Principals' Leadership Performances in implementing ICT in Government Secondary Schools of West Showa Zone

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Principals' Leadership Performance in Implementing ICT in Government Secondary Schools of West Showa Zone

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This is to certify that the thesis prepared by Kumela Feyisa Entitled: Principals' Leadership Performances in implementing ICT in Government Secondary Schools of West Showa Zone and submitted in partial fulfillment of the requirements for the degree of Master of Arts (Educational Leadership) complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

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Acronyms

CITEd	Center for Implementing Technology Education
GEQIP	General Education Quality Improvement Package
GICTWEF	Global Information Technology World Economic Forum
ICT	Information and Communication Technology
ISTE	International Science and Technology Education
IT	Information Technology
MoE	Ministry of Education
OECD	Organization for Economic Cooperation and Development
PSTV	Plasma Satellite Television
SPSS	Statistical Packages for Social Sciences

Abstract

The purpose of this study was to investigate Principals leadership performances in implementing ICT in Government Secondary schools West Showa Zone. To this end, descriptive survey, with both quantitative and qualitative, research method was employed. In this study, 18 school principals, 8 supervisors, 102 teachers, 65 students, and total193 respondents took part from 10 sample government secondary schools. Close and open ended questions, document analysis, interviews guided questions and observation check-list were developed and fully utilized as the main data gathering instruments. Data were analyzed using frequency counts, percentages, mean value, t-test, grand mean and rank order. Findings showed that the majority of the school principals, low ICT use. Besides, ineffective/inadequate performances were experiences by the principals in discharging their leadership roles of implementing ICT. It further investigated that inaccessibility of computer and computers related ICT facilities, budget constraints, lack of ICT knowledge bases to date training and to upgrade hard ware and soft ware; ICT technicians, and inadequate multifaceted support were the fundamental challenges that west Showa government secondary schools principals currently confronted while implementing ICT.

To alleviate the existing challenges and promote effective ICT implementation, it is recommended that the government should facilitate ongoing training for school principals to boost their ICT capacity and perform their roles effectively. Besides, the schools principals should identify and effectively perform their roles of implementing ICT in teaching and learning. The government should also allocate budget, assign trained man power and redress continuous follow up of ICT progress and take appropriate remedies. And finally forward further study on the issue was recommended.

CHAPTER ONE

INTRODUCTION

This chapter provides the background of the study, statement of the problem, objectives, delimitations, and limitations of the study, and operational definitions of terms used.

1.1. Background of the Study

Education is a pervasive practice and thereby it lies at the heart of all stages of socio-economic and political developments. It has the ultimate aims of strengthening individuals and society's better living standards, reducing poverty, improving health, and promoting democracy (MoE, 1994). Thus, nations have been shifting their education systems from centralization to decentralization at school bases and implementing different policies, programs, strategies and packages to get the intended objectives and ensure quality education. Key to these successful was and is a recently introduction of Information and Communication Technology (ICT) in schools to prepare pupils with the 21st century skills and cope up with the global changes.

According to some scholars (e.g. Davidoff, and et al (1994); Hopkins (2000); and Wallace (2011), decentralization of education system is devolving authority to school levels and put unprecedented responsibility on principals as school leaders to guarantee quality education, to evoke and sustain staff motivation, creativity, accountability, organizational development and to act as a role model in terms of the choice of school needs and ethos. Furthermore, as indicated in Wallace (2011) school principals recently as leaders slowly but surely shifting from traditionally "organizational man" (an over-seer of buses, boilers, and books) to responsible and effective leadership that focuses on "what is essential, what needs to be done and how get it to be done."

However, school principals required to have the capacity to discharge their roles in cope up with the scientific and technological advancements. The use of technology has improved living environment and increased human welfare (as Shen cited in Chang, and et al., 2008). Hence, nations have been turned their attentions to the use of different

types of technologies in trade, entertainment, health care, tourism, transportation and educational institutions quality of life and day today activities. Nowadays computers, internet, e-mail, Plasma Television and other related collection of technologies are used for teaching and learning activities in schools curriculum. That is aimed to increase access and improve student learning, for instance, "ICT enabled education in Africa" (Berger and Reeds, 2007). Principals' current leadership role was changing to the leading student learning, setting school vision, playing facilitative and supportive leadership as well as to a more recently technology leader (ISTE, 2001 as cited in Chang, 2008).

Nevertheless, GICTWEF (2002, p39) identified fundamentals of effective ICT implementation. These are encompassed lack of accessibility to ICT tools due to cost of computers, no or little ICT professional development to the implementing bodies (teachers and principals), absence of comprehensive ICT policies in education and lack of support as core challenges in implementing ICT in schools of sub Saharan countries. Principals' overloaded works including routine activities make busy them not to have time to use and provide supportive to the school community (Sargeiovanni (2009, Pp.20-22). As the result, the small number of students and the implementing bodies touch computers in their schools.

Today thinking about the world without information technology is not possible and something that cannot avoid using. As it is a matter of necessity, not a matter of options, nations have been formulating and implementing policies and strategies to support better student learning. The introduction of Information and Communication Technology in secondary schools of Ethiopia's today context may create opportunities for school principals, teachers and students for ICT use or computer skill practices.

In support to this, MoE (2010) stated that "just as a person needs to be literate-able to write and read-in order to use books, so a person nowadays, needs to have ICT skills in order be able the various information and communication technologies that are available today". Thus, the use of ICT, possesses computer basic competence/skills relatively make principals to have performance of providing support student learning and enable them contribute to socio-economic development of the country. Hence the responsibility of

realizing this innovative educational technology in secondary schools currently added on the shoulders of schools principals' leadership and thereby honestly responsible to discharge and timely to use computers, to assist teachers and equip students with technology based basic skills to overcome technology age challenges.

Therefore, being based on this contemporary nature of ICT, the study was tried to investigate school principals' leadership roles and challenges in implementing ICT as well as recommend possible solutions to alleviate problems with particular reference to West Showa Zone Government Secondary Schools.

1.2. Statement of the Problem

The globalization pressure brought about a paradigm shift in education to assure quality education. Now days quality education has become countries' agenda on how the young generation better learn to be competent and cope up with the changing world. To this end, governments in developed and developing world have formulated policies and strategies and have invested huge resources to the implementation of Information and Communication Technology (OECD, 2004). ICT has been significantly changing the socio-economic conditions of the world mainly the education sector. Worldwide, the utilization of Information and Communication Technology (ICT) in education has been regarded an essential factor for economic growth (Kozma, 2005). The role of ICT in educational development is established – even to the extent that it is believed there would be no educational development without ICT (Selwyn, 2002; Waters, 1998). Thus, ICT has the potential to increase productivity, competiveness and creativity skills, provide relevant education and better student achievement.

However, technological advancement does not implement in an evenly distribution pace. Ethiopia attempts to devise various strategies to deliver quality, equitable, accessible and relevant education to its citizens launching at secondary school, reduce poverty and align her by 2025 along with middle income countries. Key to this vision was successful implementation of Information Communication Technologies (MoE, 2004, & MoE, 2012). But, in any school change effort the role of school administrator through every stage of implementation is critical (Becta, 2007, Anderson & Dexter, 2010). According to

Betz (2011), implementation of ICT in schools would be successful when school leader supports, learns, provide up to-date infrastructure, adequate professional development and support staff during its implementation. School leadership determines success or failure of schools to implement ICT in its activities (Schiller, 2011, Hennessey, 2010, Aguyo, 2010, Chang, Chin & Hsu, 2008). Implementation of ICT would manifest itself by the way the school leaders use ICT and encourage others to use it.

Studies on ICT implementation have been much limited in Ethiopian context more specifically on those schools in country sides. Few works on ICT were most likely confined to government and non-government higher education and TVET Colleges (e.g. Miressa, 2007; and Assefa, 2008) and pointed out scarcity of resources, lack of trained and skills man power in effective implementation of ICT. Few existing studies in secondary schools of Ethiopia mainly concerned with teachers, students and parents' perspectives to the application, effectiveness of plasma in instruction (Ali, 2005, Etageng, 2010) and factors affecting the implementation of ICT (2010,Yiftusira, 2003). However, as far as the knowledge of the researcher, literatures contribution to the study about ICT with particular reference to school principals leadership performances have been much limited and need further investigation.

Besides to this, there were different rumors and complaints among the school stake holders and officials of different ladders regarding actual implementation and challenges of ICT in the schools which surveyed in this study. Moreover, the researcher has come across while attending M.A program that most of the colleagues' schools principals and supervisors' educational leadership M.A trainees have low performance of use computer and related facilities. They observed inadequate knowledge and skills to make assignment class presentation and to retrieve information using computer. If so, what is going at the schools level in actual fact came to sense and generate questions in the mind of the researcher. Due to these and other timely noted nature, the researcher has sensed and triggered to study the current actual school principals leadership performances in implementing ICT. This study differs from the previous studies because it seems the first study that concerns principal leadership performances in the implementation of contemporary technology, that is, ICT in the country, focused on schools in country sides

and principals' roles from the current point of view of "National Professional Standard for School Principals (MoE, 2012).

On the basis of this problem statement, the following basic questions were constructed to address the gap.

1. To what extent do principals effectively use ICT/computers in the schools?
2. How far the school principals discharge their leadership roles in implementing ICT?
3. What are the possible challenges the principals encountered in implementing ICT in Government Secondary Schools of West Showa Zone?

1.3. Objectives of the Study

1.3.1. General Objectives

The general objective of the study is to assess school principals' leadership performance in implementing ICT in Government Secondary Schools of West Showa.

1.3.2. Specific Objectives

Specifically this study tries to:

- Examine the extent of principals' ICT/computer use in the schools?
- Assess the school principals' leadership effectiveness in discharging their leadership roles of ICT implementation?
- Identify the possible principals' challenges in the actual implementation of ICT in West Showa Zone Government Secondary Schools.

1.4. Significance of the Study

A study on "school principals' performances in implementing ICT in Government secondary schools of West Showa Zone has expected numerous significance that

It serves the principals as a mirror to see them where they are in ICT use in teaching-learning in the way to produce competent, efficient and productive generations at this level; it makes the school principals to discharge their leadership roles effectively.

Besides, it may awake decision makers to give emphasis and address serious challenges in implementing ICT and in turn improve student learning, it may become milestone and contribute for the country's near future program to start on-line education in all secondary schools.

At last but not least, it may contribute to fill information gaps and serves as spring board to educational leaders and other researchers to conduct comprehensive and detailed study in the area.

1.5. Delimitation of the Study

The use and implementation of information and communication technology in education of today's schools system is a cause of concern all over the country. Due to cost, and resource constraints, it would be unpractical attempts to carry out the study in all ICT issues and all secondary schools in the country, region/s, and even all zones. Therefore, this study was delimited to 10 Government secondary schools of West Showa Zone. Beside to this, the study was confined to principals' leadership performance in implementing ICT. Moreover, Principals, teachers, students and supervisors were respondents of the study due to the aforementioned reasons, manageability of the study and faire representation of the entire population.

1.6. Limitation of the Study

Many research authorities believe that any research work cannot free from certain short comings. Because of the novice researcher, the newness of ICT in school environment, inadequate domestic (ICT-school leadership) sources/documents would at least affect the

results of the study. Secondly, survey study is more of a one shot process. That is, it is not usually possible to get representative data on what the school principals effectively use ICT and discharge leadership roles. Finally, small number of respondents was lacked seriousness in filling out the questionnaires.

The other short comings came from actual observation of computer labs and class rooms' plasmas utilization in instruction in few schools as it found to be locked, and not in function due to either already stopped or light discontinuity. Despite of this, the study was plainly managed and completed.

1.7 Operational Definitions of Terms Used

Challenges: major problematic factors affecting the roles of school principals in implementing Information and Communication Technology in West Showa Zone secondary schools

Effectiveness: Working better to produce or achieve the desired common goals.

ICT: ICT concerns with the full range of computers and computer related basic knowledge and skills which required to use and provide facilities such as hardware and software, internet, e-mail, power point presentation, and Plasma Satellite television in the learning environment and in turn to achieve better students learning.

Implementation: the put into effect of the designed objectives.

Partnership: Creating cooperation and smooth relationship with in and outside the school to get technical, financial and material assistance and promote ICT implementation.

Performance: The extent of competence of ICT use and provide support by the school principal to discharge his/her leadership roles in implementing ICT.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter focused on principals' leadership performances in implementing ICT in the learning and teaching environment. Thus, the chapter has highlighted on ICT and its potentials, ICT implementation, Principals ICT preparations, use, and principals ICT competence and its preliminary conditions, Principals leadership roles of dimensions and possible challenges implementation of ICT in learning environment.

2.1. Information and Communication Technology (ICT)

2.1.1. Meaning of ICT

There is no universally accepted definition of ICT for its concepts, methods and applications are constantly evolving on almost daily basis. It is defined as the catch of any technologies used for gathering, processing, storing, retrieving, manipulating, analyzing and transmitting information. That is, ICT is a technology required for information processing, and telecommunication including audio and video, multimedia, computers, hard ware and soft ware, satellite television, internet, e-mail, robots and radio using in a digital form (Anderson, 2008). The above definition pointed out that ICT is the umbrella term which stands for the use of different technologies. But, in this study we mean that ICT includes main components of technologies the secondary schools currently used. These are computes and Plasma Satellite Television technologies.

2.1.2 The potentials of ICT

Today, almost nations turn faces to various types of technologies which support over changing day today activities, current standards of living in transportation, work, entertainment, business, health care, and education basis (UNESCO, 2002). However, ICT is not the cause of the changes we are living through. Without new information communication technologies what is changing our lives would be impossible (Castells, 2011). Thus, technological developments including Information and Communication Technology (ICT) is nowadays being taken up and its potential use is being

overwhelming the world over. In relation to this, UNESCO (2002) claims that ICT as one of the "the basic building blocks of modern society." Similarly, ICT have become indispensable tools in today's information age, making a dramatic impact on the lives of the people globally. The impact of ICT on society through education is so enormous that different types of computer software programs like Computer Assisted Instruction, Computer Based Instruction, Computer-Based Education, Computer-Assisted Learning, M-learning, Web-based learning, Multimedia and ubiquitous learning are begun to function in education (Dede, 2008; Anderson, 2008; Watson, 1994, Voogt & et al, 2008) that schools have great responsibility to educate the young and fit the work environment.

2.2. The Rationale of ICT Implementation in School

Research out comes indicate that ICT has positive contributions in teaching and learning process. For example, UNESCO (2002) emphasized that the introduction of ICT in schools has brought about a more positive attitude to school among learners. Loxley and Julien (2006) , cited in Mirressa (2007) have summarized that ICT is less directive and more student centered teaching and increased emphasis on individualized instruction, increased interest in teaching and learning, broadening teachers and students knowledge and skills, increased technology utilization and productivity and accelerate rethinking. Tissue (1997) adds more common reasons for the incorporation of Information and Communication Technology in the learning environment as access to education, help to produce skillful personnel for competitive job market, and increase in productivity. All listed studies carry the same assumptions though different only in explanations.

Thus, school principals need to master the effective use of technology (e.g. computers, Internet, and Plasma Television) in order to use and capable to prepare their students for information age challenges. In connection to this, recent studies provide information on the implementation of technology into schools, including the use of desktop computers or laptops; word processing, spreadsheet and other software programs; and web technologies used for educational purposes (Cakir , 2012; Gulbahar, 2007). To this end, nations have made relentless efforts in investing huge resources for ICT implementation in education to produce skilled man power to fit socio-economic development.

2.3. World ICT Experience

Twenty-first century education, the implementation of ICT in school has taken place in various ways, to different degrees, and with diverse outcomes.

A study conducted by Norway's national ICT project (PILOT) on the kinds of ICT implementation and utilization strategies used in the lower secondary schools and shows successful because suitable implementation strategies, interdisciplinary cooperation, collaboration, and inclusion (Krumsvik, 2005). But, the study did not indicate ICT staff development particularly for school principals and teachers.

Forkosh-Baruch, Mioduser, Nachmias & Tubin (2005) have examined six Israeli schools (elementary, lower secondary, high, and secondary schools) with focus on implementation of ICT and observed that initiation by a leader and changes in the teacher role, and teacher-student relationships. Hence, the principal's vision and motivation has a prime importance in school wide technology implementations.

A study on ICT issue from the other corner, for example, carried out in Malaysia, South East Asia, entitled "ICT utilization among teachers and principals" with a representative sample of 260 school teachers, supervisors and principals. The finding of this research demonstrates that most of the schools do not have ICT policy at the school level. Expertise and skills are not integrated with educational leadership or with in class room teaching purposes. Rather they are used ICT for daily administrative purposes (Zohora and et al., 2012). Thus, ICT use in teaching -learning by the school leaders seems low which has congruence with current study.

Having its potential role, the continent of Africa has started to embrace ICT which "enabled education in Africa" (Bergers and Reed, 2007). Different parts of the globe including the poorest corners of the world sense its implementation in their education system (Martin, 1999) among which Ethiopia is one (Tasfaye & et al., 2010). Educational institutions in developing societies may not be achieving their educational objectives without the support of multimedia (Aggrawal, 1996) though lots of problems might be encountered while implementation.

2.4. ICT Experience in Ethiopia

In Ethiopia, modern education was started just this century before aiming to bring modernity. However, the past education and training policy lacks quality, relevance, and diversified objectives that have leaded to huge educational wastage (TGE, 1994). Owing these facts the country has been devising various paradigm shifts in respect to teaching and learning practices despite the fact that too much remain to be done (Ali, 2005). ICT is one of the General Education Quality Improvement Program. The reason behind devices of the package believed to eradicate problem of quality education and an attempt of long vision to align herself along middle income countries in 2025 (MoE, 2012).

2.4.1. ICT Vision and Implementation Strategies

The country ICT Vision document referred to "Ethiopia's ICT for development 2010 plan and implementation strategy". To ensure the optimization of the role of ICT that plays in education sector, the country has been relied on three main initiative strategies which include: Ethiopian National School Net Initiative, National ICTs in Higher Education Initiative, and the National ICT Education, Training and Awareness (Hare, 2007). The National School net initiative, for instance, is aimed at the deployment and the exploitation of ICTs to facilitate the teaching and learning process within primary, secondary, technical and vocational schools through the proposition of School Net Ethiopia. But, the policy and implementation strategies did not clearly say about the readiness of implementing bodies particularly teachers and principals.

2.4.2. Plasma Satellite Television and Its Introduction in Secondary Schools

Educationists have the opinion to tackle educational challenges relating to quantity and quality through the proper utilization of instructional technologies. Electronic media can be utilized in the classroom as part of instruction to improve students' 21st century knowledge and skills (UNESCO, 2002). Educational Media Agency of Ethiopia launched teaching ICT (Satellite Television instruction or Plasma) in secondary schools of the country in 1997 E.C./2004 (Petros, 1996) that aimed to produce skillful and competent work force. However, there were hearings of some complaints in its early implementation

(Tessema, 2004; Lemma, 2006; & Ali, 2005; Getinet, 2006). Currently, there are also hearings that the delivery of lessons through PSTV interrupted for a while. Thus, lots are remained to be done. However, national vision plan and implementation strategies, give expectations about the presence of ICT and other related facilities in secondary schools for students' learning by doing. Now days, there is observable at least presence of computer on the desk in front of secondary schools principals (Arthur, 2011). Having acknowledged the potential roles of ICT in teaching and learning environment which we discussed above in a full circle, it is very important to draw framework for the current study-principals leadership role and challenges in implementing ICT in secondary schools of west Showa Zone.

2.5. Conceptual Framework

As discussed earlier nations have been made relentless efforts to assure quality education and hence implementation of ICT. Ethiopia has also recently launched the implementation of ICT in secondary schools as an element of General Education Quality Improvement Packages (GEQIP) to achieve 2025 vision-align herself with middle economic income nations. To this end, the country set out "National Professional Standard for School Principals" (MoE, 2012) as key element for successful educational reforms, and package which includes ICT. Principals are the key players in educational change process (Baiely & Ross, 1996).

Thus, the current study assessed principals' leadership performance in implementing ICT by referred the idea of Technology Acceptance Model (TAM) particularly readiness to accept ICT in the schools (e.g. attitude). According to this model, success of technology implementation has the reflection of accept and use (Fishbein and Ajzen, 1975). The current researcher has not adopted any phrase from the original model but assumed success of ICT implementation in schools as the result of preparations of the implementing bodies like the principals. Therefore principals' ICT use, ICT preparations like received ICT training/professional development, and ICT competence used as a conceptual framework in the study. In addition, seven primary principals role of dimensions-set school ICT vision, lead change, provide staff development, multifaceted

support, research and evaluation, and creating partnerships were designed as conceptual framework in accordance of current national professional standards for school principals (MoE, 2012).

2.6. ICT implementation, and ICT use

2.6.1 ICT Implementation

Implementation is so broad that embraces different aspects, for instance, of continuation of the process even after the plans are tried out and secure resources. Different authors give different explanation to what implementation means though carry similar meaning. Fulan (2001) elaborated implementation as the process of putting into practice an idea, program, or set of activities that attempt to change. It seems that implementation is critical for the desired objectives and the machination of actual application of a designed dream, in this case ICT implementation.

2.6.2. ICT Use and Competence

School leadership determines either success or failure of schools to implement ICT in its activities (Schiller, 2011; Hennessey, 2010; Aguyo, 2010; & Chang, 2008). In the information and technology age, school principals must possess computing capabilities (Felton, 2006, Attaran & VanLaar, 2001). Thus, they should use technology and understand how it can be effectively used in learning, teaching, and school administration. In connection to this, Schiller (2003), having conducted a quantitative study on 369 principals to assess the level of their use of computers and their perceived competencies in using various elements of ICT in Australia, reported that principals highly utilized computers skills in word processing, sending and receiving e-mails, and accessing the worldwide web. But they were founded to be less in construction of spreadsheets, databases, and presentations.

However, experiences show that principals are not used ICT effectively for they are not computer illiterate and ICT inaccessibility. If leaders use technology and realize its use in education (Starr, 2009), and their frequent use of ICT in administrative and instructional tasks (Stuart and et al., 2009), then technology use in school is more likely. Hence, school

principals learn how to utilize new technologies in education. Starr (2009) best summarized principal ICT use and basic computer skill practices in replaying to questions include: What do schools administrators need to know (how to use word processing, the Internet, how to use e-mail, the status of technology on their campus, which teachers are -- and are not -- using technology)?

2.7. Principal Leadership and ICT: Principals' Leadership Role of Dimensions in Implementing ICT

Leadership has today become a very complex phenomenon because of the complexity of industrial, social or political organization, globalization and become inevitable with technological advancement including the introduction of Information and Communication Technology in the learning environment (Wallace, 2011).Thus, changes in education system has been added broad responsibility on the shoulders of school principals to perform the role of leading change, creating vision, planning, implementing strategies, communicating objectives, and providing ICT staff development, partnership (Wallace, 2011; MOE; 2012). However, principals' all round effectiveness are being critical.

"Teachers often come under fire for their failure to fully integrate technology into their classrooms. Until recently, however, very little has been said about the role of school administrators in technology implementation/integration" (Starr, 2009). Similarly, Fullan (2001) argued that effective principals help to address the "multiple innovations" by working on program coherence. Moreover, Becta (2007) summarized, after comprehensive survey primary and secondary schools in UK, that good leadership was a critical factor in the development of ICT maturity and recommended that courses on strategic leadership in ICT should be made available to middle management and those working to support schools in implementing new ways of working with ICT.

The researcher agrees that principals have immense roles to play in prioritizing, facilitating and in modeling the school community. In connection to this, Strong principals' leadership together with other school leaders in an educational setting of

change process must play multiple roles as role model, leader, motivator, resource provider, and facilitator. Principals who exhibited leadership in a technology initiative were instrumental in modeling the use of technology in the schools (CITEd, 2006). Thus, the following point attempts to look into principals' leadership roles of dimensions in implementing ICT.

2.7.1 Create School ICT Vision, Goal Setting, and Planning

Very effort to bring about change initiate something new logically should begin with a plan. Good plan begin with a vision and goals, that is, determining direction and purpose. Recently governments of particularly developing nations including Africa have globally been challenging to meet the growing demand for the delivery of affordable education services to its populace and hence promulgating comprehensive ICT planning and implementation strategies became a cause of concern (Guile, 1998; Kanungo, 1998).

Ethiopia on her part declared a 2010 ICT policy and implementation strategies (Hare, 2007). By now, the vision extends to 2025 inclusive of Grand Transformational Plan with special attention to this innovative technology in the package. School vision and goal setting, therefore, are concern area of school principals' role look into consideration for full-fledged successful ICT implementation. Ubben, and Hughes, (1997) hold that:

> *Principals of effective schools are strong instructional leaders who know how to manage time and money effectively...they concentrate on priority goals...they set as their main goal the acquisition of basic skills...effective principals have high expectations for all students and they were enlist the support of others in meeting common goals(*Ubben,et al.,1997, p.1*02)*

Effective school principals, who use the virtue of their position, design short and long term visionary plan inclusive of time, financial resources, infrastructures, and encourage active involvement of the stakeholders for its practical realization.

Bishop, (2012) creating vision and planning of how technology should be used by teachers and students is a significant indicator of a principal's technology leadership. Principals must have a clear and brief technology vision and understand technology

implications for the school. In contrary, lacks vision means lacks directions. In conclusion, without vision means, staff members who lack direction and guidance for technology integration do not success. Thus, the school principals have required articulating school vision, and preparing participatory plan among stake holders in and outside schools

2.7.2 Leading/Managing Change

As the proverb says, 'The bird carries the wings and the wings carry the bird.' You can lead the effects of change maybe, but positive, desirable change always calls for leadership (John Adair, 2007). Hence, change and leadership are closely intertwined. Change throws up the need for leaders; leaders bring about change. Leading change is one of the most important roles of the school administrator. In a similar fashion the principal must be able to play typical role in defining duties, responsibilities, power and authority in a manner that best realizes the purpose of the institution in school context. That is, he must develop an internal staff organization with clear lines of authority and responsibility (Olaniyan & Ojo, 2008).

Leaders who are engaged in change work also must understand the changing situations. But, one of the difficult issues associated with leading change is the inability to identify what should never change (the things that make the organization successful) and what must change because it does not support the future. Along with leading change, Senge (1999), as cited in Valdez (2004), identifies five "component technologies": Systems thinking, personal mastery, mental models, team learning, and buildings shared vision.

Dwyer, Ring Staff, and Sandholtz, (1997) pointed out change creating conducive school atmospheric condition and planning for technology use in intertwining to district, regional and national policy/vision. Thus, successful implementation particularly ICT needs leading change. This is the point that the researcher wants to shower light more on how far principals' effectively perform their leadership roles of implementing ICT included in this study, that is, "the big picture" (Cortada, and James, 2010).

2.7.3 Provide ICT Staff Professional Development

Starr (2009) stated that the opportunities of providing staff development are an important part of school administrators' role. Principals need to identify key resources, players who provide formal and informal leader as well as technology support to achieve staff development plan on the basis of individual and school needs. Thus, effective leadership is critical. Starr (2009) also explains that a two-step process to integrate technology into the curriculum. Initially, teachers must learn the hardware and software; then they must learn to integrate it.

Both formal and informal activities can promote the learning and professional development of staff through observing classroom or staff meeting, exchanging experiences, net working and working with pupils across organization (Arthur, 2011). Besides these, school principals can facilitate professional development via mentoring, coaching and facilitating techniques (Coleman, 2010).

2.7.4. Encourage and Support

Supports may emanate from different corners and may have different types such as technology support, participation, administrative support, community support, and external support. Encourages and supports of the infrastructure are crucial areas of technology leadership. Technology leaders need to provide service and technical support to their schools in purchasing appropriate software applications, troubleshooting equipment problems, installing equipment and infrastructure (Starr, 2009, & Organization for Technology Assessment, 1995). To put it differently, school principals need to encourage teachers' curiosity about what can be done using technology.

2.7.5 ICT Evaluation and Research

Evaluation and research are the primary concern to technology effectiveness. Effective principals implement evaluation procedures that allow growth assessment of teachers and staff members toward technology use and guide their professional plan. School principals take the learning and teaching process into consideration as a criterion to evaluate teachers' practice of using ICT in class room instruction (ISTE, 2001, Coleman, 2010).

Thus, school principals need to design standards instruments like appropriate survey guides, checklist, and action research projects and upgrade ICT use.

2.7.6. Interpersonal and Communication Skills

Communication pervades every aspect of leadership and management of an educational organization. Effective communication is essential for effective leadership. Communication into, out of, and within is vital in an organizational life, values, in establishing the culture and the style of leadership. These can between the internal stakeholders (the school community) and external stake holders including alumni and other sources of finance (Coleman & et al., 2010).These communication may either face to face or in e-mail through computer window. Interpersonal and communication skills can impact principals' effective technology leadership (Chang, 2008). Nevertheless, everything becomes futile if the situations become vis-vis.

2.7.7 Partnership

Partnership is used here to describe team, collaborative, distributive, shared and relational leaderships in the way teachers and principals can take part together in school teaching and learning activities by creating relationships to achieve the intended common objectives. According to Anderson and Dexter (2010), a team approach is needed to arrange ICT implementation in schools. The implementation of ICT is not only an organizational issue, but also a challenge for the individual teacher. Hence, principals in schools need to develop forms of distributed expertise of teacher leadership and to be able to cope with the integration that technology requires. Fullan (2001) stresses the importance of relationships in an organization that the principal can foster a team learning environment in which teachers can communicate with each other on ICT experience, knowledge, understanding, and reinforcing each other's effective practice.

However, principals may work in ups and downs due various reforms of today. Similarly, Fullan (2001) suggested that the principal must work through the complexities of problems to make coherence of reforms. Thus, principal cannot do it alone but associate with organizational learning across the departments (Arthur, 2011). Dyer (2001) as cited

in Valdez, 2004) summarized "Relational leadership as intricate web of inter- and intra-relationships in order to influence an organization". Thus, school leaders at all levels need to collaborate with in and outside the staff members both vertically and horizontally to get multifaceted ICT support.

2.8. Possible Factors Influencing the Implementation of ICT

ICT introduction into secondary schools of Ethiopia was attributed to access and improve quality education (Aggrawal, 1996; Lemma, 2006a; MoE, 2010). Deterioration of quality education in Ethiopia has become critical in the country's educational system due to incapacity and inadequate ICT facilities (Rogers, &et al., 2008). This leads to the possible challenges of ICT implementation in the schools.

Studies pointed out ten lessons for ICT and education in the developing world .These are Computer labs take time and money, but they work; technical support cannot be overlooked; non-competitive telecommunication infrastructure, policies, and regulations impede connectivity and sustainability; wireless technologies are usually more effective; get the community involved; private partnership are essential; ICT initiatives should be linked to broader education reforms; training is fundamental (GICTWEF, 2002).

On the contrary, Wilson's (1994) stated that full time technology coordinator, a supportive principal, abundant technology, and extensive teacher training, access to computers, availability of hardware and software, self motivation, preparation of implementing bodies, confidence and skills, time to review computer practices, attitude of administrator and training are fostering factors of effective technology implementation. Thus, the researcher senses to briefly highlight the following possible factors though challenge to effective ICT implementation have been touched scholars' study.

2.8.1. Inadequate Resources and Infrastructures (ICT Inaccessibility)

The effective use of ICT would require the availability of equipment, supplies of computers and their proper maintenance including other accessories. Most of the rural schools in developing countries dependent on electricity supply in implementing ICT and

may interrupt learning due to manmade and natural calamities. The implementation of ICT demands other resources such as computers, and related facilities such as internet. Hence, these are not available in all the educational institutions in the first place. Using up-to-date hardware and software resources is a key feature in the diffusion of technology (Gulbahar, 2007) but rare mainly in newly emerging rural schools.

2.8.2. Insufficient Budget

Afshari (2008) stated that efficient and effective use of technology depends on the availability of hardware and software, and the equity of access to resources by teachers, students and administrative staff. Nevertheless, these may always not possible as costs are in most cases inflated that most developing countries like Ethiopia cannot be provided without relay on donations (Hare, 2007).

2.8.3. Attitudes of School Principals

Study conducted on 320 Iranian principals concluded that participants with negative computer attitudes were less skilled in computer use and were therefore less likely to accept and adapt to technology than those with positive attitudes (Afshari et al., (2008). Thus, change individuals' negative attitudes is essential for increasing their computer skills, and knowledgeable about its use.

2.8.4. Inadequate Knowledge Base and Training

Lack of appropriate staff and quality trainings for teachers and school principals results poor ICT implementation in classroom and lab (Afshari et al, 2008). Sergieovanni, (2009), Anderson and Dexter, (2005) also delineated that professional development opportunities should be provided for principals to promote their levels of ICT use and increase their productivities. Offering ICT literacy training initiatives and workshops helps not only foster the development of principals' knowledge and skills but also serve them to understand the influence of ICT on pedagogy (Voogt, and Knezek, 2008). But lack of knowledge and skills, regarding the use of ICT and ICT facilities, have limited the use of ICT tools in learning environment.

2.8.5 Shortage of Time

Lack of time and overloaded works including routine activities and administrative tasks do not make the school principals free to accomplish responsibilities.. Teachers and principals need time to learn how to use the hardware and software, time to plan, and time to deliver support and collaborate with other teachers (Sargeiovanni (2009).Thus, Lack of time is one of the constraints to implement ICT into the teaching learning situation

Contrary to these hindering factors, Wilson point outs a number of the following conditions which facilitate school success in implementing educational technologies. These are: supportive principal leadership, expertise-access to the knowledge and skills required by users, resource, funding, hardware, software, infrastructure, and time-allocation of time to work (Wilson, 1994). On the other hand, Yiftusira (2003) noted lack of information, securing adequate funding, and securing professional development as factors that hinder the application of Information Technologies in secondary schools of Ethiopia.

CHAPTER THREE

Research Design and Methodology

3.1. The Research Design

Different authorities expressed research design and methodology differently. The explanations have been not yet different in meanings. Kumer (1999) and Creswell (2009), for instance, expressed research design as the research strategy or plan that provides specific directions so conceived as to obtain answers to research questions

The basic aim of this study was to assess principals' performance in implementing Information and Communication Technology in some selected Government Secondary schools of West Showa Zone. For this purpose, a descriptive survey research design was used to obtain current existing conditions and pertinent information over the large area as well as to describe the nature of existing conditions (Best and Kahn (2002, p.107). In this survey both qualitative and quantitative research methods were employed.

3.2. Sources of Data

To secure adequate and reliable information about the study, data were obtained through both primary and secondary sources. The primary information was gathered from principals, students, and teachers through questionnaire, interview conducted with secondary school supervisors, and observation using observational check-list. Secondary sources are second hand information encompassed. School ICT related plan, partnership letters, staff professional development agenda, computer labs schedule, ICT evaluation and research reports in the study area were secondary sources of data used in the study.

3.3. Population and Sampling Techniques

The target population of the study was the entire Government Secondary Schools of West Showa Zone. It was so because of different rumors, complaints and hearings from the school stake holders about implementation of ICT since the researcher was familiar with the zone and helps to gather pertinent information from the area accessible. According to 2005 E.C. statistically report obtained from West Showa Zone Education Office, there

were 36 Government Secondary Schools in 19 Woredas including town administration. Since the numbers of secondary schools were relatively large for the study, 10 (7 General Secondary and 3 Preparatory) schools were selected using cluster and simple random techniques. The reason behind was that cluster sampling helps to sample woredas, and schools on the basis of geographical settings. Simple random sampling technique was used to give equal chances to the entire secondary schools and to avoid the inclusion of more than one School from the same Woreda and to give equal chances to the entire Secondary Schools. But, Toke Erensa and Ambo Secondary Schools were purposely included in the sample study. This was due to the reason that the schools have won prizes in students' achievement during previous years. Moreover, Ambo preparatory is an experienced and one of the all rounded model school at Zone, region and Federal levels for some consecutive years and might provide the study with valuable information.

Thus, to ensure representativeness, and manageability of the study, 20% of the schools and the number of teacher respondents were chosen. According to Levine, as cited in Laaria (2013) described the normality of 20% sample size for descriptive survey method over large areas in educational research. But, ambo and Toke Erensa were selected as mentioned before. Teachers were included in the study by using simple random sampling method with the assumption that it gives equal chances to members of each teacher. Whereas school 22 school principals and 70 (all members of) students' council were purposely chosen to obtain pertinent information as they are expected to know about, have more responsibilities in the schools and closely watch all school affairs respectively. Besides to this, secondary school supervisors were also included in the study based on purposive sampling techniques for their expertise of providing support for secondary schools and with the expectation they may have full information about the schools.

Table.1. Population and Sample Size

No	Name of the schools	Principals		Teachers		Students		Supervisors	
		Pop	Sam	Pop	Sam	Pop	Sam	Pop	Sam
1	Jaldu*	1	1	2o	4	7	7	1	1
2	Shanan*	2	2	18	4	7	7	1	1
3	Gedo	3	3	7o	14	7	7	1	1
4	Ginchi	3	3	72	14	7	7	1	1
5	Ejere	2	2	39	8	7	7	1	1
6	Guder	3	3	53	11	7	7	1	1
7	Toke Erensa	2	2	18	4	7	7		
8	T. Enchini	2	2	55	11	7	7	1	1
9	Ambo	2	2	69	14	7	7		
10	Ambo*	2	2	127	25	7	7	1	1
Total=10		22	22	541	109	70	70	8	8

Key: pop=population, sam=sample, *=preparatory schools, T.E=Tukur Enchini

3.4. Data Gathering instruments

Different instruments were used to collect data from the sources. Questionnaires, interviews, observation and document analysis were developed and used to collect data about the research questions.

3.4.1. Questionnaires

Three types of questionnaires were used for data collection from principals, teachers, and students to get relevant data and different views from different perspectives of respondents. The questionnaires were prepared in English and administered to principals and teachers since English is used as the language of instruction at secondary school level. But part of students' concerned questionnaires translated into local language, Afan Oromo, aiming to minimize language ambiguity, increase easy understanding and to fit them. The questionnaires were divided into five sections. The first section consisted respondents' characteristics. ICT use, frequency of ICT use and competence, principals leadership performances, and challenges were types of questionnaires in section two, three, and section four respectively. There were 46 items in the last four sections. The

questionnaires mainly included close ended questionnaires of four, five point scales and a few open ended items.

Close ended questionnaire believed suitable to survey and enable the respondents to respond quickly. Open ended questions were used to obtain qualitative data and provided respondents to respond their views freely in continuous text. Of these, a check-list form of five items used to get information on principals' ICT/computer competence having adopted from North Carolina Technology Competencies for Educators. The ideas of 12 items particularly interpersonal and communication skills and evaluate technology four part of Principals leadership role dimensions were also adopted from Chang (2008). The remaining parts of the questionnaires, for instance, principals ICT use, principals' roles of leadership dimensions (part of rating type) and challenging factors were developed by the researcher in accordance to the objectives of Ethiopia's context-"National Professional Standard for School Principals."

3.4.2. Interviews

Interview tools were employed in the research to collect mainly qualitative data, to supplement and triangulate the information obtained through close ended questionnaires. This instrument enables the researcher to get insight the problem statement and assure the comparability of the data (Kumer, 1999, p.109). In this study, one type of semi structured interviews, which consisted seven items, were prepared and presented to eight secondary school supervisors in a face to face interaction. The interviews took a maximum 20 minutes responses recorded by the researcher using a field note book in one and half pages per the interviewee (see Appendex-E).

3.4.3. Observation

Observation is one way to collect primary data by watching and listening to an interaction or phenomenon as it takes place. When observation was used in research to collect data it always consists detailed description of people's activity and full range of interpretational and organizational process which are part of observable human experience (Gall, 1996:57) In this research, observation was done, for instance, ICT centers/computer labs, and related facilities in the schools using the already prepared observation check-list. The check list was prepared in light to verify responses given in the questionnaires and interviews.

3.4.4. Document analysis

This instrument was employed to secure the necessary information about principals' leadership performances in implementing ICT. Schools ICT related documents(Appendix-H) such as research projects were carefully analyzed to validate and to check reliability of the collected data through other instruments such as questionnaires, interviews, and observation.

3.5. Procedures of Data Collection

The following procedures were taken into account to deal with principals leadership roles and challenges in implementing ICT in West Showa Government Secondary Schools. Three steps were come across: Firstly, the research proposal was developed and basic questions were formulated. Secondly, relative literatures were assessed having outlined the skeletons of review of literature hoping that they show directions to get acquaintance with the issue under consideration. Thirdly, the data gathering instruments were developed and translated part of students' questionnaire into local language-Afan Oromo-aiming to fit them.

Following the preparation of each data gathering instruments, the researcher presented the questionnaires to experts in Addis Ababa University and some colleagues for evaluation of the content quality and validity before they were used for actual data collection. Accordingly, the researcher had received different comments and made some amendments in avoiding redundancies, including omissions, correcting wordings and number of items for perfecting the instruments. Besides, the researcher was distributed and administered the rough questionnaires to 2 principals, 20 teachers and 22 students in random selection for piloting. It was conducted in Guder Preparatory school which was not included in the sample schools for the actual study. The researcher then started to analyze, rewrite and exclude weak items by using SPSS version 20.0 till internal reliability was reached. This was done by applying the guidance of Nunnaly and Bernestien (1994) who assert that a reliability coefficient of Cronbach's alpha 0.70 or higher ($\alpha \geq 0.70$) considered acceptable in most social science or early stages of research.

Thus, the reliability of the piloted principals, teachers and students' questionnaires of rating type for ICT use, according to Cronbach alpha is 0.74, 0.81 and 0.83 respectively. Besides, the reliability of likert type 5 point scale principals and teachers' opinion items is 0.79 and rating challenges is 0. 93. Whereas, the reliability of the student's questionnaire for rating the frequency use of ICT is 0.83 and challenges is 0.94. Therefore, the results indicate that the questionnaires were valid and reliable for actual data collection.

3.6. Techniques of Data Analysis

The data collected from the sample school principals, teachers and students by close ended questionnaires were analyzed and reported using different descriptive statistics. These were frequency counts, percentages, mean values, chi-square, grand mean, and rank order. While, qualitative data were systematically organized and interpreted. Percentages used throughout the chapter with the assumption that may increase the quality and clarity of the interpretation of data. Mean value is another statistical tool that employed in the analysis of ICT use, principals' role and challenging factors in ICT implementation. It mainly used in the analysis of agree and disagree on principals' roles in implementing ICT. In this regard, Best (1999:246-47) be described that likert scale is served to express definite favorableness (agree) or unfavorableness (disagree) of a particular point of view. Accordingly, five point scale items, that is, strongly agree (5), agree (4), undecided (3), disagree (2) and strongly disagree (1) were constructed to express agreement/favorable and disagreement/unfavorable opinions as well as to show neither agree nor disagree. Independent t-test value was also employed to test significance of different groups of respondents' opinions in the frequency use of ICT/computer skill practices.

CHAPTER FOUR

Presentation, Analysis and Interpretation of Data

This part concerned about presentation and analysis of the data collected using the data gathering instruments which developed for the purpose of this study. It presents and analysis the data collected on principals preparations such as received ICT training, ICT use, and principals ICT competence in principals roles and challenges of implementing ICT in West Showa Zone Government Secondary Schools. To this end, questionnaire, interview, observation and document analysis were taken into account for data gathering instruments. 185 questionnaires were successfully returned from the total 200 copies which disseminated to different sections of respondents (principals=18, teachers=102, and students=65). The questionnaires were careful administered by the researcher in collaboration with the school principals and unit leaders. The total response rate for all respondents was 94% (86% for principals, 93.6% teachers, and 93% for students). Therefore, it is sufficient enough to analyze the data obtained and can draw inferences to the entire principals of government secondary schools in the zone.

The data obtained through close ended questions were analyzed quantitatively using frequency counts, percentages, mean value, chi-square and rank order in applying SPSS Version 20.0. Whereas, the data obtained through open ended, semi structured interview questions, observation check-list and document review were analyzed qualitatively in coding and interpreting meanings to triangulate the quantitative data. Each data were presented in tables and followed by interpretations.

4.1. General Characteristics of the Respondents

Different sections of respondents were taken part in this study. 18 school principals, 102 teachers, 65 students were successfully filled and returned the questionnaires that is pertinent and valuable information about principals' leadership performances in implementing ICT in government secondary schools of West Showa. Thus, the general characteristics of the respondents present to show their profile with special reference to sex, age, academic qualifications, and service years in the following table.

Table 4.2. Characteristics of the study respondents by Sex, Age, Qualification, Field of Study and Service

Characteristics			principals=18		Teachers =102		Students=65	
			No	%	No	%	No	%
Sex		Male	17	94.4	90	88.2	58	89.2
		Female	1	5.6	12	11.8	7	10.8
		Total	**18**	**100**	**102**	**100.0**	**65**	**100.0**
Age in years For	Students	Below 15	-	-	-		-	-
		15-18	-	-	-		39	60
		19-21	-	-	-		23	35.4
		≥22	-	-	-		3	4.6
		Total		-	-		**100**	**100**
	Principals and Teachers	≤20	-	-	-			
		21-25	-	-	23	22.5		
		26-30	3	16.7	35	34.3		
		31-35	6	33.3	19	18.6		
		36-40	8	44.4	14	13.7		
		41-45	1	5.6	6	5.9		
		≥46	-	-	5	4.9		
		Total	**18**	**100**	**102**	**100.0**		
Qualification		Certificate	-	-	-	-	-	
		Diploma	-	-	6	5.8	-	
		First degree In PS	17	94.4	94	92.2	-	
		First degree EdPM	-	-	-	-	-	-
		Masters degree In PS		-	2	2.0	-	
		Masters degree EdP M	1	5.6	-	-	-	
		Total	**18**		**102**	**100.0**		
Experience		1-5	14	77.8	29	28.4	-	-
		6-10	4	22.2	43	42.2	-	-
		11-15			11	10.8	-	-
		16-20	-	-	8	7.8	-	-
		21-25	-	-	6	5.6	-	-
		26-30	-	-	3	2.9	-	-
		31and above	-	-	2	2.0	-	-
		Total	**18**	**100.0**	**102**	**100**	-	

Key: PS= Professional Subjects, and EdPM=Educational planning and Management

The table presents general characteristics of the study respondents. As the data displayed in table 4. 2, regarding sex character of the participants, 94.4% and 5.6% were men and female principals respectively. This shows that the engagement or participation in school principals' position ships seems left for males. The table also indicates teachers participation in which 90(88.2%) were male and 12(11.8%) female teachers. The table further showed that male and female students who accounted over 89% and 11% respectively. As it can be seen from the data given, the participations of female teachers

in west Showa government secondary schools of teaching profession is almost very low. Similarly, participation of female students in school leadership affairs in the aforementioned zone, showed still low. This seems has an implication that efforts will be required in empowering and increasing both female teachers and students' participation in school leadership affairs as just as equal to male teachers and students. The researcher cannot believe this big difference affect the research outcome.

With respect to the age of respondents, 53% and 8% of the teachers and principals were found between the age interval of 26-30 and 36-40 respectively. This might showed that the large majority of respondents in both cases were in productive age intervals and relatively matured enough to provide pertinent information. Whereas, 60% and 35.4% of students' respondents were found between 15-18 and 19-21 age group intervals respectively. This indicated that the majority of the students were in the right school ages and thereby matured enough to provide sufficient information.

With regard to the qualifications of the respondents, about 94% of principals were first degree holders in professional subjects and only 6% of principals' respondents were second degree holder in EdPM. From this it is not debatable to conclude that almost all principals were Bachelor degree holders. But, none of them, except one, were not have first and second degrees in EdPM. This revealed that there are shortage of at least Masters graduate principals specifically in Educational planning and Management in the Zone. On the other hand, the large number of the schools principals may be lacked skills and preparations both in level and field of qualification required for the position. In effect, it may affect principals to implement new packages, policies, programs and reforms in the schools and render support to the school community in the right truck. When looked into teachers' qualifications, the above table further depicted that 5.8%, 94.2%, and 2% were diploma, first and second degrees holders respectively. Teachers' qualifications almost seem satisfactory enough to provide pertinent information at this level.

Concerning experience of the respondents, 78% of the schools principals had between 1-5 years of work experience in the position. The remaining 22% of principals' respondents were served between 5-6 years. From this one can conclude that the majority of the

schools principals may at least be experienced and informed about the newly introduction of ICT in the secondary school environment. As far as the work experience of the teachers was concerned, between 1-5 and 6-10 years work experiences in the profession were accounted over 28% and 42% respectively. The remaining 10.8%, 7.8%, 5.6%, and 4.9% have work experiences between 11-15, 16-20, 21-25, and 26 and above intervals of work experience in the area of specialization. Thus, the data seems to reveal that both the school principals and teachers experiences seem to say enough about the actual implementation of the newly introduced phenomenon (ICT) in their respective schools. At least, the teachers may have information about principals' preparations (in ICT use, competency and render support for the school community) and witnessed principals in performing their roles and challenges encountered while implementing ICT. When there is innovation in school, preparations of the implementing bodies in terms of awareness creation, attitude and skills seems mandatory let alone the existing experiences.

4.2 Principals' ICT Use

The following table presents ICT use by principals. Two different items were raised and rated by principals and teachers respondents using a five point rating scales (1=very low, 2=low, 3=medium, 4=high, and 5=very high). Responses provided on each item were combined both groups together for the clarity of analyzing the data and reporting results as can be seen below.

Table.4. 3. Principals ICT use (Combined principals and teachers' responses).

No	Item	R	1		2		3		4		5		X	Inde.t-test	
			F	%	F	%	F	%	F	%	F	%		t=test	pv
	The extent principals use computers?	p	5	27.8	8	44.4	2	11.1	3	16.7	-	-	1.94	1.434	.154
		T	27	26.5	58	56.9	17	16.7	-	-	-	-	1.95		
		To	32	27.8	66	56	19	16.7	3	16.7	-	-	1.95		
	The extent principals use ICT for teaching and learning purposes?	P	12	66.6	2	11.1	1	5.6	3	16.7	-	-	1.61	.414	.680
		T	72	70.7	8	7.8	9	8.8	13	12.7	-	-	1.64		
		To	84	71.2	10	11	10	8.5	16	13.6	-	-	1.63		
													Grand mean=1.79		

Key: 1. The mean value from 0.71-1.56 used as very low, 1.57-2.42 as low, 2.43-3.28 as medium, 3.29-4.14 as high, and 4.15-5.00 as very high.

2. Very low and low added up and used as low. The same is true for high and very high as used as high. 3) To=Total of principals and teachers.

Items 1&2, in table 4.3 above, the respondents mean scores were 1.95 and 1.63 respectively. The mean scores for the two items indicate below 2.42 which is the maximum point for low mean value. This shows low capacity use of computers and low ICT use for teaching and learning purposes by the school principals. Therefore, finding of this study exhibited the low capacity use of computers and low use of ICT for teaching and learning purposes by the principals. The calculated t=test value for both items (t=1.434; p=.184 and t=.414; p=.680) respectively. Therefore the t test results indicate that no significance difference between the respondents' perspectives.

The calculated grand mean score of 1.79 for the overall principals' computer use and computer/ICT use for teaching and learning purposes was observed low as it below 2. 42. This indicates, the large number of schools principals and teachers' respondents agreed up on the school principals mainly use computer for other purposes than teaching learning activities. In support of this, the information obtained through observation(Appendix-G) and interview(Appendix- E) confirmed that the teachers and students were not much seen work on computers and computer related facilities such as internet, e-mail, and power point presentation either in computer lab or class rooms. So, long journey were remaining among principals of this study concerned to use computers in teaching and learning activities in collaboration with other partners.

4.3. The Frequency of ICT use / Practices

This sub section presents the frequency of ICT use by principals, teachers and students. Four items were raised and responses provided on each item were compared for the three groups.

Table 4.4. The frequency of ICT use /skill practices

No	Items	R	Responses								X	Inde.t-test	
			Always		Often		Rarely		Vr			t-test	sig
			F	%	F	%	F	%	F	%			
1	How often do your school principals use computers?	P	1	5.55	-	-	7	38.9	8	44.4	1.89	.652	.072
		T	2	1.96	4	3.92	47	46.1	49	48.	1.59		
			3	2.5	4	3.92	54	46	57	48	1.74		
		S	3	4.6	6	9.2	24	36.9	32	49.2	1.69		
2	How often do teachers practice computer skills?	P	3	16.7	-	-	6	33.3	9	50	1.83	.735	.096
		T	2	1.96	4	3.92	42	41.2	54	52.9	1.55		
		c	5	4.3	4	3.4	48	40.7	63	53.4	1.69		
		S	2	3.1	4	6.3	23	35.3	36	55.3	1.57		
3	How often do the students practice computer skills?	P	3	16.7	4	22.2	6	33.3	5	27.8	2.28	2.726	.008
		T	2	1.9	30	29.4	38	37.3	32	31.4	2.02		
		c	5	4.3	34	29	44	37	37	31.4	2.15		
		S	12	18.5	9	13.8	24	36.9	20	30.8	1.91		
4	How often does your school currently use plasmas for class room instruction	P	1	5.6	4	22.2	10	55.6	3	16.6	2.17	.656	.184
		T	2	1.9	7	6.9	59	57.9	34	33.3	1.77		
		c	3	2.5	11	9.3	69	58	37	31.2	1.97		
		S	1	1.54	3	4.6	42	64.6	19	29.2	1.78		
											Grand Mean		=1.89

Key: 1) V.r=Very rarely, X=mean, PT=Principals and Teachers, and S=Students

2) Very rarely and rarely summed up as rarely and always and often were added up as always.

3) The average mean value=2.0 and grand mean=1.89

Items 1, 2 and 4 in table 4.4, the respondents mean scores were witnessed 1.74, 1.69 and 1.97 by principals and teachers and 1.69, 1.57 and 1.78 by the students respectively. The rated mean scores witnessed by the groups of respondents were below an average mean value. This indicated that the rarely use of computers by the school principals and teachers in the in the schools this study surveyed. This confirmed by the calculated t-test value. That is the calculated t-values for item 1(t=.652; p=.072), item 2(t=.735; p=.096) and item 4(t=.656; p=.184) showing that no statistical significance difference between the groups of respondents. Principals, teachers and students unanimously agreed that computer use/practice by principals, teachers, and plasma use in class room instruction were rarely observed in the schools included in this study.

Item 3 in the table above, the mean score for principals and teachers was 2.15 and for students was 1.91 respectively. The mean score rated were found to be above the average for principals and teachers indicates that always computer practice by students and below

the average for students indicate that the rarely use/practice of computer skills by the students. The computed t-test value (t=2.726; p=008) show that there was statistical significance differences among the groups of respondents in opinions. Group of respondents hold different views about the frequency practice of computer skills by the students probably due to students computer skill practices varies from school to schools which was observed during computer labs observations in the sampled schools (see, Appendix-G).

The overall calculated grand mean was 1.89. This reveals that the rarely use of ICT (computers, and PSTV) in the schools of this study concerned.

This was supported with the information that the researcher investigated while made the observation (Appendix-G) on the actual use of plasma in class room instruction and interview conducted to secondary school supervisors (Appendix-E). Thus, the satellite Plasma Television was not uniformly functioning in class room instruction in those schools this study concerned. In several schools plasmas are not in function, but locked in its boxes. Plasma televised teachers sound also not listened from the teaching and learning rooms as usual. The interview information suggested the reasons that principals and teachers lack of full commitment, power interruption (light discontinuity), old age plasma cables, and fluctuation of transmission program, unclear screen message and sounds from the center. These and other combination of factors leads to ineffective function of plasma to support class room instruction in today's West Showa Zone Secondary Schools. Therefore, the using of plasma for teaching and learning in the schools was difficult to say meaning full in all schools. This research finding agreed with the work of Laaria Mingaine (2013) who recommends that all school principals should consider ICT use in their day to day teaching and learning activities in their respective schools. The implementation of ICT in school practices manifest by school principal ICT use and encourage others to use it.

4.4 Schools principals' ICT Competence

In the following table some ICT (usually computer and computer related) skill practices were looking in to examine principals' competence. To this end, eight items were presented to be rated by principals and teachers on five point scales. Responses compared for both group of respondents using mean score, percentage and grand mean.

Table.4. 5. School principals' ICT/Computer competence

No	Variables	R	Responses										X	Inde.t-test	
			VL		Low		M		H		VH				
			F	%	F	%	F	%	F	%	F	%		t-test	sig
1	computer operating systems	P	3	16.7	2	11.1	2	11.1	9	50	2	11.1	3.28	1.334	.185
		T	3	2.9	5	4.9	33	32.4	50	49	11	10.8	3.60		
		To	6	5.1	7	6	35	29.6	59	50	13	11	3.44		
2	Word processing	P	-	-	6	33.3	2	11.1	7	38.9	3	16.7	3.39	.735	.464
		T	9	8.8	15	14.7	11	10.8	37	36.3	30	29.4	3.63		
		To	9	7.6	16	13.6	13	11	44	37.3	33	28	3.51		
3	Spread sheet	P	10	55.6	6	33.3	1	5.6	1	5.6	-	-	1.61	.013	.989
		T	69	67.6	10	9.8	17	16.7	6	5.9	-	-	1.61		
		To	79	66.9	16	13.6	18	15.3	7	6	-	-	1.61		
4	Data base	P	5	27.8	8	44.4	3	16.7	2	11.1	-	-	2.11	.665	.507
		T	37	26.3	43	42.2	12	11.8	10	9.8	-	-	1.95		
		PT	42	35.6	51	43.2	15	12.7	12	10.2			2.03		
5	Internet use	P	7	38.9	3	16.7	4	22.2	3	16.7	1	5.6	2.33	3.126	.072
		T	70	68.6	19	8.6	5	4.9	7	6.9	1	1.0	1.53		
		To	77	65.3	22	18.6	9	7.6	10	8.5	2	1.7	1.93		
6	E-mail use	P	9	50	6	33.3	2	11.1	1	5.6	-	-	1.72	1.710	.090
		T	42	41.2	39	38.2	12	11.8	5	4.9	4	3.9	1.92		
		To	51	43.2	65	55.1	14	3.34	6	5.1	4	3.4	1.82		
7	Power point presentation	P	15	88.3	2	11.1	1	5.6	-	-	-	-	1.22	.195	.845
		T	61	59.8	29	28.4	7	6.9	5	4.9	-		1.57		
		To	76	64.4	31	26.3	8	6.8	5	4.2	-	-	1.39		
8	Solve school level plasma problems	P	6	33.3	10	55.6	2	11.1	-	-	-	-	1.78	.536	.09
		T	37	36.3	55	53.9	9	8.8	1	1	-	-	1.75		
		To	43	36.4	65	55.1	11	9.3	1	1	-	-	1.77		
												P	2.18		
												T	2.20		
												Grand mean	=2.19		

Average mean value

Key: R=Respondent, P=Principals, T=Teachers, and X=mean value.

To maintain equilibrium of intervals, the mean value 0.7-1.56 as very low, 1.57-2.42 as low, 2.43-3.28 as moderate, and 3.29-4 .14 as high and 4.15-5.00 as very high were used in the interpretation of the results. Besides, the first two right and left extreme percentages added up and used as low and high.

Item 1 and 2, in table 4.5, the respondents' calculated mean scores were 3.44 and 3.5 respectively. That is, the result indicates that principals competence in computer basic skills (operating system) and word processing rated high, which is above 3.28, the minimum value for "high." This is reflecting that high competence of basic computer (operating systems) and word processing skills by the school principals. The computed t-test value for item1 (t=1.334; p=.185) and item 2 (t=.735; p=464) showed that there was no statistically significance difference observed among respondents in opinions.

The mean scores of grouped respondents for items 3, 4, 5, 6, 7, and 8 were 1.61, 2.03, 1.93, 1.82, 1.39, and 1.77 respectively. Therefore, the findings revealed that principals of this study there were principals low competences of spreadsheet, data base, internet use, e-mail use, power point presentation, and solve school level plasma technical problems respectively. The corresponding mean score for both groups of respondents in each item indicates below 2.42, the maximum value for "low". The obtained mean scores for all items and for both group of respondents clearly manifest below the calculated grand mean, that is, 2.19. Hence, principals of concerning this study are almost incompetent in some computer skills except computer operating and word processing. ICT skills at first glance seem to be straight forward. However, the extent of principals' competence in the surveyed schools indicate low in excel, data base, internet and e-mail use, power point presentation and solve school level plasma technical problems as the calculated grand mean(2.19) below 2.42, the maximum value for low.

Indeed, the information obtained from interview assured principals incompetence to use ICT basic skills themselves let alone render or provide support for the school community. As observation (see appendix-G) of the researcher and hearings from the interview noted that school principals of this study seem as if use computers in their offices. Yet the reality was apart from this. They cannot use computers usual in actual fact. But just to see there as "protocol" or else use through their Secretaries (Typists).

4.5 School Principals Role of Implementing ICT

Basically this section is attempted to look into the extent of principals effectively perform their roles of implementing ICT in West Showa Secondary Schools. Concerning this, CITEd (2006) stated Principals as change agents and play multiple roles as role model, leader, motivator, resource provider, and facilitator. Thus, they are instrumental in modeling the use of technology in the schools from formulating school ICT vision to creating partnership in effective ICT implementation.

4.5.1 Principals Role to Formulate School ICT vision and Lead Change

Principals seem to have enormous responsibilities to articulate shared vision among the stake holders as ICT implementation cannot expect alone and due attentions. For successful ICT implementation particularly in schools where principals lead and followers follow, need vision and visionary plans with implementation strategies. To this end, table 7 below presents principals role of formulating school ICT vision and leading change. Principals and teachers were asked four different opinion items to view their agreement or disagreement on point five rating scales and responses provided on each item were combined for the sake of clarity and readability.

Table. 4.6 Principals Role to formulating school ICT Vision, and leading change

No	Variables/Items	R	Responses										X
			SD		D		UD		A		SA		
			F	%	F		F	%	F	%	F	%	
1	Formulate workable school ICT plan	P	2	11.1	4	22.2	-	-	9	50	3	16.7	3.39
		T	37	36.3	43	42.2	5	7.8	10	99.8	7	6.9	2.09
		To	39	33.1	47	39.8	5	7.8	19	16.1	7	4.7	2.74
2	Articulate shared school ICT vision	P	2	11.1	8	44.4	2	11.1	55	27.8	1	55.6	2.27
		T	25	24.5	61	59.8	4	33.9	10	9.8	12	12	2.05
		To	27	22.9	69	58.5	6	5.1	65	55.1	13	11	2.16
3	Include purchase, maintenance of ICT tools and facilities	P	2	11.1	8	44.4	3	16.7	5	27.8	-	-	2.83
		T	26	25.5	28	27.5	5	4.8	37	36.3	6	55.9	2.75
		To	28	23.7	36	30.5	8	6.8	42	35.6	6	55	2.79
4	Develop implementation strategies	P	-	-	5	27.8	2	11.1	8	44.4	3	16.7	3.50
		T	23	22.5	39	38.2	16	15.7	22	21.6	2	1.96	2.42
		To	23	19.5	44	37.3	18	15.3	30	15.4	5	4.2	2.9
5	Lead/Manage change (ICT implementation)	P	1	5.6	4	22.2	3	16.7	7	38.9	3	16.7	3.29
		T	28	27.5	42	41.8	5	4.9	15	14.7	12	11.8	2.42
		To	29	24.6	46	38.9	8	6.8	22	18.6	15	12.7	2.84
												Grand mean=	2.68

Key: R=Respondents, P=Principals, T=Teachers, SD (1) =Strongly Disagree, D (2)=Disagree, UD(3) =Undecided, A (4) =Agree, SA (5) =Strongly Agree, and X=mean

As indicated in table 4.6 the combined percentages for the two groups of respondents were 73% , 82% , 55%, 58%, and 68% reported disagree to principals role of formulating School ICT vision, planning, implementation strategies for items 1, 2, 3, 4, and 5 respectively. The computed corresponding mean scores of these items were 2.74, 2.16, 2.79, 2.9 and 2.8 which indicates below 3, the average mean value. The calculated grand mean on the issues was 2.68. That is, both principals and teachers reported that the schools principals were not in a position to discharge their roles of setting school ICT vision, goals, plan; articulate shared ICT vision, include purchase computers and related facilities as well as implementation strategies. Document analysis and interview assured that there were no well formulating and structuring ICT vision and plan in almost all secondary schools of this study concerned. School ICT vision and plans seem orally existing and scattering ones (Appendix-E and Appendix-G). But, they have dreams to formulate viable ICT plan in the near future. So, it is hard to say principals could effectively perform the role of formulate comprehensive school ICT vision and plan.

Budget (financial) constraints to purchase additional ICT materials and for maintenance, the distance the schools located away from the maintenance delivery area, the tradition of looking for the government to upgrade ICT might be kept the respondents neither agree nor disagree. In regard to this, one of the interviewee supervisors said that "principals and teachers are not technicians. Computers, printers and PTV were not re functioning soon after defection. Ten and more students practice on one computer at a time and assume how many students lost the lesson per a day if ten computers face defections."

In short, the finding of this study shows that principals were not discharging the role to formulate school ICT vision, plan ,strategies; articulate shared vision in free discourses, include purchase and maintenance in plan and lead change effectively.

4.6. Principals' Role in ICT Staff Development

Staff development is an innovative strategy which may address the preparation issues. Table 4.7 presents the role of providing school level ICT staff development for teachers by principals to improve student learning and improve quality of education. Three different opinion items were asked. On each item, principals and teachers responses compared on five point scales from strongly disagree to strongly agree.

Table.4.7. Principals and teachers' responses of Principals' Role to Provide ICT Staff Development (NP=18 and NT=102).

No	Items	R	Response										X
			SD(1)		D(2)		UD(3)		A(4)		SA(5)		
			F	%	F	%	F	%	F	%	F	%	
	Facilitate ICT staff development	P	5	27.8	6	33.3	2	11.1	5	27.8	-	-	2.39
		T	44	43.1	48	47.1	7	6.9	3	2.9	-	-	1.63
		To	49	41.5	54	45.8	9	7.6	8	6.8			2.0
2	Provide ICT release time	P	4	22.2	6	33.3	1	5.6	5	27.8	2	11	2.42
		T	33	32.4	41	40.2	8	7.8	20	19.6	-	-	2.15
		To	37	31.4	47	39.8	9	7.6	25	21.2	2	1.2	2.3
3	Commit school resources	P	4	22.2	6	33.3	4	22.2	4	22.2	-	-	2.4
		T	41	40.2	49	48	7	6.9	5	4.9	-	-	1.76
		To	45	38.1	55	46.6	11	9.3	9	7.6	-	-	2.08
													Grand mean=2.13

Note: R=respondents, P=Principals, T=Teachers, X=mean, NP=Number of teachers and NT=Number of Teachers, To= Total score for principals & teachers.

The first item in the table asked facilitates ICT staff development by the school principals. As can be seen from the table, over 61% of principals and about 90% of teachers disagree that principals facilitate ICT staff development in the schools this study was carried out. The mean score for each of the two groups was below 2.43, the maximum value for disagree. Principals and teachers unanimously disagree with the facilitative role to provide ICT staff development by principals this study encompassed.

The second item in the same table deals about provides ICT release time for teachers by the school principals. As the data indicated in the table, 55.5% of principals and 73% of teachers reported that disagree to provide ICT release time by the principals. The mean score for principals group was 2.42 while mean score for teachers group was accounted for 2.15. The mean scores for both groups indicate a little bit less than 2.43, which is the minimum value point of undecided. Thus, the finding of this study in this regard reflects that provide ICT release time was not performed by the principals in the schools this study focused.

The last but not least item raised in table 4.7 was principals' role of commit school base sources for the purpose of ICT staff development in implementing ICT. As the table illustrates, 55.5% of principals and over 88% of teachers respondents were witnessed for

disagree or strongly disagree. The mean scores for each group of principals and teachers respondents reviled 2.4 and 1.76 respectively. This elaborates below 2.43 which mean the minimum value for undecided and the maximum sore for disagree. The result indicates that both principals and teachers groups hold similar opinions about inadequately commits school resources for ICT staff development among the principals in the schools this study was carried out.

Over all, the calculated grand mean for different groups of respondents to provide school ICT staff development by the principals was seen 2.13 which in the interval value of disagree and far below 2.43, the minimum value for undecided. This deduces that the role of provide school ICT staff development by the principals was not effectively and efficiently performed in the schools where this study concerned. In support to this, the information obtained through interview with secondary school supervisors manifest that "staff ICT training was and still not yet experienced for the teachers but due attention was given to the students."

Thus, the schools principals required to give priority and commit school resources for school level collegial ICT training to make the way better for student learning.

4.7 Principal's Role of ICT Support and Encouragement

The following table depicts principals role of provide multidimensional support and encouragement while implementing ICT in the schools as supportive principals. Four different items were raised. Responses of principals and teachers group were compared and interpreted for each item.

Table .4 .8. Principals and teachers responses to principals' ICT support

No	Variables/Items	R	Responses										X
			SA		D		UD		A		SA		
			F	%	F	%	F	%	F	%	F	%	
1	Make sure ICT facilities for the school community	P	1	5.6	5	27.8	10	9.8	2	11.1	-	-	2.17
		T	44	43.1	36	35.3	16	15.7	6	5.9	-	-	1.69
		To	45	38.1	41	34.7	26	22	8	6.8	-	-	1.9
2	Provide ICT support	p	-	-	4	22.2	3	16.7	9	50	2	11.1	2.89
		T	36	35.3	39	38.2	3	2.9	24	23.5	-	-	2.15
		To	36	30.5	43	36.4	6	5.8	33	27.9	2	1.7	2.52
3	Capacitate teachers ICT use	P	2	11.1	5	27.8	2	11.1	6	33.3	3	16.7	3.17
		T	28	27.5	45	44.1	12	11.8	17	16.7	-	-	2.18
		To	30	25.5	50	42.4	14	11.9	23	19.5	3	2.5	2.7
4	Support computer hardware and soft ware improvements	P	8	44.4	3	16.7	-	-	4	22.2	3	16.7	2.67
		T	45	44.1	38	37.3	3	2.9	9	8.8	7	6.9	2.04
		To	53	44.9	41	34.7	3	2.5	13	11	10	8.5	2.4
5	Facilitate students' computer skill practices	P	-	-	3	16.7	2	11.1	9	50	4	22.2	3.78
		T	22	21.6	26	25.5	14	13.7	40	39.2	-	-	2.71
		To	22	18.6	29	24.6	16	13.6	49	41.5	4	3.4	3.2
Grand mean=2.544													

Key: R=Respondents, P=Principal, T=Teacher, and X=mean, To=Total score

The first item in table4.8 was about the role to ensure appropriate school ICT facilities for the school community by principals of secondary school in the zone this study basically focused. As can be seen in the table, 55% of principals were surprisingly viewed neither disagree nor agree. Whereas, 23% of the same group chosen for dissatisfaction. On the other hand, about 78% of teachers almost showed dissatisfaction to the appropriate ICT facilities ensure by the school principals involved in this study. The mean score of 2.7 for principals lies in undecided interval value. While, the mean score for teachers groups of respondents was1.69 which was very far below 2.43(the minimum point for undecided) and even near to very disagree. The reason behind principals for reserved and some gap between the groups of respondents may due to ensure appropriate ICT facilities for the school community was inexperience and unusual by principals of Government Secondary Schools in West Showa Zone.

The second item in the table enlightened the role of providing in-school ICT support by principals. As can be observed in the table, over 61% of the principals were viewed

agree or strongly agree to school ICT support by the principals as it necessitated. The mean score for principals was 2.89 which is almost approach to the value of agree. Contrary to the principals group, 74% of teachers show disagree or strongly disagree to principals' role of providing ICT support in the schools this study included. The computed mean score for teachers was 2.15 which is in interval value of disagree. The information obtained through interview was justified that inadequate School ICT support by the principals. This has congruence with teachers view. The result indicates that principals of inclusive of this study were incapable to provide ICT support in one way or another. So, principals should have to develop supportive behavior of transformational leadership.

Principals role of capacitate teachers to use ICT (computers, plasma and etc) and ICT facilities in teaching and learning was also one of the item raised in table 9. As can be shown in the table (item 3), almost above 50% of the principals agree to capacitate teachers ICT use by principals. The mean score for principals group was 3.17 which merely lie within the undecided value. On the contrary, almost 71.6% of teachers were reported disagree with capacitate teachers ICT use by the principals. The correspondence mean score for this group of participants were 2.18 which is within the interval value of disagree. Though opinion of the respondents seems a little bit different, group of teachers' views supported by the information constructed during coding open ended questions and interview. This reported that principals discourage as if teachers try to use computers, for example, "touching computers is forbidden, they are foggy minded, consider ICT materials as their property, dominate themselves and they follow not to touch and strict strategy." In addition, the researcher observed that teachers working in computer labs were not usual. Similarly, plasmas were not functioning in most of the schools.

Besides to these, no documents/minutes have shown about ICT staff professional development. Schedules, agenda, programs and etc school level ICT professional development were none existence. Thus, the finding indicates that attentions were not given to capacitate teachers ICT use in instruction and principals' role of capacitate,

model and encourage, and influence teachers ICT use is the forgotten agenda in implementing ICT.

The fourth item in table 4.8 was concerning support computer hard and soft ware improvements by the principals. As can be observed in the table 61.1% of principals and 81.4% teachers were replied disagree or strongly disagree. The calculated mean value for principals was 2.67 which mean at average value and for teachers group indicates below 2.43(the minimum value for undecided) and in the value for disagree. From this, it can infer that adequate supports have not made to improve hard ware and soft improvements by principals in surveyed schools. This was also evident that the in use of out dated computers, no internet and e-mail access for both students and teachers in most of west Showa Secondary Schools except Ambo secondary and preparatory school. Thus, it calls for great attentions to improve hard ware and soft ware for better student learning.

Facilitating computer skill practice for students by the principals was another item raised in the table. As can be observed from the table, 72.2% principals were perceived "agree or strongly agree". In opposite to principals group, 61% of teachers respondents were disagree or strongly disagree to principals' role of facilitating computer skill practices for students. The mean score for principals group was 3.78 which above 3.29, the minimum value of "agree." The correspondence mean score for teachers group was 2.71, somewhat below average mean. This difference may due the fact that teachers viewed from the actual prevalence of immense ICT constraints and principals preparations to ICT use let alone facilitate for others.

4.8. The Role of Principals in ICT Evaluation and Research

This deals with conduct ICT evaluation and research by the principals. Three interrelated items were raised and provided responses compared here below in table 4.9.

Table.4.9. Respondents responses to Principals' Role of ICT evaluation and Research (NP=18 and NT=102).

No	Items	R	Responses										X
			SD(1)		D(2)		UD(3)		A(4)		SA(5)		
			F	%	F	%	F	%	F	%	F	%	
1	Evaluate school ICT implementation.	P	9	50	5	27.8	2	11.1	2	11.1	-	-	1.8
		T	29	28.4	35	34.3	2	1.9	21	20.6	15	14. 7	2.1
2	Evaluate teachers ICT use in teaching	P	-	-	2	11.1	3	16.7	13	72.2	-	-	3.6
		T	32	31.4	41	40.2	14	13.7	13	12.7	2	2	2.1
3	Conduct research on ICT implementation	P	11	61.1	4	22.2	1	5.8	2	11.1	-	-	1.7
		T	68	66.7	27	26.5	7	6.9	-	-	-	-	1.4

Key: Np=number of principals, Nt=Number of teachers, R=Respondent, P=Principals, T=Teachers, SD=Strongly Disagree, D=disagree, UD=Undecided, A=Agree, SA=Strongly Agree, and X=mean value. Below 1.56, 1.57-2.42, 2.43-3.28, 3.29-4.14, and 4.15-5.00 used as SD, D, UD, A, and SA respectively.

The first item in the table was asked about conduct evaluation of ICT implementation by the schools principals. As can be seen the table, 78% of principals and 63% of teachers replied disagree or disagree. The mean scores for each of group of respondent indicates below 2.42 which was the maximum mean value of disagree. Thus, the finding of this study revealed that conducting ICT evaluation in day to day school instruction was not much experienced about ICT strengths, weakness, changes and timely corrections if there are discrepancies.

The second item in table 4.9 enquired evaluate teachers ICT use in teaching and learning by the school principals. Accordingly, over 72 % of principals were showed agree or strongly agree to the issue. The computed mean score for principals was 3.61 which above the minimum value of "high", 2.43. However, 72% of teachers respondents were showed disagree or strongly disagree to principals role of evaluating teachers ICT use in teaching and learning. The mean value for this group was 2.14, which was greatly below 2.43 the minimum value for undecided and shows in the interval value of disagree. There difference in opinion between the two groups of respondents may emanate from lack of articulating information and accountability between principals and teachers. Interview and document review base information highly support teachers' group of respondents that inadequate evaluation of teachers ICT use in teaching and learning by principals of this

study concerned. It further discovered that no single document clearly show the issue while the researcher made document review.

Conduct research on effective school ICT implementation by principals was the last item raised in the table. As the table illustrated about 83% of principals and almost over 93% of teachers participants responded that disagree or strongly disagree. The mean score for each of the group shows below 2.0 which is the value used for disagree. This clearly shows principals and teachers respondents hold similar opinion on principals' role of conducting research on school ICT implementation. Thus, principals in West Showa Zone Government Secondary schools did not effectively perform the role of conducting research for further ICT development. Hence, implementation of ICT in the aforementioned schools teaching and learning seems either stagnant or dwindled back from where yesterday started.

4.9. Principals' Role of Interpersonal and Communication Skills

This part presents the interpersonal and communication skills of the school principals in implementing ICT. Possessions of effective and clear interpersonal and communication skills seem quit essential as the blood cells of organizations. In the proceeding table, five items were raised and provided responses were compared for two groups as well as followed by interpretation of results.

Table 4.10. Respondents responses to principals' interpersonal and communication skills (Np=18 and Nt=102)

No	Items/Variables	R	Responses										X
			SD		D		UD		A		SA		
			F	%	F	%	F	%	F	%	F	%	
1	Exhibit know how to use ICT	P	-	-	8	38.9	2	11.1	6	33.3	2	11.1	3.17
		T	26	25.5	50	49	10	9.8	9	8.8	7	6.9	2.23
2	Assess technology needs of the school community	P	4	22.2	5	27.8	4	22.2	3	16.7	2	11.1	2.67
		T	32	31.4	57	54.9	-	-	3	2.9	11	10.8	1.85
3	Communicate ICT plans, and implementation strategies.	P	3	16.7	5	27.8	4	22.2	6	33.3	-	-	2.72
		T	36	35.3	44	43.1	8	7.8	14	13.7	-	-	1.99
4	Effectively communicate with the school community in the process of ICT implementation.	P	2	11.1	10	55.6	-	-	3	33.3	-	-	2.89
		T	19	18.6	45	44.1	13	12.7	25	24.5	-	-	1.41
5	Utilize information sources about ICT professional development	P	5	27.8	8	44.4	-	-	5	27.8	-	-	2.17
		T	37	36.3	56	54.9	8	7.8	1	1.0	-	-	1.74

Note:1) R=Respondents, P=Principals, T=Teachers, X=mean value, Np=Number of principals, Nt=Number of teachers, 2) Mean values: 0.71-1.56, 1.57-2.42, 2.43-3.28, 3.29-4.14, and 4.15-5.00 were used for SD=strongly Disagree, D=Disagree, UD=Undecided, A=Agree, and SA=Strongly Agree respectively. 3) For the sake of clarity, only important percentages were interpreted.

The first item in the table asked about exhibit knows how to use ICT such as plasmas, computers and computers related facilities by the principals. As can be observed from the table, over 49% of the principals were chosen for agreement. However, the large numbers (75%) of teachers were shown disagreement to demonstrate know how to use ICT by principals. The calculated mean value for principals was 3.17 which mean in the interval value of neutral. On the contrary, the mean score for teachers group was 2.23, less than the minimum value of undecided (2.43), and in the interval value of disagree. This difference may emanate from lack of know how about the practical technology use. The interview information supported teachers' opinion that lack of ICT access and the inadequate knowledge base the principals possess, affect principals to exhibit know how to use technology in schools. Thus, the study indicates that principals of secondary schools in the zone were incapable to model how to use computers, plasma and related facilities.

The second item in table 4.10 was about assessment of technology needs of the school community by the principals. As can be seen in the table, 56% of principals and well over 86% of teachers witnessed disagree or strongly disagree to school ICT need assessment by the principals. The mean score for each of the two groups was below 2.43 which mean the minimum value for undecided. The finding of this study, therefore, indicates principals of concerned this study were not in a position to assess what types of technologies are available and not available from the needs of the school community point of view.

Regarding the third item in the same table, 45% of principals and over 78% of teachers were rated disagree or strongly disagree to principals role of communicating ICT plans and implementation strategies by principals. The information obtained through document review and interview also assured that the schools have not well structured and documented ICT vision, plan and implementation strategies and the school principals required to communicate.

The fourth item in table 4.10 enquired about principals' effective communication with the school community in implementing ICT. As can be seen in the table, 67% of principals and 63% of teachers responded either disagreement or strongly disagreement to the

effective communication with the school community in the process of ICT implementation by the school principals of this study concerned. The correspondence mean score for each of the two groups was less than 2.43, the minimum value for neither agree nor disagree. In effect, each group of respondents holds similar views. Therefore, the study revealed that government secondary school principals in west Showa zone ineffectively communicate with the school community in the process of ICT implementation. To accomplish tasks and meet school ICT objectives effectively, adequate and clear communication is badly important. But, it indicated they lack these skills which mean the life blood cell of the schools is missing.

Utilize information sources about ICT staff development was the last item raised in the table. As the table illustrated, almost 72% of the principals and well over 91% teachers respondents disagree that utilize information sources about school level ICT professional development. The calculated mean values such as 2.17 for principals and 1.74 for teachers indicate far below 2.43, the minimum value for undecided and thereby each of the group of respondents embrace similar opinion. Therefore, the skills that principals possess to utilize information sources regarding ICT staff development tended to weak in schools this study was undertaken.

4.10 Principals Role of Creating Partnership

The following table presents creating partnership within and outside schools community to promote effective ICT implementation by principals. Creating network or partnership was also the central role of principals to perform effective ICT implementation in schools. Here, two intertwined items were raised and analyzed responses of each group of respondents' basically using percentages on five point rating scales in the table below.

Table 4.11. Respondents Responses on Principals Role of Creating Partnership (Np=18, and Nt=102)

No	Variables	R	Responses										X
			SD		D		UD		A		SA		
			F	%	F	%	F	%	F	%	F	%	
1	Create network	P	5	27.8	7	38.9	-	-	6	33.3	-	-	2.39
		T	49	48	36	35.3	3	2.9	14	13.7	-	-	1.83
2	Share roles among stake holders	P	-	-	6	33.3	4	22.2	5	27.8	3	16.7	3.28
		T	28	27.5	48	47	12	11.8	14	13.7	-	-	2.15

Key: Np=number of principals, Nt=Number of teachers, R=Respondent, P=Principals, T=Teachers, SD=Strongly Disagree, D=disagree, UD=Undecided, A=Agree, SA=Strongly Agree, and X=mean value. Below 1.56, 1.57-2.42, 2.43-3.28, 3.29-4.14, and 4.15-5.00 used as SD, D, UD, A, and SA respectively.

The first item in the table asked about the role of creating network or partnership with the stake holders within and outside school to perform effective implementation by the principals. As can be seen in table 4.11 above, 67% of principals and about 83% of teachers showed either disagree or strongly disagree to the principals' role of creating partnership with the stake holders to upgrade ICT implementation. The mean score for principals and teachers was 2.39 and 1.83 respectively. The scores showed below 2.43 which was the minimum value for undecided and now lie in the interval value point of disagree. This delineates that principals and teachers unanimously assured principals were not effectively perform the role of creating partnership and collaborative work both within and outside the schools for the purpose of material, technical and financial assistance to upgrade the use of ICT in schools this study encompassed.

The second item in the table enquired about the sharing of roles and responsibilities. As far as this variable was concerned, the computed mean score of 3.28 for principals agree that principals share roles and responsibilities among the stake holders as the score above the maximum value of undecided. While a 2.15 mean score pointed out that group of teachers respondents disagree about share of roles and duties to the stakeholders by the principals as the obtained score below the undecided value. This may probably due to the gap between knowhow and actual ICT practices among the group respondents on what roles and responsibilities to be shared and practiced ICT implementation is a new phenomenon in the learning environment. The information obtained through interview found in support of teachers' opinion that principals were not completely releasing from the tradition of work culture, that is, lack of delegating roles. The total mean average (grand mean) 2.41 still shows disagreement value that can be inferred participation of the stake holders or distributive leadership is missing and hinder effective ICT implementation. Indeed, these findings showed that principals of this study were most likely ineffective to perform their roles of implementing ICT in West Showa government Secondary schools.

But, Betz (2011) stated that implementation of ICT in schools would be successful when school leader supports, learns, provide up to-date infrastructure, adequate professional development and support staff during its implementation. Thus, school principals have

responsibility of evaluating, supervising and researching the implementation of ICT programs in their schools. Moreover, principals of this century this study put its covetous eye seem to have developed the behaviors of supportive principals in their respective schools.

4.10. School Principals Challenges in Implementing ICT

This part introduces with and looks into Principals' leadership challenges in implementing Information and Communication Technology in secondary schools of West Showa zone. For this purpose, twelve different items were raised in table 14 and computed responses of different groups of respondents as well as ranked the variables using common mean scores. The driving force behind this was to sort out the degree/seriousness of the possible challenging factors. Here, five point rating scales were applied in dealing with the factors as very serious=5, serious=4, moderately serious=3, slightly serious=2, and very slightly serious=1. The percentage for very slightly serious and slightly serious summed up as slightly serious and similarly done for serious and very serious as serious challenges.

Table 4.12. Respondents Responses to principals' challenges in implementing ICT (Np=18, Nt=102 and Ns=65).

No	Variables	R	Responses										Group	
			VS		S		Mos		SS		VSS			
			F	%	F	%	F	%	F	%	F	%	X	Rank
A	Shortage of time to use computers	P	2	11.1	3	16.7	3	16.7	6	33.3	4	22.2		
		T	21	20.6	20	19.6	23	22.5	22	21.6	16	15. 7	2.99	8
		S	4	6.2	9	13.8	14	21.5	33	50.8	5	7.7		
B	Inadequate computer knowledge base	P	-	-	5	27.8	3	16.7	7	38.9	3	16.7		
		T	5	4.9	12	11.8	30	29.4	41	40.2	14	13.7	3.61	6
		S	4	6.2	3	4.6	8	12.3	31	47.7	19	29.3		
C	Insufficient budget	P	-		1	5.6	6	33.3	9	50	2	11.1		
		T	-		18	17.6	10	9.8	43	42.2	31	30.1	3.95	2
		S	-		16	24.6	8	12.3	27	41.5	14	21.5		
D	Inaccessibility to ICT facilities	P	-	-	1	5.6	4	22.2	7	38.9	6	33.3	4.02	1
		T	-	-	5	4.9	3	2.9	76	74.5	18	17.6		
		S	-	-	3	4.6	10	15.4	32	49	20	30.8		
E	Inadequate Training	P	1	5.6	3	16.7	4	22.2	6	33.3	4	22.2	3.77	5
		T	3	2.9	11	10.8	15	14.7	38	37.3	35	34.3		
		S	2	3.1	10	15.8	13	20	24	36.9	16	24.6		
F	Attitudes to ICT implementation	P	3	16.7	2	11.1	4	22.2	4	22.2	5	27.8	3.57	7
		T	15	14.7	9	8.8	16	15.7	24	23.5	38	37.3		
		S	3	4.6	8	12.3	20	30.8	19	29.2	15	23.1		
G	Absence of ICT technicians rather than the principal.	P	1	5.6	3	16.7	-	-	10	55.6	4	22.2		3
		T	3	2.9	8	7.8	14	13.7	48	49	28	27.5	3.92	
		S	2	3.1	7	10.8	10	15.4	25	38.5	21	32.3		
H	Technical problems while using plasma	P	1	5.6	2	11.1	5	27.8	6	33.3	4	22.2		7
		T	8	7.8	9	8.8	29	28.4	32	31.8	24	23.5	3.57	
		S	-	-	2	3.1	20	30.8	43	66.2	-	-		
I	Computer lab related Problems	P	-	-	2	11.1	4	22.2	12	66.7	-	-		4
		T	-	-	10	9.8	18	17.6	63	61.8	11	10.8	3.82	
		S	-	-	-	-	16	24.6	28	43.1	21	32.3		
													Grand mean=3.69	

For the sake of simplicity, clarity and data interpretation, 5.00-4.15=very serious, 4.14-3.29=serious, 3.28-2.43=moderate (Ms), 2.42-1.57=slightly serious(SS), and 1.56-0.7=very slightly serious(VSS). Np=Number of principals, Nt=Number of Teachers, Ns=Number of Students.

Table 4.12 exhibits different factors that challenge school principals in implementing ICT and the seriousness of each factor in rank order. Accordingly, the first ranked challenging factor was the inaccessibility of ICT (computers and computers related facilities such as internet, e-mail, power point presentation tools, and lab tops). The mean score of ICT access was 4.2, which is the arbitrary mean value for very serious. This indicates that shortage of computer and computers related facilities in almost all the surveyed schools of this study. This has diverse effect in ICT use, and computer skill practices by the school principals, teachers and students as well as impede effective ICT implementation. The second very serious challenge in the table that commonly witnessed by different groups of respondents was inadequate budget. As can be observed from table 13, the

mean score for inadequate budget at the school levels was 3.95 which also in the interval mean value of very serious challenge. Lack of trained man power/ICT technicians; problems associated with computer labs(neither enough, comfortable or total absence); inadequate training; inadequate ICT knowledge and skills base; and principals attitude towards teachers computer use and teachers attitude towards plasma use in class room instruction were Top nine ranked serious challenging factors next to ICT inaccessibility. As can be seen from the table, 4.2, 3.95, 3.92, 3.82, 3.77, 3.61, and 3.57(x 2) were consecutively mean scores of those ranked serious challenging factors. In regard to this, the information obtained through observation check-list and interviews reflect that the incompatibility of the ratio of computers with the number of students, inadequate support and others mentioned earlier were the top witnessed serious problems to the school leadership while implementing ICT. The interview information obtained from the supervisors further suggested that ICT knowledge base and competence by the principals, principals' capacity to provide support, capacitate school community and commit as well as prioritize school sources for ICT staff development were among the listed serious challenges.

Generally, the grand mean score for those identified challenges was 3.69 which means above 3.28, the maximum value for moderately serious. Thus, it appears that all of the factors tend to challenge the school principals in implementing ICT in West Showa Zone Government Secondary Schools though its degree varies. In line with the above findings, Yiftusira (2003) concluded that lack of information, inadequate funds, professional development, computer and computer associated inaccessibility, inadequate technical support and knowledge base as main problems encountered Ethiopia's secondary schools in implementing Information Technology.

Regarding open ended questions, the respondents mentioned the following problems to the second item-'if any specify." These were: "principals' foggy minded when teachers tried to use computers in the schools, light discontinuity, lack of ICT trained man power, principals in-confidence -ICT phobia-to use and render support, inefficient use of budget, absence due attentions to ICT implementation and interest to use plasma in instruction by teachers. Besides to these, respondents also listed that absence ongoing ICT staff

development to boost principals and teachers skills , problems of assign the right person at the right place (principal ship position), inaccessible ICT centers, lack of efforts in departing General and Preparatory Schools, inadequate ICT experience sharing within and outside school, maintenance problems to computers and plasmas, location of schools from information sources and lack of mediators between the schools and fund raisers as some of possible factors which impede ICT implementation in the schools.

The second open item which asked was strategies the school uses in implementing ICT. The respondents particularly teachers have provided both negatively and positively though dependable. The first included "strict strategies, paper value, no strategy, touch not, touching computers is forbidden, and principals foggy minded. Whereas, the second involved that display ICT skill practices on plasma screen in connecting with computer, using opposite shift schedules to minimize problems of large class and the incompatibility of computers labs with the number of students as well as inviting NGOs to get material, technical and financial assistances.

The last open ended item raised was the possible measures to alleviate encountered challenges while implementing ICT. Accordingly different groups of respondents were suggested the following points: Assign skillful, competent, supportive and Educational planning and management MA trained principals in principal position, prepare principals and teachers in providing ongoing ICT staff development to boost their knowledge base, ICT use and competence in cope up with information age globalization pressures. They also added that principals should be competent and supportive to use contemporary technology and better student learning; budgeting ICT; formulate School ICT vision, participatory plan and implementation strategies. Moreover, motivate school principals and teachers; awareness creations; multidimensional support; partnership with woreda Net, respective government offices and NGOs, solve computers lab and plasma related problems, improve ICT (including maintenance) facilities and conduct ongoing ICT evaluation and research project to upgrade ICT facilities were some respondents suggested solutions.

CHAPTER FIVE

Summary, Conclusion and Recommendations

5.1. Summary

The purpose of this study was to investigate school principals' leadership roles and challenges in implementing ICT in West Showa Zone Government Secondary Schools. To achieve this purpose, the following basic questions were formulated.

1. To what extent principals use ICT/computers?
2. How far school principals effectively discharge their leadership roles of implementing ICT?
3. What are the major possible challenges the schools principals Encountered in implementing ICT in Government Secondary Schools of West Showa Zone?

To this end, data gathering instruments were developed. These are questionnaire, semi-structured interviews, document analysis, and observation check-list. In this study, a total of 193(18 principals, 102 teachers, 65 students and 8 supervisors) respondents were took part from ten surveyed schools. On the basis of the data collected, analysis was carried out using frequency counts, percentages, mean scores, independent t-test, grand mean and rank order.

Major Findings of the Study

I. Characteristics of the Respondents

Principals' preparations for principal leadership position in sampled schools inadequately and inappropriately trained. About 94% of the principals were first degree holders in professional subjects. None of them, except 6%, were first and second degree holders in Educational Planning and Management.

II. Regarding Principals ICT Use

1. The large majority of group of respondents were unanimously witnessed that the low use of computers by the school principals, and low use of ICT for class room instruction (mean scores = 1.95 and 1.63 and grand mean). That is, principals were

found low performance of computer use computer and low implementation in class room teaching and learning. The data obtained through interview confirmed that principals were not use computers effectively but through their secretaries/typists. It indicated that they dominantly use computer for administrative purposes than teaching and learning. Hence, the objective of ICT introduction to Ethiopia Secondary schools to support student learning and thereby improve quality education as one important element of GEQIP (2007; & MoE, 2004) might being missing.

2. As far as the frequency use of ICT, different groups of respondents hold that the rarely use teachers to use ICT (computer skill practices and plasma in class room instruction) was reported not perform in the right track. Inadequate computers, and lap tops; and no internet and e-mail access in all schools except Ambo General and Preparatory school. Besides, teachers and students were not at work/practice in computer labs effectively and efficiently. Plasmas' televised teachers sound were not listened from the class room, many defective old computers and printers were observed in narrow computers labs and in offices covered by dusts, the numbers of computers were disproportional in many schools which made computer skill practices in the schools debatable. Furthermore, the rarely use of plasma in class room instruction witnessed that no statistically significance difference among respondents in opinions. The information obtained through observation and interview indicated that SPTV was not uniformly functioning in class room instruction in many schools of west Showa zone.

3. The study indicate that school principals have high competence in word processing, computer operating system (with mean scores 3.44 and 3.51).Contrary to this, results of the study show low performance in the areas of spread sheet/excel, data base, internet use, e-mail use, power point presentation, and solve school level plasma technical problems (grand mean 2.19, which is "low").

III. Extent of Discharging Leadership Role in ICT implementation by School Principals

1. Results of the study showed that principals inadequately discharge their leadership roles of implementing ICT in Government Secondary Schools of West Showa Zone. It further indicated that most of respondents disagree with principals' role of creating school ICT vision, participatory plan and implementation strategies, leading/managing change. Supportive role of ensure appropriate ICT facilities, capacitate, influence, and model teachers to use ICT/computer skill practices and plasma in class room instruction were also reported not perform in the right track. They were low performance to provide ICT staff development .Commit school resources for staff development and the attempt of ICT release time were almost the forgotten role by principals in almost government secondary schools of West Showa zone. This was somehow exceptional to Ejere general and Ambo preparatory schools which were providing ICT staff training in collaboration with NGOs (e.g. Ambo with British Council).

2. Absence of performing ICT evaluation and research. In all schools no plan/report document and report showed regarding ICT evaluation and research.

3. Inadequate interpersonal and communication skills by principals in the schools of this study concerned while implementing ICT. It means that, smart technology interaction by the school principals, the life blood cell of the organization, that is, communication skill is missing.

4. Principals role of creating partnership within and outside the schools show disagree (inadequate and ineffective) by the majority of the participants and the data obtained through other means.

IV. Challenges the school principals encountered in implementing ICT

I. Principals Preparations

1.1. Qualification and field of specialization, that the place needed and customers satisfied with is highly essential in achieving the intended goals in the right truck. However, school principals of this study focused inadequately and inappropriately trained as 94% of them were first degree holders in professional subjects. But, none of them, except 6%, were not having first and second degree holders in Educational Planning and Management.

1.2. Principals in the surveyed schools have witnessed positive attitude towards ICT usefulness in the learning environment which laid fertile ground to well come ICT in to schools environment. But, the study does not mandate as change changes people.

1.3. According the information obtained from open ended questions and interviews indicate that the school principals in the zone have not received any ICT training, seminars, workshops and conferences. Principals are expected as change agents, models, leaders of leaders, and supportive. But, absence of training and knowledge base to this newly introduced phenomenon, ICT, appears difficult for the school principals to use ICT and in turn provide support for the school community. This may greatly affect the implementation of ICT in the path to generate competent and skillful generation.

II. ICT Inaccessibility and Other Related Resources

1. Inaccessibility of computers and computers related facilities. Teachers and students were not much seen work on computers and computer related facilities such as internet, e-mail, and power point presentation either in computer lab or the class. ICT access, therefore, the first serious problem with the mean value 4.2.

2. Besides, budget constraints; lack of ICT trained man power; problems associated with computer labs and Plasma Television; inadequate or absence school level ICT professional development; principals inadequate ICT knowledge base and skills; and

principals attitude towards teachers computer use and teachers lack of interest towards plasma use in class room instruction (with the mean values of 3.96, 3.95, 3.92, 3.86, 3.82, 3.77, 3.65, 3.61,and 3.57 respectively) were among the tops listed and ranked serious principals challenges in implementing ICT in West Showa Government Secondary schools.

In connection to this, the information obtained through interview delineated that the incompatibility of computers with the number of students was one of the top serious problems to the school leadership in ICT implementation. Supervisors also explained that knowledge base of principals on how to use ICT, initiation to support school community and commit school sources to school level ICT staff development and etc were some of the top ranked serious challenges. Generally, it appears that though the degree varies, all of the factors depicted in table 13 tend to affect and challenge the school principals in the implementation of ICT in West Showa Zone (Grand mean=3.69, which is above average mean serious challenge).

5.2. Conclusion

On the basis of the preceding findings, conclusions about the study have been drawn. ICT is a contemporary introduced phenomenon in today's secondary schools. Hence, its effective implementation requires multifaceted preparation of the implementing bodies mainly the principals to discharge their roles and responsibilities in implementing ICT effectively and efficiently. In this regard, this study is one of the endeavor attempts that pave the way for improvements of principals' leadership performances in implementing ICT in Government Secondary Schools West Showa Zone in its findings.

Having the above discussion and findings obtained by this study, the following conclusions are made by the current researcher. Principals were relatively found low performance of ICT use, competence in data base, excel, solve school level Plasma Television technical problems, power point presentation, internet and e-mail use. However, the study indicates that high performance in word processing and computer operating systems by the school principals. Furthermore, the finding revealed the school principals performances were not effectively discharge their roles of implementing ICT.

In connection to challenges the school principals encounter encompassed inaccessibility of computers and computer related facilities, insufficient budget were identified as the first two tops ranked serious challenges. It appears that though the degree varies, all of the factors which are depicted in table 13 tend to challenge the school principals in the implementation of ICT government secondary schools in West Showa Zone.

5.3. Recommendations

On the basis of the findings reached and conclusion drawn in the preceding, the following recommendations were forwarded.

I. ICT Implementation, Use and Competence

- It believed that ICT is a catalyst in assuring quality education. Therefore, West Showa secondary schools principals, the government, and NGOs must give due attention to upgrade accessibility of computers, and computer facilities in secondary schools of west Showa zone. Besides, principals should facilitate the school environment for themselves, teachers and students to frequent ICT use and computer and computer related skill practices as well as the use of Plasma Television in class room instruction, internet, e-mail and power point presentation, either individually or in groups, if possible according to school subject departments.

II. Extent of Discharging Leadership Roles by principals

- Obviously school principals of the 21st century are expected as leaders, leaders of leaders and supportive principals. Therefore, they should facilitate and provide school level ICT training, multifaceted support and capacitate teachers and students to use ICT and practice basic computer skills. The school principals should commit school resources and generate school based incomes to upgrade, afford and promote effective ICT implementation and improve student learning through community participation.

III. Challenges: Principals Preparations and Related problems

- Qualification and field of specialization are highly essential in achieving the intended goals in the right truck. To this end, school leaders specifically principals need to have skills and training. Thus, Oromia Education Bureau in collaboration with the Ministry of Education should continually create further education and training opportunities for school principals to have second degree in Educational Planning and Management.

- Today is passing and tomorrow will be coming; the world is moving and ever changing due to scientific and technological innovations in a quick glance. When there is an innovation, preparation of implementing bodies are required. As ICT is an innovation, the hierarchical Education Offices and Oromia Education Bureau in collaboration with the concerned bodies are advised to provide timely and ongoing ICT trainings, seminars, conferences and workshops opportunities for those schools principals to boost their performance in discharging their leadership roles of implementing ICT effectively and enable them supportive principals.

- The government should give due attention to Secondary schools of this study in allocating budget, assigning ICT trained man power, redressing follow up mechanisms particularly to Satellite Plasma Television(SPTV) lesson transmission, facilitate communicative role of directing NGOs and other fund raisers towards schools for ICT support.

- At last but not least, those secondary schools principals of this study focused must create partnerships/networks within and outside the school community such as Non-Government Organizations, fund raisers, higher education, Woreda Net and other respective government offices to upgrade school level ICT technically, financially and materially. They also advised to conduct research and timely evaluation to identify strengths, weaknesses, changes and correct if there are discrepancies in terms of usability and cost to upgrade ICT implementation in the secondary schools.

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APPENDEX-A

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

COLLEGE OF EDUCATION AND BEHAVIORAL STUDIES

DEPARTMENT OF EDUCATIONAL PLANNING AND MANAGEMENT

SCHOOL PRINCIPALS' QUESTIONNAIRE

Dear principal!

The purpose of this questionnaire is to gather information about school leadership roles and challenges in implementing ICT in West Showa Zone Government Secondary Schools. The findings are expected to suggest the possible solutions, may enable principals' leadership performance more effective in the use of contemporary technology (ICT) and in turn provide support for the school community to produce the young of today's and adults of tomorrow with 21st century skills.

Therefore, your kind cooperation in providing frank, thoughtful and genuine answers have special place to make this study fruitful. To assure your **confidentiality**, the obtained information is only used for academic research purposes, and statistically analyzed and kindly requested not to write your name in each page.

Thank you in advance for your genuine cooperation!

***Part I.* Back Ground Information**

Direction: Indicate your answer either by putting a tick (√) mark in the given box or by writing appropriate answer in the space provided.

1. Name of the school_____
2. Sex: Male ☐ Female ☐
3. Age: 21-25 ☐ 26-30 ☐ 31-35 ☐
   36-40 ☐ 41-45 ☐ 46 and above ☐

4. Qualification: Certificate Diploma ☐ Degree ☐ MA/MSC ☐

5. Field of Study: Major _____

6. Year of services as principal:

Part II. **Principals' ICT Preparations: ICT Training and Use**

Direction: This part helps to collect information about school principals' ICT training, and ICT use. Please use a "√" mark in filling the best box of your choose.

ICT Use

1. To what extent do you think that ICT is useful in the learning environment?

Very Low ☐ Low ☐ Medium ☐ High ☐ Very high ☐

2. To what extent can you use computer?

Very Low ☐ Low ☐ Medium ☐ High ☐ Very high ☐

3. To what extent do you often use ICT/Computer for teaching and learning purposes in your school? Very low ☐ Low ☐ Medium ☐ High ☐ Very high ☐

Part III. **The Frequency use of Computer skills Practices and Competence**

Direction: This section is aimed to check how often principals, teachers, and students use/practice computer skills and assess school principal's ICT competence, Use "√" mark in the box of your choice.

Key: 5= Almost always; 4=Always; 3=Often; 2=Rarely, 1=Very rarely

1. In your school, how often do teachers practice computer skills?
   Always ☐ Often ☐ Rarely ☐ Very rarely ☐

2. How often do the students practice computer skills in your school?
   Always ☐ often ☐ Rarely ☐ Very rarely ☐

3. How often do you use ICT/computer?
   Always ☐ Often ☐ Rarely ☐ very rarely ☐

4. How often does your school currently use Plasma Television for class room instruction?
   Always ☐ Often ☐ Rarely ☐ Very rarely ☐

10. The following table is about Principal's ICT competence on some Computer skills. Use "√" only once in competence column against each item from a-b.

Where: very low=1; low=2; medium=3; high=4; very high=5

No	ICT skills	Principals' ICT Competence				
		1	2	3	4	5
a	Basic computers skills					
b	Word processing					
c	Spread sheet/Excel					
d	Data Base/access					
e	Internet use					
f	E-mail use					
g	Power point presentation					
h	Solving school related plasma technical problems					

Part IV. *The Role of the principal in implementing ICT*

Direction: Please, give your response by putting a tick (√) mark in the column that best describes your current roles as principal in implementing ICT in the school.

Key: Strongly Disagree=1,Disagree=2,undecided=3, Agree=4, and strongly Agree=5

No	School Principal's Roles in implementing ICT	5	4	3	2	1
	Creating school ICT vision and planning					
1	Formulate viable/workable school ICT plan					
2	Clearly articulate shared school ICT vision among the stake holders (teachers, parents, students, & etc).					
3	Include purchase, maintenance, repair ICT tools & facilities					
4	Develop school ICT implementation strategies					
5	Lead/manage ICT implementation/change					
	School ICT Staff professional development/training					
1	Facilitate school level ICT staff development					
2	Provide ICT training					
3	Commit school resources for ICT staff development					
	Provision of ICT support and infrastructure					
1	Ensure appropriate school ICT facilities for the school community					
2	Provide school ICT supports to school community when it needed					
3	Encourage teachers ICT use (e.g. computer, plasma) in school					
4	support computer software and hardware improvements					
5	Facilitate computer skill practices for the students					
	Research and evaluation					
1	Conduct ICT evaluation (e.g. strengths, weaknesses, changes & timely correction if discrepancies) in terms of benefits/costs.					
2	Conduct research projects for effective ICT implementation					
3	Evaluate teachers ICT use in teaching					
	Skills: Interpersonal and communication					
1	Exhibit how to use ICT (computers, and plasma).					
2	Assess technology needs among the school community					
3	Communicate ICT plans, and implementation strategies.					
4	Effectively communicate with the school community in the process of ICT implementation.					
5	Utilize information sources about ICT staff development					
	Partnership in ICT implementation:					
1	Create network with different institutions and communities					
2	Share roles and duties among stake holders					

Part V. Possible Factors that *challenge* school principals in ICT implementation.
Direction: Please respond your answer by putting tick (√) in the column scale of your choice against each item.

Key: 5=Very serious 4=Serious 3=Moderate 2=slightly serious 1=Not serious

1	**Challenging factors**	5	4	3	2	1
B	Shortage of time to use computers					
C	Inadequate computer knowledge base and skills					
D	Insufficient budget					
E	Inaccessibility of computers and computer related facilities (e.g. internet, e-mail, hard ware and soft ware).					
F	Absence of ICT staff development/training					
G	Attitudes to ICT implementation					
I	Absence of ICT technicians rather than the principal.					
L	Technical problems while using Plasma					
M	Problems associated with computer lab					

2. Other (specify if any) _____

_____

3. What strategies does the school practice in implementing ICT? _____

_____

4. What measures need to be taken to alleviate these problems? _____

_____

_____

APPENDEX-B

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

COLLEGE OF EDUCATION AND BEHAVIORAL STUDIES

DEPARTMENT OF EDUCATIONAL PLANNING AND MANAGEMENT

TEACHERS' QUESTIONNAIRE

Dear Teacher:

The purpose of this questionnaire is to gather information about principal leadership roles and challenges in implementing ICT in West Showa Zone Government Secondary Schools. The findings are expected to suggest the possible solutions and may enable school leadership performance more effective in the use of contemporary technology (ICT) and in turn provide support for the school community to produce the young of todays and adults of tomorrow with 21st century skills.

Therefore, your kind cooperation in providing genuine answers have special place to make this study complete. To assure your **anonymity** of answering the questionnaires, the obtained information is only used for academic research purposes and analyzed statistically. You are also kindly requested not to write your name.

Thanks for your genuine cooperation in taking part to fill out the questionnaires.

Part I. Back Ground Information

Direction: Please mark a "√" in the given box or write your response accordingly

1. Name of the school_____
2. Sex: Male ☐ Female ☐ 31-35 ☐ 41-45☐
3. Age: 21-25 ☐ 26-30 ☐ 36-40 ☐ 46 and above☐
4. Qualification: Certificate Diploma☐ Degree☐ MA/MSC/MED ☐
5. Field of Study: Major_____
6. Your teaching services in years: In this school ☐ In other ☐ Total ☐

Part II. ICT Use

Direction: This part helps to collect information about school principals' ICT use in the school environment, ICT competence, and preparations. Thus, put a tick mark (√) or writing your responses in the space provided accordingly.

Key: 1=Very low; 2=Low; 3=Medium; 4=High; and 5=very high

1. To what extent does you school principal/s consider ICT usefulness in the learning environment? Very Low ☐ Low ☐ Medium ☐ High ☐ Very high ☐

2. How far your school principal/s can use ICT/computers?

Very Low ☐ Low ☐ Medium ☐ High ☐ Very high☐

3. To what extent your school principal does use Computer in teaching and learning purposes? Very Low ☐ Low ☐ Medium ☐ High ☐ Very high ☐

Part III. Frequency use of ICT and Competence/computer skills practices

Direction: This section is aimed to check whether students and teachers practice computer skills and assess school principal's ICT competence level.

Key: 4=Always, 3=Often, 2=Rarely, and very rarely

1. In your school, how often do teachers use ICT/practice Computer skills?
Always ☐ Often ☐ Rarely ☐ Very rarely ☐

2. How often do the students practice computer skills in your school?

Always ☐ Often☐ Rarely ☐ Very rarely ☐

3. How often do your school principals use/practice ICT?

Always ☐ Often ☐ Rarely ☐ Very rarely ☐

4. How often your school does currently use plasma in class room instruction?

Always ☐ Often ☐ Rarely ☐ Very rarely ☐

ICT Competence

1) The following table is about Principal's ICT competence on some Computer skills and thereby put "√" for each item against the competence level column.

Key: very low=1; low=2; medium=3; high=4; and very high=5

ICT skills		**Principal's ICT Competence**				
		1	**2**	**3**	**4**	**5**
1a	Computers operating system					
1b	Word processing					
1c	Spread sheet/Excel					
1d	Data Base/Access					
1e	Internet use					
1f	E-mail use					
1g	Power point presentation					
1h	Solving school related plasma technical problems					

Part IV. The extent to which principals perform their roles in implementing ICT

Direction: Use a "√" mark in the column that best describes current performance of your school principals' role in implementing ICT.

Key: Strongly Disagree=1, Disagree=2, undecided=3, Agree=4, & strongly Agree=5

No	Roles of the school principals : In my school, the principal	5	4	3	2	1
	School ICT Plan and vision					
1	Formulates viable/workable school ICT plan					
2	Clearly articulates shared school ICT vision with stake holders.					
3	Includes purchase, maintenance, ICT tools & facilities in the plan.					
4	Develops school ICT implementation strategies					
5	**Leads /manages ICT implementation/Change**					
	Staff development and training					
1	Facilitates school based ICT professional development for teachers					
2	Provides school level ICT staff development/training					
3	Commits school resources for ICT training					
	Provision of ICT support					
1	Ensures appropriate school ICT facilities for the school community					
2	Provides school ICT supports to school community when it needed					
3	Capacitates teachers to use ICT(computers, plasmas)					
4	supports computer software and hardware improvements					
5	Facilitate computer skill practices for the students					
	Research and evaluation					
1	Conducts ICT evaluation (strengths, weaknesses, changes and timely correction if discrepancies in terms of benefits/costs).					
2	Conducts ICT research for its effective implementation.					
3	Evaluate teachers ICT using in Teaching					
	Skills: Interpersonal and communication					
1	Exhibits know how to use computers.					
2	Assesses technology needs among the school community					
3	Communicates ICT plans, and implementation strategies.					
4	Effectively communicates with the school community in the process of ICT implementation.					
5	Utilizes information sources about ICT professional development					
	Partnership in ICT implementation:					
1	Creates network with different institutions and communities					
2	Shares roles and duties among stake holders					

Part V. Possible Factors that challenge the school principals in implementing ICT

Direction: Please respond your answer by marking a tick (√) in each box only once

Key: 5=Very serious 4=Serious 3=Moderate 2=slightly serious 1=Not serious

1	**Challenging factors**	5	4	3	2	1
A	Shortage of time to use computers					
B	Inadequate computer knowledge base and skills					
C	Lack of budget					
D	Inaccessibility of computers and computer related facilities (e.g. internet, e-mail, hard ware and soft ware).					
E	Absence of ICT staff professional development/training					
F	Attitudes towards ICT implementation.					
G	Absence of ICT technicians rather than the principal.					
H	Technical problems while using Plasma					
I	Problems associated with computer lab/room					

2. Other (specify if any) _____

_____

_____

3. What strategies does the school use in implementing ICT? _____

_____

_____

4. What measures need to be taken to alleviate these problems? _____

_____

_____

Comment (if any) _____

_____

Thank you again!

APPENDEX-C
ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

COLLEGE OF EDUCATION AND BEHAVIORAL STUDIES

DEPARTMENT OF EDUCATIONAL PLANNING AND MANAGEMENT

Students' Questionnaire

Dear student!

The purpose of this questionnaire is to gather information about principals' leadership roles and challenges in implementing ICT in West Showa Zone Government Secondary Schools. The findings are expected to suggest possible solutions, enable school leadership performance more effective in the use of contemporary technology (ICT) and in turn to provide support the school community to produce the young of today's and adults of tomorrow with 21st century skills.

Therefore, your contribution in providing genuine answers have special place to make this study fruitful. To assure your **anonymity** of answering the questionnaires, the obtained information is only used for academic research purposes and analyzed statistically. You are also kindly requested not to write your name.

Thank you in Advance!!

Part I. **Back Ground Information**

Direction: Indicate your answer by putting a tick (√) mark in the given box and also write in the space provided where appropriate.

1. Name of the school_____

2. Sex: Male ☐ Female ☐

3. Age in years: Below 15 ☐ 16-18 ☐ 19-21 ☐ 22 and above ☐

Part II. **ICT competence /computer skill practices**

Direction: This section is the frequency use of ICT/Computer skill practices by principals, students and teachers. Use "√" in the box that best describe your choice.

1. In your school, how often do teachers practice computer skills?

Always ☐ Often ☐ Rarely ☐ Very rarely ☐

2. How often do the students practice computer skills in your school?

Always ☐ Often ☐ Rarely ☐ Very rarely ☐

3. How often do you think that your school principal use ICT/Computer?

Always ☐ Often ☐ ☐ Rarely ☐ Very rarely ☐

4. How often your school does currently use plasma in class room instruction?

Always ☐ Often ☐ Rarely ☐ Very rarely ☐

Part III. Possible Factors that challenge the school principal/s in the implementation of ICT.

Direction: Please tick (√) once in a box of the scale that best describe.

Key: 5=Very serious 4=Serious 3=Moderate 2=slightly serious 1=very slightly serious.

1	**Challenging factors**	5	4	3	2	1
A	Shortage of time					
B	Principals' inadequate ICT knowledge and skills					
C	Insufficient budget					
D	Inaccessibility of computers and computer facilities					
E	Lack of community support for ICT use					
F	Principals' attitudes towards ICT implementation					
G	Absence of ICT technicians rather than the principal.					
H	Technical problems while using plasma in instruction					
I	Problems associated to ICT room /computer lab					

2. Others (if any more specify) _____

_____

3. What strategies does the school use in implementing ICT?_____

_____

4. What measures need to be taken to alleviate these challenges?

_____

_____

Appendix-C: A translated students' Questionnaires

Dabalee D

Yuunivarsiittii Finfinnee

Kollejjii Barnoota Digirii 2ffaa

Muummee Kaarooraa fi Bulchinsa Barnootaa

Gaaffilee Barattootaan gutamu

Kabajamoo Bartootaa!

Kayyoon gaaffilee kanaa sagantaa "ICT" hojii irra olchuuf dura bu'ooni manneen barnoota Godina Shawaa Dhihaa shoraa taphachuu qaban ammam taphachaa jiruu fi, hudhaalee gama kanaan qunnaaman ilaalchisee odeeffannoo qulqulluu fi madalwaa ta'e waliti qabame bu'aa isaa qaacesuun qorannoo kanaan yaada furmaata kennuu ta'a. Argannoo kananiis dura buoo'nni mannen barnootaa gahe ICT irratti qaban ni gabbifatu, dandeetti ICTiin akkasumas gargaarsa hawaasa mana barumsa deegaraa kenna jiran kan itti of beekanii fi hudhaaleen adda bahanni adeemsi hojiirra oolma ICT lafa qabate dhaloonni amma dandeetti jarra 21ffaa f barbaachisu gonfatu jedhamee yaadama.

Kanaaf gumaachii isiin gaaffiilee kana dhugummaan guttaan qorannichaf bakka oolaana qaba. Dabalataaniis, deebiin isiin kennitan qorannoo barnootaa qofaaf kan fayyadudha. Maqaa barreesuun hin barbaachisu.

Galatoomaa!

Kutaa I : Oddeeffannoo waliigalaa

Qajeelcha : Deebii kee sanduqa keessa mallattoo "✓" kaa'uun ykn akka barbaachisummaa isaatti barreessuun deebisi.

1. Maqaa Mana Barumsaa_____
2. Saala: Dhiira ☐ Dhalaa ☐
3. Umurii waggaan: 15 gadi ☐ 16-18 ☐ 19-21 ☐ 22 fi isaa ol ☐

Kutaa II: Ittifayyadama /Shaakala Dandeetti "ICT" ilaalchisee

Qajeelcha: kutaa kana keessatti dandeetti barattonni dura bu'onni fi barsiisonni "ICT" irratti gabbifachuuf manneen barnoota keessatti shaakalan walitti qabuuf kan gargaaruudha. Kanaaf mallatto "✓" ka'uun deebisi.

1. Mana barnootaa kee keessatti barsiisonni hangam ICT tti fayyadamu/shaakala dandeetti komputaraa taasiisu?

   Baayyee yeroo maraa☐ Yeroo maraa☐ Giddugaleessa☐

   Darbee darbee ☐ Baayyee darbe darbee☐

2. Barattonnii dandeetii gabbifachuuf komputara ammam irra dedebi'ani shaakalu?

   Baayyee yeroo maraa☐ Yeroo maraa☐ Giddugaleessa ☐

   Darbee darbee ☐ Baayyee darbee darbe ☐

3. Dhimma shaakala dandeetti "ICT"tiif dura bu'oonni mana barumsaa kee ICT fayyadaman akkasumas dandeetti kana gonfachuuf shaakala komputaraa taasisan hhala ammamiin?

   Baayyee yeroo maraa ☐ Yeroo maraa☐ Giddugaleessa ☐

   Darbee darbee☐ Baayyee darbee darbe ☐

4. Amma yeroo dhiyoo mana barumsaakeetti haalii itti fayyadama pilaazimaa hoo?

Kuaa III: ICT hojiirra olchuuf hoganaa mana baruumsaaf sababoonni hudhaalee ta'u dandaa'aan(yaadaman)

Qajeelcha: Ulfaatina sababoota ICTtif hudhaale ta'an sirritti ni ibsa jettu "✓" sanduqa keessa ka'uun deebisi.

Hiika: baayyee hamaa=5,Hama=4,Giddu galeessa hamaa=3 Rakko salphaa=2 Baayye salpha =1

1	**Sababoota Hudhaa**	5	4	3	2	1
B	Gabaabina/dhiphina yeroo					
C	Bu'urri beekumsa fi dandeetti ICT dura bu'oota laafaa ta'u					
D	Dhabiinsa baajata					
E	Dhiiyeesi komputeraa fi kkf walqabatan					
G	Ilaalcha dura bu'oonnii ICT irratti qaban					
I	Dhabiinsa ogeessa ICT fkn: komputeraa, Pilaazmaa k kf					
L	Rakkooleeteeknikaa kenninsa barnoota pilasmaa mudatan					
M	Hanqina/dhabiinsa kutaa shaakala komputaraa waliin wal qabatan					

2. Sababa Kan biroo yoo jiraatan_____
_____

3. Hudhaalee kanneen furuuf/salphiisuuf maaltu ta'uu qaba jettaa?

Appendix-E: Interview (Supervisors Guide) Questions

1. Please briefly explain your background information including the current responsibility you have in the school?

2. Do you think that ICT is useful in the school environment? Describe briefly.

3. Principals' ICT Capability and Readiness

   3.1. To what extent the school principals are capable to use ICT and provide ICT support/computer, including plasma in class room instruction?

   3.2. Do the school principals have Preparations for ICT use and support? Are principals received any ICT training?

4. What your school principal does look like in performing their roles in implementing ICT? (E.g. leading change, creating school ICT vision and etc)

5. Are ICT infrastructures being developed in the school? Are there the number of students and computers nearly proportional?

   5.1. What sources the school principals committed for ICT implementation?

   5.2. What strategies does your school principal use in implementing ICT?

6. What major challenges your school principal confronts while implementing ICT?

7. What measures need to be taken to alleviate the encountered challenges?

Comment (if any)

Appendix-F: Letter of Request for Supervisors' Interview (Maximum 20 minutes)

Please indicate the appropriate Interview schedule from the list below or specify

Day	Morning	Specify	After noon	specify
March 28, 2013	9:00-9:20		3:00-3:20	
April 2, 2013	8:30-8:50		2:40-3:00	
April 7, 2013	10:00-10:20		3:00-3:20	
April 13, 2013	5:00-5:20		4:40-5:00	

Thank in advance!!

Appendix-G: Observation Check-list

Observation and observation results in some ICT practices and Infrastructures by school

No	Things to be observed	Name Of The Schools									
		Ja	Sh	Ge	Gi	Ej	Gu	TE	Ti	AG	AP
1	Computer labs are accessible										
	Yes		√							√	√
	No	√**		√**	√*	√**	√**	√*	√**		
2	Internet Access										
	Yes										√
	No	√	√	√	√	√	√	√	√	√	
3	Computers are In the office										
	Yes	√	√	√	√		√	√		√	√
	No					√			√		
4	Lap top Computers In school										
	Yes				√					√	√
	No	√	√	√		√	√	√	√		
5	Defective Computers										
	Yes	√	√	√	√	√	√		√	√	√
	No							√			
6	Existence of Printers										
	Yes	√*	√*	√*	√*	√*	√*	√*	√*	√*	√*
	No										
7	Defective Printers										
	Yes	√	√	√	√	√	√		√	√	√
	No										
8	Computers for teaching - learning										
	Yes		√*					√*	√*	√*	√*
	No										
9	Antivirus/computer security										
	yes	√*	√*	√*	√*	√*	√*	√*	√*	√*	√*
	No										
10	Students' works in computer lab.										
	Yes	√*	√*	√*	√*	√*	√*	√*	√*	√*	√*
	No										
11	Teachers work In computer labs	√	√	√	√	√	√		√	√	√
	Yes										
	No	√	√	√	√	√	√		√	√	√
12	Students use internet facilities										
	yes										√
	No	√	√	√	√	√	√		√	√	
13	Teachers use internet facilities										
	Yes										
	No	√	√	√	√	√	√		√	√	√
14	Plasma access in the class room										
	Yes		√	√	√	√	√		√	√	√
	No	√*									
15	Teachers use plasma in instruction					-					
	Yes		√			√	√				√
	No	√		√	√			√	√	√	

Key: Ja=Jaldu, Sh=Shanan, Ge=Gedo, Gi=Ginchi, Ej= Ejere, Gu= Guder, TE= Toke Erensa,TE=Tikur Enchini, AG= Ambo General, and AP=Ambo preparatory, √*=Partial/Rare, √**= Ratio of computers to students (incompatible)

Appendix-H: ICT Related Document Analysis

No	Type of document	Name of the School									
		J	S	Ge	G	E	Gu	TE	Ti	AG	AP
1	Vision, plan and strategies										
	Yes				√	√					√
	No	√	√	√			√	√	√	√	
2	ICT staff training										
	Yes					√					√
	No	√	√	√	√		√	√	√	√	
3	Letter/s of partnership, and etc.					√					√
	Yes					√					√
	No	√	√	√	√		√				
4	Evaluation and research/project										
	Yes					√					
	No	√	√	√	√		√				
5	Management/Staff agenda										
	Yes										
	No	√	√	√	√	√	√	√	√	√	√
6	Computer labs schedule										
	Yes	√*	√*	√*	√*	√*	√*	√*	√*	√*	√*
	No										

Key:J=Jaldu, Ge= Geddo, G=Ginchi, E=ejere, Gu=Guder, TE=Tokke, Ti=Tikur,

AG=Ambo General, AP=Ambo Preparatory, and√*= Schedule only for Students and no for teachers

Declarations

I the under signed, declared that this thesis is my original work, has not been presented for a degree in any other university and that all resources materials used for the thesis have been properly acknowledged.

Name: Kumela Feyisa Bultum

Signature _____

Date 15 June 2013

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

Name: Teshome Tola (Dr.)

Sign: _____

Date: 15 June 2013