undecided	-	-	-	-	-	-
	Total	-	-	6	100	6	100
2	Teachers have difficulty in operating ITV Face difficulty	18	15	-	-	-	-
	Do not have difficulty	95	79.2	6	100	-	-
	Difficult to decide	7	5.8	-	-	-	-
	Total	120	100	6	100	-	-
3	Extent of technical assistance given by TV coordinators at school level during TV failure High	15	12.5	2	33.3	-	-
	Moderate	33	27.5	4	66.7	-	-
	Low	49	40.8	-	-	-	-
	There is no TV coordinator at all	23	19.2	-	-	-	-
	Total	120	100	6	100	-	-

One of the major consideration regarding reception facilities is maintenance of the system and all its components- specifically the TV receivers (Wood and Wylie, 1977:297).

Principals and woreda education heads were asked if low number of maintenance personnel affected ITV utilization. Accordingly, all respondents in the two groups affirmed the severity of maintenance problem. According the Zone Education Desk, there are no personnel assigned for maintenance of school televisions in the Zone. Moreover, as reported by the principals, schools have financial shortage to procure service for TV maintenance. When TVs get

technical problems they are simply stored; there is no means to get repaired. Thus, lack of maintenance personnel can restrain from effective utilization of available TVs, number of TV sets decreased causing high-class size as those students whose TVs failed functioning will be distributed through out other sections. High-class size in turn negatively affects individual based assistances to students and creates suffocation.

Efficient utilization of TV in the classroom needs technical training on how to operate the receiver. In light of this as indicated in item two of Table 13 most of the teachers do not have difficulty in technical operation of the receiver for instruction. That is, time is not wasted in getting the desired channels and programs are not missed due to inability of operating the receiver.

Presence of a responsible person for TV instruction at school level contributes to effective utilization of TV as a teaching medium. This individual can provide technical assistance to teachers as per their request and can coordinate ITV facilities for better utilization. In this regard all the principals assured the presence of TV coordinators who are selected from teachers and got training on TV operation for instruction. Further, their technical supports were rated satisfactory by most of the principals. However, according to the responses of most of the teachers, even though TV coordinators are available they are not much useful in providing technical assistance. For this reason their assistance was judged low by 40 percent of the teachers. Still about 19 percent of the teachers were not sure of whether there were TV coordinators at school level. This means nearly one-fifth of the teachers do not know whom to contact when TV failed and most of them did not gain any assistance from TV coordinators.

This clearly indicates that technical support by TV coordinators at school level is not encouraging. This might be due to lack of time as TV coordinators have teaching responsibilities. As a result of lack of technical assistance for silly technical errors at school levels, students can miss TV lessons. Therefore, TV coordinators should be assigned to low teaching load so that they can give technical support for teachers during technical failures.

In general, it can be concluded that there is no well-defined responsible body for technical assistance both at zonal or woreda education and school levels. As a result, of this, TVs were not timely repaired and classroom teachers were facing technical problems during TV failures.

Table 14: Frequency and Percentage Distribution of Respondents with Regards to Suitability of Visual Materials to the Objectives Sought in TV Instructions

No.	Items	Students N = 360		Teachers N = 120	
		No.	%	No.	%
1	Use of visual materials in TV lessons **Amount:** Enough	285	79.1	107	89.1
	Too many	34	9.5	8	6.7
	Too few	41	11.4	5	4.2
	Total	360	100	120	100
2	**Time given for Viewing:** Shown long enough	133	37	64	53.3
	Not long enough	227	63	56	46.7
	Total	360	100	120	100
3	**Suitability to the objectives:** Very good	126	35	42	35
	Good	111	30.8	49	40.8
	Fair	75	20.8	20	16.7
	Poor	23	6.6	5	4.2
	Very poor	25	6.8	4	3.3
	Total	360	100	120	100

Although the necessity of utilizing visual materials for efficient clarification of the subject matter is unquestionable, determination of their amount should be given great concern. The assessment of responses given for item one in Table 14 indicates that majority of the respondents 285 (79.1 percent) of the students and 107 (89.1 percent) of the teachers believe that the amount of visual materials were appropriate to the TV lessons. This implies that students are not that much confused with too many visual materials or lack of necessary visual materials.

However, regarding time allotment for clear understanding of visual materials in TV instruction, the responses of students and teachers seem a little opposing. In item two of Table 14, 227 (63 percent) of the students affirmed that time given for viewing visual materials insufficient, whereas 64 teachers (53.3 percent) assured the time given for viewing visual materials is appropriate. This variation of responses might result from teachers' understanding of the question from higher achievers competency level. Meaning most of the students lack time to clearly conceptualize the materials presented in TV instruction. Thus, TV teachers should reconsider their time planning in such a way that allows students clearly grasp the main points from supplementary visuals that appear in TV instructions.

In the application of visual materials for instruction their suitability to the achievement of intended objective is a very critical concern. In view of this assessment was made to verify if the visuals in TV lessons are appropriate to the objective sought. Appropriateness of visual materials was appreciated by 237 (65.8 percent) students and 91 (75.8 percent) teachers. Availability of such well-selected visual materials perhaps can give concrete bases for students' understanding about the subject matter they learn.

From the above findings it can be concluded that, although the amount and sufficiency of visual materials in TV lessons are well selected time allotted to viewing such materials does not allow clearly understanding of the visuals presented in TV instructions.

3.3.3 Classroom Arrangement

Suitability of classroom arrangements highly affects students learning. Classrooms should have appropriate light for viewing visuals, which appear on TV screen, for short note taking and for good discipline in the class. Viewing conditions can be affected mainly by placement of TVs, glare and seating arrangement of students.

Table 15: Frequency and Percentage Distributions of Respondents with Regards to Suitability of TV Viewing Rooms

No.	Items	Students N = 360		Teachers N = 120	
		No.	%	No.	%
1.	Lighting: Appropriate for viewing and short note taking	339	94.2	114	95
	Darkness affects viewing and short note taking	21	5.8	6	5
	Total	360	100	120	100
2	Glare on TV Screen: Not at all	238	66	70	58.3
	Affecting Viewing	122	34	50	41.7
	Total	360	100	120	100
3	Placement of TV Height: Appropriate for viewing	344	95.6	113	94.2
	Too low, as a result some students' body hinder viewing	12	3.2	7	5.8
	Too high	4	1.2	0	0
	Total	360	100	120	100

With regards to the glare on TV screen, responses in item two of Table 15 revealed that 238 (66 percent) of the students and 70 (58.3) of the teachers affirmed absence of glare in TV screens. However, still considerable amount of respondents 122 (34 percent) of the students and 50 (41.7 percent) of the teachers reported that glare was negatively affecting the clarity of visuals on TV screen. As glare hinders accurate viewing, students cannot view perfectly and thus grasp concepts easily. However, this might be resolved by placing TV sets opposing to light reflection coming through the windows. Brushing the mirror of the windows by white colour can also minimize problem related to glare.

The height of TV placement was reported appropriate by 344 (95.6) percent of the students and 113 (94.2 percent) of the teachers. Understanding from the classroom observations also reaffirms the suitability of the height of TV placements. TVs are hung at a height of average person so that every body either from the front seat or the back can see TVs in a normal class size. The quest for some sort of height arrangement raised by 16 (4.4 percent) of the students and 7 (5.8 percent) of the teachers can be corrected through exchanging students' seats for appropriate viewing.

Although the over all condition of classroom arrangements seem suitable to TV lesson, some limiting factors were identified from the classroom observations. Generally there are two types of TV placements at schools. On the one hand, TVs are placed just in front of the students. In this type placement which is used for majority of the TVs, when the TV is taken out of the cabinet during the telecast the TV covers most of the surface of the blackboard that in turn hinder teachers writing of titles and jotting down main points raised during the telecast. Besides, such placement is affected by light coming through side windows that caused for glare on the TV screens and can damage the TV set by moving in and out of the cabinet. On the other hand, TV sets are placed at the corner of the wall opposite to the windows stationary. This type of arrangement is better than the former. This is because, lights coming through the side windows, as cause of glaring would be minimized and it also allows proper utilization of the blackboards. Besides, and since the TVs are not mobile they are not liable to damage. Through discussion with students during classroom observation it was reaffirmed that stationary arrangement of TVs is more preferable.

3.3.4 Professional Competency and Personality of TV Teachers

TV teachers' professional competency and personality have high contribution to students' learning. TV teachers should possess adequate knowledge on the subject they teach, audible voice, skills in the selection of appropriate contents, audio-visual materials and motivation of students among others. With this in mind teachers' professional competency and personality aspects were examined considering the major variables that a professional teacher should possess.

Table 16A: Distribution of Mean Values of Respondents with Regards to Professional Competency and Personality of TV Teachers

No.	Items	Mean Values of Students	Mean Values of Teachers	t- obtained
1	Appropriateness of TV lesson contents to students' comprehending ability	4.45	3.21	3.23*
2	Audibility of TV teachers' voice	4.14	4.19	0.41
3	Audibility of pronunciation	3.65	3.96	1.32
4	Appropriateness of speed	2.89	3.18	1.5
5	Appropriateness of vocabularies to students' language level	3.31	3.42	8.86*

Note * t-obtained significant at $\propto = 0.05$, t- critical = $\pm$ 1.96

Rating Values

Very high	4.20 — 5.00
High	3.40 — 4.19
Moderate	2.60 — 3.39
Poor	1.80 — 2.59
Very Poor	1.00 — 1.79

TV teachers' professional competency and personality were assessed taking different parameters of skills that a professional teacher necessarily exhibits. In doing so, a question was raised to see if TV teachers consider students' comprehending ability in the selection of contents for TV programs. The respondents were significantly different. It was reported by students that TV teachers' ability of content organization highly selective suiting to students' comprehending, whereas it was rated moderate by the teachers.

In content selection, understanding of students' background knowledge is very crucial. Students should have the prerequisite knowledge for the next level of knowledge acquisition. Moreover, by applying different activities and examples the lesson content could be made easy for the students' understanding. Generally, from the above responses, content selection seems appropriate to students' understanding level. Therefore, students can learn with less difficulty.

Both the students and the teachers group replied that the audibility of TV teachers' voices were appropriate. As hearing is one of the major senses by which we acquire experiences, TV teachers' voice audibility is encouraging to students' learning. In addition, from the classroom observation the researcher could understand that the amplifiers fitted to plasma television help in augmenting audibility of voice to the students.

Students need to hear a clear and distinctly understandable pronunciation from their teachers. Unless the teachers' pronunciations are not distinctively audible students may miss words that would be difficult to associate and conceptualize ideas. Having this in mind the pronunciation of TV teachers' was assessed. As pointed out in Table 16A, item three, clarity of pronunciation was judged to be acceptable by the students' and the teachers' respondents. Implying that pronunciation of TV teachers is not that much hindering to students' learning. Student's acquisition of knowledge, skill and attitude is highly affected by the speed of teachers in the presentation of the subject matter. Students' acquisition speed has also to do with their level of language skill, background knowledge, difficulty of the subject matter, medium of delivering the subject, and others. As indicated in statistical result on item four in Table 16A, both students and teachers rated the appropriateness of speed in lesson presentation to be moderately suitable. This implies that students have some difficulty in coping up with the speed of TV presentation. That in turn hinders capturing important points and processing of information for conceptualizing the subject matter.

As words or vocabularies are the mechanisms by which teachers send meaning to students, caution in the selection of vocabularies is very important. Students' word power is affected by their language skills, age and perquisite knowledge on the subject matter. So, as pointed out by Davies (1991:145) in the selection of vocabularies vagueness should be avoided. Technical terms and jargon should be used precisely and sparingly. It is also important to use language appropriate to the occasion, that is, right for the task, setting and students' understanding level. In view of this the study assessed the appropriateness of vocabularies to students' language skills. As indicated in Table 16A of item five, there is a significant difference between the responses of the two groups. Though teachers felt suitability of vocabularies used by TV teachers appropriate, students had some difficulties in understanding of some vocabularies in the telecast. Thus, such difficulty in understanding of vocabularies can retard the processing of information during TV lesson.

Table 16B: Distribution of Mean Values of Respondents with Regards Professional Competency and Personality of TV Teachers (continued)

No.	Items	Mean Values of Students	Mean Values of Teachers	t-obtained
1	Motivational effect of TV Teachers	3.79	3.66	1.01
2	Knowledge of the subject	3.63	4.21	4.24*
3	Skills in applying different teaching methods	3.65	3.90	1.88
4	Ability of using different audio-visual teaching materials	3.93	4.09	1.53

Note * t-obtained significant at $\propto = 0.05$, t- critical = $\pm$ 1.96

Rating Values

Very high	4.20 — 5.00
High	3.40 — 4.19
Moderate	2.60 — 3.39
Poor	1.80 — 2.59
Very Poor	1.00 — 1.79

Attentive engagement of students in acquisition of knowledge, skills and attitudes is highly affected by motivating efforts of teachers. This partly may include teachers' skills of exhibiting humor, clearly emphasizing of what the students are expected to acquire from today's lesson and how the lesson apply to the real life. The statistical result of item one in Table 16B shows that t-obtained is less than t-critical. Thus, there is no significant difference between the two groups' responses; both the students and the teachers groups judged the motivational effect of TV teachers to be high. So, presentations of TV lessons are not boring both to the students and the teachers. In addition through classroom observation the researcher has also asserted TV teachers' lesson presentation is full of enthusiasm and most of the lessons were supported by varied teaching materials such as pictures, live presentation of objects, simulated materials, and so on, that enhance students' learning.

As stated by Cooper et al. (1986:3) teachers must possess enough command over the subject they teach to be able to differentiate what is important and central from what is incidental and

peripheral. In this regard TV teachers' thorough knowledge of the subject matters on item two in Table 16B, was rated to be high and very high by the student and the teacher respondents respectively. Significance differences between the two responses may lie on the occurrences of errors in some topics of TV instructions that caused students confused in assimilation of knowledge. Responses to interviews conducted to EMA team leaders, woreda education heads and principals also affirmed that TV instruction helps to capacitate classroom teachers in many respects, be it on the subject matter or teaching methods. So, TV teachers' understandings of the subject matter they teach are appreciable and highly contribute to students' learning.

Proper comprehending of contents in a lesson may require application of different activities both from teachers' and students' parts. Wise teachers forecast what teaching methods, materials and activities to be employed so that students acquire the anticipated subject matter efficiently. Davies (1981: 36) notes that selecting an appropriate method depends up on a number of factors. However, the most critical ones are the requirements of the task to be mastered and the needs of the students who are to master the task. In this regard for the question asked in item three of Table 16B the application of different teaching methods such as discussion, lecture, individual and group projects, and demonstration was rated high by both the two responding groups. This implies that students were benefiting from varied teaching methods applied in TV lessons.

Table 16C: Distribution of Mean Values of Respondents with Regards to Professional Competency and Personality of TV Teachers (Continued)

No.	Items	Mean Values of Students	Mean Values of Teachers	t-obtained
1	Well organized working habit of TV teachers	4.01	4.33	2.59*
2	Effectiveness in presenting the instructions (ideas, concepts, and formulas) in a clear and understandable manner	3.71	3.97	2.14*
3	Correctness and accuracy of telecast contents	3.98	4.01	0.25
4	Engaging students in hands on activities for active learning	3.08	3.43	2.61*
5	Extent of ITV programs' consistency with the main curriculum	3.34	3.8	1.32
6	Extent of relevance of examples used to that specific lesson	4.17	4.37	3.5*

Note * t-obtained significant at $\propto = 0.05$, t- critical = $\pm$ 1.96

Rating Values

Very high	4.20 — 5.00
High	3.40 — 4.19
Moderate	2.60 — 3.39
Poor	1.80 — 2.59
Very Poor	1.00 — 1.79

Before the actual teaching, teachers should prepare on the subject matter and activities that would be carried out during the TV lessons. If a teacher plans to use questions, he/she decides what questions to ask, and notes down the wording of the more important ones. If he/she plans to use demonstrations or films, he/she gathers the necessary materials and equipments before hand and checks them carefully to be sure that everything is in working order (Clark and Starr, 1959:71). In this regard Reynolds (1989:102) also adds that although the students are the final

constructors of new knowledge, the way in which the information is arranged and delivered will have significant implication whether and how the new knowledge is assimilated, especially for students who do not spontaneously search for meaningful relationships among ideas (that is, younger students, lower achiever students, special needs students who are novices in a particular domain).

In view of the above concept the students and the teachers were asked as to how they judge the preparation of TV teachers in presenting lively lesson. Although there is a significant difference between the respondents of the two groups, well-organized working habit of TV teacher's was highly appreciated by the students and the teachers' respondents. From this it can be deduced that TV teachers' presentation of the subject matter is efficient to help students achieve the desired objectives. That is, the TV teachers wisely forecast the forth-coming activities to be carried out by themselves, classroom teachers and students; and necessary materials are arranged and tested before the application to the instruction.

Students should be taught real and correct content. In this regard teachers need to prepare well so that they can provide accurate concepts to their students. All the TV instructions (programs) need to be previewed before the transmission so that errors can be avoided. However, if wrong concepts occur in the instructions students may learn wrong things. Clark and Starr (1959: 7) cite poor teaching and poor courses as the causes for most failures to learn. In this regard students and teachers were asked if the telecast contents were correct and accurate. Responses from both the two groups in Table 16C on item three, show that both the two groups rated the correctness and the accuracy of telecast contents to be high. However, in their responses to the open-ended questions both the student and the teacher respondents agreed to the presence of errors in some subjects such as:

* Grade 12 Physics, Chapter One about heat and thermodynamics the rate of heat lose and heat energy.
* Grade 11 Physics, Motion in a Vertical Circle: part two.
* Grade 12 Biology on Genetics.

* Grade 12 Mathematics, Rational Functions on some word problems, Polynomial Functions, Complex Numbers (wrong answers are given for the exercises, Limit, and Continuity in the teachers' TV lesson guide.
* Grade 12 English, utilization of punctuation in some grammar lessons.
* Grade 11 and 12 Civics and Ethical Education, in the definition of State Power the Parliament and the Federation Council are put under the judiciary but the reason for including the Federation Council is not clearly stated.
* Mathematics grade 11^{th} and $10^{th;}$ English grade 9^{th}, $10^{th;}$ and Chemistry grade 9^{th} and 10^{th}. In these subjects what is asked and the answer given do not relate for some questions.

Since wrong contents in the lessons lead students to learn concepts wrongly, TV teachers and EMA should assess contents that are to be delivered through TV before they are broadcast.

Active engagement of students in the acquisition of knowledge, skills and attitudes need to be the focal point to students' learning. In light of this, an instructional session should take into account in what activities students should take part. John Haney (1980:2) advises that instruction need to be learner-centered. This implies that the focus of instructional planning should be on what students will do rather than on what the teacher will do. Clark and Starr (1959:156) also underline the benefit of problem solving as a teaching method in providing people a chance to learn from their successes and failures. Problem solving is a sophisticated form of trial-and-error learning.

Keeping the above concepts in mind, students and teachers were asked the extent of students' involvement in practical work, such as, discussion, role playing and classroom activities in the learning session. The statistical result in Table 16C item four shows a significance differences between the responding groups. That is TV teachers' ability of engaging students in hands on activities (or activities done by students) was rated to be moderate and high by the students and teachers respondents respectively. Witness from classroom observations carried out by the researcher asserts that although students were given activities for interaction among themselves and with the learning activities time given for some activities come over in most cases before the students undertook the activities. This in turn negatively affects students' mastery of the subject matter and knowing their learning progress. Moreover, as reported by students what

were shown in TV instructions were not applied into practice, for instance, experiments carried out by TV teachers were not practically done by students in the laboratories. Thus, students were passively depending on TV instructions.

Regarding content similarity between TV programs and the main curriculum, it was judged to be medium and high by the students and the teachers respectively. The judgment of the team leader at EMA on this notion coincides to that of the teachers. Deviation of students' reply from the teachers and the team leader of EMA may hinge on differences on the way of presentation and learning activities used rather than the subject matter. Thus students are learning what is designed in the main curriculum.

From the statistical result of item six of Table 16C the relevance of examples in clarifying the intended instructions was rated to be high and very high by the students and the teachers respectively. Thus, examples in TV lessons are wisely selected and supportive to students' learning.

Table 16 D: Distribution of Mean Values of Respondents with Regards to Professional Competency and Personality of TV Teachers (Continued)

No.	Items	Mean Values of Students	Mean Values of Teachers	t- obtained
1	Appropriation of more time to complicated contents	2.9	3.32	3.05*
2	Facilitating interaction among students	3.02	3.01	0.08
3	Telecast closing (summary)	3.74	3.93	1.48
4	Availability of follow up activities after telecast	3.1	3.63	4.25*

Note * t-obtained significant at $\propto = 0.05$, t- critical = $\pm$ 1.96

Rating Values

Very high	4.20 — 5.00
High	3.40 — 4.19
Moderate	2.60 — 3.39
Poor	1.80 — 2.59
Very Poor	1.00 — 1.79

In some courses the work is too hard or too easy. However, some teachers attempt to cover the subject rapidly instead of giving time to sink in. That is, some teachers ignore individual difference among students in terms of varying backgrounds, talent, and interests, and attempt to teach every one the same material at the same rate in the same way (Clark and Starr, 1959:7).

TV teachers' ability of time allocation in terms of the complexity of the content or activity was examined on item one of Table 16D their responses were significantly different. The students and the teachers group rated the issue under consideration moderate and high respectively. Since the understanding level of students and teachers is different, teachers might not realize students' difficulty in coping up with the speed of TV teachers. That is, students should be given more time to complicated contents and less time to that of less complicated ones. This is because students need proper time to grasp knowledge and create concepts.

Classroom interaction among students is one of the major mechanisms that help students share experiences among themselves. As pointed out by Clark and Starr (1959:50) talented boys and girls can often help other pupils who are facing difficulty in learning. If done properly classroom interaction can be quite beneficial. It gives the teacher some assistance so that he can find time to do more individual teaching. Gifted students can learn how to share their talents and to communicate their ideas to others. What is equally important is that, classroom interaction helps talented students to learn the subject matter more thoroughly.

Regarding the extent of interaction among students as it is shown in Table 16D, it was rated to be moderate by both the two groups. This connotes that the above-cited advantages are underestimated. Students themselves should be considered as source of knowledge. Owing to individual difference among students, low achievers can readily learn from high achievers if the instructional session allows condition for students' interaction among themselves. The reason for this is that lower achievers can friendly ask their peers with less frustration than their teachers. Teachers could also get time to identify problems facing the students based on the responses, suggestions and comments given by the students.

Telecast closing needs to be educative in such away the day's instruction summarized, concluded and supported by follow up activities. At the same time it should motivate students for further activities, and wait eagerly for the next period's lesson. In line with this, as the statistical result on Table 16D item three shows there is no significant difference between the responses, effectiveness of telecast closing or enforcement by TV teachers was rated high by the two groups. From this one can clearly understand that students get summary of lesson, enforcement activities to be done by students themselves such as home works, projects, and reading assignments. However, with regards to classroom teachers' involvement in follow up activities after telecast there is a significant difference between the responses. Teachers felt their engagements in stabilizing the instruction through follow up activities to be high. On the other hand, as reported by the students most of the times follow up activities given by the TV teachers were not checked by the classroom teachers due to lack of time. As asserted by classroom observations, teachers' responses seem exaggerated for the facts that on one hand both pretelecast and the post telecasts phase do not allow to check up the students' progress through assignments. For the other, there is no arrangement of periods covered by classroom teachers only so hat they assist student individually and check students' progress.

When concluding, the study identified that TV teachers' professional competency was found valuable for students' learning in many aspects mainly in terms of selecting appropriate contents, audibility of their speaking in relation to voice and pronunciation, endeavors in motivating students, thorough knowledge of the subject they teach, application of different teaching methods, well- organized working habit, integrating varieties of audiovisuals to the lesson contents and telecast closing (lesson summary). According to the team leader of TV instruction at EMA, educational level of majority of the TV teachers is MA/MSc and above. Obviously, TV teachers of such good professional quality can contribute a lot to students' learning. However, TV teachers are expected to make some amendments in some of the missing parameters that qualify a professional TV teacher. That is, their speed in presenting the subject matter, usage of vocabularies, occurrence of a considerable amount of errors, low level of student' engagement in practical works mainly due to lack of time during TV lessons, inappropriate allotment of time in terms of the complexity of the subject matter, and lack of interaction among the students.

3.3.5 Effectiveness of Classroom Teachers as Team Teaching Member with TV Teachers

Classroom teachers are the ones who have direct contact with students in TV instruction. Teachers are expected to have good attitudes towards TV teachers and motivate students towards TV instruction. Teachers should also be active participants in the different phases of TV instruction.

Table 17: Distributions of Mean Values of Respondents with Regards to Classroom Teachers Involvement in Different Activities Of Pretelecast Phase

No.	Items	Mean Values Students	Mean Values Teachers	t-obtained
1	Motivating students towards TV instruction	3.3	4.28	8.34*
2	Arranging the classroom for good viewing condition	3.2	4.3	4.3*
3	Testing the TV and making necessary arrangement	3.6	4.3	5.08*
4	Revising the last period's lesson	1.9	3.5	10.16*
5	Introducing the day's lesson title and objectives	2.8	3.4	4.52*
6	Arranging materials that help for classroom experiments	1.9	3.2	5.13*

Note * t-obtained significant at $\alpha = 0.05$, t- critical = $\pm$ 1.96

Rating Values

Very high	4.20 — 5.00
High	3.40 — 4.19
Moderate	2.60 — 3.39
Poor	1.80 — 2.59
Very Poor	1.00 — 1.79

Classroom teachers have many activities to carry out during the pretelecast phase. One of these activities is motivating students towards their learning. As stated by Clark and Starr (1959:24)

if students are to learn they must be motivated. But unfortunately, there is no specific means for motivating them.

A technique that works well in one situation may be useless in another. Burton (1964: 19) also notes that the level of aspiration set by the learner materially affects the learning process and achievement. Since motivated students develop positive attitude to the material to be learned, classroom teachers are expected to play substantial role in the arousing students towards TV lesson. The statistical result signifies that the responses are significantly different. The students and the teachers' respondents rated engagement of classroom teachers in motivating students towards attentive learning moderate and highly appreciable respectively. However, a critical examination of this difference of responses led to suspicion on the teachers' responses. This is because as asserted by classroom observations of the researcher most of the teachers were not able to appropriately introduce the day's lesson. This was in turn caused by insufficiency of time given for the introduction phase that helps students to set realistic lesson goals and initiate students for attentive learning.

The starting point of classroom teaching may be the arrangement of classroom facilities in a harmonious working condition. Specifically, TV lessons need optimum lighting condition, arrangement of TV position for all students viewing, and arrangement of students' seat according to the teaching methods used in the day's lesson. According to the statistical result, there is a significant difference between the responding groups. The students and the teachers' group rated teachers' involvement in classroom arrangement high and very high respectively. Thus, classroom teachers facilitate conditions such as arranging students' seat, appropriate level of lightings and suitable sound tone for conducive learning environment to the students.

Teachers are also expected to undertake necessary check ups if the TV is in a good working manner. If something wrong happened some corrective actions can be made before the actual telecast. In this regard as can be seen from item three of Table 17 such checking up of classroom facilities was rated to be high by students while very high by teachers. Such pre-testing of receivers may help to avoid TV lesson interruption as minor problems may be checked up or alternative-viewing rooms may be sought.

New lessons should build up on the previous lesson. Through lesson revision smooth flow of concepts can be facilitated so that the previous lesson could contribute to the next lesson. Responses to this issue in Table 17 item for were significantly different. Efforts of teachers in revising the last lesson were rated to be poor by students while high by the teachers. However, the teachers' responses seemed exaggerated, as the time given for pretelecast activities is only two minutes. Lack of proper time for introduction compels both the students and the teachers to rush in to the day's lesson without adequate revision. As revision is one way of motivating students, time limitation had seriously affected teachers' engagement in revision. It connotes that Teachers' leadership is particularly important in introductory activities. This is because the pupils are starting a fresh, they have little or no framework in which to fit themselves, nor do they know in what direction they are going.

Teachers' talk on the lesson is only one type of many introductory activities. Many other types of activities such as demonstrations, motion pictures, discussion, pretests, questions, and planning can be considered as means for introduction (Clark and Starr, 1959:84). Through the application of varied mechanisms students have to be introduced about the lesson title and objectives before the telecast. This is because, students can be aware of what concepts to be grasped during the telecast phase. According to the statistical result on item five of Table 17 responses on the issue under consideration are significantly different. It was judged to be moderate and high by the students and the teachers respectively. As assured by classroom observations due to lack of time, in most of TV instructions there was not meaningful introduction of the day's lesson. Moreover, as majority of the students do not have students' guides for TV lessons they were not preconscious what major concepts to be captured during TV lessons. Generally, introduction of title and objectives of the day's lesson is not encouraging for the motivation of students towards attentive follow up of TV lessons.

Introducing new vocabularies, formulas and concepts can be considered as paving the road to the better learning. This is because students would not encounter new and heavy subject matter during telelesson if they have already been informed about what they are going to learn. Instead, they widen their understanding on what they were introduced to earlier before telecast. In view of this notion the respondents were asked if they were introduced about new

vocabularies, formulas and concepts of the new lessons. According to the statistical result of item six in Table 17 the responses are significantly different. It was rated to be moderate by the students where as high by the teachers. From students' responses and classroom observations introduction given on new vocabularies (jargons and technical terms) and formulas is not that much encouraging. This is mainly due to lack of time, whatever the case it may reduce students' ease understanding of the subject matter.

TV instruction should be supported by experiments conducted by the classroom teachers at school level. Classroom experiment enhances students' ability of self-learning by doing. In terms of this a question was raised if TV instruction is supported by classroom experiments. In this regard, in item six of Table 17 there is a significant difference between the mean values of the two responding groups. It was rated to be poor by the students and moderate by the teachers. Both the responses stipulate lack of active involvement of students in seeking of knowledge. This implies that insufficiency of classroom experiments especially for natural science students will lead them to simple memorization of facts rather than discovery of facts in practice.

Table 18: Distribution of Mean Values of Respondents with Regard to Classroom Teachers' Engagement during Telecast Phase

No.	Items	Mean Values of Students	Mean Values of Teachers	t- obtained
1	Being a model viewer to the students	3.42	4.65	15.35*
2	Giving assistance to students as per the request of TV teacher	3.4	4.75	9.76*
3	Encouraging students in answering questions	3.66	4.81	8.64*

Note * t-obtained significant at $\propto = 0.05$, t- critical = $\pm$ 1.96

Rating Values

Very high	4.20__ 5.00
High	3.40 __ 4.19
Moderate	2.60 __ 3.39
Poor	1.80__ 2.59
Very Poor	1.00 __ 1.79

During telecast classroom teachers are expected to pay attention both towards TV lesson and students. When students understand that their teachers give high concern to the telecast they tend to pay full attention to the on going telelesson. In doing so, teachers may also show nodding for assertion of TV lesson, which is being given. Teachers should also underline major points presented in the telecast, that is, they may jot down the main points told during telecast. Regarding teachers' modeling for students' attentive listening, it was rated to be high by the students where as very high by the teachers. Although there is a significant difference between the responding groups, in general teachers induce students to follow the lessons attentively.

Classroom teachers as a facilitator for TV instruction are expected to help students in carrying out activities such as showing procedures of experiments, encouraging students to attempt questions posed by the TV teacher, and others. As the statistical result shows on item two of Table 18, teachers' cooperativeness to TV teachers was rated to be high by the students and very high by the teachers. Although teachers felt active cooperator to TV teachers in facilitating conditions for introduction of instructions, helping students in answering to questions during telecast and follow up activities, students still need more from them. So, they need to give enhanced assistance to students on both classroom activities and assignments given by TV teachers.

Classroom teachers are the ones who have direct contact with students in TV instruction. Students do not have immediate contact with TV teachers to have feedback about their learning progress. So, teachers should help students in answering classroom activities given by the TV teacher so that students can judge their learning progress. In this regard efforts of teachers in encouraging students in answering questions were rated to be high and very high by students and teachers respectively. In general, it signifies that students are well assisted by the classroom teachers to promote students' classroom participation. But, no matter how the teachers assist, time limitation for classroom activities and for answering questions was observed as an impeding factor to students' active participation.

Table 19: Distributions of Mean Values of Respondents with Regards to Classroom Teachers' Engagement During Post Telecast Phase

No.	Items	Mean Values of Students	Mean Values of Teachers	t-obtained
1	Summarizing the main points of TV lesson	3.89	4.77	7.03*
2	Applying the contents of TV instruction by working problems	2.85	4.29	10.62*
3	Listing down major points of the lesson on the board	3.09	4.22	10.01*
4	Engaging students in answering and asking questions	3.32	4.18	6.45*

Note * t-obtained significant at $\alpha = 0.05$, t- critical = ± 1.96

Rating Values	
Very high	4.20 -- 5.00
High	3.40 -- 4.19
Moderate	2.60 -- 3.39
Poor	1.80 -- 2.59
Very Poor	1.00 -- 1.79

The post telecast phase is very crucial in TV instruction. It is also the longest phase at which students have direct interaction with the classroom teachers. Having this in mind, a question was raised if classroom teachers stabilize the lesson through summarizing the main points of TV lessons. The issue under consideration as depicted on item one of Table 19, was rated high by the students while very high by the teachers. That is, students need extra different activities for better stabilization of TV lessons. Although the responses on teachers' efforts to stabilize the lessons seem alright, as reported by a considerable number of students and teachers; and as asserted by classroom observations lesson summary negatively affected by insufficiency of time. The very critical issue that hinders lesson summary, as reported by some students, is that some teachers leave the classroom immediately after the TV instruction gets over without lesson summary. Obviously, students in such classes cannot ask questions on unclear concepts and get feedback about their learning progress; as a result they may not be motivated for the next class.

Lessons taught theoretically need to be applied into practice through different activities such as classroom activities, experiments, assignments, and so on. Even though teachers reported that application of contents into practice to be very high, students claim lack of practical activities.

In addition to students' complain, critical analysis on the TV lesson schedules and time given for each lesson phase one cannot dare to say that teachers can properly engage students in classroom activities, home works, and project works.

Students should be helped to take short notes for later reference. As their major concern during telecast phase is attentively listening and observing what is going on in TV lesson they might not take notes properly, so students should be assisted by their teachers. In this regard according to the statistical result the responses are significantly different. The students did not satisfy by the assistance given by their teachers in taking short notes. However, teachers felt their assistance in underlining major concepts to be very high. Since students were not given supportive materials other than the main text, as identified in this study, they should be helped in taking notes for later revision. So, teachers should take main points during telecast phase and prepare short notes from TV teachers guides so that they can list down on the blackboard or provide in the form of handout to help students remember what was actually taught.

Students should get opportunities for clearing up their learning difficulties with their teachers. On the other hand, classroom teachers are expected to clarify unclear concepts through interaction with students. In light of this assessment was made on teachers' effort in clarifying subject matter difficulties. Students did not feel they are well encouraged to ask questions. On the other hand, teachers assume interaction made through questioning and answering was high, but teachers still need the time for post telecast phase to be increased. As clearly identified by this study there is lack of time for enforcement phase. Thus, students' complaining on limited interaction might result from lack of time. That means students do not have adequate opportunities to clear up their difficulties with their teachers.

3.3.6 Feedback Mechanisms Between TV Teachers (EMA) and Implementers of TV Instruction

TV teachers should listen carefully to the classroom teachers' suggestion, criticisms, and comments, and attempt to put teachers' suggestions in to the television lessons. As often as they can they should get in to the classroom in order to become better acquainted with the teachers and pupils and to get something of the feeling of the classroom (Clark and Starr, 1967:317). In this regard there should be firm feedback mechanisms to secure pertinent information about prevailing conditions in utilizing ITV.

Table 20: Frequency and Percentage Distributions of Respondents with Regards to Feedback Mechanisms between TV Teachers (EMA) and Educational Personnel

No.	Items	Students N = 360		Teachers N = 120		Principals N = 6		Woreda Education Heads N = 6	
		No.	%	No.	%	No.	%	No.	%
1	Availability of different Feedback exchanging mechanisms (TV lesson evaluation forms, classroom visitation by EMA experts, and so on) to communicate problem faced in TV instruction Highly available	—	—	—	—	—	—	—	—
	Moderately available	8	2.22	—	—	—	—	1	16.7
	Less available	12	3.33	18	15	2	33.4	1	16.7
	Not available	340	94.5	102	85	4	66.6	4	66.6
	Total	360	100	120	100	6	100	6	100
2	Availability of researches on ITV utilization								
	Many	-	-	-	-	-	-	-	-
	Medium	-	-	-	-	-	-	-	-
	Low	-	-	-	-	-	-	-	-
	Not at all	-	-	-	-	6	100	6	100
	Total	-	-	-	-	6	100	6	100

TV teachers or EMA should have diversified feedback mechanisms with all the students, teachers, principals and woreda education offices: personnel at operational levels. The reason why is that getting information from these reliable sources enable to be aware of what problems encountered in the application of TV instruction so that timely corrective measures could be made. In connection to this an assessment was made if there were feedback mechanisms between TV teachers or EMA; and personnel at operational level. On item one of Table 20 the responses of majority of the students, the teachers, the principals and the woreda education heads complained to lack of feedback exchanging mechanisms. Perhaps, information about TV instruction can be secured by using many feedback mechanisms such as TV lessons evaluation forms filled by students, teachers, principals and woreda education heads and classroom visitations by TV teachers or EMA experts. This signifies that learning difficulties of students were not timely considered by TV teachers (EMA) so that interventions can be made to alleviate problems faced in ITV.

Research undertaking on the application of ITV can also be used as information getting mechanism. Through research it is possible to identify problems, causes of problems, implication of the problems and draw up sound recommendation for amelioration of existing problem of ITV. In view of this, for the question raised on item two of Table 20 the responses from principals assured absence of research undertaking on ITV utilization. However, as application of ITV in countrywide is a new phenomenon it necessarily needs continuous assessment researches. Therefore, it can be concluded that feedback mechanisms about effective utilization of TV as instructional medium is low. And beneficiaries and implementers of TV instruction are living with some constraints in the utilization of TV as a teaching medium.

3.4 Major Causes for Interruption of TV Instruction

TV instruction can be interrupted by different physical or technical failures. Some of the most cited causes for TV interruption are electricity, technical failure of TV set, meetings, absence of teachers, mix up of channels, incoordination of schedules and delays of school opening days.

Table 21 A: Distribution of Mean Values of Respondents with Regards to the Causes For ITV Interruption In The Schools

No.	Items	Mean Values of Students	Mean Values of Teachers	t- obtained
1	Failure of electricity (lack of fuel for generators)	3.07	3.16	0.8
2	Malfunctioning of ITV	2.85	2.98	0.98
3	Meetings	2.14	2.17	0.23
4	Absence of teachers	2.81	2.22	5.2*

Note * t-obtained significant at $\propto = 0.05$, t- critical = $\pm$ 1.96

Rating Values

Very high	4.20 — 5.00
High	3.40 — 4.19
Moderate	2.60 — 3.39
Low	1.80 — 2.59
Very low	1.00 — 1.79

Electric failure is one of the causes for interruption of TV lessons. For question raised if electric failure was a cause for TV interruption in item one of Table 21A, it was reported to be moderate by both the students and teachers groups. However, according to the responses of some principals specifically in Amanuel General Secondary, and Mota Preparatory and General Secondary Schools TV instruction is highly disturbed due to low electric power during working days (non-holidays) of mills, and garages. As a result TV reception quality diminishes creating difficulty in students' learning. Further, this implies that when TV lesson fails due to electric failure programs were missed, as programs don't repeated no other way they will remain missed.

Televisions may fail to perform function due to damages of spare parts or installation problems. In relation to this the statistical result on item two of Table 21A signifies that TV instruction is moderately affected by malfunction of TVs. Although failure in functioning of TV seems less frequent in occurrence, as assured by all the principals when the failures occur technical personnel are not available to repair and adjust failures of TVs and receivers. As a result some TVs were found stored idle. Thus, number of TVs reduces resulting in increase the number of students in a class or students may not get TV lessons.

Both teachers and students' meetings be it initiated by the school or out of the school should not be a cause for ITV interruption. For the question raised on item three in Table 21A meetings as causes for TV interruption were reported to be low by both the students and teachers groups. That is, TV programs are not missed due to meetings.

Since TV is not a substitute for teachers, absence of teachers during TV instruction essentially negatively affects effectiveness of students' learning. Some teachers may assume that through availing TV remote control and unlocking key for TV cabinet to the students, the students can learn the subject delivered through TV. Because teachers have many functions in the three phases of TV instructions, they are expected to introduce the title, objectives, new concepts, vocabularies or technical terms and formulas of today's lesson. They function as a facilitator during telecast phase. They also give summary (enforcement) through different activities and check students' activities. Based on this point of view, the issue under consideration was reported to be moderately and low frequently occurring by the students and the teachers groups.

Table 21B: Distribution of Mean Values with Regards to the Causes for ITV Interruption in the Schools (continued)

No.	Items	Mean Values of Students	Mean Values of Teachers	t-obtained
1	Mix up of channels	3.41	2.63	2.5*
2	In coordination of schedules	2.46	2.43	0.45
3	Delay of school opening	2.34	2.25	0.93

Note * t-obtained significant at $\alpha = 0.05$, t- critical = $\pm$ 1.96

Rating Values	
Very High	4.20 __ 5.00
High	3.40 — 4.19
Moderate	2.60 — 3.39
Low	1.80 — 2.59
Very low	1.00 — 1.79

TV instruction can be interrupted by variety of reasons. One of these can be mix up of channels. In item one of Table 21B the students and the teachers responded that frequency of mix up of channels to be high and moderate respectively. This signifies that mixing up of channels has some adverse effect on student's learning as students may miss programs or clarity of reception may be affected.

School timetable schedules have to be in agreement with program broadcasting schedules. However, school timetables are usually affected by the number of sections, teachers, subjects and periods allotted to each subject per week, among others. So, caution should be paid in the arrangement of school timetables. As the statistical result shows on item two of Table 21B incoordination of school timetables with the eight available broadcasting channels was rated low by both the students and teachers groups. So, TV instruction was not affected by mix up of channels. Deliance in school opening time can be a cause for TV lesson interruption. However, as to the statistical result on item three of Table 21B dalliance of school opening time as a cause for TV lesson interruption was reported to be low by both the students and the teachers' respondent groups. Thus, students have opportunity to learn all the programs from the beginning.

CHAPTER FOUR

4.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter deals with the summary of major findings and conclusions drawn in light of the major findings. Moreover, it forwards implementable and constructive recommendations for the improvement of TV lessons.

4.1. Summary

This study aimed at examining the status of ITV utilization in the Secondary Schools of East Gojjam Zone. Instructional TV as a direct teaching device is a new phenomenon to our schools, so it needs continuous research endeavors for identification of prevailing problems pertaining to the application of TV for instruction. Having this in mind this study has been carried out in order to secure relevant data about the ITV variables. In doing so, the study specially examined the educational background of teachers and its implication to students' learning; the extent of orientation given for students, teachers, educational managers and the community about the purposes of utilizing ITV; instructional design of TV lessons with major focus on time planning for different activities of TV programs, material, financial and technical capacity; feedback mechanisms used between TV teachers and educational personnel at school level; TV teachers' professional competency; and classroom teachers' effectiveness as team teaching members. It also critically examined classroom arrangements and impeding factors to TV instructions. The study was framed in such a way that can answer the following basic questions:

1. How efficient is the provision of orientation in acquainting educational personnel with the necessity of utilizing ITV?
2. How efficient was TV instruction design in integrating educational inputs for smooth coordination TV instruction?
3. How competent are classroom teachers to work as team teaching members with TV teachers in helping students learn from TV instruction?
4. How efficient are TV teachers in the application of TV as a medium of instruction?

5. What are miscellaneous impeding factors to the application of TV as a teaching device?

In search of responses to these basic questions the study employed descriptive survey research method. To have students and teachers' respondents, six out of ten secondary schools, which apply ITV, were identified for the study through random sampling technique. Then, students were stratified based of their grade level, stream of study, sections and sex in order to proportionate chance of being selected for the sample. Finally, 360 sample students were selected using stratified sampling method. Considering their sex proportion 120 sample teachers were selected applying simple random sampling method. Finally, school principals, woreda education heads, Zone Education Desk, team leaders at EMA were selected as respondents with purposive sampling technique based on the personal judgment of the researcher that their positions allow to give pertinent data about application of ITV. Data were collected through questionnaires from students and teachers' samples, while; interviews were conducted to educational managers. Further, documentary analysis and classroom observations during TV instruction were carried out. These data were analyzed in counts, percentage and t-test statistic methods.

The study has reached on the following major findings:

1. There was no adequate orientation provided to the implementers of TV instruction. As a result of this considerable number of students and teachers were not performing their roles during TV instructions.
2. The instructional design of TV instruction was found weak in coordinating instructional inputs in such a way to run TV instruction smoothly. As a result of this:
    i. Time planning was found critical problems in TV instruction.
    ii. Technical personnel were not available to give maintenance services to TV sets.
    iii. There is shortage of supplementary teaching materials such as TV instruction guides for both the students and the teachers were not available.
    iV. There are no well-established feedback mechanisms between TV teachers (EMA) and TV implementers of TV instruction and educational managers at operational level for timely intervention on hurdling factors to TV instructions.

V. TV instruction schedules are not flexible to provide time for continuous classroom assessments.

3. Classroom teachers were found to be underqualified for the grade levels they teach in order to give detail clarifications on unclear concepts to the students and properly manage follow up activities. Moreover, they were not well acquainted with their role in TV instruction.
4. Although TV teachers were found to be competent enough in most of the parameters that qualify a professional teacher such as well-organized working habits, command of knowledge they teach (in most cases) proper content selection and sustaining of students' learning. However, their efficiency applying ITV for promoting students' learning is obscured by speedy presentation of instruction regardless of students' learning pace, inappropriate time planning for classroom activities, committing errors and lack of classroom interactions among students.
5. Electric failures and mix up of broad casting channels were the major impeding factors for TV instruction at school level.
6. TV instruction is preferred to conventional teaching method.
7. Regardless of the presence of many problems in applying TV as a teaching device, both the students and the teachers prefer TV instruction to conventional teaching.

4.2 Major Findings

Analysis of data gathered through different tools resulted in the following findings:

1. Provision of Orientation about the Purposes and Benefits of Utilizing ITV

A) The study revealed that more than half of the students and about 72 percent of the teachers were not oriented about the benefits of utilizing ITV. Moreover, as reported by majority of the principals and woreda education heads, parents (the community) were not oriented about the purposes and benefits of this instructional medium.

B) Majority of the students and the teachers prefer TV instruction to conventional classroom teaching.

C) Although TV instruction was preferred by majority of the students and the teachers, as reported by most of the students and majority of the teachers respondents high achievers are believed to be the most beneficiaries from TV lessons.

D) As reported by many students and teachers, social science students need to be taught the remaining subjects such as history, geography and economics through TV.

E) As reported by the student and the teacher respondents, some students consider TV instruction as means of entertainment rather than a teaching device.

F) Some teachers tend to leave the classrooms having switched on the TV sets.

2. Instructional Design

2.1 Time Planning

A) Time given for viewing experiments was identified to be short to conceptualize subject matter presented.

B) Both the students and the teachers group responded that time given for classroom activities was short. So, the time gets over before the students give their responses.

C) The study revealed that most of the assignments were not checked by the classroom teachers due to lack of time.

D) From the responses of principals, teachers and students; and from classroom observations it was identified that the two minutes given for pretelecast (introduction) phase is too short to carry out activities such as, setting classroom arrangements and adjusting the required channel, revising the last lesson, introducing title and objectives, new terminologies, and formulas of the new lessons before the telecast.

E) The students need the 30 minutes telecast time to remain the same. Conversely, most of the teachers need this time to be reduced.

F) Both the students and the teachers need the time given for post telecast phase to

be increased.

G) TV instruction schedule does not give time gap for administration of continuous assessment tests. Therefore, teachers were compelled to emphasize on group assignments as a major means of assessing the students' progress. Besides, teachers were administering tests after the last periods while they were in the afternoon shifts or in the weekends.

H) An instructional program was not repeated in other days, except in the opposite shift of the same day.

2.2 Material, Technical and Financial Capabilities

A) Acute shortage of maintenance personnel was reported as serious problem for immediate maintenance of malfunctioning TV sets and satellite receivers.

B) Most of the schools especially those administered by woreda education offices (General Secondary Schools) have financial problems to procure services and spare parts for maintenance of TV sets and installation facilities.

C) Teachers do not have difficulty in manipulating TV for instruction purpose.

D) Though teachers were selected and gained training to coordinate TV instruction at the school level, they are not technically capable to give considerable assistance to their colleagues when TV instruction failed. Their major responsibilities are mainly limited switching on and off the TV broadcasting circuits at school level.

E) Visual materials were found to be wisely selected for realization of objectives sought. However, time given for exhibiting visuals was reported to be short.

F) Teachers in almost 83 percent of the schools do not have teachers' guides for TV instructions in one-to-one base for each subject teachers in the department.

G) Although the EMA had distributed students' guides with CD (Compact Disc) to the schools, the school administrations of 83 percent of the schools did not make it available to the students. In 13 percent of the schools the students' guides were put in library for reference.

H) As reported by all school principals and woreda education heads all schools have shortage of TV sets.

2.3. Classroom Arrangements

A. In most classrooms lighting was found suitable to viewing visuals from TV screens

and note taking.

B. In some schools classrooms are very crowded (up to 122 students in a class).

C. Two types of TV placements and cabinets were identified. The first and the most widely used is the one placed in front of the students with a cabinet which allows in and out movement of TV through right side of the cabinet. This type of placement was prone to glare on TV screens. Moreover, when the TV comes out it covers most portion of the blackboard to write on it. On the other hand, the second kind of placement is at the left corner of the classroom with a cabinet that allows TV remains stationary that helps to decrease occurrence of TV damage due to the movement of the TV sets. Besides, TV sets with such types of placements are less affected by glare and they do not hinder writing on the blackboard.

D. The height of TV placement was also reported by most of the students and the teachers appropriate. However, glaring (reflection of light on TV screen) was reported as a problem for TV viewing.

2.4 Feedback Mechanisms

It was identified that there is no well-established feedback mechanisms among TV teacher (EMA), teachers, students and educational managers at school and operational level.

3. Competency of Classroom Teachers to Work as Team Teaching Member with TV Teachers

A) With regards to educational qualification, more than half (52 percent) of the teachers were found to be diploma holders, which is below the requirement for the grade level they teach. That is, teachers may not be able to give detail clarification on the subject matter as per the request of the students. Whereas, educational managers at operational level (school principals and woreda education heads) have better qualification that could help efficient mobilization of educational inputs.

B) Majority of the teachers (87.5 percent) are assigned to teach in their majors. However, some 11 percent of the teachers were assigned to teach civics and ethical education, out of their specialization.

C) More than 20 percent of the teachers have teaching load of above 26 periods per week. Moreover, about 59 percent of the teachers in the sample schools teach full day. The major reason for the full day assignments of teachers was just to adjust school timetables with that of TV broadcasting schedules not to extend students' time for learning.

D) About 52 percent of the teachers are below 5 years of service and more than 81 percent of the teachers have more than 21 periods of teaching loads per week.

E) Classroom teachers need to be cooperative to TV teachers. They should know what is expected of them during different phases of telecast instructions. Teachers should consider themselves as team teaching members with the TV teachers. In this regard teachers' involvement in arousing and sustaining students' interests towards TV instruction was reported encouraging.

F) Teachers were found to be cooperative in classroom arrangements for better viewing condition to enhance students' learning.

G) As reported by students, teachers' involvement in revision of the last lesson and their assistance given to students in jotting down the main points of the today's lesson was identified to be low.

H) Teachers were highly cooperative in encouraging students to respond to questions posed by TV teachers.

I) As reported by some students, it was identified that some teachers leave the classrooms having set on TVs to students to attend the instructions.

J) Students complained that the classroom teachers did not check most of the assignments.

K) It was identified that many teachers leave classrooms immediately after the telecasts rather than stabilizing the TV instructions. Moreover, some teachers did not prepare on TV instructions relying on TV teachers' presentations. For this reason, in case of telecast interruptions they did not take on teaching based on the TV instruction guides. That is, teachers lack clear understanding of their roles in working as team teaching member with TV teachers.

4. Professional Capacity and Personality of TV Teachers

A. Content selection ability of TV teachers was found to be within the comprehending ability of students.

B. TV teachers' ability of arousing students towards learning was found to be high. Moreover, generally as reported by students and teachers TV teachers have deep knowledge on the subject they teach. Although application of different teaching methods are also found to be encouraging to students' learning as reported by both the students and teachers; and seen from classroom observations lack of time was negatively affecting efficiently application of such varied teaching methods. Consequently, interaction among students and involvement of students in practical works were found to be low.

C. Presentation of the subject matter was found to be from simple to complex and easily understandable the students.

D. It was identified that students had some difficulties in coping up with the speedy presentation of TV teachers.

E. The study found that vocabularies used by TV teachers were within the understanding level of students' language skills.

F. TV teachers were found to have well organized working habits in presenting the subject matters.

G. Occurrences of errors in the TV instructions were found to be the sources of confusion in conceptualizing TV instructions.

H. As identified through documentary analysis, TV instructions guides were found well prepared in such a way that clearly describe the title, the objectives, head terms, instructional materials and activities used during telecast phase and the follow up activities.

I. Students complained that their involvement in practical work was low.

J. As reported by the students, appropriation of time for classroom activities was not in terms of the complexity level of the learning experiences.

K. Telecast closings of TV teachers were supported by lesson summary and enforcement activities to be performed by students such as homework, projects and reading

assignments. However, due to lack of time the classroom teachers did not check most of such activities.

L. Content similarity between TV lessons and the main curriculum was reported to be closely integrated.

M. Examples and visual materials used in the TV instructions were found to be highly educative.

N. Disagreggation of target audiences in to homogeneous understanding level.

5. Causes for TV Failures

A. Electric failure was reported as the main obstacle for TV instructions.

B. Mix up of channels was also reported as a cause for interruption of TV instruction.

4.3 Conclusion

1. A considerable number of teachers and students were not performing their respective roles. As most of the students and the teachers were not early familiarized with their respective roles in the TV instruction and the potential benefits they can get from this medium of instruction. Moreover, as most the teachers were not Therefore, it can be concluded that the educational personnel specially the implementers of TV instruction (students and teachers) were not early not early familiarized for efficient utilization of the desired medium.

2. Pretelecast phase is a critical time to associate the previous lesson with the new one (through revision); introduce the lesson's titles, objectives, new concepts, terminologies and formulas; and motivate students for attentive learning. However, all these activities by no means can be carried out with two minutes given for these activities. As the study reveals because of speedy lesson presentation students have difficulty of distinctly observing and noting what materials and procedures were employed; and the results of the experiments. Time limitation to classroom activities is also hindering students from doing classroom activities. This implies that, students cannot do classroom activities and

respond to classroom teachers so that they know their learning progress. Moreover, as lack of time can limit students' learning by doing it would be discouraging when the time gets over before students finish their tasks. Since students do not have a direct contact with their TV teachers, post telecast phase is also equally important for reinforcing teleinstructions through questioning and asking, planned repetition of main points of the presentation, applying the theoretical lessons into practices through different mechanisms such as classroom activities, experiments and checking up classroom activities. However, the ten minutes given does not allow to carry out such follow up activities.

3. Necessary materials for TV instructions such as TV sets, teachers and students' TV instruction guides, and technical personnel were not available as per the requirement of the schools. This implies that teachers did not have free access to TV instruction guides in order to prepare on the day's instruction so that they can give better introduction to the students and to take on teaching in case TV instructions fail due to different reasons. The same is true for students, as they did not have access to students' guide for TV instructions they could not refer the guides before and after the TV instructions.

Insufficient number of TV sets at school impelled more number of students to be assigned in a section that will limit students' involvement in group activities and individualized assistance given by the classroom teachers. Moreover, in some schools classrooms were not conducive for TV instruction as it allow in sound from the side sections negatively affecting audibility of the TV instruction. In many schools placement of TV sets was found just in the middle of the front walls hindering proper utilization of the blackboard for writing the title of the day's instruction and jotting down of major points. In addition, since glare was reported as obstacle for accurate viewing it can be attributed to the improper placement of TV sets liable to creating reflection as a result of light coming from the side windows. As a result of lack of technical personnel that provide maintenance services for TV sets many TV sets were put idle in the store causing shortage of TV sets that in turn compel students to be merged to other classrooms that escalate number of students in a class.

For the fact that there was no adequate feedback loop which facilitate communication between TV teachers and implementers of TV instructions, the TV teachers could not get feedback about the problems facing in TV instruction such as time allotment for different activities during telecast phase and occurrence of wrong concepts. Since important decisions rely on assessment of relevant information, hence it is essential to diversify feedback mechanisms to identify pressing problems of TV instruction.

In short, instructional design for TV instruction has not been systematically integrated instructional inputs such as time for different activities, materials, technical personnel, feedback mechanisms and TV placement in such a way that promote student' learning from ITV.

4. As identified in this study about 52 percent of the secondary school teachers are diploma only holders, which is below the requirement of MOE. In addition majority (81 percent) of the teachers have a teaching load of more than 21 periods and more than half of the teachers have below five years of service experience. Such teachers should get more time to prepare instructional materials and prepared on the subjects they teach. They also need continuous supervision on classroom management, record management of students' achievements and others.

   Many teachers were not aware of what is expected of them during the three phases of TV instructions. As a result some teachers tend to consider TV as a substitute of classroom teacher; based on this understanding they leave the classrooms getting on the TV to students learn from TV broadcast by themselves. That means, students can not get assistance from their teachers in carrying out classroom activities given by TV teachers and classroom discipline may not be secured. Moreover, many teachers leave the classroom immediately after the telecast gets over implying that they did not stabilize the day's TV instruction through different mechanisms such as planned repletion, jotting down major points, and providing classroom activities. From this it can be concluded that a considerable number of teachers were not competent enough to work as team teaching

member with TV teachers mainly for the two reasons: low level of educational qualification and lack of understanding about their roles in TV instruction.

5. As listed out in the finding, TV teachers' professional competency was found appropriate in most of the parameters that qualify a professional teacher. They were acknowledged in the selection and organization of understandable contents, and vocabularies; audibility of their voices; skills in arousing students' interest for learning; and thorough knowledge of the subject matter. Further, their well-organized working habits and availability of visual materials made TV instructions more lively and concrete to the real world. For such benefits gained from TV teachers, ITV was more preferred by majority of the students and the teachers.

However, TV teachers were negatively criticized for speedy presentation of the subject matter in terms of students' learning pace. Thus, students may miss some of the contents and such missed contents may lead students to confusion in conceptualizing the subject matter. Further, students may face difficulty in associating what they are learning with that of their experiences. As it was revealed in the finding, appropriation of time for different contents was not in terms of their difficulty level. From this it can be concluded that on one hand the time given for complex activities becomes over before students give responses that in turn limit students from being aware of their learning progress. On the other hand, students waste more time on easy activities. TV teachers were also criticized for committing mistakes in TV instructions. Occurrence of wrong concepts leads students understand that concepts wrongly and feel confused in conceptualizing the subject matter.

Interaction of students among themselves as a source of knowledge was not given due attention by TV teachers. Even if group activities were given during TV instruction due to lack of time most of the students in the groups were not able to reflect their views. Moreover, students' engagement in hands on activities such as carrying out experiments and role-playing is very limited. Hence, students were not active participant in the TV instruction.

In summary, TV teachers are contributing a lot for educational quality and expansion as they are acknowledged for their many deeds. However, the over all efficient application of ITV is still obstructed by inconsiderateness of TV teachers to students' learning pace, occurrence of wrong concepts in the instructions, unbalanced time appropriation to the contents, limited interactions among students and lack of feedback mechanisms about students' learning progress.

6. TV instructions were interrupted by many causes. However, the most cited ones are electric failure and mix up of channels. Obviously, such impeding factors can negatively affect clear reception of audio and video on the TV screen for clearly understanding the instructions. When the electric power shortage gets sever, TV instructions would not be delivered and the classroom teachers may not properly compensate the instructions, for one thing, they do not have TV instruction guides in one-to-one base, for another, teaching materials for experiments and demonstrations may not be available.

4.4 Recommendations

Based on the major findings and conclusions the following are recommended:

1. Orientation Provided

Provision of orientation for acquainting major beneficiaries and implementers with benefits and purposes of utilizing TV instruction was found to be less. So, in order to make the anticipated change fruitful the following suggestions are recommended that educational technologists and policy makers at MOE should:

A. Students, classroom teachers, principals, woreda education heads and the community should be oriented about the purposes and benefits of TV instruction by educational technologists and policy makers at MOE. Accordingly, continuous and extensive orientation about the advantages gained from ITV should be provided through mass media, pamphlet, school plasma displays, seminars, and others.

B. Students and teachers should be oriented not only about the purposes and benefits of TV instruction but also should be inducted their roles during the three phases of TV instructions.

C. Teachers and educational administrators at different levels, if possible parents should

get opportunities to participate in the planning of changes that are related to their tasks.

2. Instructional Design

2.1 Time Planning

Based on the major finding regarding time planning for different activities of telecast phases the following are recommended that TV teachers, EMA and MOE need to carry out the following corrective measures:

1. Visual materials shown through TV including experiments and written materials should wait on the screen until students perceive their concepts.
2. The two minutes given for pretelecast time need to be at least five minutes so that teachers can introduce the day's lesson topics, objectives and new terms that appear in the new lesson.
3. The 30 minutes given for telecast (broadcasting) remain the same, but time planning for activities, for questions, and viewing visuals should be adjusted according to their complexity levels.
4. The 10 minutes given for post telecast phase should be increased at least to 15 minutes.
5. The ITV schedule should provide time gap for continuous assessment tests.
6. Problem faced in arranging timetable can be ameliorated if the ENA increase the number of transmission channels so the existing eight channels should be increased 12 to 14 channels.
7. Moreover, since a TV program is not repeated in other days, the EMA should repeat programs in order to provide make up classes for missed classes. In addition, it would ease timetable arrangement at school level.

2.2 Material, Financial and Technical Capacity

Smooth functioning of TV instruction, obviously, needs fulfillment of TV sets, technical personnel for maintenances of TV sets, installation facilities, and TV instruction guides both for teachers and students. Thus, the following are recommended:

1. Schools and woreda education offices in collaboration with woreda administration

council should give clear clarification about the purposes and benefits of ITV to the community and secure financial support from the community.

2. Schools should diversify their income generating mechanisms such as renting halls, fees from night school students, organizing different income generating clubs such as tea clubs for teachers and students, drama clubs, and others. Having, strengthened their financial base they should duplicate teachers and student guides for easy references. Moreover, since computers are available in every school the school principals can minimize the shortage of teacher' and students' guides for TV lessons by loading the soft wares, which are sent from EMA on the computers.
3. The Amhara Education Bureau in collaboration with MOE should search for assistance from both multilateral and bilateral aiding agencies such as UNICEF, World Bank, IMF, African Development Bank, and others.
4. EMA should provide better technical training for school level ITV coordinators so that they can manage less complicated technical problems of TV installations.
5. It is better to organize a department responsible for technical assistance and maintenance at zonal education department.

2.3 Classroom Arrangements

As glare in some schools is affecting students' viewing, schools should devise some adjusting mechanisms. For this adjustment principals should facilitate the following activities:

i. TV sets should be placed opposite to window lights.
ii. Window glasses can be painted white to minimize entering light.
iii. Title the TV sets to avoid reflection of lights.

2.4. Feedback Mechanisms

Lack of feedback mechanisms between TV teachers or EMA and implementers of TV instruction has negative impact for timely correction of TV instruction related problems. Therefore, it is recommended that:

i. TV teachers or EMA should secure continuous feedback about the progress of TV instruction through TV program evaluation forms from students, teachers, principals and woreda education heads.

ii. For assessment of instructional problems in TV lessons, experts of EMA should undertake classroom visitation during TV lessons.

iii. Assessment research on the utilization of TV instruction should be encouraged at different levels of the education system by MOE and EMA.

2.4 Teachers' Effectiveness in Working as Team Teaching Member with TV Teachers

One of the mechanisms of promoting the quality of education is advancing teachers' qualification level and providing orientation about the role of teachers in TV instruction. Therefore, it is recommended that the Amhara Regional Education Bureau in collaboration with woreda education offices and school principals should:

A. Facilitate different extensive in-service trainings including summer courses and distance education.

B. Make available different self-improving subject matter books to schools so that teachers up grade their level of knowledge on the subject they teach.

C. Make arrangements to use the already available Plasma televisions for training of teachers both in the profession and subject areas.

D. Arrange workshops to create clear understanding among teachers about their expected roles in TV instructions.

3. Professional Competency and Personality of TV Teachers

In order to maximize students' learning from TV instructions it is recommended that TV teachers should:

i. Consider presence of individual differences among students and give appropriate time that commensurate students' active involvement note taking, and responding to classroom activities.

ii. Time allotment for classroom activities should be according to their complexity level.

iii. TV teachers and EMA should assess correctness and accuracy of contents in the TV lessons, especially answers provided to exercises, should be examined about their correctness.

iV. TV teachers should enhance students' involvement in practical work such as utilizing many projects, discussions, experiments, investigations, writings and similar activities that allow students to engage actively on their own learning. Moreover, TV teachers should give time gap during TV instructions so that low achievers can get time to clear up with difficult concepts from their talented peers through interaction.

5. Miscellaneous Causes for TV Instructions

TV instructions have been interrupted mainly by electric failure and mix up of channels. So, in order to decrease their negative impact on students' learning it is recommended that:

i. Teachers should adequately prepare on the day's lessons so that they take on teaching during TV lesson interruption.

ii. Principals should give teachers' guide loaded on CDs a head of time so that teachers would prepare on the day's instruction and prepare handouts to the students.

iii. EMA should continuously checkup good working condition of transmitting channels to avoid mixing up of channels.

The study revealed that the educational level of about 52 percent of secondary school teachers were diploma holders. Orientation given for acquainting major beneficiaries and implementers of TV instruction about the purposes and benefits of ITV was found insufficient. For this reason, at the beginning of Plasma TV instruction application it was not welcome by students, teachers and the community. However, through time these beneficiaries and implementers of TV instruction understood the benefits of TV instruction and TV instruction was preferred over the conventional classroom teaching by most of the students, teachers, principals and woreda education heads. The major reasons for their preference of TV instruction were availability of better-specialized teachers, better educational resource for visual aids, equity use of resources, course coverage, and assisting teachers both in general knowledge and teaching methods.

Although TV instruction was preferred over conventional classroom teaching it has been encountered with many problems. Time planning problem was the most criticized difficulty in the TV instructions. Material, technical and financial deficiencies were also other problems encountered in the utilization of TV as a medium of instruction. Lack of feedback exchanging

mechanisms between TV teachers and EMA was also found other problem for timely correction of students' learning difficulties.

Even though utilization of TV instruction had faced many problems, its benefits out weigh the limitations. Most of the existing problems identified in the findings can be minimize through continuous monitoring mechanisms. So, it is concluded that Plasma TV instruction should be used as a direct teaching medium of instruction both intensively and extensively.

Finally, since TV instruction as a direct teaching medium is a new phenomenon for our education system its application needs continuous assessment studies. So, leaving this study as preliminary step, educators are invited for further rigorous research on the utilization of Plasma TV instruction.

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Appendix A

Addis Ababa University

School of Graduate Studies

College of Education

Department of Educational Planning and Management

Questionnaire Prepared for Secondary School Students in East Gojjam Zone

This questionnaire is designed to collect data on the status of instructional TV utilization in the Secondary School of East Gojjam Zone. The data will be used to examine the contribution of TV to the education system and identifying the hindering factors. In this regard, your genuine responses are highly valuable to this study. Thus, you are requested to respond to the following questions.

Directions for use:

1. It is not necessary to write your name.
2. Responses will remain confidential.
3. Put the "√" mark corresponding to the alternative correct answer your feel.
4. For open-ended questions, give your opinion based on your understating.
5. TV is abbreviation to television.
6. ITV is abbreviation to instructional television.

Thank You!

Code 1

1. Your school name_____
2. Sex ☐ Male ☐ Female
3. Grade level_____
4. Field of study (If you are above grade 11th)
   ☐ Social Science ☐ Natural Science
5. Your schooling time
   ☐ Full day ☐ Half day
6. Have you got orientation about the purpose and benefit of applying Plasma TV in the education system?
   ☐ Yes ☐ No
   * If "yes" who gave you the orientation? _____
   When? _____
   What orientation_____
   _____
   * If you have comments about the sufficiency of the orientation
   _____
   _____
7. When you compare the contribution of TV instruction with that of conventional classroom, what is your opinion?
   ☐ TV instruction is better
   ☐ Classroom instruction is better
   ☐ Both are the same

   If your answer is "TV instruction is better", in terms of what?
   ☐ Availability of necessary facilities and resources for demonstration
   ☐ Organization of the content (lesson)
   ☐ The teaching methods used
   ☐ Motivational effect
   ☐ Course coverage

   If anything else, please spell out_____
   _____

8. From your understanding which group of students would benefit most from TV lessons?

☐ High achievers ☐ Low achievers

☐ Medium students ☐ All are equally beneficiaries

9. In your opinion which of the subjects need to be given through ITV?

☐ English ☐ Biology

☐ Mathematics ☐ Physics

☐ Chemistry ☐ Civics and Ethical Education

Others_____

_____

Why?_____

10. What is your opinion on the following statements in the table?

Key for the alternatives:

5 Stands for 'strongly agree' 3 Stands for 'undecided'

4 Stands for 'agree' 2 Stands for 'disagree'

1 Stands for strongly 'disagree'

NO.	Statements	5	4	3	2	1
A	Some educators believe that ITV negatively affect students' classroom participation. From your classroom observations do you agree?					
B	Some students consider TV instruction as entertainment rather than a teaching tool					
C	Some teachers leave the classroom having set on ITV.					
D	In their absence some teachers assign teachers of little knowledge on the subject					

11. What is your opinion about the contribution of TV instruction in terms of the following points?

Contribution of TV Instruction to	Very	High	Moderate	Low	Very Low
Quality of education, due to availability of:					
a) Better qualified teachers					
b) Well organized lesson					
c) Variety of audio-visual materials					
Educational expansion:					
a) TV instruction reduces the problem of teachers shortage					
b) Cost reduction by applying ITV					
c) Giving assistance to under qualified teachers					
Course coverage					
Equity of access to educational facilities as students in the whole country get the same lesson through TV					
Others					

12. What do you feel about the time given for the following activities?

Activities	Time Given			
	Appropriate	Short	Very Short	More than Enough
Introduction				
Time for exhibiting of experiments on TV screen to students				
Responding time given for classroom activities (questions) during telecast				
Short note taking during telecast				
Lesson summary or applying the lesson through practices				
Discussion on questions raised by students / teachers				
Lesson summary				

13. Do your classroom teachers have enough time for checking and correcting homework?

☐ Yes ☐ No

14. For which classroom test(s) administration does the TV broadcasting schedule allow time gap?

- ☐ It gives time for final exams only.
- ☐ It gives time for mid and final exams.
- ☐ It gives time for tests, mid exams, and final exams.

Others_____

_____

Suggestions_____

_____

15. How many days a TV program is repeated in a week (in average)?

- ☐ Repeated in the same day in the next shift.
- ☐ Another day
- ☐ Two days
- ☐ Not repeated at all.

16. How do you judge the time given for all the three phase of TV instruction pretelecast, telecast, and post telecast?

ITV Telecast Phases	**Very Long**	**Long**	**Appropriate**	**Short**	**Very Short**
Pretelecast time					
Telecast time					
Post telecast time					

Why ? _____

_____

17. Do you get supplementary materials to TV lesson other than textbooks?

☐ Yes ☐ No

18. If your reply to question '17' is 'yes' what are the supplementary materials?

- ☐ Teachers' guides
- ☐ Work sheets
- ☐ Short readings
- ☐ Reading lists
- ☐ Charts
- ☐ Diagrams

Any other_____

_____

19. Regarding visual materials such as graphs, pictures, and simulated materials used in TV lessons what is your opinion on the following points?

A) Visual material coverage

- ☐ Enough
- ☐ Many
- ☐ Few

B) Time given for viewing

- ☐ Shown long enough
- ☐ Not long enough

C) Suitability to the objectives:

- ☐ Very Good
- ☐ Good
- ☐ Fair
- ☐ Poor
- ☐ Very Poor

20. What is your opinion on the following points in terms of suitability of TV viewing classrooms?

A) Lighting:

- ☐ Appropriate for short note taking.
- ☐ Darkness affects short note taking

B) Glare on TV screen:

- ☐ Not at all
- ☐ Affecting viewing

C) Placement of TV:

- ☐ Appropriate for viewing
- ☐ Too low, as a result some students' body hinder viewing
- ☐ Too high

D) Seating arrangement of students:

- ☐ Suitable to attend TV lesson
- ☐ Not suitable to attend TV lesson

21. How do you rate the following components of TV instruction?

Components of TV Instruction	Very Good	Good	Moderate	Poor	Very Poor
Appropriateness of TV lesson contents to students' comprehending ability					
Audibility of TV teachers' voice					
Audibility of TV teachers' pronunciation					
Appropriateness of the speed of lessons through TV					
Appropriateness of the vocabularies used by TV teachers to the students' language level					
Motivational effect of ITV to students' learning					
TV teachers' thorough knowledge of the subject they teach					
Skills in applying different teaching methods					
II) Ability of using different audio-visual teaching materials					
Ability of TV teachers to sustain students' attention					
Flow of TV lesson from simple to complex					
Well organized working habit of TV teachers					
Effectiveness of TV teachers in presenting ideas, concepts and formulae in a clear and understandable manner					
Correctness and accuracy of telecast Contents					
Engaging students in hands on activities for active learning					
Appropriation of more time to complicated contents					
Facilitating interaction among students					
Telecast closing (summary)					
Availability of follow up activities after telecast					
Extent of ITV programs Consistency with the main curriculum					
Extent of relevance of examples used to that specific lesson					

* If errors appear in ITV programs, specify the subjects. If possible indicate where the errors appear_____

22. How do you rate your classroom teachers' involvement in the following activities during pretelecast phase?

Activities during Pretelecast	Very High	High	Moderate	Low	Very Low
Motivating students towards TV instruction					
Arranging the classroom in order to facilitate good viewing condition					
Testing the receiver in order to make necessary adjustment for clear reception					
Revising the last period's lesson					
Introducing the today's lesson title and objectives					
Arranging materials that help classroom experiment or demonstration					
Other activities					

23. How do you rate your classroom teachers' engagement in the following activities during TV telecast?

Activities during Telecast	Very High	High	Moderate	Poor	Very Poor
Being a model viewer to the students by paying attention to TV lesson					
Giving assistance to students as per the request of the TV teachers					
Encouraging students to answer questions					
Others					

Suggestions_____

_____

_____

_____

24. How do you rate your involvement in the following post-telecast activities?

Activities in the Post telecast Phase	Very High	High	Moderate	Poor	Very Poor
Summarizing the main points of TV lessons					
Applying the content by working problem as an example					
Listing down major points raised by TV teachers on the blackboard					
Engaging students to ask questions					
Help students to answer questions					
Other activities					

- If there are impending factors for undertaking of post telecast activities, please spell out_____

25. What are the feedback exchanging mechanisms among TV teachers; and students, classroom teachers about TV instruction?

☐ TV lesson evaluation forms

☐ Classroom visitation by Educational Media Agency experts

☐ Written message

☐ Telephone message

If any thing else, please specify_____

_____

26. In case of TV instruction interruption due to certain reasons, how do use that specific period?

☐ They teach what they prepare on the subject

☐ They revise the last period's lesson

☐ They leave us study by ourselves

☐ Engage students in classroom discussion

If anything else, point out_____

_____

27. The following concepts are considered as ITV limitations. From your practical observation how do you rate them?

Keys for Responses

5 Stands for Strongly Agree
4 Stands for Agree
3 Stands for Undecided
2 Stands for Disagree
1 Stands for Strongly Disagree

Concepts considered as ITV Limitations	**5**	**4**	**3**	**2**	**1**
Classroom discussion is not possible: a) Among students					
b) Students with their TV teachers					
TV lesson hinders individual assistance according to students' individual difference or needs					
TV encourages passive form of learning rather than active seeking					
Shortage of maintenance personnel					
Lack of teachers skills for appropriate utilization of TV					
ITV limits students in the following activities: a) Students can not immediately give their response of question to TV teachers					
b) Students can not ask their TV teachers					
ITV utilization negatively affected by: a) High purchasing cost					
b) Running cost of ITV					
Immediate queries of students can not be answered					
Immediate feedback is not possible					

* If any thing else, list down_____

_____

27. How do you judge the difficulty level of learning activities in the TV lessons?

☐ Very heavy
☐ Heavy
☐ Moderate but challenging
☐ Easy
☐ Very easy

28. How is the amount of presentation in TV lessons?

☐ Too much
☐ Much
☐ Appropriate
☐ Low
☐ Very low

29. The following might be some of the causes for ITV interruption in the schools. From your practical observation in your school indicate the prevailing causes for interruption of TV instruction.

Possible Causes for ITV Interruption in Your School	**Very High**	**High**	**Moderate**	**Low**	**Very Low**
Failure of electricity (lack of fuel for generators)					
Malfunction of ITV					
Meetings of teachers					
Absence of teachers					
Mix up of channels					
Incoordination of schedules					
Delay of school opening					
Technicians are not immediately available					
Other causes:					

30. Are there means of compensations for missed TV lessons?

☐ Yes ☐ No

If "yes" how? _____

Appendix B

Addis Ababa University

School of Graduate Studies

College of Education

Department of Educational Planning and Management

Questionnaire Prepared for Secondary School Teachers in East Gojjam Zone

This questionnaire is designed to collect data on the status of instructional TV utilization in the Secondary School of East Gojjam Zone. The data will be used to examine the contribution of TV to the education system and identifying the hindering factors. In this regard, your genuine responses are highly valuable to this study. Thus, you are requested to respond to the following questions.

Directions for use:

1. It is not necessary to write your name.
2. Responses will remain confidential.
3. Put the "√" mark corresponding to the alternative correct answer your feel.
4. For open-ended questions, give your opinion based on your understating.
5. TV is abbreviation to television.
6. ITV is abbreviation to instructional television.

Thank You!

Code 2

1. Your school name_____
2. Sex ☐ Male ☐ Female
3. Educational level
   - ☐ MA/MSc ☐ Diploma
   - ☐ BA/BSc Others_____
4. Field of specialization

   Major_____ Minor_____
5. Subject(s) you teach

   a)_____ c)_____

   b)_____
6. Years of service_____
7. Teaching load per week_____periods.
8. Your schooling time

   ☐ Full day ☐ Half day
9. Have you got orientation about the purpose and benefit of applying Plasma TV in the education system?

   ☐ Yes ☐ No

   * If "yes" who gave you the orientation? _____

   When? _____

   What orientation_____

   _____

   * If you have comments about the sufficiency of the orientation

   _____

   _____
10. When you compare the contribution of TV instruction with that of conventional classroom, what is your opinion?

    ☐ TV instruction is better ☐ Both are the same

    ☐ Classroom instruction is better

If your answer is "TV instruction is better" in terms of what?

- ☐ Availability of necessary facilities and resources for demonstration
- ☐ Organization of the content (lesson)
- ☐ The teaching methods used
- ☐ Motivational effect
- ☐ Course coverage

If anything else, please spell out_____

_____

11. From your understanding which group of students would benefit most from TV lessons?

- ☐ High achievers
- ☐ Low achievers
- ☐ Medium students
- ☐ All are equally beneficiaries

12. What is your opinion about subjects that need to be given through ITV?

- ☐ English
- ☐ Biology
- ☐ Mathematics
- ☐ Physics
- ☐ Chemistry
- ☐ Civics and Ethical Education

Others_____

Why?_____

_____

13. What is your opinion on the following statements in the table?

Key for the alternatives:

5 Stands for 'strongly agree'
4 Stands for 'agree'
3 Stands for 'undecided'
2 Stands for 'disagree'
1 Stands for strongly 'disagree'

NO.	Statements	5	4	3	2	1
A	Some educators believe that ITV negatively affect students' classroom participation. From your classroom observations do you agree?					
B	Some students consider TV instruction as entertainment rather than a teaching tool					
C	Some teachers leave the classroom having set on ITV.					
D	In their absence some teachers assign teachers of little knowledge on the subject					

14. What is your opinion about the contribution of TV instruction in terms of the following points?

Contribution of TV Instruction to	**Very High**	**High**	**Moderate**	**Low**	**Very Low**
Quality of education, due to availability of :					
a) Better qualified teachers					
b) Well organized lesson					
c) Variety of audio-visual materials					
Educational expansion:					
a) TV instruction reduces the problem of teachers shortage					
b) Cost reduction by applying ITV					
c) Giving assistance to under qualified teachers					
Course coverage					
Equity of access to educational facilities as students in the whole country get the same lesson through TV					
Others					

15. What do you feel about the time given for the following activities?

Activities	**Time Given**			
	Appropriate	**Short**	**Very Short**	**More than Enough**
Introduction				
Time for exhibiting of experiments on TV screen to students				
Responding time given for classroom activities (questions) during telecast				
Short note taking during telecast				
Lesson summary or applying the lesson through practices				
Discussion on questions raised by students / teachers				
Lesson summary				

16. Do you have enough time for checking and correcting homework?

☐ Yes ☐ No

17. For which classroom test(s) administration does the TV broadcasting schedule allow time gap?

☐ It gives time for final exams only.

☐ It gives time for mid and final exams.

☐ It gives time for tests, mid exams, and final exams.

Others_____

_____

Suggestions_____

_____

18. How many days a TV program is repeated in a week (in average)?

☐ Repeated in the same day in the next shift.

☐ Another day

☐ Two days

☐ Not repeated at all.

19. How do you judge the time given for all the three phase of TV instruction pretelecast, telecast, and post telecast?

ITV Telecast Phases	**Very Long**	**Long**	**Appropriate**	**Short**	**Very Short**
Pretelecast time					
Telecast time					
Post telecast time					

Why ? _____

_____

20. Do you get supplementary materials to TV lesson other than textbooks?

☐ Yes ☐ No

21. If your reply to question '20' is 'yes' what are the supplementary materials?

- ☐ Teachers' guides
- ☐ Work sheets
- ☐ Short readings
- ☐ Reading lists
- ☐ Charts
- ☐ Diagrams

Any other_____

_____

22. Regarding visual materials such as graphs, pictures, and simulated materials used in TV lessons what is your opinion on the following points?

A) Visual Material Coverage

- ☐ Sufficient
- ☐ Much
- ☐ Low

B) Time given for viewing:

- ☐ Shown long enough
- ☐ Not long enough

C) Suitability to the objectives:

- ☐ Very high
- ☐ High
- ☐ Moderate
- ☐ Low
- ☐ Very low

23. What is your opinion on the following points in terms of suitability of TV viewing classrooms?

A) Lighting:

- ☐ Appropriate for short note taking.
- ☐ Darkness affects short note taking

B) Glare on TV screen:

- ☐ Not at all
- ☐ Affects viewing

C) Placement of TV:

- ☐ Appropriate for viewing
- ☐ Too low, as a result some students' body hinder viewing
- ☐ Too high

D) Seating arrangement of students:

☐ Suitable to attend TV lesson
☐ Not suitable to attend TV lesson

24. Are there means of compensations for missed TV lessons?

☐ Yes ☐ No

If "yes" how? _____

_____

25. In case of TV lesson interruption due to certain reasons, how do use that specific period?

☐ I teach what I prepare on the subject
☐ I revise the last period's lesson
☐ I leave students study by themselves
☐ Engage students in classroom discussion

If anything else, point out_____

_____

26. What are the means of mechanisms between TV teachers; classroom teachers, principals and students about TV instruction?

☐ TV lesson evaluation forms
☐ Classroom visitation by Educational Media Agency experts
☐ Written message

If any thing else, please specify_____

_____

27. How do you rate the following components of TV instruction?

Components of TV Instruction	Very Good	Good	Moderate	Poor	Very Poor
Appropriateness of TV lesson contents to students' comprehending ability					
Audibility of TV teachers' voice					
Audibility of TV teachers' pronunciation					
Appropriateness of the speed of lessons through TV					
Appropriateness of the vocabularies used by TV teachers to the students' language level					
Motivational effect of ITV to students' learning					
TV teachers' thorough knowledge of the subject they teach					
Skills in applying different teaching methods					
II) Ability of using different audio-visual teaching materials					
Ability of TV teachers to sustain students' attention					
Flow of TV lesson from simple to complex					
Well organized working habit of TV teachers					
Effectiveness of TV teachers in presenting ideas, concepts and formulae in a clear and understandable manner					
Correctness and accuracy of telecast Contents					
Engaging students in hands on activities for active learning					
Appropriation of more time to complicated contents					
Facilitating interaction among students					
Telecast closing (summary)					
Availability of follow up activities after telecast					
Extent of ITV programs Consistency with the main curriculum					
Extent of relevance of examples used to that specific lesson					

* If errors appear in ITV programs, specify the subjects. If possible indicate where the errors appear_____

28. How do you rate your involvement in the following activities during pretelecast phase?

Activities during Pretelecast	Very High	High	Moderate	Low	Very Low
Motivating students towards TV instruction					
Arranging the classroom in order to facilitate good viewing condition					
Testing the receiver in order to make necessary adjustment for clear reception					
Revising the last period's lesson					
Introducing the today's lesson title and objectives					
Arranging materials that help classroom experiment or demonstration					
Other activities					

29. How do you rate your engagement in the following activities during TV telecast?

Activities during Telecast	Very High	High	Moderate	Poor	Very Poor
Being a model viewer to the students by paying attention to TV lesson					
Giving assistance to students as per the request of the TV teachers					
Encouraging students to answer questions					
Others					

Suggestions_____

_____

_____

30. How do you rate your involvement in the following post-telecast activities?

Activities in the Post telecast Phase	Very High	High	Moderate	Poor	Very Poor
Summarizing the main points of TV lessons					
Applying the content by working problem as an example					
Listing down major points raised by TV teachers on the blackboard					
Engaging students to ask questions					
Help students to answer questions					
Other activities					

If there are impending factors for undertaking of post telecast activities, please spell out_____

31. What are the means of mechanisms between TV teachers; classroom teachers, principals and students about TV instruction?

- ☐ TV lesson evaluation forms
- ☐ Classroom visitation by Educational Media Agency experts
- ☐ Written message
- ☐ Telephone message

If any thing else please spell out_____

_____

32. The following might be some of the causes for ITV interruption in the schools. From your practical observation in your school indicate the prevailing causes for interruption of TV instruction.

Possible Causes for ITV Interruption in Your School	High	Moderate	Low	Not at all
Failure of electricity (lack of fuel for generators)				
Malfunction of ITV				
Meetings				
Absence of teachers				
Mix up of channels				
Incoordination of schedules				
Delay of school opening				
Other causes:				

33. The following concepts are considered as ITV limitations. From your practical observation how do you rate them?

Concepts considered as ITV Limitations	**Strongly Agree**	**Agree**	**Undecided**	**Disagree**	**Strongly Disagree**
Classroom discussion is not possible: a) Among students					
b) Students with their TV teachers					
TV lesson hinders individual assistance according to students' individual difference or needs					
TV can not enable to get immediate feedback about students learning problems					
TV encourages passive form of learning rather than active seeking					
Shortage of maintenance personnel					
Lack of teachers skills for appropriate utilization of TV					
ITV limits students in the following activities: a) Students can not immediately give their response of question to TV teachers					
b) Students can not ask their TV teachers					
ITV utilization negatively affected by: a) High purchasing cost					
b) Running cost of ITV					
Immediate queries of students can not be answered					
Immediate feedback is not possible					

* If any thing else, list down_____

_____

Appendix C

Code 3

Interview Prepared for Secondary School Principals in East Gojjam Zone

1. Name of the school _____
2. Name of the director _____
3. Duration of a period in your school is _____ minutes.
4. When was plasma ITV introduced in your school? _____
5. What are the major purposes of applying ITV in the secondary schools?

   ☐ Educational quality improvement
   ☐ Educational reach to the citizens
   ☐ Equitable utilization of educational facilities
   ☐ Assist course coverage
   ☐ Help under qualified teachers
   ☐ Decrease teachers' workload

   Others _____
   _____

6. What is your opinion with regards to duration of an ITV program in terms of the period's length?

   ☐ Sufficient ☐ Should be increased
   ☐ Should be decreased

   What else? _____

7. How do you rate the clarity of TV reception?

   ☐ Good ☐ Fair ☐ Low

   Comments _____
   _____
   _____

8. Does each classroom have TV set?

   ☐ Yes ☐ No

   If "No", how do you arrange the available TV sets?

   ☐ Moving the TV in to classes
   ☐ Moving students to viewing (auditorium) room.

Others _____

_____

Comment _____

_____

9. Do you face scheduling problem in arranging ITV programs?

☐ Yes ☐ No

- If 'Yes' what are the causes?

☐ Presence of more sections

☐ Lack of program repetition

☐ Shortage of teachers

Others _____

_____

Comment _____

10. Does TV instruction schedule allow time for all classroom tests administration?

☐ Yes ☐ No

- If 'No' which classroom tests type do not get time?

☐ Final exams ☐ Mid exams ☐ Quizzes

- So, how do the school manage it? _____

_____

_____

11. Does the Educational Media Agency provide teachers' guide for the instructional programs?

☐ Yes ☐ No

- If 'yes', how about their numbers?

☐ Enough for all teachers

☐ Inadequate to be given to all teachers

Comments _____

_____

12. Are there subjects, which do not have teachers' guides?

☐ Yes ☐ No

- If "yes" how do teachers teach? _____

_____

13. Do students get supplementary materials to ITV?

☐ Yes ☐ No

- If "Yes", what? _____

Comments _____

_____

14. Did teachers (including you), students, and parents (community) get orientation about the purpose and benefit of applying ITV?

Orientation about TV Instruction Given to	Yes	No
Teachers		
Students		
Parents		
Yourself		

- If "Yes" who gave the orientation? _____

_____

What orientation? _____

15. What is your opinion on the attitude of teachers, students, directors and parents towards TV instruction?

Disposition of Personnel	Highly Positive	Positive	Indifference	Negative	Highly Negative
Teachers					
Students					
Parents					
Directors					
Others					

Other comments _____

_____

_____

16. What feed back mechanisms are being used between TV teachers or Educational Media Agency; and classroom teachers, students, and directors about the effectiveness TV instruction?

Feedback Mechanisms	Between TV Teachers or EMA and Classroom Teachers	TV Teachers or EMA and Students	TV Teachers or EMA and Directors
Lesson evaluation form delivered from TV teachers or EMA			
Class room visitation by experts from EMA			
Telephone message			
Message exchange through letters			

What else _____

_____

17. What is the source of power for ITV in the schools?
    - ☐ Electricity from the Ethiopian Light and Power Authority
    - ☐ Generator
    - ☐ Both the two

    Others _____

    _____

18. Who covers the running cost of ITV?
    - ☐ School itself
    - ☐ Woreda education office
    - ☐ Regional education bureau
    - ☐ Educational Mass media Agency
    - ☐ Ministry of Education

    Others _____

    _____

19. What is teacher-student ratio in your school?

Grade 9th _____to_____ Grade 11th _____to_____

Grade 10th _____to_____ Grade 12th _____to_____

20. What is classroom student ratio?

Grade 9th _____to_____ Grade 11th _____to_____

Grade 10th _____to_____ Grade 12th _____to_____

21. Are there research undertakings made to evaluate the effectiveness of ITV?

☐ Yes ☐ No

- If "yes", who conducted the researches?
- With in the school _____

_____

- Out of the school _____

_____

22. Who assigns TV sets to your school?

☐ Woreda education office

☐ Regional education bureau

☐ The Educational Media Agency

☐ Ministry of Education

Others _____

Comments _____

_____

23. Do you get sufficient TV sets at right time?

☐ Yes ☐ No

- If "No" how do you manage the available TV receivers for classroom instruction?

☐ Moving TV to classes

☐ Moving students to classes

☐ Using auditorium rooms

Others _____

_____

Comments _____

_____

24. Does out coming light affect TV lesson?

☐ Yes ☐ No

25. What are the difficulties faced in the application of ITV in your school?

Technical _____

Financial _____

Material _____

Scheduling _____

Others _____

Comments _____

- If you have general comments for effective utilization of ITV? _____

Appendix D

Code 4

Interview Prepared for Woreda Edcuation Heads in East Gojjam Zone

1. Name of the woreda ----------
2. Name of woreda education head ----------
3. What are the major purposes of applying ITV in the secondary schools?
   - ☐ Educational quality improvement
   - ☐ Educational reach to the citizens
   - ☐ Equitable utilization of educational facilities
   - ☐ Assist course coverage
   - ☐ Help under qualified teachers
   - ☐ Decrease workload of teachers
   - Others _____
4. Is there scheduling problem in arranging ITV programs at schools?
   ☐ Yes ☐ No ☐ Do not have understanding

   If 'Yes' what are the causes for it?
   - ☐ Number of section increment
   - ☐ Lack of program repetitions
   - ☐ Shortage of teachers

   Others _____
5. Did teachers, students, and parents (the community) get orientation about the purpose and benefit of ITV?

   ☐ Yes ☐ No ☐ Do not have understanding

   ➢ If 'yes' who gave the orientation?
   - ☐ Each school
   - ☐ Woreda education office
   - ☐ The Educational Mass media Agency
   - ☐ Ministry of Education

   Others _____

   What was the orientation? _____

Comments about the sufficiency of the orientation _____

_____

6. Does each classroom in the secondary schools have TV set?

☐ Yes ☐ No

➢ If 'No', how schools arrange classes for viewing?

☐ Moving the TV in to classes

☐ Moving students to viewing (auditorium) room

☐ Using opposite shift TV broadcasting

Others _____

_____

Comments _____

_____

7. Does the Educational Media Agency provide teachers' guides for TV instruction?

If 'Yes' how about their number?

Limited in number

☐ Sufficient for all teachers in each school

☐ Other comments _____

_____

_____

_____

➢ If there is shortage of teachers' guides, what are the remedies?

☐ Copying the guides

☐ Sharing available guides among subject teachers as per their request

Others _____

Comment _____

_____

8. Do students get supplementary materials to ITV?

☐ Yes ☐ No

➢ If "yes", what?

☐ Students' guides for TV instruction ☐ Reading lists

☐ Short readings ☐ Charts

☐ Structured material for short note taking ☐ Diagrams

Others _____

Comments _____

_____

9. Who assign Plasma TV sets for schools?

☐ Woreda education office ☐ Educational Media Agency

☐ Regional education bureau ☐ Ministry of Education

Others _____

10. Do schools get TV sets at right time with required amount?

☐ Yes ☐ No

- If "No", Why?_____

_____

How they cope up with this problem? _____

_____

11. Who covers for the running cost of ITV?

☐ Schools themselves

☐ Woreda education office

☐ Regional education bureau

☐ Educational mass Media Agency

☐ Ministry of Education

Others _____

12. What are the major difficulties facing the secondary schools in the application of ITV in this woreda?

Technical _____

_____

_____

Financial _____

_____

_____

Material _____

_____

Scheduling _____

_____

Others _____

_____

13. Are there any research undertakings carried out to evaluate the effectiveness of ITV in this woreda?

☐ Yes ☐ No

- If "yes", who under took?
  - ☐ Teachers
  - ☐ Experts from woreda education office
  - ☐ Experts from regional education bureau
  - ☐ Experts from Educational Media Agency
  - ☐ Experts from Ministry of Education

  Others _____

  _____

14. What feedback mechanisms are being used between TV teachers or EMA; and classroom teachers, students, directors, and woerda education office?

Feedback Mechanisms	**Between TV Teachers (EMA) and Classroom Teachers**	**TV Teachers (EMA) Students**	**TV Teachers (EMA) and Directors**
Lesson evaluation forms delivered from TV teachers or EMA			
Classroom visitation by experts from EMA			
Telephone message			
Message exchange through letters			

Others _____

_____

15. What is your opinion on the attitude of teachers, students, directors, and parents (the community) towards TV instruction?

Keys for alternatives

5 Stands for Very Positive
4 Stands for Positive
3 Stands for Indifference
2 Stands for Negative
1 Stands for Very Negative

Disposition of Educational Personnel and Parents	**5**	**4**	**3**	**2**	**1**
Students					
Teachers					
Directors					
Parents (the community)					
Yourself					

If you have general Comments _____

_____

_____

Appendix E

Code 5

Interview Prepared For East Gojjam Zone Education Desk

1. When the application of ITV started in the zone?_____
2. How many schools are there in this zone? _____
3. How many of the schools do apply ITV? _____
4. How many secondary school students are there in this zone?_____
5. How many secondary school teachers are there in the zone?

   Male_____ Female_____ Total_____
6. What are the sources of power for ITVs?_____
7. Do secondary schools get sufficient Plasma TVs in terms of their students' number?_____
8. Are there technical personnel who repair TVs?_____
9. Who covers the administrative cost of ITV? _____
10. Are there attempts of evaluating effectiveness of ITV?_____

_____

Appendix F

Code 6

Interview Prepared for Educational Media Agency (EMA).

1. Name of the interviewee _____
2. When did Plasma ITV programs started in the secondary schools?_____
3. What is the major purpose of applying ITV in the secondary school level?
   - ☐ Educational quality improvement
   - ☐ Educational reach to citizens
   - ☐ Equitable utilization of educational facility
   - ☐ To assist course coverage
   - ☐ To help under qualified teachers
   - ☐ To decrease work load of teachers

   Others _____

   _____
4. What are the subjects being given through ITV?

   1. _____ 4._____
   2._____ 5._____
   3._____ 6._____
5. How long is the duration of an ITV program?_____
6. What type of delivery system does the EMA use for broad casing?
   - ☐ Closed circuit broadcasting (CCB)
   - ☐ Satellite broadcasting

   Others _____
7. Who prepare the ITV programs?_____

   _____
8. What are the means the EMA use for alleviating schools' scheduling problems?
   - ☐ Repetition of broadcasting
   - ☐ Providing alternative schedules for schools
   - ☐ Maximizing the number of broadcasting channels

   If any other, _____
9. Does the EMA provide orientation about the purpose and benefit of using ITV to teachers, students, the community, and educational administrators?

   ☐ Yes ☐ No

   ➢ If "yes" when ? _____

For whom?

- ☐ For teachers
- ☐ For students
- ☐ For community
- ☐ For educational administrators

How? _____

10. To what extent the content of ITV is related to the main curriculum?
    - ☐ All in all the same
    - ☐ Highly related
    - ☐ Less related

    Other _____
11. How is the quality of the broadcast reception?
    - ☐ Good
    - ☐ Some what good
    - ☐ Poor

    If "poor" why? _____
12. Who covers the costs of plasma ITV and generators, which apply as source electricity in some schools?
    - ☐ Ministry of Education
    - ☐ Educational Media Agency
    - ☐ Ministry of education
    - ☐ Regional education bureau
    - ☐ Woreda education office

    Other _____
13. How much a Plasma TV costs? _____
14. What are supporting materials provided to teachers?
    - ☐ Teachers' guides
    - ☐ Reading lists
    - ☐ Charts
    - ☐ Diagrams
    - ☐ Handouts

    Others _____

    ➢ If teachers' guides are provided, what about their amount in each subject?
    - ☐ Sufficient to all teachers
    - ☐ Not sufficient to all teachers

    Others _____

15. What supplementary materials do students get in each subject?

- ☐ Students' guides
- ☐ Structured short note taking materials
- ☐ Reading lists
- ☐ Work sheets
- ☐ Diagrams
- ☐ Charts

Others _____

_____

16. In case of TV malfunctioning, who gives maintenance service at school level?

- ☐ Technicians at woreda education office
- ☐ Technicians at regional education bureau
- ☐ Technicians at Educational Media Agency
- ☐ Technician at MOE

Others_____

17. Are there research undertakings made by EMA and others to evaluate effectiveness of ITV in the secondary schools?

- ☐ Yes
- ☐ No

If 'yes', who undertook?_____

Appendix G

Focus of Observations Format

No.	Focus of Observations at Classroom Visitation	Means of Verification	
		Yes	No
1	**Seating arrangement of students** A) Allow ease observation at TV screen		
	B) Difficult to see at TV screen from the back		
	C) Is not comfortable for viewing to Students at the side walls _____ _____		
2	**Placement of Plasma TV**		
	A) Suitable viewing		
	B) Unsuitable for viewing _____		
3	**Participation of students** A) They are actively engaged in answering		
	B) They actively list down main points for latter revision		
	C) They ask questions during post telecast		
	D) Engaged in hands on activity in the laboratory		
	E) Students' engagement in home works _____		
4	**Involvement of teachers in TV lessons** A) Introduction ❖ Motivating		
	❖ Dull		
	B) Telecast involvement ❖ Highly supportive to students' learning		
	❖ Moderate		
	❖ Passive		
	C) Post telecats ❖ Use the time for stabilizing the lesson		
	❖ There is little attempt of stabilizing the lesson		
	❖ Don't utilize the time _____		

No.	Focus of Observations at Classroom Visitation	Means of Verification	
		Yes	No
5	**Students' discipline** ❖ Good		
	❖ Moderate		
	❖ Distractive		
6	**Noise** ❖ Affects teaching learning		
	❖ Little		
	❖ Not considerable		
7	**Protection for TV sets** ❖ Good		
	❖ Poor		
8	**Reception** A) Audio ❖ Clear		
	❖ Not clear		
	B) Video ❖ Clearly visible		
	❖ Reflection of light strains viewing		
	❖ Not clear		

No.	Focus of Observations at Classroom Visitation	Means of Verification	
		Yes	No
9	**Time given for different activities** A) For viewing different demonstrations ❖ Sufficient		
	❖ Low		
	❖ Much		
	B) For answering ❖ Sufficient		
	❖ Low		
	❖ Much		
	_____ _____		
10	**Classroom teachers' activities** A) Before telecast ❖ Introduction		
	❖ On time arrival		
	_____ _____		
	B) While TV instruction on ❖ Jotting down short notes		
	❖ Helping students in answering questions		
	❖ Managing classroom _____ _____		

Appendix H

Document Analysis Format

1.Analysis of statistical reports.

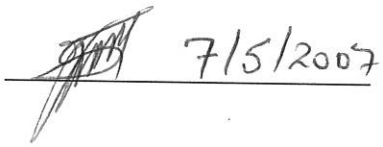
2. Analysis of teachers' guide

3. Analysis of schedules

DECLARATION

I here by declare that this thesis is my original work done under the guidance of Professor (Dr.) Manishaa Pandey all relevant sources used for the thesis are duly acknowledged.

Name: Tesfaye Amsalu Birhanu

Signature:  7/5/2007

Place: Addis Ababa University, College of Education.
Department of Educational Planning and Management

The thesis has been submitted for examination with my approval as university advisor.

Name Professor (Dr.) Manishaa Pandey

Signature

Date of Approval 4/5/2007