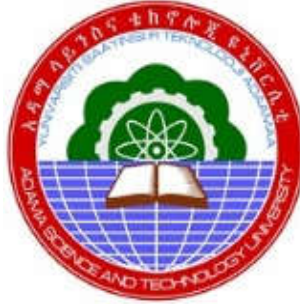


**IMPACT OF PLASMA TELEVISION TEACHING ON STUDENTS
ACHIEVEMENT AT SHASHEMANE SECONDARY SCHOOLS**

BY: DABA HORA GUTEMA



**A THESIS SUBMITTED TO
THE DIPARTIMENT OF APPLIED PHYSICS
SCHOOL OF APPLIEDNATURAL SCIENCE**

**PRESENTED IN PARTIAL FULLFILMENT OF THE REQUAREMENT
FOR THE DEGREE OF MASTER’S IN PHYSICS**

**OFFICE OF GRADUATE STUDIES
ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY**

ADAMA, ETHIOPIA

AUGUST, 2017

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DECLARATION

The researcher here by declares that, this thesis on the title, **“Impact of Plasma Television Teaching on the Students Achievement at Shashemane Secondary Schools”** is the original work and that all sources of materials used for the thesis have been dully indicated and acknowledged with complete references.

Name _____

Sign_____

Date_____

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

Advisor-

Name _____

Sign_____

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ADAMA SCIENCE AND TECHNOLOGY UNIVERSITY GRADUATE STUDIES PROGRAM

Advisor Approval Sheet

As research Advisor, I certify that I have read and evaluated this Thesis entitled “**Impact of Plasma Television Teaching on Students achievement at Shashemane Secondary Schools**” by **Daba Hora** under my guidance and supervision. I hereby recommend that it could be submitted for defense as it fulfills to requirements for degree of Master of Science in physics.

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Dr. Alemu Kebede

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Date

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Examination Committee Approval Sheet

This is to certify that the thesis prepared by **Daba Hora:- “Impact of Plasma Television Teaching on Students achievement at Shashemane Secondary Schools”** and submitted for partial fulfillment of the requirement for the degree of Master of Science in physics complies with the regulations of university meets the accepted standard with respect to originality and quality.

Signed by the Examining committee

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Chairman, the Examining committee

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Examiner (internal)

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Examiner (External)

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ACRONYMS

AEO - Academy for Educational Organization

CD - Compact Disc

DVD -Digital Video Disc

E.C - Ethiopian Calendar

EMA - Educational Media Agency

ET - Educational Technology

FDRE - Federal Democratic Republic of Ethiopia

ICT - Information Communication Technology

ITV - Instructional Television

MOE - Ministry of Education

NAEP - National Assessment of Educational Progress

PTV - Plasma Television

SD - Standard deviation

SPNN - Southern Peoples Nation and Nationalities

SPSS - Statistical Package for Social Science

TOJDE –Turkish Online Journal of Distance Education

TV -Television

UNESCO - United Nations Educational, Scientific and Cultural Organization

ABSTRACT

The study investigates the impact of plasma television management in teaching physics. It was aimed to study the influence of plasma television on the students' achievement and the factors which affect its effectiveness. To achieve this purpose the researcher took four government secondary schools of shashemane town selected purposefully. From 4021 students that learn in these school's 330 students, 18 physics teachers and 8 school directors were participated on the study. To administer and conduct the study questionnaire and the interview were prepared and given for the students, physics teachers and the school directors. The students' respondents were selected by lottery method and the teachers and the school directors respondents were selected by their qualification and work position purposefully. Descriptive survey method was employed and both qualitative and quantitative data analysis methods were used. The data gathered through questionnaires were analyzed quantitatively by using statistical description like percentage, mean and standard deviation, where as the interview was analyzed in narrative form. As the result of the study 52.1% of students and 66.7% of teachers indicated that the students could not understand the pronunciation of plasma, about 44.5% of them showed it did not cover all topics and sub-topics of the students' text book, 62.1% of students and all teachers implied the speed of plasma is to high that the students could not take notes when it teach them. On the other hand, 65.5% of students and 100% of teachers implied in teaching physics plasma method of demonstration focus on the experiment and visual aids for the students and plasma has contribution in increasing the students' achievement but about 95.5% of the students and 55.6% of teachers agreed time given for plasma was insufficient. With interview teachers and directors implied even if there are some factors that hinder its function plasma has advantage.

1. INTRODUCTION

1.1. Back ground of the study

Education is the basic tool for development of nations. It contributes a benefit in promoting the societies economic and social development. Parents and government invest their money, knowledge and resources to create effective citizens in education. How much such investment is effective and successful will be determined by looking at different indicators, but the most important and direct indicator is the extent to which students' progress in their academic performance. Frith (2005) stated that socio economic status of the family has effect on students over all academic achievement. Other researchers like Rodriguez (2005) viewed different factors that affect academic performance of the learners that the school facilities and technological materials are also affecting the performance of students.

Now a day the application of ICT is wide spread throughout all type of teaching institutions. With the increasing capacity of ICT there has been a rise in new learning opportunities beyond the traditional book- teacher and talk-chalk mode Arksey and Knight (1999).The Ethiopian educational plan has also dealt with education sector to bring a rapid change in creating qualified man power. According to MOE (1994) in order to promote the quality of education training of man power, school facilities and educational technology have been given in consideration. The 1994 education and training policy was also aimed at achieving the national economic and social development goals of the country by addressing equity, efficiency, quality and access for education.

According to Selwyn (2006) stated the main advantage of plasma display television is that it produced from very wide screen using extremely thin materials that its image is very bright and seen good from almost every angle. The image quality is quite up to the standards certainly meet most people's expectations. As a result, the government of Ethiopia also looked it as alternative or supplementary strategies. Accordingly, it found out that, one of the alternatives that the government used was the use of ICT and the instructional satellite televisions in all government secondary schools in the whole country and finally it applied as the mode of instruction Solomon (2008). The educational satellite television was used as one of the educational technology in the

whole country starting from 1997 E.C. As that time it was assumed to bring the qualified education through the students.

However, there was lack of systematic evaluation and measurement concerning impact of its management on the students' achievement. Therefore this study aims to investigate the effectiveness of the management of satellite television teaching program on the student's achievement especially for physics subject on focus of secondary schools in Shashemane town.

1.2. Statement of the Problem

Ethiopian ministry of education has made efforts in utilizing education media such as satellite television program for improving quality of secondary education. It has been believed that satellite plasma television institution helps after quality and equitable education for all students in the school. This means the government recognizes the benefit of ICT education for students and makes effort to apply them especially in satellite television program. As Berhanu (2013) stated on his study, in the history of Ethiopian education, the first television lesson was started in October, 1965 E.C. in Addis Ababa and its surrounding government schools. Then after, this limited coverage television lesson was extended in 1968 E.C to other private and government schools.

In 1997 E.C. the satellite plasma television institutions was started broadcasting in teaching throughout the country in all government secondary schools. At that time the educational media agency proclaimed the educational television program for secondary schools for grade 9 to 12. The MOE has made modification on the previous plasma television broadcasting time to avoid its weaknesses in 2003 E.C. by changing broadcast time from 30 minutes of plasma teaching to 20 minutes of plasma television teaching with one non plasma period (40 minutes) in a week. The main reason for the modification of plasma instructional time at that time was the instructional time for plasma was too much so that teachers and students have no time for discussion and the revision of students' text book MOE (2005).

But after modification of the instructional plasma program the researcher observed that the plasma television instructional lesson was not effectively used as wanted by teachers and students as before especially in secondary schools found in Shashemane town. It obviously observed with someone that channel transmission time and the time table (program) given for the school was mismatch, sometimes channel transmission was broken, only class teacher teach without opening

the plasma. The researcher observed such factors in his work area and motivated to study the cause of such factors that hinders the plasma television instructional program and the impact of satellite plasma television instruction on the student's academic achievement in physics for secondary schools found in shashemane town.

1.3. Purpose of the Study

1.3.1. General Objective

The general objective of this study was to investigate the impact of plasma television and its effectiveness in teaching physics.

1.3.2. Specific Objectives

The specific objectives of this research would be:-

- To identify the impact of plasma television teaching management.
- To see the factors that influences the teaching-learning process through plasma.
- To evaluate the coverage of lesson content of plasma television lesson in contrast with students text book.
- To examine degree of understanding of students by plasma television teaching.

1.3.3. Research Questions

This study tries to answer the research questions what would be the impact of plasma teaching management on the student's achievement? Beside of this the basic research questions are:

- What are the factors which affect the plasma television teaching program?
- What is the effectiveness of plasma television teaching on the student's achievement?
- Is the time given for plasma television teaching program is sufficient?
- Is there any lesson (text book content) which is not covered by plasma lesson?
- What is the role of plasma television teaching in physics to increase the achievement of students?

1.4. Significance of the Study

This study will be supposed to increase the achievement of students by plasma television teaching concerning physics subject. The outcome of this study is helped to have the following significances for students, teachers as well as other bodies in the education sector.

- Teachers' especially physics teachers are primary benefiter from the findings of the research in improving the achievement of the students.
- Students are also benefiter from the findings of the research since the effectiveness of plasma television teaching increase their performance.
- The research is also useful to improve the weakness of plasma television teaching management.
- For different educational sectors the findings of this research would help to evaluate plasma television education program and improve it

1.5. Delimitation (Scope) of the Study

This study was limited to Oromia regional state, west Arsi zone, to Shashemane administrative town, two first cycle secondary schools (high schools) and two second cycle secondary schools (preparatory schools). The study was restricted to assess the impact of plasma television teaching management on students' achievement in physics. The study could give more comprehensive information if it covered a large part of the country. However, due to constraints of time, shortage of money, matter of transportation and other resources, the study has been delimited to government secondary schools of shashemane town. Moreover, there are many teaching strategies and technologies like videos, computers, projectors, internet and others which increase the student's achievement in physics, but the focus of this study was limited to the instructional satellite plasma television. In other case since the plasma television education was not given for primary schools the study was delimited to only secondary schools.

1.6. Limitation of the Study

In conducting the research the following were some challenges that face the researcher. These factors were in one way or another may have affected the outcome of the study.

- The first was lack of time from the side of researcher. Since the researcher conduct his research beside of doing his job, preparing, administering and gathering data from respondents were challenge task.
- There were also shortage of materials and references related to the study. There are no enough reference materials in the schools taken for the sample of the study and in the town. Lacks of such materials were the main factors that hinder the study.
- There was late feedback of some respondents. Late feedback in filling and returning the questioners from some respondents limit the study.
- Lake of internet in the study schools and braking of net work (internet access) in the town the study conducted was also the factor that limit task of the study.

1.7. Organization of the Study

The report of this study was organized in five chapters. The first chapter is based on the introduction part of the study which consists of background of the study, statement of the problem, purposes of the study, significance of the study, delimitations (scope) of the study and limitation of the study. The second chapter presents review of the literature. Chapter three consists research design and methodology which includes research design, the study site, participants of the study, sampling techniques, data collection instruments, data collection procedure and method of data analysis. The fourth chapter deals with presentation, analysis and interpretation of data. Finally the last chapter five is presents summary, conclusion and recommendations of the study.

2. REVIEW OF THE LITERATURE

This section is used to state the instructional satellite plasma television as the revised literature. Under this chapter the concept of achievement, the instructional plasma television in teaching, advantage and disadvantage of plasma television will be stated according to many scholars. An overview of former studies in the field, principles, theories and practices are presented in major headings as follows.

2.1. Achievement in Educational Technology

2.1.1. Concept of Achievement

The most common indicator of achievement generally refers to a student's performance in academic areas such as reading, writing, language arts, math, science and history as measured by achievement tests. These include state wide examination scores like National Assessment of Educational Progress (NAEP) scores and educational media taste values. According to Arksey and Knight (1999) a number of international comparisons of student's achievements in science have been conducted. Policymakers know, however, that academic achievement also depends on a child's circumstances and situations, the quality of schools and teachers, and many other factors. Researchers thus have also studied academic proficiency, achievement gaps, graduation and dropout rates, student and school improvement over time, and students' success after high school. All these factors are indicators of effective schools and teachers. Further complicating the matter is the fact that many public schools serve different student populations in different ways. Furthermore, vigorous debates have occurred among researchers over the methods used in some studies.

It is appropriate to ask if the changes in pedagogy in improving the achievement. When students are learning a new skill, they must rely heavily on their working memory to represent the task and may need to talk themselves through a task. As the skill moves in to long term memory, it becomes fluent and eventually automatic (Anderson, 2008). Charles (1995) developed an interesting methodology as when faced with a problem; learners search their memories for a schema or learning technique for organizing and interpreting information in a certain subject in

order to solve it. However, he reasoned perhaps the percentage of maximum gain actually achieved by both sets of students might be the same, if the pedagogical techniques used were similar in both cases.

Different educators explain the term achievement in education differently. Pratt (1980) for instance state it as an activity take in the particular purpose of education. He also says it is statement which serves the specific action to achieve some function or behavior. The Ethiopian education plan has also dealt with education sector to bring a rapid change in creating qualified man power.

2.1.2. Definition of Educational Technology

Technology is a science which promotes every one's life requirement by encouraging communication between the demand of people and science. Educational technology is also a science in a school which link teachers and learners in order to make teaching-learning process easy. As Heinik (1996) state the educational technology as the educational tool that improves the education and the systematic way of using them in improving the student's achievement. It also demonstrates instructional technology as the technology used to improve education and a systematic interactive process for designing instruction to improve performance. Technology includes the use of materials, tools, techniques, and sources of power to make life easier or more pleasant and work more productive. Whereas science is concerned with how and why things happen, technology focuses on making things happen.

Modern technology simplifies life in so many ways and every one defines technology in their own way. To some people it means complicated electronic devices. To others, it means the source of the radical changes that are happening in all phases of life. Others define technology as science applied to practical purposes. Some people fear to use technology while others see it as the source of longer and more complete lives. Educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological process and resources.

2.2. Application of Educational Technology in Learning

The modern education as we know was introduced early in the 20th century and the first school being opened in 1908 (Anto and Girma, 2007). But Gartley (1974) indicate about the brief description of educational technology and the first television was started in 1965E.C. Even if it has some limitation, instructional education television in that moment was the base for technological diversity in the country. Using educational technology is the matter of necessity to achieve the basic goal of the nations. Technology is applied to the roles each individual fulfills during life. We use technology on a daily basis to accomplish specific tasks or interests. Modern Technology increases human capabilities and this technology has evolved with years. What used to work before, might not be working now, it must have got old or got replaced by modern technology. Let's look at a simple example in Transportation technology, this technology has evolved with years, we used to use steam powered trains now those have been replaced by electronic trains which move faster than steam trains.

According to Syed (2013) to bring the socio economic development as a whole the educated man power especially citizen's knowledge with technological equipments must be taken in consideration. Technological based education can also reduce inequalities through the world. The use of intranet, ICT materials and instructional satellite television is very important in teaching-learning process to bring quality education and to increase the performance of learners. When we think about technological device that used on regular bases computers, smart phone, mp3 players and satellite radio might come in mind. There are a variety of computer applications that allow teachers to create their own exercises to supplement educational courses. Moreover, the multimedia capabilities of computers can provide immediate feedback to students and they can work at an individualized pace (Selwyn, 2006).

Therefore, countries all over the world have identified the significant role of educational technology in improving education and have invested heavily in increasing the number of computers in schools and in the networking of classrooms. As a result of this to promote the quality, relevance and expansion of education, due attention will be given to the supply, distribution and utilization of educational materials, educational technology and facilities.

2.3 Applications of ICT in Education

Information communication technologies are stated by TOJDE (2013) as a diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information. These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephone. In recent years there has been a groundswell of interest in how computers, plasma television and the Internet can best be harnessed to improve the efficiency, access, quality, equity and effectiveness of education at all levels and in both formal and non-formal settings. For instance, radio and television have for over forty years been used for open and distance learning, although print remains the cheapest, most accessible and therefore most dominant delivery mechanism in both developed and developing countries.

The use of computers and the Internet is still in its infancy in developing countries. Moreover different technologies are typically used in combination rather than single delivery mechanism. In our countries context the Ethiopian government acknowledges education and training as the base of social and economic development. To achieve this goal the governments designed the ICT policy and integrate with educational system at different levels. According to Berhanu (2013), the key role of ICT (Radio, plasma-TV) in education is to improve educational delivery system, delivery of quality education and students' intake.

As explained on Ethiopian ICT policy, in order for Ethiopia to move in to the knowledge and information age, and be integrated in to the global economy, there is a need to vastly expand educational opportunities, modernize the educational system and improve its quality; this can be achieved best through ICT application. ICT facilitates the development of education and enables both individuals and countries to meet the challenges presented by the knowledge and information age. In order to modernize education delivery ICT is particularly crucial to Ethiopia because the vast majority of its population lives in remote areas and continues to be disadvantaged educationally.

2.4. Satellite Plasma Television in Education

According to Amare (1998) television is the technological communication medium that broadcasts an organized program of instruction to specified learners to classrooms. Similarly Heinik (1996) defined the word instructional television as a type of television that is used for class room instructional purpose. They also refer it as any planned use of video programs to meet specific instructional goals. Therefore it is possible to realize that instructional television is the technological device that plays the key role in deliverance of knowledge.

2.4.1. The Concept of Satellite Television in Education

Satellite television is an excellent means of communication fundamentals including modulation and multiplexing, transmitters and receivers, antennas and transmission lines and even digital techniques. It is true that technology is increasing influence and impact on education perceived by the learners. According to Farenga and Ness (2005) since the turn of the century teachers have used a variety of audio and visual aids to supplement instruction including film, radio, slides, recordings and the projector. This means the digital ICT equipments are powerful for delivering educational skills to the learners.

Behera (1995) also stated educational television denotes any television which is used for imparting education and it is a type of television program constitutes a broader learning experience in order to add significant knowledge or cultural experience of individuals depending on the interests, knowledge and learning capacities. It also provides opportunities to deploy innovative teaching methodologies and interesting material that creates an interest in students. In line with this the instructional plasma television is a means to promote new methods of instruction (teaching and learning). It should be used to develop students' skills for cooperation, communication, problem solving and lifelong learning.

2.4.2. Instructional Satellite Television Teaching in Ethiopian Context.

The country has been develop its curricula for ICT facilitating with technologies like computers and satellite television to make every individual knowledgeable and skillful in applying ICT in day-to-day activities. According to MOE (1994) in order to promote the quality of education training of man power, school facilities and educational technology have been given in consideration. In Ethiopia an education and training policy was put in place in April 1994 to

achieve national economic and social development goal of the country and a rolling education sector development program was launched in 1997/98 to meet the education for all MOE (2008). This implies the quality of secondary education must take in consideration especially in ICT education.

Now a day the application of ICT was wide spread throughout all type of teaching institutions. As stated by Behera (1995) with the increasing capacity of ICT there has been a rise in new learning opportunities beyond the traditional teaching mode. Regarding this, Solomon (2008) also stated that, the rationale behind the introduction of the new plasma based instruction seemed to address quality and equitability of education. Therefore, in 1997 E.C the teaching learning process was started to be run largely via instructional satellite plasma television that is transmitted from the center for the secondary school students.

2.5. The Role of Educational Sectors in Developing ICT in Educational Technology

As Khine (2006) stated the experience of the teacher in using ICT has direct positive influence in using it. This means the skill of using ICT equipments like computer, internet and satellite television on education by the teacher have direct positive impact. The knowledge of using ICT tools and software limit the use of ICT regarding teaching and learning process. The above ideas indicate that, ICT should not take over the classroom teacher's role but it should serve as mediator. That means the role of the actual classroom teacher while using ICT for instructional purpose is very great that determines the extent teachers use plasma television for instructional purpose.

In addition to the role of class room teacher, the role of educational sectors like educational office, the school principals and educational providers are also decisive in effectively implementing plasma program. Therefore, the roles of educational office, the role of principals, the role of subject teacher and the role of reference materials are discussed turn by turn here under.

2.5.1. The Role of Educational Head Office

According to Cordella and Lanncci (2011) the instructional satellite television is capable of reaching large number of students over wide geographical area. The transmission of the satellite plasma television went organizing and arranging the satellite equipments in order to transmit the signal to every part of the country. Regarding this, Andrson (2008) stated that, the higher the technical and administrative support structure and technology availability, the higher the technology integration efforts are made by teachers to use it. Andoh (2012) also wrote that, effective adoption and integration of ICT into teaching in schools depends mainly on the availability and accessibility of ICT resources such as hardware, software, etc. He further stated that, if teachers cannot access ICT resources, then it is obvious that they will not use them. That means access to ICT infrastructure and resources in schools is a necessary condition to the integration of ICT in education.

Therefore, Schools that utilize plasma television need to be provided with the necessary support services such as controlling, training on maintenance and operating, experience share, teachers and students guide, CDs, DVDs and like from head office. The transmission cost money and man power. Therefore the educational head office has awareness in controlling and managing the direct transmission of the signal. In addition to this, technical support on how to operate, install, and give maintenance service should be given by the government to teachers to enhance their confidence of utilizing instructional plasma television in front of students.

2.5.2. The Role of School Principal

ICT in general and instructional satellite television in particular can make learning effective and interesting if it is applied in a systematic approach and well planed manner. In addition to this it ensures cost effectiveness in education. Solomon (2008) stated that a specific technology may hold great educational potential if and only if we use it properly. This implies that if we do not use it properly it may not have any impact in learning. Therefore in order to use it properly the school principal, administration and guidance has of great role in planning and controlling the plasma satellite television on education.

In other case the school principals basically need to facilitate the provision of supportive materials like satellite television program manual, student textbooks, teacher's guide, reference books, audio materials and video cassettes. Moreover they are expected to give awareness for students and facilitate duplication and distribution of text book and schedule preparation.

2.5.3. The Role of Subject Teachers

According to MOE (2000) official documents such as education policy construct and impose certain identities upon teachers. But the need for beaming lessons through satellite-TV overcomes the shortage of laboratory equipment and chemicals. However, the question is does availability of these equipments and chemicals (alone) guarantee practice? Such materials are translated to any tool of knowledge production through their agency by teachers. Therefore, the document claims, Information communication technology is introduced in the education system to strengthen the expansion of quality education. MOE (1994) stated about the role of teachers in the school as the essential agents for social change of society and citizens. During the presentation of instructional satellite plasma television, class teachers are the facilitator of the presentation of lesson and have influence on the use of technology.

As Andoh (2012) found out, experienced teachers on the use of integration of ICT and use of technology have more likely impact on their lesson. Behera (1995) also state about the experience that teachers have on the use of computer technology on teaching increase the acceptance of lesson by the learners. Educators with higher levels of skill, knowledge, and competence of tools would exhibit higher levels of technology integration in the classroom. He further stated that, positive computer (ICT) experience of the teacher have a direct positive influence on the innovative use of ICT.

As indicated by MOE (2008) the plasma television instruction in Ethiopia is expected that classroom teachers play the following roles before, during and after the transmission. Before the transmission, classroom teachers are expected to identify the lesson in making all necessary preparations like getting ready lesson plans, teaching aids and laboratory equipments when necessary. They are also estimated to get students come up with the required teaching materials. Moreover, before the day's plasma lesson is transmitted, they introduce the topic and content of the lesson along with its objectives within a given time. Encouraging students to follow plasma lessons attentively, watching the transmitted lessons, getting the students to work on activities as

they are instructed by the screen teacher, taking their own notes regarding the contents which need further explanation, making effort to continue the teaching learning process in case the transmission is interrupted and not interfering the plasma teacher's presentations are some of the roles of the classroom teachers during the transmission.

After the transmission (after the plasma lessons have been over), classroom teachers are expected to recap the lessons, to give additional explanations, to give counseling regarding the plasma programs and to introduce the topic and content of the upcoming plasma lessons. Besides these roles, the classroom teacher is responsible for using properly satellite television devices, such as the plasma television screen, the remote control and the receiving decoders. He/she is also authorized to control improper use of the plasma television by the students. In addition, it is the responsibility of the classroom teacher to plug in or unplug electric sockets, to lock or unlock the plasma television in its metallic box.

2.5.4. The Role of Reference Materials and Plasma Guide

To carry out effective teaching-learning in classroom through instructional plasma television both the classroom teachers and television teachers need to work together in collaboration. Their collaboration can only be realized by using teacher's guide which serves as a vital bridge between a television teacher and classroom teacher as MOE (2005). The main objective of Plasma guide and reference materials is to give basic ideas to the classroom teachers on how to use television lesson, what to do and how to do. In the three learning-teaching phases of the secondary schools through satellite plasma television class teachers are expected to do his role when prepared on the lesson from plasma guide and other references like CD's, computers.

2.6. Plasma Teaching and Special Needs Students

The concept of Special Needs Education is defined as on the basis of human rights and international experiences, educational policy and the legal framework at national level Yared (2008). Moreover, Special Education may be the most familiar as the expression of educational services provided to children with special needs, which means that the educational provision specially planned for people with disabilities with special needs. He also suggested some of the students with disabilities receive higher education in Ethiopia. Unlike previous one, the new constitution of the FDRE (2004) also addresses disability issues in wider areas. It refers more to

the obligation of the State to support persons with disabilities, than to the promotion of opportunities for persons with disabilities.

Ethiopia has come a long way in the 'Education for All' process; however, there is still a gap in providing access to all children and actualizing special needs education. The main barriers to learning are lack of knowledge about diversity, rigid and poor teaching methods, inconvenient learning environment, lack of identification processes, inadequate assessment procedures. As a result, schools and teachers find it difficult to accommodate students with special educational needs, and compel them to adapt the school, in steady of adapting to the need of the Students MOE (2005).

The 1994 Ethiopian education and training policy clearly outlined the principles of special needs education in which all disabled and gifted children learn in accordance with their full potential and needs. However, the existing capacity and resources do not permit in Ethiopia because of limited trained experts, society of financial and making resources. As Yared (2008) explained the new concept, which includes all children requires over all educational development objectives and policy implementation process to expand access of education to all and improvement in quality. In order to meet these educational objectives especially, the provision of special need education was started in few regular schools in Ethiopia. For fulfillment of this some teachers are trained and scattered in different regions and schools.

In comparing with the number of students and wide area of the country much effort should be needed to overcome the problem of students with disability. To promote access for primary and secondary education, it needs regional wide plan which includes teachers, parents, and community by enhancing physical, social and economical school condition. In order to attain the quality education the instructional plasma television was started demonstration of lesson with sign language for hearing impaired students in the secondary schools.

2.7. Advantage and Disadvantage of Using Satellite Plasma Television in Education

The instructional technologies in general and instructional satellite plasma television in particular have its own advantage and disadvantage in teaching-learning process. Different scholars have argued differently on their use and function.

2.7.1. Advantages of Using Plasma Television

As MOE (2002) stated about education through plasma to transform the education system of the country in to a completely new method of education delivery, students in high school and those in preparatory are offered lessons entirely through a new approach that is carried through the use of plasma television. In addition to this it state that the students receive uniform lessons at the same time throughout the country via satellite transmission. It also used for minimizing lack of qualified teachers. It also helps teachers with fewer years of teaching experience to conduct effective teaching methods.

According to Wadi (2002) instruction through plasma reaches a wide area in saving money, time and man power to arrive large population of learners. In addition to this the satellite television program has of great importance in filling school gaps and assisting teachers to make teaching learning process effective. The satellite plasma television instruction for physics and other subjects presenting teaching learning process with sufficient teaching aid, with all experimental equipments and procedures. It also uses real and visual aids to demonstrate practical lesson. This encourage and initiating students in participating in learning teaching process.

Instruction through plasma uses sign language for hearing impaired students and it has clear sound for that sight impaired. It has also provides equal access to students throughout the nation. As we know the main advantage of plasma display television is that we can produce a very wide screen using extremely thin materials that its image is very bright and looks good from almost every angle and the image quality is good, it certainly meets most people's desire and expectations. This is to point that the instructional plasma television was prepared with clear bright image to attract the learners. The satellite plasma television instruction for physics and other subjects presenting teaching learning process with sufficient teaching aid, with all experimental equipments and procedures. It also uses real and visual aids to demonstrate practical lesson.

Though instructional technologies in general and ITV in particular have widely been used in teaching-learning situations, different scholars have argued differently on their use. For instance, pratt (1980) argue that plasma TV can facilitate instruction and learning process. In addition to this, it can also serve as an important tool for realizing the quality of education that better supports learners' needs.

Therefore, plasma television instruction was helpful in many aspects of class activities going on supporting teachers and the program must encouraged and supported with continuous and flexible modification of planning and appropriate time distribution. Plasma television instructions help to transmit quality and equitable education for all students at school. Some scholars suggested that there was a close relationship between curriculum, the class room teacher and children's interest in television program. Throughout the country the effectiveness of plasma television instruction was the opportunities of equal contribution of education Agarwal (1995).

2.7.2. Disadvantage of Using Plasma Television

The instructional plasma television when seen with many directions it has some limitation. As MOE (1994) explain teachers are essential agents for positive social change. But teachers had no input in to the development of curriculum if the presentation of total time of the lesson will be covered by plasma television. Syed (2013) also stated the television teacher neither sees nor their responses to question. This means there is no exchange of idea, feedback and information between plasma teacher and the students. Therefore the class teacher has no control over the development of plasma lesson since the instructional lesson was one way. There is no comments and feed back by the learners. This hinders the interests of the learners in learning through plasma rather than class teacher.

MOE (2000) has emphasized that as new education and training policy in 1994 proclaimed the education from kindergarten to higher education must given through students centered. But it is difficult to teach with plasma through students centered program. The speed of teaching is not considerable for slow learners and the program is also not accountable for special need students.

In other case if the class teacher has no awareness and skill of using the instructional satellite plasma television it minimize the importance of plasma to increase the performance of the learners. Geoff (2004) pointed out different type of teaching is available in class instruction process. The practical work and worksheets are also initiating the students in learning. It develops the skill of learning and collaboration of group works between the students.

Therefore since teaching through plasma was one way it has its own merits on developing knowledge. The instructional language pronunciation from plasma teachers has also factor which wants great care in achieving the desired educational goal. Since different type of students is found in the class especially for the slow learners the speed of plasma television instruction has great impact on their achievement. McNabb (2000) argued that any learning depend on the need and amount invested on the mental of the students. But the satellite plasma television has impact on the special need students, especially who has hearing impaired, visual impaired, mental impaired and also for those who has physical impaired on their hands.

3. RESEARCH DESIGN AND METHODOLOGY

3.1. The Research Design

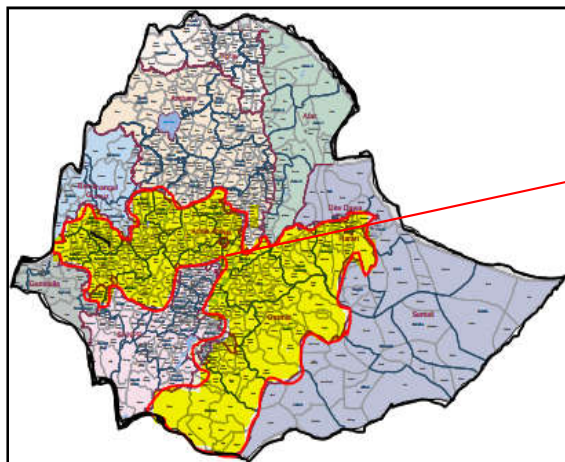
There are many research designs that a researcher used to find data from respondents. Pratt (1980) pointed that in order to carry out a systematic need assessment, the curriculum planners used to employ specialized techniques and methods of data collection. These techniques or methods can be those, which are used to gather data in the survey and other type of research investigation. One of the research designs has an advantage over the other based on the data we seek and the nature of the problem we investigate or the research question we answer.

The rationale behind this the mixed research design gives an opportunity to collect data from respondents. Thus, the researcher used a mixed design research method to find data from respondents. As the instrument of data collection showed there are questionnaire and interview that the researcher applied for this study.

3.2. The Study Site

The study was conducted at Shashemane administrative town. Shashemane administrative town is the capital city of West Arsi zone. West Arsi zone was located in the western part of Oromia regional state, constructed from 10 woredas and one administrative town. It was bordered in east with Arsi zone, in north of east with East Shawa zone, in north of west with SPNN, in south with Bale zone and in west with Guji zone. Shashemane administrative town is found with 250Km from Addis Ababa. In this town the instructional Satellite plasma television education program was given in four government secondary schools. The study was conducted in these four secondary schools (two high schools and two preparatory schools).

Ethiopia



Oromia

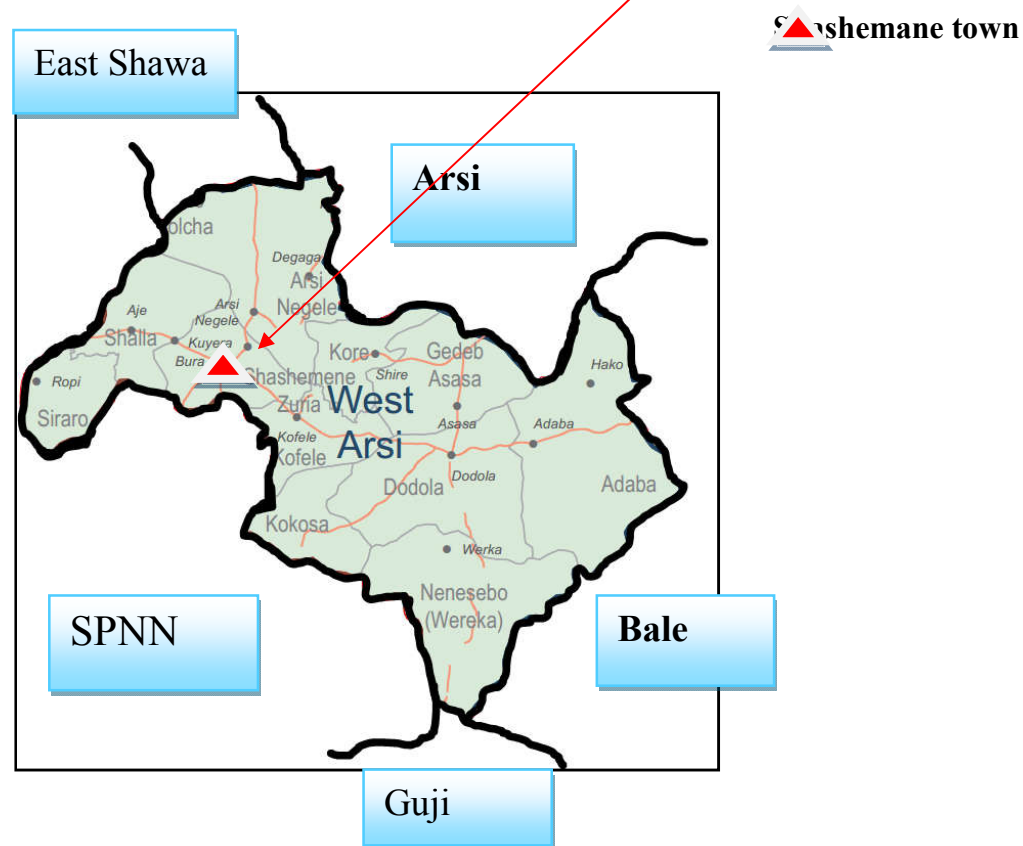
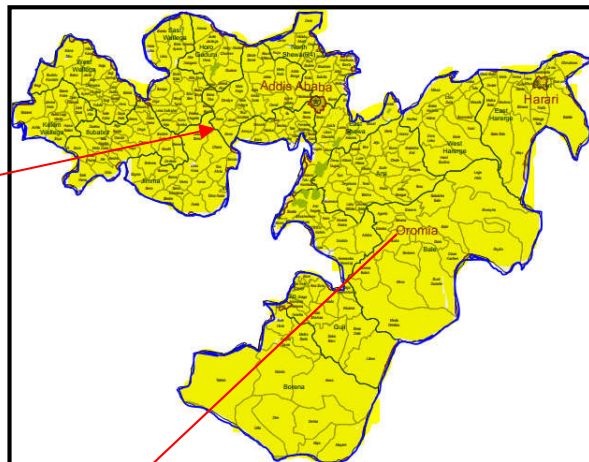


Figure-1: Geographical map of West Arsi zone with its borders.

3.3. Participants of the Study

The participants of this study were all government secondary schools found in shashemane town. There are two first cycle secondary schools (grade 9 and 10) and two second cycle secondary schools (grade 11 and 12) in the town. Since the satellite plasma lesson was given only in the government secondary schools found in the town the schools were selected for the study. The students', the teachers those teaching physics and the school directors of these secondary schools were the participants of the study. The study was focus on the impact of the management of plasma television and its effectiveness on the achievement of the students.

The decision to take such secondary schools for this study was based on the researcher's personal judgment to reduce budget cost, reduce field time and reduce huge data in to manageable form. For this reason it is available to take a sample size from total number of population. Therefore, the selected schools were taken to make generalization based on the finding.

3.4. Sampling Techniques

Sample size is a part of the population which is used to represent the total population. This means, sample is simply the subset of population that allows the researcher to conduct the study on individuals from the population so that the results of their study can be used to derive conclusions that applies to the entire population. To get the sample size the researcher used Krejcie and Morgan (1970) formula which was used to determine the sample size from the total population of the students. The sample size was selected by random sampling method out of the total population gathered from four schools as listed in table-1 below. After the determination of total sample size for each school the researcher took the students randomly from each class. This method was selected to give equal chance for the students to be selected for this study.

Table-1: Total population and sample size of students in Shashemane secondary schools.

Name of the school.	School level.	Total population			Sample size		
		Students	Teachers	Directors	Students	Teachers	Directors
Shashemane Millennium high school.	Grade 9-10	1377	5	3	120	5	2
Shashemane high school.	Grade 9-10	1465	8	3	127	8	2
Shashemane preparatory school.	Grade 11-12	756	3	3	66	3	2
Bulchana preparatory school.	Grade 11-12	423	2	2	37	2	2
Total		4021	18	11	350	18	8

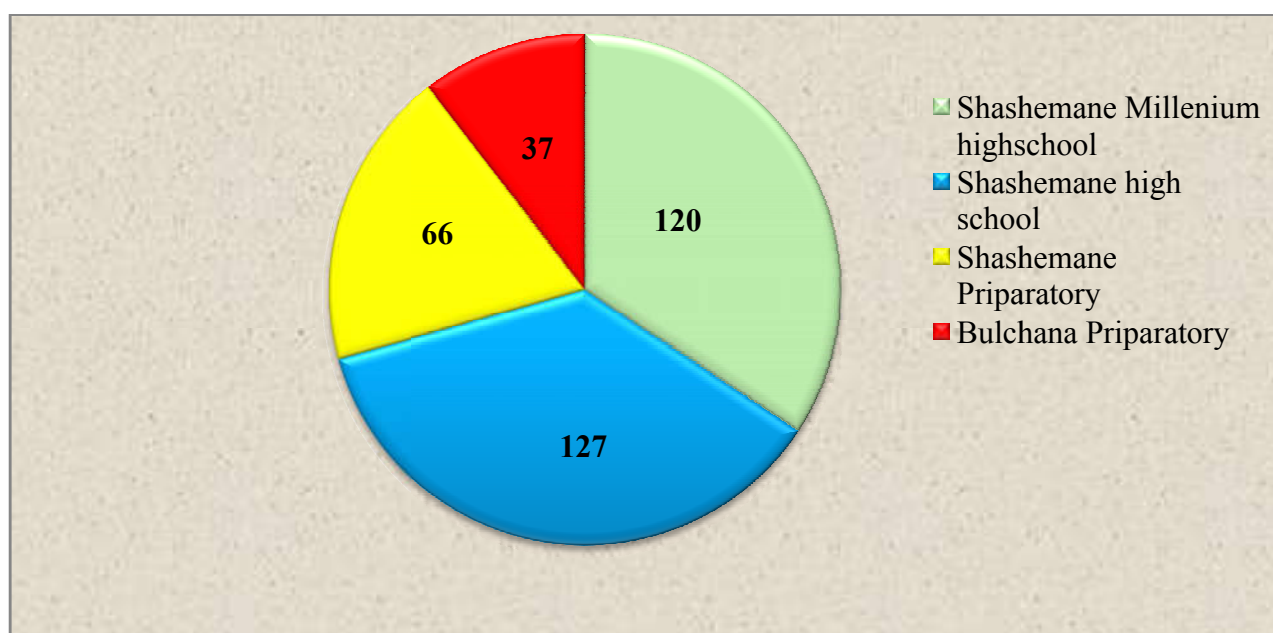


Figure-2: Sample size of students selected from total population.

There are 18 physics teachers in these selected schools (8 in shashemane secondary school, 5 in Millennium secondary school, 3 in Shashemane preparatory school and 2 in Bulchana preparatory school) and the researcher used all of them purposefully. In addition to physics teachers the researcher took eight directors (the main director and academic director from each school). Because of managing and controlling plasma instructional lesson program was direct relation with main and academic directors the researcher took them by purposive sampling method.

3.5. Data Collection Instruments

To conduct the study the researcher used two of data collection instruments which were questionnaire and interview. The questionnaire was prepared for the students and physics teachers and interview was prepared and administered for physics teachers and the school directors.

3.5.1. Questionnaire

For the success of the study the researcher used questionnaires for students and teachers. It was preferred in the study to ignore bias and to give freedom for respondents. In other case since questionnaire was low cost and convenient for gather information from large population the researcher prepared and distributed for respondents to acquire necessary information. For this study in order to get convenient response on the effectiveness of management of satellite plasma television on student's achievement both cloth-ended and open-ended questioners were prepared and administered for teachers and students. The researcher used 20 close ended and 4 open ended items for the students and 15 close ended and 2 open ended items for physics teachers. Closed ended questions were presented by rating scales like strongly agree, agree, neutral, disagree and strongly disagree.

Moreover, it contains always, sometimes, rarely, and never and it also contains yes or no item. At the top of the questionnaire the objective of the study and the back ground of the respondents were given. As shown on table-1 and figure-2, during the administration of questionnaire for 350 students the questionnaires were duplicated and scattered. But 330 of them were filled the questionnaire correctly and returned to the researcher. So the researcher was used 330 students response and 18 teachers' responses for analyzing the data.

3.5.2. Interview

Interview was conducted to get deep understanding about the study in the school that can be not acquired through questionnaire. For this study face to face interview was administered for all physics teachers and the school directors taken from the selected schools. The interview focuses to get the accurate information about the problem and management of plasma television teaching program. In order to get brief explanation 7 interview questions were prepared for 18 physics teachers and 7 interview questions were given for 8 school directors taken from four schools.

3.6. Data Collection Procedure

Data gathering was carried out after designing students and teacher's questionnaires and interview. First, the researcher moved to the selected schools and communicated with the school directors. After the researcher introduced the objectives of the study to the school directors the questionnaires were scattered to students and teachers. The orientation about the purposes of research as well as the necessary information needed to complete the questionnaire was given for the students and teachers. Interview was administered immediately after questionnaire was gathered from students and teachers.

3.7. Data Analysis

The data gathered from questionnaire was organized in tables. Each item was tabulated under different rating scales. The frequency of the respondents answer was tallied and discussed by central tendency like mean, standard deviation and percentage. Finally, the result was interpreted and discussed in relation to the research questions and relevant literature. Data gathered through interview of teachers and school directors were described qualitatively in order to support the data gathered through questionnaire. In order to interpret data obtained through questionnaires, descriptive statistics like mean, standard deviations and percentage were applied and to make the interpretations more convenient SPSS version 20 program was used. Moreover, data from interview was organized and interpreted qualitatively then the researcher personal idea was added and discussed. Finally, based on the findings of the study and discussions made, conclusions were drawn and recommendation was given to the oriented parsons.

4. DATA PRESENTATION, ANALYSIS AND INTERPRITATION

This chapter presents the analysis and interpretation of the data gathered by different instruments mainly through questionnaire and interview. Data obtained from the questionnaires of teachers and students were analyzed by using percentage whereas those data obtained through interview with open-ended questions were analyzed and describe in narrative form.

4.1. Analysis of Students' Questionnaire

4.1.1. Students Background Characteristics

Personal information of respondent's school, grade level and sex are as follows.

Table- 2: Personal information of student's like school, sex, age and grade level.

			Grade									
No	School		9		10		11		12		Total	
		sex	No	%	No	%	No	%	No	%	No	%
1.	Shashemane	M	34	54.8	27	57.4	-	-	-	-	61	55.9
	Millennium	F	28	45.2	20	42.6	-	-	-	-	48	44.1
	high school	T	62	100	47	100	-	-	-	-	109	100
2.	Shashemane	M	37	56.9	32	56.1	-	-	-	-	69	56.6
	high school	F	28	43.1	25	43.9	-	-	-	-	53	43.4
		T	65	100	57	100	-	-	-	-	122	100
3.	Shashemane	M	-	-	-	-	26	65	18	72	44	67.7
	preparatory	F	-	-	-	-	14	35	7	28	21	23.3
	school	T	-	-	-	-	40	100	25	100	65	100
4.	Bulchana	M	-	-	-	-	13	61.9	9	69.2	22	64.7
	Preparatory	F	-	-	-	-	8	38.1	4	30.8	12	35.3
	school	T	-	-	-	-	21	100	13	100	34	100
Total		M	71	55.9	59	56.7	39	63.9	27	71.1	196	59.4
		F	56	44.1	45	43.3	22	36.1	11	28.9	134	40.6
		T	127	100	104	100	61	100	38	100	330	100

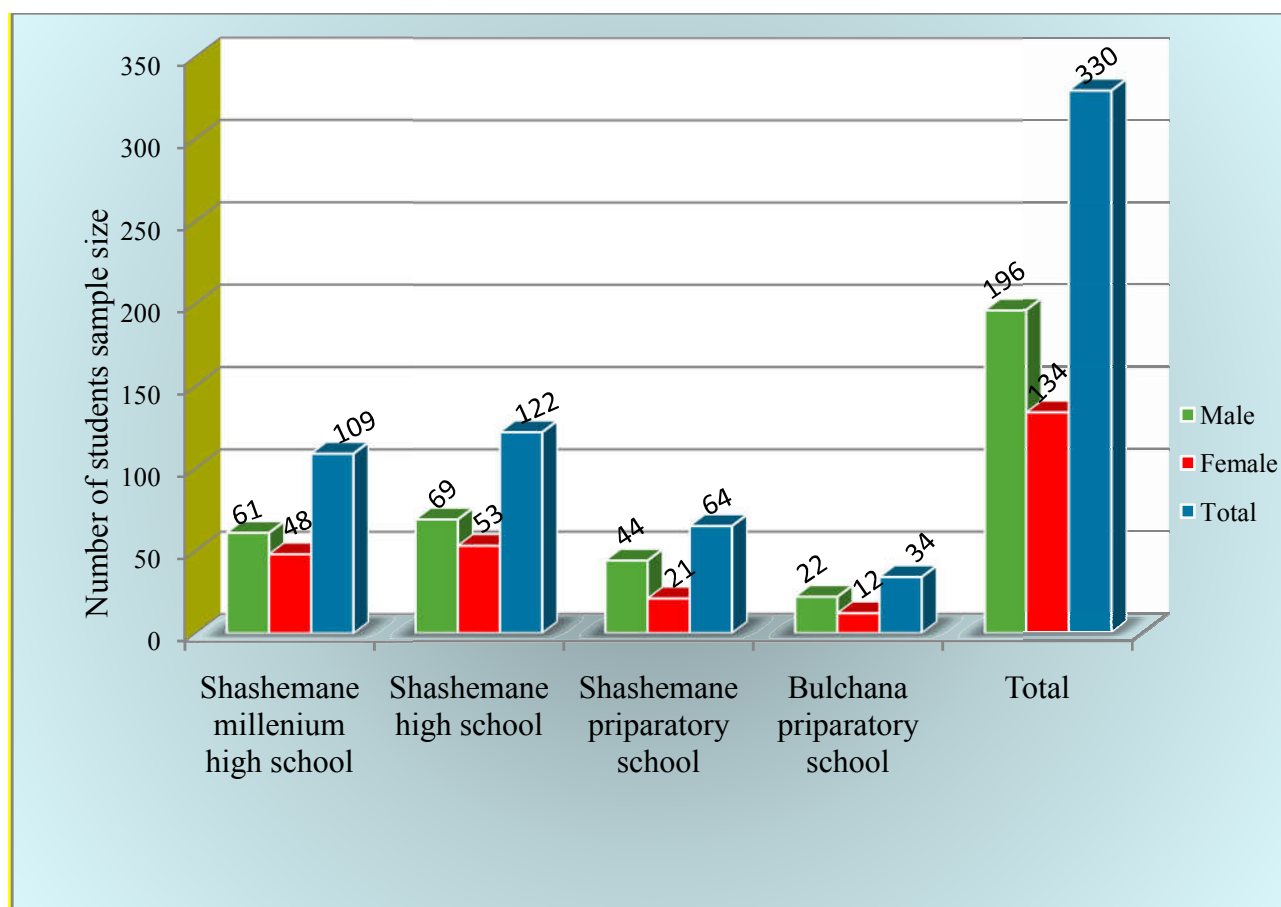


Figure-3: Number of students taken from each school.

As shown on figure above from the selected schools all students of grade nine to grade twelve were target population. From three hundred and thirty sample size one hundred and ninety six (59.4%) are males and one hundred thirty four students (40.6%) are females.

4.1.2. Student's Attitude in Learning through Plasma.

Table-3: Student's response regarding to their attitude in learning through plasma.

No	Students attitude	Students response											
		SA		A		N		D		SD		Total	
		No	%	No	%	No	%	No	%	No	%	No	%
1	Plasma television motivates the students to learn.	60	18.2	160	48.5	82	24.8	23	7.0	5	1.5	330	100
2	Plasma teacher's pronunciation is clear for the students to learn.	21	6.4	46	13.9	91	27.6	103	31.2	69	20.9	330	100
3	Plasma teaching- learning method initiates the students in thinking.	64	19.4	94	28.5	112	33.9	49	14.8	11	3.3	330	100
4	There is contribution of plasma television in improving student's achievement.	93	28.2	113	34.2	71	21.5	47	14.2	6	1.8	330	100
5	Instructional plasma covers all topics and sub topics of student's text book more enough.	39	11.8	61	18.5	83	25.2	109	33.0	38	11.5	330	100
6	Plasma explain lesson in clear and understandable manner.	79	23.9	94	28.5	103	31.2	38	11.5	16	4.8	330	100
7	Plasma uses all experimental equipments to demonstrate practical works.	120	36.4	96	29.1	78	23.6	26	7.9	10	3.0	330	100
8	Students have highly interested to learn through plasma.	20	6.1	71	21.5	114	34.5	89	27.0	36	10.9	330	100
9	Taking note is difficult during plasma instruction.	11	3.3	35	10.6	79	23.9	98	29.7	107	32.4	330	100
10	There is advantage in learning physics with plasma when compared with class teacher.	114	34.5	104	31.5	79	23.9	28	8.5	5	1.5	330	100

Remark: SD- Strongly disagree, D- Disagree, N- Neutral, A- Agree, SA- Strongly agree

As it can be seen from table 3, 160(48.5%) of the students respondent agreed that plasma motivates the students to learn with 60(18.2%) of them agreed strongly while 82(24.8%) of them showed neutral agreement but 23(7%) and 5(1.5%) of the respondents disagree and strongly disagree respectively that plasma teaching to motivate the students in learning. This indicates that plasma teaching motivates the students in teaching. But 103(31.2%) of the students said that plasma language pronunciation was not clear with 69(20.9%) of them with strong disagreement. While 91(27.6%) of them are neutral, where 46(13.9%) and 21(6.4%) of the respondents agreed and strongly agreed that plasma lesson language pronunciation was clear for them. As we have seen from this data since plasma teachers are foreigners their pronunciation were not clear for our students rather than few of them. Therefore, it is impossible to talk the presence of meaningful teaching-learning process where there is no effective communication among TV-teacher, classroom teacher and students.

In other case 112(33.9%) of the respondents have neutral idea, 94(28.5%) showed agreement and 64(19.4%) strongly agreed on that plasma lesson teaching method initiate the students in thinking but 49(14.8%) of the students were said plasma teaching method did not initiate them in thinking and 11(3.3%) of them also showed strongly plasma teaching method did not initiate in thinking. From this data it can be seen that plasma teaching method was better for the students in learning since it initiate them in thinking. Regarding to plasma television improvement on the students' achievement about 113(34.2%) and 93(28.2%) of the students' respondents agreed and strongly agreed respectively that the achievement of the students is increased by plasma instruction. In contrast of this some of the respondents 47(14.2%) disagree and 6(1.8%) strongly disagree which indicated plasma television did not increase the students' achievement and 71(21.5%) of them remain neutral. From this one can say that, in addition to class teacher plasma teaching has contribution on the students' achievement. It also implies that plasma has impact on the results of the students. The students' questionnaire on this idea can realize the idea of MOE (2000) that say plasma teaching change mental efforts such as critical thinking and reasoning abilities.

On the item 5, that they asked whether or not plasma lesson covers the whole topics and sub topics of the students' text book 109(33%) disagree and 38(11.5%) strongly disagree that indicate plasma instruction did not cover the whole topics and sub topics of students' text book and 39(11.8%) and 61(18.5%) of them agreed and strongly agreed with that plasma lesson cover all

topics and sub topics of the students text book. From this we can determine plasma teach the students by taking only the main portion of the lesson only. So in order to make plasma lesson effective and to cover all portion of the students' text book it required sufficient time. On the other hand as we have seen from option 6 of table 3 above, 79(23.9%) of the students and 94(28.5%) of them are strongly agreed and agreed respectively for plasma explain lesson in clear and understandable manner, while 38(11.5%) and 16(4.8%) showed their disagreement and strongly disagreement, with 103(31.2%) of them are neutral. From this, one can state that plasma TV-teaching method has contribution in promoting active learning and effective teaching. That means plasma television is a communication medium that transmits huge quantities of information without considering the time of exposure, culture and geographical area. This is to imply that, teaching- learning through satellite TV doesn't give room for students' active involvement and their maximum mental efforts. So from this it is possible to say plasma teaching promotes important knowledge for the students if we effectively used.

As mentioned on item 7, by the students' respondent one of the advantages of instructional plasma television in teaching physics was using the experimental apparatus that we could not get in the school. Concerning this 120(36.4%) of the respondents strongly agreed and 96(29.1%) of them showed their agreement that plasma used all experimental apparatus to deliver visually aided lesson for the learners. 78(23.6%) of them were remained neutral while 26(7.9%) and 10(3.0%) of them implied their disagreement and strongly disagreement. As FDRE (2004) indicated most high schools in our country teach practical subjects like physics, chemistry and biology theoretically without support with experiments, due to high scarcity of laboratory equipments. In this respect broadcasting television programs in to every class from a center using satellite technology is indispensable to improve the quality of education.

As it can be showed here instructional plasma television in teaching physics was important technology in the whole geographical area of Ethiopia. Especially in urban and rural areas of the country as many secondary schools opened, economically where impossible to fill every experimental apparatus plasma representing the visual aids. On item number 8, most students about 114(34.5%) have intermediate idea on their interest in learning through plasma, while about 89(27.0%) have no interest and 36(10.9%) of them completely did not want to learn through plasma. In contrast of this 71(21.5%) and 20(6.1%) of the respondents reflect they have interest

and strongly want to learn with plasma respectively. From this we can recognize even if plasma lesson have advantage in increasing the achievement of the students they have low interest in learning through plasma. These indicate that plasma should want some improvement, following and controlling for the students in using properly to increase the quality lesson. As Tewodros (2008) suggested that using plasma TV technologically and theoretically is very important especially in improvement of quality lesson.

For the idea they asked on the speed of plasma instruction 107(32.4%) and 98(29.7%) of the students did not take even notes and main point of the lesson because of the speed of plasma and 11(3.3%) strongly agree and 35(10.6%) agree with the idea that they take notes and main point while plasma teach and they said plasma teach with normal speed. This implies that fast learners can move with the speed of plasma while slow learners and intermediate students are faced with the problem taking notes and main point of the lesson. Therefore, the students' actively moving with the speed of plasma like to learn with it contrarily the other refuses it. So, to improve the quality of plasma lesson with the interest of the whole students' it wants the improvement of the program and time of broadcasting. Lastly, 114(34.5%) and 104(31.5%) of the respondents strongly agreed and agreed learning with plasma has advantage in increasing the students' achievement. The other students 79(23.9%) showed neutral, rather 28(8.5%) imply plasma has no advantage and 5(1.5%) of the students strongly disagree on the advantage of plasma. The result of this item indicates plasma instructional method promotes the students achievement. This is to mean that plasma television has impact on the students' knowledge, it also used to increase the students result. Therefore, in order to achieve the advantage of plasma television controlling and managing plasma television was available.

4.1.3. Class Teacher's Contribution during Plasma Teaching.

Table-4: Students' response on Class teacher's contribution during plasma teaching.

No	Items	Yes		No		Total	
		No	%	No	%	No	%
1.	The teacher rearranges and opens plasma before plasma lesson and encourages the students to follow the lesson interestingly.	179	54.2	151	45.8	330	100
2.	The teacher writes some important formulas and definitions on the black board while broadcasting.	197	59.7	133	40.3	330	100
3.	Class teacher has contribution during broadcasting.	286	86.7	44	13.3	330	100
4.	The teacher explains unclear ideas and summarize plasma lesson after broadcasting.	212	64.2	118	35.8	330	100
5.	The teacher gives us plasma lesson with CD's and computer's when broadcasting is breaking.	6	1.8	324	98.2	330	100
6.	Our teacher has interest in teaching us through plasma.	175	53	155	47	330	100

As we have seen on item 1 of table 4 given above the 179(54.2%) of the students responded during the broadcasting of plasma lesson class teacher encourage and control the students to follow plasma carefully. While 151(45.8%) of them reflect as the class teacher did not encourage and help them to follow plasma lesson. As indicated from the responses of some respondents, even if teacher encourage and initiate the students to follow plasma, some teachers have the problem of tuning and adjusting plasma to use. Therefore, it implies additional treatment and training should be available on the operation and installation of plasma.

On the second item more than half of the students 197(59.7%) said during plasma lesson broadcasting, the teacher write some important points and formulas on the black board. But about 133(40.3%) of them opposes this idea that class teacher cannot write some important point, formulas and definitions on the black board during plasma lesson. From this one can also say

class teacher collaboration and cooperation in actively follow of plasma lesson and writing it on the black board is available to minimize the problem facing them concerning speed of plasma. From the response of item 3, since most of the respondents about 286(86.7%) responded that class teacher has contribution during plasma lesson. Few of them about 44(13.3%) of them imply class teacher has no contribution during broadcasting of plasma lesson. Therefore, as we have seen from this response in order to increase the achievement of the students and to increase the interest of the whole students toward plasma lesson class teacher plays vital role.

In other case 212(64.2%) of the students reflect that class teacher explain unclear ideas and summarize plasma lesson after broadcasting, while 118(35.8%) of the respondents imply that class teacher did not explain ideas and definitions raised by plasma. As MOE (2008) pointed that, the plasma television instruction in Ethiopia is expected that classroom teachers play important roles before, during and after the transmission. From this we can understand that class teacher play a vital role to strength the lesson of plasma. Therefore, from this idea we can recognize that in order to make plasma meaning full all teachers must introduce before the begging of lesson and they must explain some definition of words and difficult problems after broadcasting. Regarding the presentation of plasma lesson with CD's and computers almost all students about 324(98.2%) of the sample students responded that teachers did not teach plasma lesson with CD's and computers.

As it can be seen from table 6, 53% of the student respondents showed their agreement that class teacher has interest to teach the students through plasma. But 47% of the students give their answer that class teacher has not such match interested to teach through plasma. Hence, by no means plasma TV couldn't meet the needs of individual learners unless the teacher and the students both interested in teaching-learning process.

4.1.4. Student Response on Plasma program.

Table-5: Students response on plasma time management.

No	Item		Options						
			Never	Rarely	Undecided	Some times	Always	Total	Mean
1.	Plasma television was opened for the students.	No	249	45	28	4	4	330	1.39
		%	75.5	13.6	8.5	1.2	1.2	100	
2.	Plasma broadcasting program is given continuously through the year.	No	250	55	13	10	2	330	1.36
		%	75.8	16.7	3.9	3	0.6	100	

1. 0.00-0.49 = Never, 2. 0.50-1.49 = Rarely, 3. 1.50-2.49 = Undecided,
 4. 2.50-3.49 = Sometimes, 5. >3.5 = Always

On item 1 of table 5 above, respondents were asked to reflect the extents to which plasma television was left opened through the year for lesson presentation. Accordingly, students mean (1.39) indicates that, instructional plasma television was opened rarely for the students. This means teachers teach the students without opening plasma. Therefore, it is possible to say teachers who teach the students of secondary schools in shashemane town mostly did not use plasma lesson. Similarly as we have seen from the second item the mean value (1.36) showed that plasma television broadcasting program was rarely used by the teachers as the schedule continuously through the year. From this one can understand that plasma lesson was not given for the students as the schedule.

4.1.5. Students response on the plasma time management.

Table-6: The students' response on the speed of plasma

No	Item		Options						Mean
			More Insufficient	Insufficient	Fair	Sufficient	More sufficient	Total	
1.	What do you think about the time given for presentation of plasma lesson for a period?	No	219	55	48	8	0	330	1.53
		%	66.4	16.7	14.5	2.4	0	100	
2.	What do you think about the time given for plasma for a week?	No	315	9	0	6	0	330	1.08
		%	95.5	2.7	0	1.8	0		

1. 0.00-0.49 = More insufficient, 2. 0.50-1.49 = Insufficient, 3. 1.50-2.49 = Fair,
 4. 2.50-3.49 = Sufficient, 5. >3.5 = More sufficient

Item 1 of table 6 indicates, as the mean value (1.53) time given to plasma lesson for a period was in the fair value. Thus, this value shows time given for presentation of lesson in a period was not enough for most of the students to move with the speed of plasma. Form item 2 of table 6 above, for the idea raised on the time given in a week for plasma lesson the respondents' responded mean (1.08) indicates that insufficient to teach the students. In general case weekly plasma time given to teach students was not enough to move with the speed of plasma.

Response of Students for Open Ended Items

For the open ended question raised for the students about the advantage and disadvantage of learning through plasma the students responded as follows. Plasma has advantage

- To improve the students achievement in giving uniform lesson as a country
- It teach the students by using visual aids
- It provides equal access of lesson through the country
- It saves time and energy
- It also used to minimize the shortage of teachers and used to fill gaps of teachers class absents.

Concerning disadvantage of plasma students list their ideas that

- There is no feedback given for their question and unclear idea by plasma,
- It make the students passive learners,
- Its speed does not consider the students speed and
- The lesson given is only lecture method.

In other case the students reflect their idea for missed plasma lesson that class teacher could not replace it by makeup class. For the improvement of plasma lesson the students list the following.

- Time given for plasma must increased
- It is better to minimize its speed considering the students ability
- Preparing plasma lesson with hard copy and distributing for the students can minimize lesson barrier.

4.2. Analysis of Teachers' Questionnaire

4.2.1. Teachers' Back Ground Characteristics

Table-7: Teachers back ground characteristics

No	Age				Service Year											
	<20		21-30		31-40		>41		<10		11-20		21-30		>31	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1.	-	-	1	20	3	60	1	20	-	-	3	60	2	40	-	-
2.	-	-	2	25	3	37.5	3	37.5	-	-	3	37.5	5	62.5	-	-
3.	-	-	-	-	1	33.3	2	66.6	-	-	-	-	3	100	-	-
4.	-	-	-	-	-	-	2	100	-	-	-	-	2	100	-	-
Total	-	-	3	16.7	7	38.9	8	44.4	-	-	6	33.3	12	66.7	-	-

Remark: 1. Millennium high school 3. Shashemane preparatory

2. Shashemane high school 4. Bulchana preparatory school

According to table 7 above, 18 teachers who teach physics in four secondary schools in shashemane town were selected for this study. Since female physics teachers are not found in the selected schools only males are participated in the study (Figure 4 below).

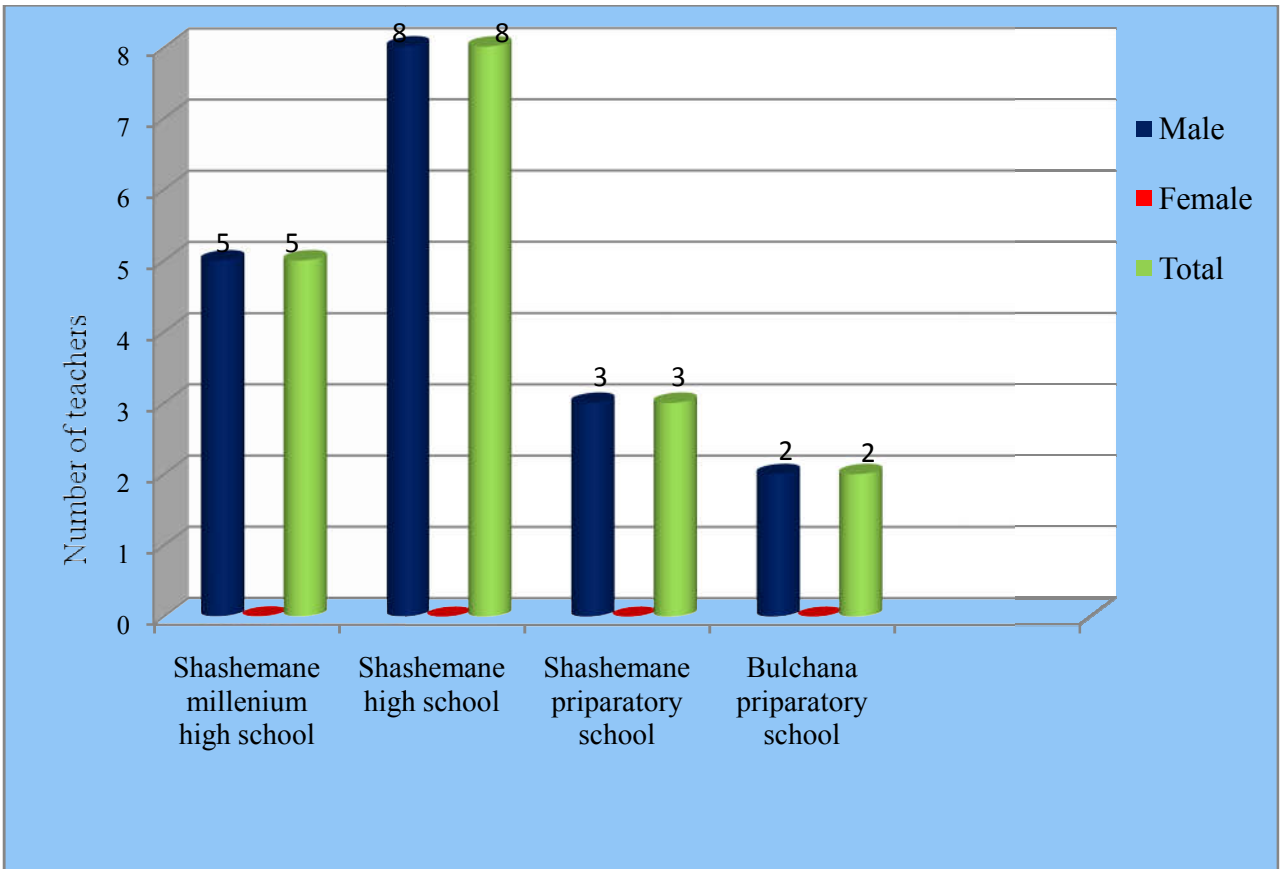


Figure-4: Number of teachers respondents from each school.

In other case all teachers are only first degree holders. From this one can see that 3 (16.7%) were younger teachers found in the age 21-30, about 7(38.9%) of them were teachers with the age 31-40 and most of them 8 (44.4%) are aged teachers who were above 41 years old. Concerning their service year some of them about 6 (33.3%) has work experience of 11-20 years and most of them 12 (66.7%) are experienced teachers with their service year of 21-30 years. This implies that most of the teachers teaching in shashemane town are work experienced teachers.

4.2.2. Teachers Attitude in Teaching through Plasma.

Table-8: Teachers responses on their attitude in teaching through plasma

No			Options						Mean
	Item		1	2	3	4	5	Total	
1	Do you have interest in teaching though plasma more frequently?	No	6	6	4	1	1	18	2.17
		%	33.3	33.3	22.2	5.6	5.6	100	
2	Do you believe that plasma lesson is understandable and clear for the students?	No	7	7	3	1	-	18	1.18
		%	38.9	38.9	16.7	5.6	-	100	
3	Do you believe plasma teaching lesson increases the student's achievement?	No	-	4	2	8	4	18	3.67
		%	-	22.2	11.1	44.4	22.2	100	
4	The students understand pronunciation and language usage of plasma teaching clearly.	No	12	6	-	-	-	18	1.33
		%	66.7	33.3	-	-	-	100	
5	The students have interested in learning through plasma than class teacher.	No	11	7	-	-	-	18	1.39
		%	61.1	38.9	-	-	-	100	
6	Do you prepare on plasma lesson before plasma start broadcasting the day's lesson?	No	14	3	1	-	-	18	1.28
		%	77.8	16.7	5.6	-	-	100	

Remark: 1.Strongly disagree, 2. Disagree, 3. Neutral, 4. Agree, 5.Strongly agree

1. 0.00-0.49 = strongly disagree, 2. 0.50-1.49 = Disagree, 3. 1.50-2.49 = Neutral, 4. 2.50-3.49 = Agree, 5. >3.5 = strongly agree

As item 1 of table 7 above, mean (2.17) shows teachers have neutral interest in teaching through plasma lesson. Some of the teachers have interest to teach physics through plasma. Rest of them has no interest to teach with plasma. Therefore, this indicates that teachers' teaching in shashemane town has less interest in teaching physics with plasma. Similarly the second option 2 also indicates mean score (1.89) shows that the lesson given by plasma was neutrally understandable for the students. For this as the teachers responded some of the students understand the concept of plasma lesson and some of them does not understand the lesson delivered by plasma. Additionally, from the mean score (3.67) of item 3 of table 7 it shows teachers strongly believe that plasma lesson increase the achievement of the students. As teachers respondents indicate instructional plasma television has contribution on increasing the achievement of the students.

Regarding to plasma language pronunciation on item 4, the mean value (1.33) imply that the teachers disagree with the language clarity for the students. That means all students did not understand equally the language of plasma teacher when the plasma teach them. Thus, there is meaningless of using plasma unless the learners understand the pronunciation of plasma. To increase the activity of plasma in the students achievement plasma language pronunciation must improved.

In other case teachers also reflect their disagreement on item 5 above that, the students' attended and interested on plasma than class teacher. The mean value (1.39) indicates the students want to learn with class teacher than plasma. During interview when teachers responded their idea concerning plasma instructional problems and the attempts to solve such problems, they confirmed that plasma-teaching method doesn't meet the needs of individual learner because of there was no awareness given and there was no constant time table given for them. This draws students' attention and they are not interesting to learn from plasma when compared with class teacher. Most students couldn't understand the languages of plasma and they faced difficulty of taking note due to uncontrolled speed of plasma TV. As a result, they preferred classroom teachers to plasma.

On the last item concerning lesson preparation of teachers the respondents reflect their idea of mean (1.28) that teachers did not prepared on plasma lesson at their home before the begging of plasma presentation. From this idea and the reflection of some teachers since there is no plasma

guide in the school teachers enter to class room without preparing on plasma lesson. But as MOE (2000), teachers are the bridge who realizes the lesson of presentation of plasma if he/she prepared on the lesson. This is only true if there is plasma guide in the school.

4.2.3. Teachers Response on the Application of Plasma.

Table-9: Teachers responses on the presentation of plasma lesson.

No	Item	Yes		No		Total	
		No	%	No	%	No	%
1.	Is plasma television uses introduction, presentation, summarization and evaluation in teaching lesson?	10	55.6	8	44.5	18	100
2.	Is plasma lesson cover all portion of the student's text book?	3	16.7	15	83.3	18	100
3.	Is plasma lesson uses all experimental apparatus and equipments to demonstrate quality lesson?	18	100	-	-	18	100
4.	Is plasma lesson initiating the students in solving problems and practical work?	14	78.7	4	22.2	18	100
5.	Plasma teaching method encourages the students in group discussion.	8	44.4	10	55.6	18	100
6.	Is there plasma television teaching consider special need students?	11	61.1	7	38.9	18	100

According to teachers responses on item 1 of table 8 above, 10(55.6%) of them responded that plasma presents lesson with clear introduction, presentation, summarization and evaluation while 8(44.5%) of them indicates plasma did not use clear introduction, presentation, summarization and evaluation. Using clear method of presenting lesson initiates and motivates students to learn. As Geoff (2004) argued that the students learnt better when the teachers presents clear lesson using different teaching methods. From the responses given above and this idea one can understand clear teaching presentation of lesson make the students to accept what they learn. But from the feedback of interview teachers responded the time given for each activity (for introduction, presentation, summarization and evaluation) is not sufficient and, also they

suggested that plasma TV teaching doesn't initiate students' critical thinking and reasoning abilities. As a result, most students developed negative attitudes towards plasma TV.

Regarding of portion coverage of plasma 15(83.3%) of the teacher answered through the year plasma teach the students by taking only main part of students text book. But 3(16.7%) of the respondents said plasma lesson cover all portion of the students text book. From this we can understand that plasma lesson did not teaching all portion of the students text book. This idea confirms the time given for plasma is not enough to cover the whole portion of the students' text book. As teachers explained frankly on the interview sometimes, teacher's guide, student's text book and the transmission mismatched.

As we have seen from item 3 above, all teachers 18(100%) were agreed with the concept plasma uses the experimental apparatus to demonstrate the lesson. As the experience some teachers speak in many secondary schools they teach there were shortages of experimental devices of physics subject when compared with other science subjects. Therefore, demonstration of plasma lesson used to overcome such problems in applying visual aids. On the other hand, 14(78.7%) showed their agreement that plasma lesson leads the students in solving exercises, problems and practical work. However few teachers 4(22.3%) of the teachers respondents refuse this idea. This implies that plasma instructional method leads the students to solve problems and exercises.

Concerning the encouragement of plasma to group work 8(44.4%) of the respondents say plasma encourage the students to group discussion while 10(55.6%) of them indicate their responses that plasma instruction did not lead the students to group work. Concerning this Khine (2006) Suggested that humans naturally work in groups; they seek out others to help them to solve certain problem, to share ideas and to perform certain tasks and plasma television teaching ignore the students in this marvelous learning method. This means since plasma transmit lesson one way it did not control and encourage the students for group work. As 11(61.1%) of teachers indicate on option 6 of above table, plasma lesson considers special need students. But few teachers about 7(38.9%) opposes this idea. As working experience teachers arises plasma lesson uses sign language for hearing impaired students but, it did not consider other disabled students.

4.2.4. Teachers Response on Plasma time usage.

Table-10: Teachers responses on plasma time usage

No	Item	Option						
			1	2	3	4	5	Total
1.	Do you think time given for plasma instruction in a period is enough?	No	-	10	8	-	-	18
		%	-	55.6	44.4	-	-	100
2.	What do you think about the time given for plasma lesson for a week?	No	6	12	-	-	-	18
		%	33.3	66.7	-	-	-	100
3.	What do you say on the speed of plasma lesson for the students in solving examples and problems?	No	7	11	-	-	-	18
		%	38.9	61.1	-	-	-	100

Remark: 1- More insufficient, 2- Insufficient, 3-Fair, 4- Sufficient, 5- More sufficient

As we have seen from item 1 of table 10 above, 10(55.6%) of teachers indicate the time given for a period for demonstration of plasma was insufficient, where 8(44.4%) of them said there were fair distribution of plasma time. For the time given for plasma in a week on option 2, from total number of teachers about 12(66.7%) of them indicate insufficient with 6(33.3%) of them shows more insufficient. Totally the time given for the presentation of plasma lesson was not sufficient. Therefore it went time improvement. In other case, for the question raised on the speed of plasma teachers allocate plasma was too much fast to the students that even they did not follow it carefully and impossible to take notes from the screen which was indicated by 11(61.1%) teachers insufficient followed by 7(38.9%) more insufficient.

Response of Teachers for Open Ended Items

For the open ended question teachers asked, they responded plasma has advantage in teaching. As they list the advantage of plasma,

- Plasma teaching method uses visual aids in teaching students.
- It initiates the learners to collaborate with science and technology.
- It increase the performance of students by linking their life with real world
- Students cannot sit without work when class teacher may absent
- It also produce equal opportunity of competence for the students as a country
- It saves time, finance and man power
- Plasma is very important for students with hearing disabilities since it used sign language
- Schools found at rural and remote areas are benefiter to overcome the problem of teaching aids

In other case teachers list disadvantage of plasma in the school as follows.

- Plasma lesson make the students passive in learning because of lesson transmutation is one direction from the source to the learner. That means it could not control the learners filling and action rather than lesson transmission.
- It may not consider slow learners and students with disabilities
- It could not function in the absence of electrical power supply,
- There was no compensation of missed class because of electrical power breaking
- Its equipment is too expensive that the school cannot buy and repair the broken one.

4.3. Teachers' Response for Interview Questions

Table-11: Teachers response for the interview questions.

No	Items	Responses given
1.	Do you think the time given for plasma instruction in is enough?	- As we know plasma use 20 minutes for lesson presentation for a period and there is additional one non-plasma class in a week. This time was not enough for demonstration of effective lesson.
2.	Do you use plasma lesson instruction for your students always?	- Since plasma could not work properly I did not use it for teaching always.
3.	If you don't use it always as time table mention problems that hinder the usage of plasma lesson.	- Some plasma are not well done because of lack of some materials, electrical power fluctuation and breaking, over speed of plasma, shortage of time, no plasma guide to prepare before the beginning of lesson, mismatch of lesson with time table.
4.	How do you get the maintenance of plasma television for broken one?	- It stays unrepaired until the oriented persons come from TV-organization.
5.	Is there any responsible (trained) person concerning maintenance of plasma television in your school?	- No
6.	How do you cover plasma lesson missed by breaking of electrical power and other problems?	- Since plasma guide and other mechanism of substituting missed lesson was not found in the school it is impossible o cover missed lesson.
7.	What recommendation do you give to improve the plasma instruction? Why?	- There must be trained and responsible person for repairing and following channel disorder, the speed of plasma must consider slow learners and disabled students, it wants improvement of time, electrical power breaking should be under consideration, educational office must follow up the problem behind of this technology, plasma lesson guide must prepared and given for teachers, physics curriculum must consider and prepared including plasma lesson.

As teachers indicate during interview on the time given for plasma in teaching they imply plasma teach only twenty minutes per a period. Rather than time given for plasma there was one non-plasma period that only class teacher used per a week. As they said this and the other factors made the speed of plasma for demonstration of lesson was very high, which make teachers could not use plasma in teaching. Especially for physics subject since every unit and sub topics are related with problems and exercises for digging and investigating equations and examples given for them and to move with the speed of plasma time of presentation was very small.

On the other hand teachers arose that some plasma are not well done because of lack of some materials, electrical power fluctuation and breaking was seen, over speed of plasma, shortage of time, absence of plasma guide in the school was the factors which hinder its effectiveness and made to prepare on the lesson before the beginning its demonstration. Concerning of training given for operation and maintenance of plasma, almost all teachers didn't get short term training or orientation regarding plasma TV. They simply joined teaching through plasma TV without taking training. In case of this, Tewodros (2008) suggested that there were no sufficient awareness and assessment done before plasma introduced to our country. Some teachers told me that they couldn't operate and search program when disorder of channel occurs.

For the broken plasma, disturbance of channel and disorder of jacks and wires there were no efficient and trained person in the school. For the improvement of plasma instructional method teachers said it wants time improvement for the presentation of lesson, trained person in maintenance of plasma must available nearby in the school, breaking of broadcasting and matching of plasma time table from educational office and broadcasting time must be taken in consideration.

4.4. Directors' Response for Interview Questions

Table-12: Directors response for the interview questions.

No	Item	Response
1	Is there any plasma lesson prepared for physics with CD and computers? If there is how much it used with teachers?	- There were no computers and CD's prepared for the purpose of plasma lesson in our school.
2	How many plasma televisions are there in your school?	- Millennium high school- 18, - Shashemane high school- 30, - Shashemane preparatory- 15, - Bulchana preparatory- 12.
3	How many of them are working properly and how many of them went maintenance?	The following are plasmas not on work - Millennium high school- 5, - Shashemane high school- 11, - Shashemane preparatory- 6, - Bulchana preparatory- 0,
4	Who is responsible person to control the plasma lesson broadcasting for the schools?	- Academic director and unit leaders.
5	Is there any technician for repairing broken plasma televisions?	- No technician found to follow and repair plasma in our school but there were
6	Is there any training given in operating and using plasma television for teachers?	- There was no training given in our school, trained person was also not found.
7	What recommendation do you give to improve the plasma instruction? Why?	- Electrical power breaking should be under consideration, educational office must follow up the problem behind and give immediate solution, plasma lesson guide must prepared for teachers, breaking of plasma net work and mismatch of time table with channel transmission want solution, budget and electrical equipments for repairing was available.

For the first item directors implied there was no computers and other electronic device prepared for the purpose of plasma lesson in the school so that they did not use additional mechanism rather than channel net work for presentation of plasma lesson. During the interview administered for the school directors the researcher was also asked the number of plasmas found in the school. As indicated on table 12 above, there are 18, 30, 15 and 12 plasma televisions in shshemane millennium high school, shashemane high school, shashemane preparatory school and bulchana preparatory school respectively. From 75(seventy five) plasma televisions found in the selected schools 22(twenty two) plasmas are not working.

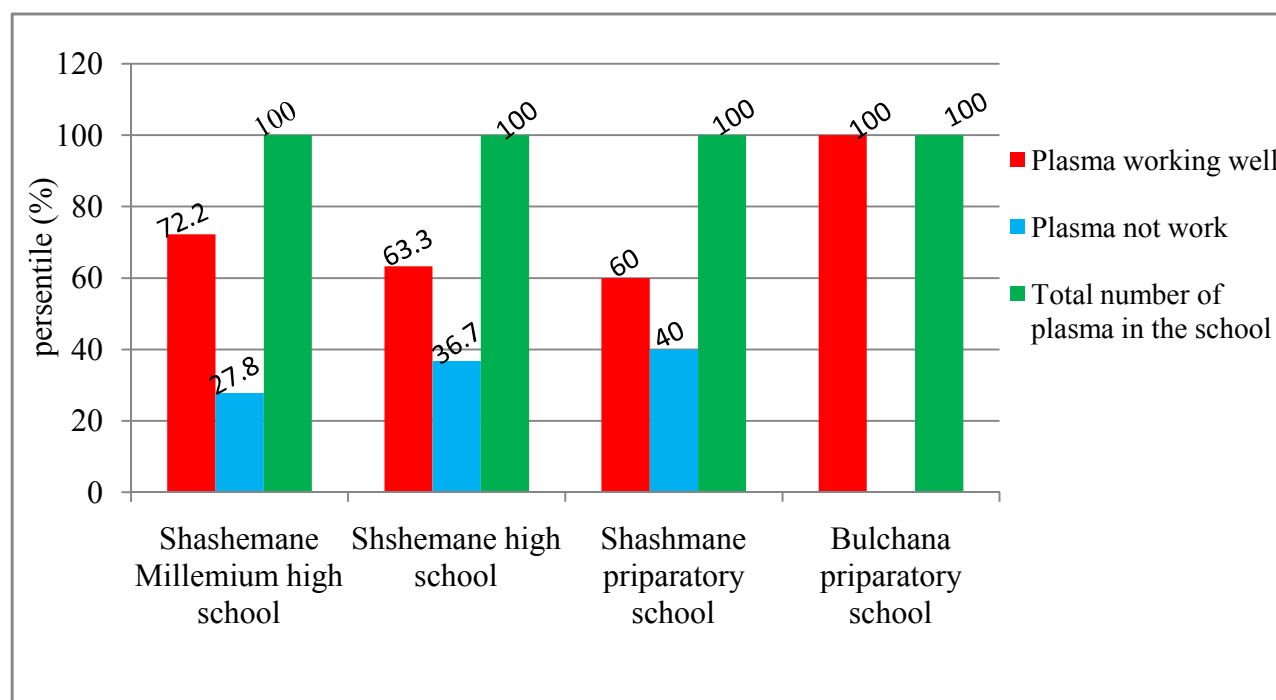


Figure-5: Percentile of total number of plasma in each school

As it was seen on figure 5 above, 27.8% of plasma in shashemane millennium high school, 36.7% of plasmas in shashemane high school and 40% of plasmas in shashemane preparatory school are not working. As the feedback given from the school administrator some of plasmas have problem of jacks, some of them have problem of channel splitter, there is also shortage of dividers, remote controls and etc.

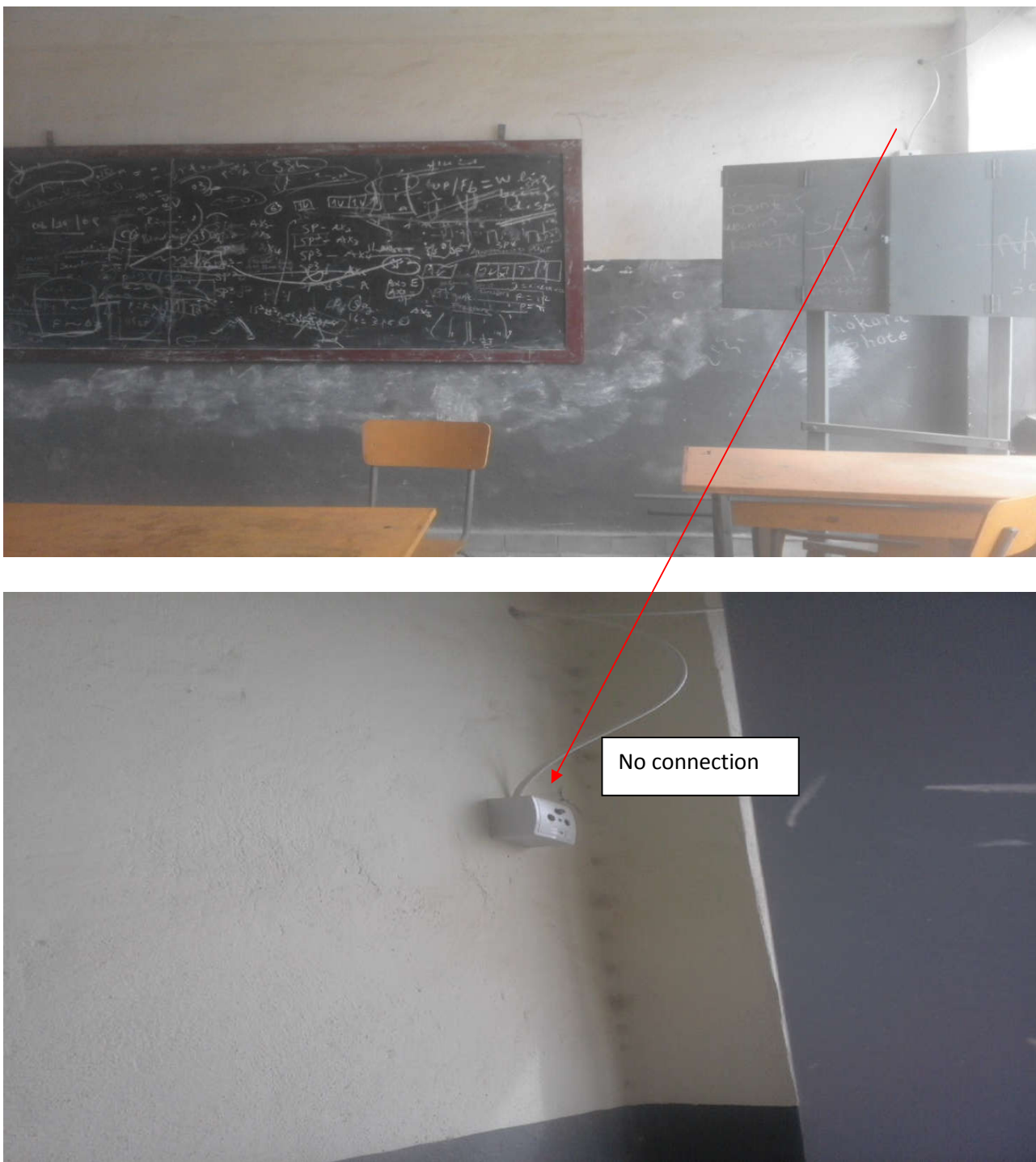


Figure-6: Plasma not working.

The school directors of each school confirm that there was no any orientation and training giving for teachers concerning plasma. Plasma was opened from plasma distributing class in the morning and put off tonight with academic director. Anto and Girma (2010) said in many schools, teachers are not well qualified to translate the curriculum into teaching/learning activities or to be the chief mediators between knowledge and learners. Their initial training, often the only one they have received, generally does not include the preparation of teaching materials or the use of contemporary technologies for teaching. This implies training before work and on work is available for workers.

As the school administration and management of academic teaching-learning process school directors argued their idea concerning the improvement of plasma. From these ideas some of them are: To maintain broken plasmas and to buy jacks and every electronic devices of plasma budget to the school were available, electronic devices like generator, solar and computers are available for the school, government should substitute old plasmas which did not function with CDs, DVDs and other hard discs with new model. Other than this they said, orientation and training on work should be given for teachers concerning the maintenance and operation of plasma, they must control channel braking, plasma lesson guide (reference book) should be prepared and distributed for the school, and plasma lesson program must coincide with plasma channel transmission.

5. SUMMERY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Summary

Based on the purpose of the study to investigate the impact of plasma television and its effectiveness in teaching physics in the secondary schools found in shashemane town, the researcher aimed to find the answer for the following questions:

- What are the factors which affect the plasma television teaching program?
- What is the effectiveness of plasma television teaching on the student's achievement?
- Is the time given for plasma television teaching program is sufficient?
- Is there any lesson (text book content) which is not covered by plasma lesson?

To find the answer for these questions data was collected through the students' questionnaire, teachers' questionnaire, interview for teachers and directors. From 4021 students learn in four secondary schools found in shashemane town 330 respondents selected randomly were participated in the study. In addition to this 18 physics teachers and 8 school directors were taken purposefully from these selected schools. The schools were selected for the study purposefully since plasma television teaching was given only in the government secondary schools (two high schools and two preparatory schools) found in the town. For students and teachers close ended and open ended questionnaires were prepared and administered. The interview was also given for physics teachers and school directors. The data which collected through closed ended questionnaire of the students and teachers was analyzed quantitatively by the statistical method like percentage, mean and the standard deviations using SPSS version 20 computer programs. Data gathered through interview were described qualitatively in order to support the data gathered through questionnaire.

Data analyzed from students' questionnaire indicated 66.7% of them agreed that plasma television teaching motivate the students in learning. But more of the students 52.2% argued that they could not understand language pronunciation when plasma teaching them. In other case 62.4% of them indicated that plasma television teaching method has contribution on increasing the students' achievement. Concerning portion coverage of plasma 44.5% of the respondents showed plasma was not cover the whole topics and sub topics of the students' text book while

25.2% of them remain neutral between agreement and disagreement. This indicate that plasma teach selective topics of the student's text book. On the other hand on the experimental demonstration of plasma 65.5% of the respondents agreed that plasma applied visual aids in teaching. 61.4% of them also said because of the speed of plasma it is impossible to take notes and important points when plasma teaches them. About 66% of the students showed their agreement learning through plasma has advantage to increase their achievement.

More over 54.2% of respondents said that class teacher has contribution to introduce, summarize and explain important points and problems before and after broadcasting. But 98.2% of the students showed that class teacher could not use other electronic materials to compensate lesson missed, which indicate that missed plasma lesson was not covered by class teacher. The students also indicate with mean 1.39 that plasma opened in their class and its teaching was given as schedule rarely through the year. For the time of teaching with plasma it indicated by mean 1.08 that time given for presentation in a period and time given for a week was insufficient.

Data analyzed from teachers' questionnaire implied by mean value 2.17 that teachers have neutral attitude on plasma teaching and mean of 1.18 indicate teachers disagree for plasma lesson that could understandable for the students. But mean 3.67 found in strong agreement that indicate teachers believe plasma increase students achievement. In other case the respondents revealed that language usage and pronunciation of plasma was difficult for the students to understand its concept. Mean value 1.28 also indicate teachers could not prepared on plasma lesson before broadcasting start.

Concerning the application of plasma on teaching all teachers indicated plasma teaches the students using experiments and visual aids. About 61.1% of them said plasma consider special need students specially hearing impaired students. On portion coverage about 83.3% of teachers agreed that plasma was not cover the whole portion of the students' text book. In other hand 66.6% of the teachers indicated agreement on that plasma contributes its value on the students' achievement. As we have seen from the teachers responses all of the teachers indicated plasma is important in delivering lesson supported by experimental apparatuses.

Teachers and directors also suggested during the interview, even if there were some problems which hinders the usage of plasma, its teaching method has advantage in improving and promoting the students achievement. The problems that hinder plasma teaching were: some plasma in the school was not work, time table for plasma and plasma broadcasting was mismatch, channel breaking was seen, there was no plasma guide for teachers and students, the speed of plasma was not consider the skill of learners and time given for plasma was insufficient.

5.2. Conclusions

Based on data analysis and interpretation the following conclusions are pointed out.

Teaching with plasma has advantage rather than using only class teacher in that plasma teach by experimentally supported visual aids, it provides similar lesson to the students throughout the country, plasma television has clear sound, color, font size, pictures and videos, using sign language for hearing impaired students and using exercises and examples. The study was also show plasma saves time, man power and finance in broadcasting from one center to all parts of the country. These factors imply the advantage of plasma in teaching.

As indicated by the study there are also some weakness and disadvantage of teaching through plasma in that top expensiveness of plasma equipments (spare parts of plasma), its speed could not consider the skill of all students, it was impossible to help slow learners and top learners differently through plasma, its teaching was only one direction so there is no feedback for the students question. These factors are directly or indirectly influence on teaching-learning process.

The factors which hinder the plasma lesson are: insufficient time given for presentation of lesson, over speed of plasma when teaching, breaking of channels, mismatch of plasma lesson with its time table, older plasma has no function with other electronic devices like hard disc and the other. As a result of these factors the students and teachers develop negative attitude on using plasma. It is also possible to conclude that the advantage of plasma is greater than its disadvantage. But, there was least awareness and management with the concerned bodies given to continuous broadcasting of instructional plasma television.

5.3. Recommendations

Based on the findings of the study the researcher suggested the following major recommendations to overcome the problem concerning plasma lesson on the students' achievement.

- Together with the school directors the educational office need to follow up the teachers and on work (short term) training should be given for maintenance and operating plasma.
- In order to present effective teaching and to increase the students' achievement enough time should be given for plasma.
- For the school directors additional make up class must prepared to help the students in giving exercises, tests and additional lesson.
- For government plasma lesson curriculum should be included in the physics curriculum and plasma guide must prepared and distributed for teachers and the students beside the distribution of the students' text book in order to teachers and students prepared on the lesson before the plasma lesson was started.
- For colleges and universities plasma long term training with ICT course will be given for all teachers during teachers training courses.
- To control the effectiveness of plasma government could be help the school financially and with material by supplying generators, solar, CDs, DVDs, computers, plasma jacks and other electronic devices related with plasma for every school.
- Foreigners plasma teachers must substituted by Ethiopians in order to overcome language barrier.
- Special need students must be in consideration in plasma lesson especially for sight impaired students brails should be distributed for every school.
- Plasma spare part devices will be excessively imported and distributed on the market in order that the schools buy every device for maintenance.
- For the oriented body breaking of plasma channel network and mismatch with time table should be controlled.

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Appendix-A
Adama Science and Technology University
School of Applied Natural Science
Applied physics program

Students' Questionnaire

Dear students

I am conducting a research on the impact of plasma television teaching on the students' achievement concerning physics in focus on grade 9-12 students found in shashemane administrative town. As you learn physics as a subject and using plasma television instruction your sincere responses to the questions below are of great help for the success of this study. Therefore, you are kindly requested to give genuine responses that will be kept confidential. As you give your response, you are not required to write your name.

Thank you in advance for your cooperation.

I. Personal Data

1.1. Grade level _____

1.2. Sex _____

1.3. Name of the school _____

II. Students attitudes in learning through plasma. Put tick mark (√) in the space provided.

Remark: 1-Strongly agree, 2-Agree, 3-Neutral, 4-Disagree, 5-Strongly Disagree

No	Students attitude	1	2	3	4	5
2.1	Plasma television motivates the students to learn.					
2.2	Plasma teacher's pronunciation is clear for the students to learn.					
2.3	Plasma teaching- learning method initiates the students in thinking.					
2.4	There is contribution of plasma television in improving student's achievement.					
2.5	Instructional plasma covers all topics and sub topics of student's text book more enough.					

2.6	Plasma explain lesson in clear and understandable manner.					
2.7	Plasma uses all experimental equipments to demonstrate practical works.					
2.8	Students have highly interested to learn through plasma.					
2.9	Taking note is difficult during plasma instruction.					
2.10	There is advantage in learning physics with plasma when compared with class teacher.					

2.11. List some advantages of leaning through plasma compared with class teacher?

2.12. What is the disadvantage of plasma lesson?

III. Class teacher's contribution during plasma teaching. Put tick mark (✓) in the box given under the statement.

No	Item	Yes	No
3.1	The teacher rearranges and opens plasma before plasma lesson and encourages the students to follow the lesson interestingly.		
3.2	The teacher writes some important formulas and definitions on the black board while broadcasting.		
3.3	Class teacher has contribution during broadcasting.		
3.4	The teacher explains unclear ideas and summarize plasma lesson after broadcasting.		
3.5	The teacher gives us plasma lesson with CD's and computer's when broadcasting is breaking.		
3.6	Our teacher has interest in teaching us through plasma.		

IV. Plasma time management. Put tick mark (✓) in the box given under the statement.

No	Item	Options				
		Never	Rarely	Undecided	Some times	Always
4.1	Plasma television was opened for the students.					
4.2	Plasma broadcasting program is given continuously through the year.					

V. The speed of Plasma. Put tick mark (✓) in the box given under the statement.

No	Item	Options				
		More Insufficient	Insufficient	Fair	Sufficient	More sufficient
5.1	What do you think about the time given for presentation of plasma lesson for a period?					
5.2	What do you think about the time given for plasma for a week?					

5.3. How do you learn the missed plasma lesson?

5.4. Mention some comments on the method of improving the plasma instruction?

Appendix-B

Adama Science and Technology University

School of Applied Natural Science

Applied physics program

Teachers' Questionnaires

Dear teachers,

I am conducting a research on the impact of plasma television teaching on the students' achievement in focus on grade 9-12 students found in shashemane administrative town. As you teach physics, your sincere responses to the questions below are of great help for the success of this study. Therefore, you are kindly requested to give genuine responses that will be kept confidential.

Thank you in advance for your cooperation.

I. Back ground information

1.1 Name of the school _____

1.2. Sex: Male ☐ Female ☐

1.3. Age: 20-30 ☐ 31 -40 ☐ 41 -50 ☐ 51 -60 ☐

1.4. Level of Education: Diploma ☐ Degree ☐ Masters Degree ☐

Others ☐

1.5. Service years

0 -10 ☐ 11-20 ☐ 21-30 ☐ 31-40 ☐ 41-50 ☐

II. Teacher's attitude in teaching through plasma television put (✓) mark on the space provided below.

Remark: 1. strongly agree, 2. Agree, 3. Neutral, 4. Disagree, 5. strongly disagree

No	Item	1	2	3	4	5
2.1	Do you have interest in teaching through plasma more frequently?					

2.2	Do you believe that plasma lesson is understandable and clear for the students?					
2.3	Plasma teaching instruction increases the student's achievement.					
2.4	The students understand pronunciation and language usage of plasma teaching clearly.					
2.5	The students having interest to learn through plasma than class teacher.					
2.6	Do you prepare on plasma lesson before plasma start broadcasting the day's lesson?					

III. Yes or No column on the Application of plasma lesson on student's achievement. Put a tick mark (✓) on the yes and no column.

No	Item	Yes	No
3.1	Is plasma television uses clear introduction, presentation, summarization and evaluation?		
3.2	Is plasma lesson cover all portion of the student's text book?		
3.3	Is plasma lesson uses all experimental apparatus and equipments to demonstrate quality lesson?		
3.4	Is plasma lesson initiating the students in solving problems and practical work?		
3.5	Plasma teaching method encourages the students in group discussion.		
3.6	Is there plasma television teaching consider special need students?		

IV. Time usage of plasma television on students learning put (✓) mark on the choice you select.

4.1. Do you think time given for plasma instruction in a period is enough?

A/ More sufficient B/ Sufficient C/ Faire D/ Insufficient E/ More Insufficient

4.2. What do you think about the time given for plasma lesson for a week?

A. More sufficient B.sufficient C. Faire D. Insufficient E. More insufficient

4.3. What do you say on the speed of plasma lesson for the students in solving examples and problems? A/ More sufficient B/ Sufficient C/ Faire D/ Insufficient
E/ More Insufficient

4.4. Do think teaching through plasma has advantage? If your answer is 'yes' list some advantage of using plasma than class teacher.

4.5. What is the disadvantage of teaching the students with plasma? Mention some of them.

Appendix-C

Adama Science and Technology University

School of Applied Natural Science

Applied physics program

Interview prepared for physics teachers.

Dear teachers,

I am conducting a research on the impact of plasma television teaching on the students' achievement in focus on grade 9-12 students found in shashemane administrative town. As you teach physics, your sincere responses to the questions below are of great help for the success of this study. Therefore, you are kindly requested to give genuine responses that will be kept confidential.

Thank you in advance for your cooperation.

1. Do you think the time given for plasma instruction in a period is enough?
2. Do you use plasma lesson instruction for your students always?
3. If you don't use it always as time table mention problems that hinder the usage of plasma lesson.
4. How do you get the maintenance of plasma television for broken one?
5. Is there any responsible (trained) person concerning maintenance of plasma television in your school?
6. How do you cover plasma lesson missed by breaking of electrical power and other problems?
7. What recommendation do you give to improve the plasma instruction?

Appendix-D

Adama Science and Technology University

School of Applied Natural Science

Applied physics program

Interview prepared for school directors.

Dear directors,

I am conducting a research on the impact of plasma television teaching on the students' achievement in focus on grade 9-12 students found in shashemane administrative town. As the school director your response has great contribution for the success of this research. Therefore, you are kindly requested to give genuine responses that will be kept confidential.

Thank you in advance for your cooperation.

1. Is there any plasma lesson prepared for physics with CD and computers? If there is how much teachers use them?
2. How many plasma televisions are there in your school?
3. How many of them are working properly and how many of them went maintenance?
4. Who is responsible person to control the plasma lesson broadcasting for the schools?
5. Is there any technician for repairing broken plasma televisions?
6. Is there any training given in operating and using plasma television for teachers?
7. What recommendation do you give to improve the plasma instruction?