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Addis Ababa University
School of Graduate Studies
Institute of Educational Research

The Integration of Information Communication Technologies in Promoting the Teaching-Learning Process: College of Business and Economic, Addis Ababa University in Focus

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Presented in Partial Fulfillment of the Requirement for the Degree of Master of Art in Educational Research and Development

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Declaration

This is to certify that the thesis prepared by **Solomon Mekonnen** entitled ***"The Integration of Information Communication Technologies in Promoting the Teaching-Learning Process: College of Business and Economic, Addis Ababa University in Focus"*** and submitted in partial fulfillment of the requirements for the Degree of Master of Art in Educational Research and Development complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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ABSTRACT

This study was designed to assess the overall integration of ICTs in the College of Business and Economics in AAU. It aimed to find out whether or not ICTs based instruction was practiced as per benefit of technology Specifically, the study examined the current status of ICTs in the teaching learning process of the College, attitude of instructors to accept and integrate ICTs in their activities and the challenges of instructors to use ICTs in their profession. Both primary and secondary data were gathered using four different instruments namely; questionnaire, interview, observation and documentary source. Quantitative and qualitative techniques were employed to analyze the data obtained. The attitude of instructors to wards to ICTs integration in the teaching learning process has been measured and the result has discussed. The participants believed and affirmed that ICT empowers the professional level of comfort in their activities. All respondents have justified the importance of ICTs in their academic excellence adding value. *The results of the study revealed that the current situation of ICTs integration in the teaching learning process in the CBE is at the initial stage. Based on the results recommendations were forwarded among; Distribute Laptop to all instructors without discrimination. Many instructors were not benefiting ICTs as part of the teaching learning process. On the other hand, there are some instructors with adequate level of ICTs use.* Regarding training, no ICTs, especially computer based training has been facilitated so far in the College for the purpose of teaching learning activities to the instructors.

Keywords: ICTs, integration of ICTs, instructional technology, conventional instruction

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Chapter One: Introduction

1.1. Background

In this century, the world is in the era of science and technology. There have been incredible changes in the life style of human being which may attribute the contribution of science and technology. Education system and its environment need to be tuned according to the influence of emerging, invention and innovation of the new technologies. The contribution of ICT, especially computer-based instruction brings significant influence to enhance the quality of education. "Educational technology is concerned with the development, application, and evaluation of system, techniques and aids to improve the process of human being," (Singh, 2007, P. 2).

Instructional technology is the systematic practice of managing, designing, using, developing and evaluating the way learners learn and the resources that can be used for learning. Instructional technology combines teaching theory and methods with the use of technology as tools in all aspects of teaching-learning process in order to facilitate greater learning (Gagné, Briggs & Wager 1992). Instructional technology is a comprised of learning theories; it is a set of technology-based practices as well as a combination of both theories and practices (Reiser, 2002).

Educational technologies have been criticized for their lack of quick action in recognizing and responding to the crucial changes. And while information technology has great influence on the lives of people around the world, educational technology has been slow to be adopted and considered to meet the new opportunities. These factors suggest the need for professional development of instructors to prepare them to use educational technology more effectively and extensively during these times of rapid change (**Szabo,** nd).

Conventional instruction, on the other hand, is a teaching method comprises the principles and methods used for instruction. It is used for course sections which are taught using the traditional method; sections which are generally considered group instruction either for lecture, discussion group, and/or other traditional instructional medium, physical education activities, science laboratory, and remedial sections. Commonly used teaching methods in such type of approach may include class participation, explanation, demonstration, recitation, memorization, or combinations of these.

Conventional instruction is the most common method of teaching used by the teachers for carrying out the teaching-learning process in the classroom situations. In this method, the teacher talk more or less continuously to deliver the facts and ideas worth remembering but the class does not converse with the teacher. This implies that it is one of the autocratic teaching strategies. (Suman &Neelam, 2013).

Effective integration of technology is the result of many factors, but the most important factor is the teachers' competence and ability to shape instructional technology activities to meet students' needs. It is assumed teachers know their content and pedagogy, but when it comes to technology, teachers often learn along with students. Teachers focus on teaching students first-level technology skills, which include how to work the technology, but many teachers ignore the second level skills of knowledge integration and a deeper understanding of analyzing information (Fulton, 1997).

In line with this, Sheingold (1990) said that integrating technology in the classroom is not about teaching students to operate computers, but integrating technology is about helping teachers to use technology as a tool for learning. What is more, Fulton (1997) used technology fluency to describe the changing definition of what students need to know about technology. Fulton

indicated that teachers model technology fluency by using technology in the classroom, applying technology across the curriculum, and integrating technology to facilitate collaboration and cooperation among students.

Ertmer et al (2003) further indicated that at the beginning teachers wanted to use technology and have adequate technical skills, but teachers lacked knowledge on how to integrate technology in teaching learning process. In relation to this, Wepner, Tao & Ziomek (2006) added technology integration is not a 'one size fits all' where teachers do the same thing for their students or where teachers possess the same specific skills to be competent technology users. Teachers need to know how and why to use technology in meaningful ways in the teaching and learning process..

This is to mean that the use of computers and related technologies for the quality of education has essential and enormous inspirations to bring change in relation to the traditional way of teaching. Originally, the integration of technologies in the teaching learning process has been treated as a part of to be learned together with pedagogy and content. As a result, educators becoming more focused on the use of the technology to improve students' learn as a rationale for investment. Technology by itself is not an end goal but a means to end for predetermined educational and instructional objective. Technology can make the teaching and learning process meaningful for both the teacher and students. Related to this, Bauer and Kenton (2005) said that computer technology is an effective way to widen educational opportunities, but teachers are not using technology as an instructional delivery system. Bauer and Kenton (2005), in their research found that teachers were highly educated and skilled with using technology, but teachers were not integrating technology on a consistent basis in the teaching and learning process.

The contribution of ICTs to the quality of education can bring significant improvements. The field of education has been affected by ICTs, which have undoubtedly affected teaching, learning, and research (Yusuf, 2005). ICTs have the potential to innovate, accelerate, enrich, and deepen skills, to motivate and engage students, to help relate school experience to work practices, create economic viability for tomorrow's workers, as well as strengthening teaching and helping schools change (Davis and Tearle, 1999; Lemke and Coughlin, 1998 all cited in Yusuf, 2005).

The innovation of technology progress, particularly computer, has brought significant influence on the teaching and learning process. The computer and its related technologies are now integral parts of education in everyday activities. Teachers are constantly discovering new ways to integrate computers into their programs. In today's education, the computer has become the new pencil and paper, text book, library. Therefore, the traditional system of education which is content and pedagogical based knowledge has been gradually transforming to technology based education. That is, the technology-based instruction requires technological, pedagogical Content Knowledge TPACK) that incorporates the traditional method to technological based of teaching and learning process (Kozma, et al., 2004).

Teachers need to use a variety of teaching activities in their classrooms, and that varieties should include technology whenever appropriate. Technology can be used not only as an information management tool, but also as a means of reaching students of diverse backgrounds. Use of technology can help teachers relate to today's students who are very media aware, prompt new approaches to curriculum, and encourage developments in teaching skills (Schwarz, 2000). It can also assist teachers in helping students make connections with a worldwide community

(Davidson, 2000, as cited by Mustafa Koç, 2005). Thus, schools today must prepare students to understand technological innovation, the productivity of technology, the impact of technology on the quality of life, and the need for critical evaluation of the social changes resulting from technological changes. Educators must ensure that graduates are prepared to live knowledgeably in a technology-based society and contribute productively to it. (Willcox & Van Dyke, 1992).

Computers can be effective teaching tools in the classroom; however, they are complex machines and require knowledge and skills to operate them. Knowing how to operate them and integrate them effectively into a teaching-learning strategy or method requires an even higher skill level. Computers have an on/off switch and from there the complexity grows exponentially. The computer has an operating system, which might be updated and changed, that the teacher should have some knowledge about in order to use the machine effectively and problem solve small faults. There are individual applications, each requiring different knowledge and skills, running under the operating system. Increasingly, it is common for computers in a school to be connected to a network or LAN which requires another level of knowledge and skills to use effectively. The difficulties in using computers have been cited as a concern for teachers and workers in existing literature (Croft, 1994; Schofield, 1995; Yeaman, 1993). Given that some basic computer skills are a prerequisite, the time and experience necessary to learn the skills becomes an issue.

In Ethiopia, the Education and Training Policy was disclosed in April 1994 to achieve the national economic and social development goals of the country (TGE, 1994 as cited by Berhanu, 2012), and the third Education Sector Development Programme (ESDP III) emphasized the importance of ICT in the country's education system. The vision statement of the center for

Education Information Communication is to deliver standardized and quality education for all nations across anywhere and anytime using ICT; one for all and all for one!(Berhanu, 2012).

Moreover, ICTs have been playing a very important role in the country's economic development. Cognizant of this fact, the government embarks on a full-fledged ICT capacity building program including ICT for education. In doing so, fiber cable institutional networking has been provided in higher education institutions. This is believed to bring about improvements in the quality of education, as it will enable students to utilize on-line and electronic libraries and information. It also assists the professional development of teachers (MoE, 2005). The main goal of the (ESDP IV, which is currently employing) is to improve the quality of education integrating the core priorities such as teacher and leader development and information communication technologies (MoE. 2010)

This initiative to use ICTs in the education system of the Country can have a great instructional potential. However, the initiative can only be fruitful if ICTs are utilized and integrated appropriately. Thus, it is necessary to examine particularly the integration of ICTs in promoting the teaching-learning process of the higher education institution. This study, therefore, will look into the integration of ICTs in general and computer in particular in the College of Business and Economics, Addis Ababa University. It is especially concerned with the present scenario of the use of ICTs in the College and the obstacles faced by instructors within the ICT integration.

1.2. Statement of the Problem

A teacher and a would be teacher must be the constant learner. S/He must keep the lamp of her/his knowledge always burning (Purkait, 2008). A teacher as a professional progress should have focuses. Teacher need to develop computer skills with particular applications to use in the preparation of the lesson. S/he must integrate computer skills with existing curricula, if it is necessary to adopt the curricular changes related to the use of computer; teachers are the main change agent. Computer skill can change teacher's role in order to be more competent and professionally interested more over increases responsiveness to her/his duties. As a professional, teacher can bind and supporting educational theories as far as the computer skill and access allows.

Teachers have responsibilities preparing future citizens with new and emerging technologies. Similarly, most of in-service teachers in College of Business and Economics (CBE) are expected to support their content with computer technology. It is important to have essential experiences in the teaching learning process with the computer technology. Stressing the importance of computer in education, Mudasiru (2005) affirmed that computer is being employed in the instructional process through computer assisted instruction, integrated learning systems and collaborative network technologies among others. Indeed, according to Yushan (2006), preview correlation studies have long forecasted that the use of computers in education world very much depend how well teachers integrate them in everyday activities. Therefore, the question of attitude of teachers towards computer use is central to any successful use of computers in education (Yuen, & Ma, 2001). In this study, the main emphasis is placed on the question of understanding how College of Business and Economics in-service teachers can integrate

information communication technology specially computer into the teaching- learning process. That is, the central role of this study is to identify and analyze gaps that hinder the use of computer in the teaching learning process.

Wide-range of researches has been conducted to investigate teachers' experiences about the use of technology in general and computer in particular in their instructions that majority of the teachers do not feel well prepared to integrate technology into their teaching-learning process. The literature suggests that only a few teachers routinely use computers for instructional purposes in different subjects like science, math, languages, commerce, social-sciences, etc. Computers are not sufficiently integrated across the curriculum (Bhalla, 2013).

The following research questions are established in order to identify the gap to integrate the instructional technology at College of Business and Economics in Addis Ababa University by the in-service teachers.

I. What are the current scenarios of integrating ICTs in the teaching-learning process of College of Business and Economics?
II. What is the attitude of teachers in College of Business and Economics as regarding ICT integration on the teaching-learning process?
III. What types of challenges do teachers face integrating ICT in the teaching-learning process in College of Business and Economics?
IV. To what extent do in-service teachers utilize ICTs to enhance the teaching learning process in College of Business and Economics?

1.3. Objective

The Integration of Information and Communication Technologies in Promoting the Teaching-Learning Process is the objective of the finding in-service teachers have to design the lesson that they going to provide in the classroom. It is obvious that content and pedagogy knowledge are the crucial part of the teaching-learning process, thus they have to be incorporated in the process. Moreover, teachers focus to assimilate technology skills, which include making the technology work and the important dynamics for effective use of technology is the teachers' ability to integrate instructional technologies to the traditional teaching-learning process. The purpose of this study is to examine how in-service teachers at College of Business and Economics Addis Ababa University integrate the instructional technologies to utilize in the teaching-learning process with the content and pedagogy knowledge in order to achieve the instructional objectives.

Specifically, the study was conducted to:

- Analyze the overall current scenarios of integrating ICTs in the teaching-learning process in College of Business and Economics;
- Investigate the attitudes of in-service teachers in College of Business and Economics in regarding ICT integration on the teaching-learning process;
- find out the challenges of the in-service teachers have been incorporating in regarding to ICTs in general and computer in particular on teaching-learning process; and

- Analysis how the in-service teachers utilize ICTs in general and computer in particular in teaching-learning process to enhance the quality of education in College of Business and Economics.

1.4. Significance of the study

The researcher believes that this study may have the following significance:

- The world is experiencing a major shift from an economy and society based on mass production to be based on knowledge creation. This shift has significant implications for the development of human resources and for changes in all of the components of the education system, not just the use of ICT. Within this context, the significance of the ICTs' attitude of instructors in vision with how education can be supported by the integration of ICTs and the potential roles of ICT in supporting educational transform in the College aligned to the goals of improve the quality of education. The study possibly analyzes the current scenario of using the emerging technologies, especially computer integrating with Pedagogical and Content Knowledge in the teaching learning activities in the College. This study tackles how the attitudes of in-service teachers in College of Business and Economics towards computer based instruction and analyze challenges that hinder the teachers to use computer technology and recommend possible solutions.

- The study evaluates how the process of designing lessons using computer to achieve instructional objectives to enhance the quality of education in College of Business and Economics that improves the role of in-service teachers in teaching and learning process. Since ICTs have become routine entities in all aspects of life, the use of ICT has

fundamentally changing the practices and procedures of nearly all forms of endeavor within business world. Within education, ICT has begun to have a presence but the impact has not been as extensive as in other fields. The use of ICT in education lends itself to more student-centered settings and often this creates some tensions for some teachers and students. But with the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important and this importance will continue to grow and develop. The impacts on modern higher education explore potential future developments integrating ICTs then enhancing the quality of education in the country.

1.5. Delimitation

The scope is focusing to the current scenarios, attitudes and challenges of in-service teachers to integrate ICTs in general and computer in particular within the teaching learning process in College of Business and Economics, Addis Ababa University in focus. First of all the reason as known, the College is pioneer to provide higher academic excellence of Business education in the Country and assumed to face challenges to integrate ICTs in the teaching learning activities, thus, the college's challenges are considered to affect all schools, Colleges and institutes within the University as well as other Universities and Colleges in the Country in order to provide the teaching learning activities with the integration of ICTs by the in service teachers'. Based upon the findings present possible solutions to enhance the quality of education in line with the integration of ICTs..

1.6. Limitation

The researcher faces various limitation conducting this study; time shortage is one of the main barrier to finalize the study on time. On the same hand it is very difficult to get resources that were conducted on the same title so far in the country. Financial scarcity is another challenge to finalize the study.

1.7. Operational definition

- Instructional technology is: a tool to impart knowledge, it is the systematic practice of managing, designing, using, developing and evaluating the resources that can be used for learning.

- ICT: Information Communication Technological, is a generic name used to describe a range of technologies for gathering, storing, retrieving, processing, analyzing, and transmitting information; encompassing television, radio, satellite systems, cellular phones, computer hardware and software. ICT are widely used in schools and libraries.

1.8. Organization of the Study

This study is divided into five chapters. The first chapter includes background of the ICTs for the teaching-learning process. Technology-based instruction and the research problem, objective of the study and research questions follows the background of the study. Next, significance, scope and limitation of the study are provided. Finally, definition of operational terms concludes the introduction chapter.

The second chapter provides a review of literature on the ICTs in general and computer in particular in the teaching learning process. Technology based teaching learning process and the nature of instructional technology and other relevant theoretical concepts. The chapter also includes key indicators for the effectiveness of the utilization of ICTs especially computer for the instructional tool.

The third chapter covers the research methodology the research design, settings and subjects. This section also presents information on data collection instruments and data analysis techniques used in the study. Finally, the chapter concludes with procedures of the study.

The fourth chapter presents the results of the analysis of the data of the study. It includes analysis and discussion of findings. The last chapter covers the summary, conclusions, recommendations and implications for future research.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1. Instructional Technologies in General

Instructional technology is the systematic practice of managing, designing, using, developing and evaluating the way learners learn and the resources that can be used for learning. Instructional technology combines teaching theory and methods with the use of technology as tools in all aspects of teaching-learning process in order to facilitate greater learning (Gagné et al, 1992). Instructional Technology is comprised of learning theories, it is a set of technology-based practices as well as it is a combination of both theories and practices (Reiser, 2002). According to the definition of Association for Educational Communications and Technology (AECT) has been the leader in the field of Instructional Technology, "Instructional Technology is the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning"(Seels & Richie, 1994. p.1)

Fallahkhair et al (2006), Instructional technology encompasses all the materials and physical means an instructor might use to implement instruction and facilitate students' achievement of instructional objectives. This may include traditional materials such as chalkboards, handouts, charts, slides, overheads, real objects, and videotape or film, as well newer materials and methods such as computers, DVDs, CD-ROMs, the Internet, and interactive video conferencing. Once technology is selected for implementation, its use can be a necessary evil or a useful tool in the classroom. According to Edward Tufte, cited by Dunmire (2010. P.4), "If your words or images are not on point, making them dance in color won't make them relevant. Audience boredom is usually a content failure, not a decoration failure." Although selection of a good

technology is the first step, use of it by instructors will dictate its effectiveness in the classroom. According to Cynthia Lanius, cited by Dunmire (2010), this aspect of instructional technologies is often overlooked. The reality is that teachers tend to be less technology knowledge than the very students that they are teaching. As such, teachers often desire to utilize technology, but lack proficiency in the actual use. Additionally, teachers may attempt to use, for example, collaborative technology, but because of their lack of proficiency, they do not utilize the benefits of the technology. As such, the process becomes troublesome for the teacher. The majority of articles that are against the use of technology in the classroom do not actually focus on the technology, but rather, its effective use of teachers, Dunmire (2010)

Microsoft PowerPoint is a great slide manager, but rather than supplementing a presentation, teachers may use misguidedly it as a substitute for a presentation. In other words, PowerPoint cannot create a good presentation. The teacher uses PowerPoint to create a good presentation. PowerPoint will not turn a bad presentation into a good one, and it will not convert an ineffective presenter into an effective one (Dunmire, 2010).

Technology in education is commonly defined as a technical device or tool used to enhance instruction. According to Lever-Duffy et al (2005) educational technology might include media, models, projected and non-projected visual, as well as audio, video and digital media. Specifically, technology integration should incorporate the technological skill and ability to use pedagogical knowledge as a base for integrating technology into teaching and learning process. This implies that teachers should develop strategies to motivate students and to keep them focused as the instruction progresses and to consider that different students prefer different learning styles and that they learn at different rates.

Technology integration requires individual change as well as system change (Shuldman, 2004). Teachers, regardless of whether they are veterans or novices, have limited understanding and experience about how technology should be integrated to facilitate teaching and learning process (Chen, 2008). Veteran teachers (fifteen or more years in the classroom) struggle with new innovative devices, and they are often resistant to technology because they do not see how it fits with their content area (Plair, 2008).

The benefits of the instructional technologies are to facilitate the objectives of teaching-learning process. It can facilitate learning or increase understanding of the learning material. Of course, communicating to facilitate learning can be a challenging process, often requiring creative efforts to achieve a variety of implicit instructional goals (University of Saskatchewan, n.d.). Among the implicit goals that technology can help to achieve: attracting attention, developing interest, adjusting the learning climate and promoting acceptance of an idea. Moreover, the explicit goals of ICTs can help to lead to life perfection; guides quality of life, accurate and understandable outcomes, in general makes life easy. The benefit of ICTs comes to the life of people in day to day activities. In every body's economic, social and political sectors ICTs importance is immeasurable.

2.2. Conventional Instruction

Conventional instruction is a teaching method comprises the principles and methods used for instruction, is used for course sections which are taught using the traditional method. Commonly used teaching methods in conventional instruction may include class participation, explanation, demonstration, recitation, memorization, or combinations of these. The choice of teaching method or methods to be used depends largely on the information or skill that is being taught,

and it may also be influenced by the aptitude and enthusiasm of the students (Suman &Neelam, 2013). Conventional teaching is the most common method of teaching used by the teachers for carrying out the teaching-learning process in the classroom situations. In this method, the teacher talk more or less continuously to deliver the facts and ideas worth remembering but the class does not converse with the teacher. This implies that it is one of the autocratic teaching strategies (Suman &Neelam, 2013). Explaining, or lecturing, is the process of teaching by giving spoken explanations of the subject that is to be learned. Lecturing is often accompanied by visual aids to help students visualize an object or problem. Explaining may meet the needs of auditory or visual learning preferences but often fails to meet the needs of individuals with other learning preferences, such as kinesthetic or social learners

Demonstrating is the process of teaching through examples or experiments. For example, a teacher may teach an idea by performing an experiment for student. A demonstration may be used to prove a fact through a combination of visual evidence and associated reasoning. Demonstrations are similar to written storytelling and examples in that they allow students to personally relate to the presented information. Memorization of a list of facts is a detached and impersonal experience, whereas the same information can be expressed through demonstration. Demonstration helps to raise students' interest and reinforce memory retention because they provide connections between facts and real-world applications of those facts. Lectures, on the other hand, are often speeding up towards accurate presentation than connective learning.

Collaboration allows students to actively participate in the teaching - learning process by talking with each other and listening to other points of view. Collaboration establishes a personal connection between students and the topic of study and it helps students think in a less personally

biased way. Group projects and discussions are examples of this teaching method. Teachers may employ collaboration to assess student's abilities to work as a team, leadership skills, or presentation abilities. After some preparation and with clearly defined roles, a discussion may constitute most of a lesson, with the teacher only giving short feedback at the end or in the following lesson. In learning by teaching method, students assume the role of teacher and teach their peers. Students who teach others as a group or as individuals must study and understand a topic well enough to teach it to their peers (Suman & Neelam, 2013). By having students participate in the teaching process, they gain self-confidence and strengthen their speaking and communication skills.

2.3. Conventional Vs Technological instruction

Educational institutions have been criticized for their lack of quick action in recognizing and responding to the crucial changes. And while ICT has great influence on the lives of people around the world, educational technology has been slow to be adopted and considered to meet the new opportunities. These factors suggest the need for professional development of instructors to prepare them to use educational technology more effectively and extensively during these times of rapid change (Michael Szabo, nd). Integrating technology in classrooms is not about operating machines but helping teachers integrate technology as a tool for learning. Efforts have been successful in learning how to use technology, but there has been less success in identifying what computer skills should be taught and how technology should be used for teaching and learning (Dooling, 2000).

Attracting attention, developing interest, adjusting the learning climate and promoting acceptance of ideas are the main benefit of the conventional instructions. However, it does not

mean that the conventional instructions do not use instructional technologies. There are instructional technologies to be used comparable to the conventional instructions for the teaching-learning process. On the other hand, the instructional technology encompasses all the materials and physical means an instructor might use to implement instruction and facilitate students' achievement of instructional objectives. This may include traditional materials such as chalkboards, handouts, charts, slides, overheads, real objects, and videotape or film, as well newer materials and methods such as computers, DVDs, CD-ROMs, the Internet, and interactive video conferencing. The two approaches can be integrated to enhance the teaching-learning process. The incorporation of the conventional and technological instructions can narrow the gap that can be existed due to the digital divide.

Interactive teaching begins with a philosophy about teaching with technology and results in a new process of interactive teaching and learning. In this approach, both students and teachers are central to process. According to Sessoms, D. (2008) Teachers are responsible for planning, teaching, and facilitating sequences integrated with technology and Students are also responsible for constructing and demonstrating knowledge as well as collaborating with peers to create knowledge. In the interactive teaching teachers use of technology to construct knowledge and demonstrate concepts through dynamic interactions.

One complaint about current teaching is that it is lecture based (didactic), thus creating a teacher centered learning environment. Interactive Teaching is not void of lecture; rather, lecture is used in combination with active demonstrations. Interactive teaching also involves the teacher integrating multiple forms of media within a lesson to encourage cognitive participation. The

differences between conventional and technological instructional can be discussed in detail as Sessoms, D. (2008.p. 90), presented.

Table 2.1 Conventional Vs Technological Instruction

Conventional instruction	**Technological instruction**
Teacher-centered instruction	Student-centered instruction/learning
Single-sense stimulation	Multisensory stimulation
Single-path progression	Multipath progression
Single-media	Multimedia
Isolated work	Collaborative work
Information delivery	Information exchange
Passive learning	Active/exploratory/inquiry-based learning
Reactive response	Proactive/planned response
Isolated, artificial context	authentic, real-world

Interactive can have various definitions. For example, when using a certain Internet sites, interactivity might mean clicking a link and accessing text. In a classroom, interactivity might mean completing a worksheet. With the interactive board, interactivity means that the teacher and student perform a physical activity such as translating a geometrical figure or words to create sentences. Both activities create interaction with cognitive processes facilitating knowledge construction. Interactivity also means that teachers and students are actively engaged in discourse. The interactive nature of the interactive board provides an advantage to the teacher when it is used in this manner. Reflecting on past tools for educators, there has not been a tool created specifically for content interaction through mental processes and physical attributes. Most tools simply require students to merely watch but not participate. Using interactive boards

is a new phenomenon in teaching and much is not understood about how to use the interactive board as a teaching tool. The interactive board is a tool that provides a new way of performing the task of teaching and should be addressed in the development phase of teaching.

Traditionally, students sit and absorb knowledge from teacher lecture and notes on the board. Interactive learning means that students are active participants in the learning process. In a learning environment that integrates the interactive board, students are focused on stimulus presented by the teacher on the interactive board and the student, either verbally or physically, interacts with the interactive board. This is a form of interactive learning because students interact with the content through a combination of the abstract and the concrete. This type of student-centered learning follows the principles of constructivist learning, a building block of an interactive learning environment. Students are encouraged to control their learning and to construct meaning.

2.4. ICTs in Education World

The main idea as Robert B. Kozma, (2011) stated that the teaching and learning process can successfully take place using technological support both future hope and disappointment. The hope is more learners can be reached at a more convenient speed. On the other side, disappointment can exist due to lack of the infrastructures that are necessary for deploying technological resources such as constructing ICT platform and network, computer and other related equipments.

According to the Dutch ICT monitoring project (Pelgrum & Brummelhuis, 2001), the teachers saw teacher-controlled education as the main characteristic of current educational settings, but

they expected (without any objective evidence) that student-led education would be much more important for the future and would lead to improved outcomes for both students and teachers:

Self-confidence/self-esteem through peer recognition is possible to be created. ICT skills, Pedagogical skills and other view on pedagogy and Collaboration with colleagues, less common but still of note were the following teacher outcomes can be made. The relationships between students and teachers possible to be improved, Teachers learned from the students; Teachers improved their presentation skills.

Table 2.2: The Implications for Teachers in Using Computers in Classrooms Potential

Using Computers in Classrooms	Implications
Dynamic Learning	Students may learn outside the teacher's own area of expertise. More difficult to direct and manage student learning.
Student motivation	Students are easier to manage and direct towards the tasks. Students may be distracted by the computer from the tasks the teacher has intended.
Removing tedious tasks	More satisfying for teacher to direct less tedious tasks. Some teachers may prefer students to complete tedious, routine tasks as "busy" work.
Instruction to fit the learner	Relieves the teacher from needing to spend a lot of time with students who need extra practice, catch-up or extension work.
Independent learning	Learning may not direct itself towards the teacher's objectives. Additional coordination of the classroom, students and materials is required.
Extending student thinking	Student thinking may go beyond the teacher's experience or capabilities which may reduce the confidence of the teacher.

Teachers need to continually work at updating their skills and knowledge in the operation and use of ICT, in addition to their need to be up-to-date with curriculum content and pedagogy. It is therefore vital that they are supported in practical and motivating ways. Not surprisingly a

number of studies have found that, "Personal access for teachers to a computer for the purpose of preparation and planning is one of the strongest influences on the success of ICT training and subsequent classroom use" (Office for Standards in Education, 2002, p. 3). Also supportive, enthusiastic and visionary leadership has a positive impact on teachers' attitudes and behaviors' (Becta, 2002).

Tella et al. (2007) examined Nigerian teachers' utilization of ICT; the results showed that teachers' lack of technical support in the schools and lack of expertise in using ICT were the major factors hinder using ICT during lessons. According to Olakulehin (2007), ICTs can be used in the education in two broad categories: (1) ICT for Education and (2) ICT in Education. ICT for education refers to the development of information and communications technology specifically for teaching-learning purposes, while ICT in education involves the adoption of general components of technologies in the teaching process (more specifically, often for the training of teachers in the use of technology for teaching. In the same way, UNESCO (2004) classifies ICT in education into three broad categories: (1) pedagogy, (2) training, and (3) continuing education. Pedagogy is focused on the effective learning of subjects with the support of the various components of ICT.

Olakulehin (2007) emphasizes that, the pedagogic application of ICT involves effective learning with the aid of computers and other information technologies as learning aids, which play complementary roles in the classroom, rather than supplementing the teacher.

According to the NEPAD Dialogue, 2004; implementing education quality in low income countries, a teacher conception of technology, and its benefits for schooling typically indicate two main reasons why teachers use ICT: (1) teachers feel that their own use of computers

benefits their learners, and (2) teachers feel learners benefit from using computers themselves; they gain confidence, self-esteem and renewed motivation.

Haddad and Draxler (2002) categorize the technology use in a classroom into five levels: presentation, demonstration, drill and practice, interaction and collaboration. In general, ICT enables teachers to demonstrate understanding of the opportunities and implications of the uses for teaching and learning in the curriculum context; plan, implement, manage learning and teaching in open and flexible learning environments (UNESCO, 2004). ICT also facilitates enhanced learning in subject areas and learning at home on one's own, and these require the use of new tools like modeling, simulation, use of databases, etc. Changes in the teaching strategy, instructional content, role of the teachers and context of the curricula are all seen by teachers as obvious as well as inevitable. Using ICT can be also perceived as having the advantage of increasing motivation for the learner; helps to recall previous lesson, providing new instructional motives, activating the learner's response, provides systematic and stable feedback; facilitates correct practice, progress learning appropriately and providing feasible sources of information to enhance the teaching-learning process.

Computer in education is one of the most significant devices influencing change in education in the present days. It is the emergence of the highly advanced communication technologies. Computer is an electronic device that accepts data, performs operations on that data in sequence and outputs the results. Computers are termed according to their size and thus we come across terms like mainframe computers, mini-computer and micro computers. Besides size, specification of the electronic devices, that differ from computer to computer, are also used to identify computer types.

"The specifications include details about the amount and type of storage, the capacities the central processing unit, and the type and the nature of the peripheral equipment that can be connected to the computer". (C.P. Singh, 2007. pp.236). Despite the fact that observing groups of students working with the computer, possible to notice that students enthusiastically participating the wonderful display of tasks all help in creating and sustaining their motivation. Learning with the computer is never dull and monotonous. The student can get the computer to display the correct words. This instant feedback can't be manipulated faster than the computer technologies.

According to Singh (2007), the pedagogic activities of the computer can be summed up as follows. Motive the learner, Interact with the learner, Stimulates situations which are difficult and dangerous and Provide instant feedback.

Over the past decade technology has been used in a variety of ways and for different purposes. As new technologies being emerged they have habitual to be replaced or have been used concurrently with earlier technologies, as a result significantly changing the nature of the technology has been used in the classrooms.

Word processing and basic computer skills are the most frequent uses of computers in instruction (Lawless & Pellegrino, 2007). It is important to note that not all of computer use in school focused on teaching of basic computer skills, those educators who envisioned more student centered curriculum and learning environment have attempt to employ computers in different ways among subjects other than the computer subject.

Hadley and Sheingold (1993) found teachers in the United States used computers in multiple ways and reported changes in teaching practice, including: presenting more complex material to students, giving students more individual attention, allowing students to work more

independently, and becoming more of a coach and facilitator in the classroom. Moreover, Harris (2000) revealed that the highest percentage of use of computers and the Internet was for preparing instructional materials. Lowest percentage of use of computers and the internet was for instructional use for students. The teachers use word processing primarily for preparing instructional materials, instructing students in the classroom and interactive lab. The second highest use was for web searching. Furthermore, Kellenberger and Hendricks (2000) and Martin Ofori-Attah (2005) identified that the computer use by teachers was divided into three main components namely,

I. The Use of computer for teaching purposes is to impart knowledge, create difference, and to give confidence to teachers.

II. The use of computer for administration purposes is for the preparation of job-related materials, to ensure safe-keepings of data and information of /about students and

III. The use of computer is for personal purposes; to engage teachers' free time in a beneficial and fruitful manner.

The use of computers in the teaching and learning process, as explained above, is no longer new saying. Larkin (2003) observed that advances in computer technology have caught the attention of many educators and researchers. Also computer-based instructional applications are considered an effective alternative to the traditional teaching methods (Leigh, 1996).

According to Yushau (2006) computers have been used in education for more than four decades, and they have now been accepted 'unconditionally' as an integral part of educational system.

On the other hand, Kadijevich (2002) identified some issues as critical to proper and effective use of computer technologies in teaching-learning process. Top among them is computer attitude, followed by software selection of a proper utilization direction, and web-based

professional development of teachers. Similarly, in his analysis of the factors that are instrumental to promoting the use of computer aided learning, Griffin (1998) found that teacher attitude towards computer is an important factor related to the teachers' role towards the effective use of computers in education studies. Woodrow (1991) has shown that computers anxiety, lack of confidence, and lack of enjoyment influence both the acceptance of computers and their use as a teaching and learning tool. Therefore, the need to disabuse the minds of teachers from such fears and replace these negative attitudes with confidence-building measures is very importance many teachers are intimidated by technology and are comfortable with their own teaching styles (Hawkins, 1991).

Referring to computer literacy, Hawkins (1991) emphasized that teachers need to be transformed from information consumers, using the internet to access resources, into information producers, adapting the information for their particular cultural and educational reality. Teachers need to use technology as a tool, and to transform their classrooms into interactive, inquisitive learning environments. Other studies (e.g. Yushau, 2006) just stated that teachers, whether male or female need to improve their attitude in order to become sufficiently competent to make personal use of Information and Communication Technology (ICT) as a mind tool, to become masters of using ICT, and also to become sufficiently competent to make use of ICT as a tool for teaching. Thus, perceived usefulness of computers may influence attitudes toward computers, and the amount of confidence a teacher possesses in using computers also influences the implementation of acquired skills in the classroom (Yuen & Ma, 2001).

2.5. Instructional Technology in Ethiopian Context

Teachers, starting from kindergarten to higher education, required to have the necessary teaching qualification and competency in the media of instruction, through pre-service and in- service teaching (MoE, 2010). Training is one of policies to equip teachers with the necessary and relevant media of instructions including instructional technologies in different educational level and qualifications. The Government is trying to make this policy to come true; however, the challenges are not as such simple and able to control. The worst is the lack of good infrastructure of the instructional technologies; mainly telecommunication, electricity and instructional equipments, such as computers with compatible software in each subject content moreover, the attitude of the teachers.

According to Aduwa et al. (2005), the availability and use of instructional technologies provide a teacher with interesting and persuasive platforms for handing over information since they motivate learners to learn more. When the students are given the chance to learn through more senses than one, they can learn faster and easier. Furthermore the teacher can be assisted in overcoming challenges that can hinder her/his effective presentation of a given topic.

The teacher facilitates the learning by acting as a coach, resource guide and companion in learning. The use of instructional technologies leads to encourage teachers and students to work collaboratively and can be a result to more cooperative learning activities among the students themselves.

In order to promote the quality, relevance and expansion of education, due attention will be given to the supply, distribution and utilization of educational materials, educational

technologies and facilities (MoE, 1994). Instructional technologies are tools or devices which help the teacher to make learning meaningful to the students. To summarize these resources as textual like books, audio-visual, computer, internet and human resources. These resources are either used individually or collectively in any meaningful of the teaching and learning process.

The purpose of instructional technologies is, according to MoE (2010), to promote efficiency of education by improving the quality of teaching-learning process. Incorporating and presenting in every institution these tools and materials to support and reinforces teaching-learning process. According to Aduwa-Ogiegbaen and Imogie (2005) these materials and resources including audio tape recorders, video tape recorders, slide projectors, opaque projectors, over head projectors, CD-rooms, computer, programmed instruction, filmstrips, maps, chart, graphs and many more offer a variety of learning experiences individually or in combination to meet different teaching and learning experiences.

According to the Government Strategy and Implementation Plan-Report (2011), the objective of MCIT is to provide information & services to all stakeholders efficiently using ICT in the Education sector, and enable all stakeholders to contribute & participate in the development of the Education Sector, with many outcomes, among

- Improve overall quality of education in the country through distance learning, E-learning, computer-based training (CBT)
- Provide access to education across the country
- Improve teaching standards by providing on-line access to latest teaching aids, material, techniques

The country faces several challenges; however, in the effort to integrate ICT in education currently, the curricula across all universities in the country are give credit of ICT. However, the ICT curriculum focuses on teaching students about technology; students get how they can apply that technology to enrich learning. Moreover, students are not taught basic computer skills and applications predominantly word processing, spreadsheets, database, desktop publishing and internet and they are not taught how to use ICT as a tool to enhance the quality of the teaching-learning process.

Yohannes (2009) has discussed the limitation of learning resources in higher institutions in order to address the quality of education, lack of computer and proper software are identified as the challenge. If there are efforts to provide ICTs to students and teachers in limited bases the knowledge gap challenge is identified as obstacle to utilize the access. It is difficult to fully determine teachers' ICT proficiency from the critical question of how ICT can be integrated into different subjects and generally be applied to improve teaching-learning process. Despite the importance of supporting ICT integration, not much instructional technologies are available in many sectors especially computers and software application.

On the whole, there is a need to address the challenges of infrastructure, connectivity and pedagogical integration of ICT into the curriculum. College may have to address institutional issues of access and use of facilities and develop capacity especially of the leaders to guide the integration of ICT in education. There is a need for a general paradigm shift from associating ICT with only computers and considering how other technologies can be integrated in education.

2.6. Integrating technology in Teaching-learning Process

Technology knowledge is always in a state of dynamics, so that the other two nucleuses of knowledge domains are essential in the teaching-learning process, which are content and pedagogy knowledge. Technology is continually changing, and keeping up-to-date since with technological developments can become a full-time job, in and of itself. Technology is reshaping the world of higher education, it has also impacted education but the nature and scope of such change are still contested many have trumpeted/ declared technology as education cure all sure to transform the delivery and nature of education processes (Patricia J & Chun, 1997).

Many school leaders perceive the lack of ICT-related knowledge of teachers as one of the main impediments to the realization of their ICT-related goals (Pelgrum, 2002). The kind of skills teachers may require integrating ICT on the teaching-learning process bases on the competencies every instructor needs to acquire depending on the specific condition of each school. "In modern society educational system has been called upon to engage in teaching, learning and research in the name of progress" (Patricia & Chun, 1997,p.9) It means that the skill depends on the subject; some instructors may be appropriated for lecturing small or large size of student, while others are more confident in coaching. Instructors themselves have to become lifelong learners. "Some observers claim the recent advance in technology will revolutionize the teaching and learning practice and delivery system for higher education." (Patricia & Chun, 1997, p.149).

UNESCO has the ICT competency standards for teachers (UNESCO, 2008) describe three approaches: technological literacy; knowledge deepening; knowledge creation. These approaches are seen as part of a development and each approach has different implications for teaching learning process, each has different implications for changes in the components of teaching

learning process: pedagogy, teacher practice and professional development, curriculum and assessment, and school organization and administration.

ICT can play different and harmonizing role in each approach, meaning that, new technologies are requiring new teacher roles, new pedagogies, and new approaches to the teaching learning process. Leach and Moon (2002) describe the concepts underlying the process of teachers coming to know how, where, when and when not to use technology for classroom activities, for management tasks, and obtaining extra subject materials and also pedagogical knowledge in support of their own professional development.

According to UNESCO (2009), educational changes related to the knowledge deepening approach have more impact on learning as they aim to add value to society and the economy by having learners apply the knowledge of school subjects to solve complex problems encountered in real world situations of work and life. Coordinated teacher professional development would provide teachers with the skills to use more sophisticated methodologies and technologies with changes in the curriculum that emphasize depth of understanding and application of knowledge to real world problems and a pedagogy where a teacher serves as a guide and manager of the learning environment and students are engaged in extended, often collaborative project-based learning activities that can go beyond the classroom.

Bringing ICT into the classroom can have a considerable role on the practice of teaching-learning process, particularly, when ICT is modeled as a tool that supports a real change in the pedagogical approach. Newhouse (2002) points out that the real impact of ICT and the subsequent changes in pedagogy, development and training on teachers is varied and idiosyncratic although some general areas of impact may be identified as: the balance of roles

they play with a perceived risk of reduced influence, providing greater access to information, leading to increased interest in teaching and experimentation. Cradler & Bridgforth (2002), requiring more collaboration and more communication with teachers, administrators and parents, requiring more planning and energy, requiring the development of skills and knowledge of ICT, and providing more time to engage with students, leading to greater productivity. There is no doubt that teachers who use ICT in classrooms have to demonstrate high levels of energy, hard work and determination, often in the "face of considerable odds" (Lankshear & Snyder, 2000). If they are early adopters then they are required to be resourceful and overcome many barriers to make things work.

Technology has affected the teaching and learning processes in higher education. Computers are a prime example of technology that creates the first order change where the basic activities of education remain the same. Computerized equipment allows student more precise in their work and word processing applications make revising draft paper more convenient (Patricia & Chun, 1997. P. 158). The introduction of technology can potentially bring about transformation on another level called second order change. Requiring more commitment to redesign of courses to incorporate technological application this level of change potentially alerts core educational processes and the very nature of teaching and learning. As technology alerts how knowledge is obtained, classified, utilized and represented (Patricia & Chun, 1997. P. 158).

Strauss and Frost (1999) identified nine key factors that should influence media selection: institutional resource constraints, course content appropriateness, learner characteristics, professor attitudes and skill levels, course learning objectives, the learning relationships, learning location, time, and media richness level.

It is true that effective integration of technology is the result of many factors, but the most important factor is the teachers' competence and ability to shape instructional technology activities to meet students' needs. Teachers know their content and pedagogy, but when it comes to technology, teachers often learn along with students. Teachers focus on teaching students first-level technology skills, which include how to work the technology, but many teachers ignore the second level skills of knowledge integration and a deeper understanding of analyzing information (Fulton, 1997).

Jaffee (1997) outlined four highly valued pedagogical principles practiced in the classroom where technology is integrated: active learning, mediation, collaboration, and interactivity.

Active learning using technology involves student interaction with the content that allows knowledge building and construction. Alley and Jansak (2001) identified several characteristics of active learning use of technology in the classroom:

(a) Students engaged in active learning using technology focus attention on the activity and

(b) Students motivated by using technology actively in different contexts apply the new skills.

Barak et al (2006) indicated that using technology for active learning keeps students focused, engaged, and motivated.

Mediation is interaction between the teacher and the students to solve problems, respond to questions, and discuss topics relating to the course. Mediation, according to Schroeder (1993) thought, technology is the mechanism for increasing the amount of human-to-human interaction between teachers and students in the classroom and is used by teachers for interaction to meet the needs of the students' changing learning styles. Hawkey (2002) said that information and communication technology enables learners to acquire transferable skills and use their learning - styles in the educational process. Fitch (2004) said if the teacher-learner ratio is such that

learners do not have opportunities to interact with other students or teachers, technology works to increase interaction.

Collaboration is interaction among students through questions and information sharing. The principle that represented the greatest pedagogical potential for learning using technology is interactivity. Collaboration, Jurist (1999) initiate that technology changed teacher practices in teaching and learning because the classroom become more student-centered rather than teacher-centered. Teacher roles moved from lecturer and expert to collaborator and facilitator. Student roles changed from passive listener to collaborator and occasional expert. Educational goals changed from memorization of facts to inquiry, invention, and investigation.

Interactivity is the master concept where active participation is building the understanding and knowledge through interaction with other students, teachers, and resources using technology. Alley and Jansak (2001) stated that the teachers' best strategy to prepare for teaching is to use important teaching principles, translate these principles into practices, and think creatively while using technology instruction methods. Padgett and Conceicao-Runlee (2000) believed interactive hands-on sessions are critical for mastering new computer technology skills. Pantasiz (2002), additional indicated that technology-enabled learning is becoming an integral part of the learning process because the power of technology leverages information to eliminate the one-size fits all approach and customizes content to meet individual needs and learning styles. The integration of technology into the course design and assignments is the critical point for using technology to improve learning.

The difference between technology use and technology integration for teaching-learning process is that integration implies full-time, daily operation with lessons. Integration of technology is

dependent on technology for delivery of classroom lessons (Hooper & Rieber, 1999). Technology integration is not about the availability of technology, but more about the teachers' effective use of technology that makes a difference in reforming the classroom. The teacher is the most important ingredient for success when using and integrating technology (Mandell, et al, 2002), in deducting that, teachers are central to the creation of a technology-integrated environment that is learner-centered and motivating. Without teachers who can integrate technology, students' exposure to technology remains limited and inequitable.

As Larkin (2003) observed that advances in computer technology have caught the attention of many educators and researchers. Also computer-based instructional applications are considered an effective alternative to traditional teaching methods (Leigh, 1996). Actually, computers have been used in education for more than four decades, and they have now been accepted 'unconditionally' as an integral part of educational system (Yushau, 2006). Nonetheless, Kadijevich (2002) identified some issues as critical to proper and effective use of computer technologies in teaching. Top among them is computer attitude, followed by software selection of a proper utilization direction, and web-based professional development of teachers. Similarly, in his meta-analysis of the factors that are instrumental to promoting the use of computer aided learning, Griffin (1998) found that teacher attitude towards computer is an important factor related to the teachers' role towards the effective use of computers in education. Referring to, computer literacy, Hawkins (1991) emphasized that teachers need to be transformed from information consumers, using the internet to access resources, into information producers, adapting the information for their particular cultural and educational reality. Teachers need to use technology as a tool, and to transform their classrooms into interactive and interested learning environments.

Although some empirical studies (Busch, 1995) has found out that computer literacy significantly related to a positive attitude toward computers among teachers, other study (Yushau, 2006) just stated that teachers, whether male or female need to improve their attitude in order to become sufficiently competent to make personal use of Information and Communication Technology (ICT) as a mind tool, to become masters of a range of educational paradigms that using ICT, and also to become sufficiently competent to make use of ICT as a tool for teaching.

The integration of ICTs in the teaching learning process has special steps in order to mitigate the maximum benefit of technology. TPACK, is the model that is used to integrate the technology integration of education, focuses on the connections, interactions, affordances, and constraints between and among content, pedagogy, and technology meanwhile TPACK emphasizes a teacher's understanding of how technologies, particularly information and communication technologies (ICTs) can be used effectively as a pedagogical tool (Koehler & Mishra, 2006).

TPACK meets complex relationship of three bodies of knowledge: (1) pedagogical content knowledge (Shulman, 1986), (2) technological content knowledge (knowing what kind of technology tools is available for teaching what), and (3) technology pedagogical knowledge (able to choose an ICT tool based on its adaptability to address a particular teaching-learning need). To develop TPACK, teachers not only need to know how to use computer and software, but also be aware of the strategies to incorporate ICT tools to enhance student understanding of a particular subject's content. TPACK is viewed as a dynamic framework describing the knowledge that teachers must rely on to design and implement curriculum and instruction while guiding their students' thinking and learning with digital technologies in various subjects (as cited by Margaret L. Niess, 2011).

Teachers need to use a variety of teaching activities in their classrooms, and that variety should include technology whenever appropriate. Technology can be used not only as an information management tool, but also as a means of reaching students of diverse backgrounds. Use of technology can help teachers relate to today's students who are very media aware, prompt new approaches to curriculum, and encourage developments in teaching skills (Schwarz, 2000). It can also assist teachers in helping students make connections with a worldwide community (Mustafa Koç, 2005).

As a result, educators become more focused on the use of the technology to improve student learning as a rationale for investment. Any discussion about the use of computer systems in schools is built upon an understanding of the link between schools, learning and computer technology. When the potential use of computers in schools was first proposed, the predominant conception was that students would be 'taught' by computers (Mevarech & Light, 1992).

Schools today must prepare students in-line with understanding technological innovation, the productivity of technology, the impact of technology on the quality of life, and the need for critical evaluation of the social changes resulting from technological changes. Educators must ensure that graduates are prepared to live knowledgeably in a technology-based society and contribute productively to the real world competency.

In general instructional technology especially computer technology benefit is much of our inspiration. The world is in its dynamic change, occurs at accelerating rate, today is not like yesterday, tomorrow will be different from today, continuing with today's strategy has it risk. As we need to turn to a new strategy, therefore, tomorrow's successful skilled manpower has three certainties to ahead. These are global force will continue to affect everyone's business and

personal life. The second, Technology will continue to advance and amaze us. The third is a continuing push towards deregulation of the economic sectors. These three developments- spell endless opportunities (Philip Kotler, 2002).

Chapter Three: The Research Methodology

3.1. Introduction

This chapter covers mainly the research methodology that encompasses the research setting, which discusses purpose why the study has been taken in Addis Ababa University, especially in College of Business and Economics. The target participants of the study are the instructors and administrative staff of the College in various levels of responsibilities. Descriptive survey is the research design method, data collection instruments have been developed with three main types which are questioners, interview and observation. The data analysis techniques have been used both quantitative and qualitative approaches. Validity, reliability and ethics finally the procedure of the study has been discussed in different phases.

3.2. The Research Setting

The setting of this study is College of Business and Economics at Addis Ababa University. The College is one of the centers in the country to find influential and prominent professional instructors to fabricate qualified manpower in the country. Accordingly, the college passed so many pros and cons from the very beginning of its establishment. Since it is the most influential, prominent and leading institution for the business education of the country, it has graduated many professionals so far.

Conducting this study in College of Business and Economics at Addis Ababa University is to see a confluence of changes that have significantly influencing the direction of modern education. Beside of enhancing the teaching-learning quality, generally ICTs particularly computer based

instruction has immeasurable outcomes in the real world. Once the students in the college make a good foundation using of computer the real world challenges may be minimized in somehow.

The main aim of educational system is to provide qualified manpower according to the demand of market and society. To achieve this goal, it is necessary to make the present system of education more effectively, which is made possible to accept Information Communication Technology. The whole purpose of education in a country is to develop and enhance the potential of human resource and progressively transform it in to a knowledge society.

Modern, high-speed computers and telecommunications have facilitated the rapid movement of financial resources, goods and services, and have created interdependence among the world's economies. To benefit from these markets, nations must be competitive, and to be competitive they must have a well-educated work force. New, science-based, information industries are emerging in which knowledge and human capital are as important as industrial plants (Daniel, 1979).

College of Business and Economics is one of the most important center and part of the AAU. The college located in to two different areas, which is faculty of Business & Economics at Sidest Kilo in front of the main campus of the AAU and School of commerce at Legehar adjacent to the National Theater. The college enrolling more than ten (ten) departments in different field of studies such as Economics, Management, Accounting, public administration, informatics and commercial streams with different programs and qualifications which are first degree, second degree and third degrees.

The reason way the study is conducted at the college of Business and Economics, a major characteristic of these industries is that they derive from work in theoretical science and are dependent on the codification of theoretical knowledge. The significance of this development is

that if we choose to maintain our current standard of living, our knowledge workers must compete in an international market and must have a good understanding of science. The markets demand qualified man power, there are reasons that a computer based instructions are necessary and have to influence the College's teaching- learning process.

The Global force is pulling to have the technology qualified professionals. The technology advancement still in progress, invention and innovations are continuing. The living style and standards of the people are changing from time to time.

Half of the population in the country is young so that they are expected to have this opportunity of technology intensive professions. As we know the country is home for many international, continental and regional organizations, these all requires the qualified man power. The economic progress of the country needs technology based qualified man power. Since the country has the open economic policy, there are many foreign companies so far and expected to come here and enjoy their business.

Many of them are service sectors, industries manufacturers and agricultural producers. Therefore, CBE as a grand college has full responsibility to create and supplying qualified, competent and influential personnel to the country's market as well as to the international. Before selection of research settings, the researcher has recurrently made observational assessment of classroom teaching-learning process relating to ICTs. This is generally characterized by the endorsement of computer integration, supporting or information communication technology as a collaborative subject based class provision, increasing access, use and integration of ICTs within the school's information and management systems.

3.3. Research design

The research design that has been applied in this particular study is a descriptive survey. Survey deals about behaviors, attitudes and opinions (Geoffrey et al. 2005). Typically, survey gather data at a particular point in time with the intention of describing the nature of existing conditions, or identifying standards against which existing conditions can be compared, or determining the relationships that exist between specific events. Thus, surveys may vary in their levels of complexity from those which provide simple frequency counts to those which present relational analysis. (Cohen et al. 2000).

Gathering data is one of the very important steps in research activities. There are two basic sources of data collection instrument, the primary and secondary sources both are executed on the research. The researcher has used a mixed methods research approach, to undertake the study, meaning that proceeded for collecting, analyzing and identifying solutions. As Creswell & Plano Clark (2011), discussed the mixed approach can be used for both quantitative and qualitative methods in a single study or a series of studies to understand a research problem.

3.4. Participants of the study

Associative deans, Department heads and Instructors have been used in organized way to participate in the research in the College. In general two type tools have been presented to the Teachers, Department Heads and Associative Dean. The researcher has distributed the questionnaires physically to the place where the instructors situated. Beside with questionnaires, interviews were made with Associate Deans and Department Heads. In general the study based

on 63 instructors filling questionnaire and 10 Associative Deans and Department Heads conducting interviews.

The sample size of the study were twenty five percent (25 %) of in-service teachers in College of Business & Economics at Addis Ababa University in different departments such as Economics, Management, Accounting, public administration, informatics and school of commerce with different qualifications of academic ranks, that are Professor, Associate Deans, Assistant Professors and Lecturers. The following table presents about types of departments and total number of instructors in the College.

Table 3.1:- number of teachers in each department

No.	Department	Population	24.05% of total teachers	
			Questionnaire	Interview
1	Accounting	25	9	1
2	Economics	26	9	1
3	Management	30	9	1
4	Public Administration	30	8	1
5	Commercial streams	115	19	3
6	Informatics	37	9	3
7	Total	262	63	10

The total number of population as the data the researcher gathered from different stockholders of the college are 262 in which only the instructors of the college according to the table 01 with various departments. The questioners were distributed by the random sampling technique. The researcher was trying to reach all departments equally in two different locations.

3.5. Data Collection Instruments

The researcher has used various data collection instruments since the research approach is the mixed method. These data collection instruments are used for different research approaches such as for quantitative and qualitative data gathering purpose. Quantitative research question are conducted obtaining measurable data with variables. On the other hand for qualitative approach the researcher has used different instruments in order to articulate the finding aligning with each question. Therefore, the researcher has used mainly the following data collection instruments for the analysis and discussion.

Questionnaire: - there are two types of questionnaires such as close and open ended questions.

Interview: - leading questions has been prepared; deducted questions from the dialogue of interview.

Observations: - the availabilities' of ICTs instrument and setting arrangement and Classroom observation while teachers' were teaching using ICTs.

3.5.1. Questionnaire

In order to get information on the current status of ICTs integration for the teaching learning process, attitude of instructors to integrate ICTs in teaching learning process and the challenges of instructors encountered in integrating ICTs, both closed and open ended questions were designed. Annexed

For the study, questionnaires were distributed to instructors at their places. The purpose of the questionnaires was to gather the responses of how ICTs integrating to promote the teaching

learning process in the CBE. The questionnaire encompass ideas that to measure the current status of ICTs in order to benefit the instructional technologies in general and computer in particular in the teaching and learning process. It also sought to extract respondents' attitude, opinion and position; furthermore to investigate the challenges they were facing about integrating technological Pedagogical and Content Knowledge in the teaching-learning activities using ICTs.

3.5.2. Interview

The interview method helps to attain more information from participants by involving each of them in a detailed conversation. All interview guides were formulated in English language based on the three research questions. After explaining the objective of the study and having got the interviewees' consent, the researcher himself made the interviews. Each interview lasted for 15 minutes in average and the conversations were tape-recorded. The dominant discussion points emerged during the interviews were: the challenges that instructors encounter in integrating ICTs in teaching learning process and attitude of instructors towards using ICTs in the teaching learning process.

3.5.3. Observation

The researcher has prepared the observation least in to two formats. The first one is the classroom ICTs resource availability check least and the next one the activities related to Instructors' integration of ICTs in the teaching learning process. Accordingly the researcher has visited eight classrooms in two location of the college. The following points have been observed in visited classroom.

a. Classrooms in the school of commerce have been randomly observed that the seating were arranged in accordance to technology use of teaching activities with computers in every chair and LCD mounted projectors for the teaching learning process as well as white board for the use of power point presentation.

   The instructors were using ICTs in the classrooms presentations and have discussed the course. The approaches were very good and attractive fully technology concentrated. They had no any paper and writing materials with their hands when they entered to the classrooms but made active the mounted LCD projector and started to teaching. They used to open own email and immediately downloaded and started teaching.

b. On the other side of the college, at FBE, the researcher observed that the classrooms arrangements were unfavorable for the technology based of teaching learning activities. Poor facilitation, the setting arrangements were not in order, no computer in the classrooms, no mounted LCD projectors.

C. The informatics department and IT-doctoral programs were very equipped with special facilities such as limited number of students who were using personal computers. Very well furnish classroom with the video conferencing facilities. More over the informatics department has special library for the staff use only.

3.6. Data Analysis Technique

To assess the integration of ICTs in general and computer in particular in the teaching-learning process the practice the in-service teachers using of computer in the College of Business and Economics, both quantitative and qualitative data analysis techniques have been carried out in

the study. Descriptive statistics including frequencies mean and standard deviations have been employed to analyze the data. In addition to quantitative data, interviews and observation were executed to enable the researcher to probe for further information, elaboration and clarification of responses while maintaining to feeling of openness to the participant responses. Finally, the results were thematically organized then analyzed qualitatively based on the research questions.

3.5.1. Validity

To confirm the validity of the instruments, the draft has been provided to different professionals of information communication specialists' with close supervision of the researcher's advisor. That is, after receiving and incorporating comments from the above mentioned professional the instruments were distribute to ten (10) instructors in the College of Education in Addis Ababa University in Curriculum, Psychology and EDPM Departments for the pilot study. Accordingly these instructors gave their own validities on the questionnaire's content. Therefore, based upon the given comments and ideas the researcher has modified some vague and unclear items to the next main data collection purpose. The contents of the instrument have been cross-checked with the research objectives of the study to secure their content validity.

3.6.1. Reliability

In this study, pilot study was used to ensure the reliability of the instruments. That was to estimate the internal consistency reliabilities of instructors' questionnaires. Consequently, the Cronbach Alpha was used to assess the internal consistency of responses from one item to another based on the following three questions.

V. What are the overall current scenarios of integrating ICTs in the teaching-learning process of College of Business and Economics?

VI. What are the overall attitudes of teachers in College of Business and Economics as regarding ICT integration on the teaching-learning process?

VII. What types of challenges do teachers have in integrating ICT in the teaching-learning process in College of Business and Economics?

Accordingly, the researcher has got the result of the first question's .845 Cronbach's Alpha of the measure of the status of ICTs in the College. To the second question attitude of instructors to integrate ICTs in their teaching learning process the Cronbach's Alpha result is 0.919 which confirms that the reliability measure of the question that can execute the best outcome.

The third question about the Challenges that the instructors were facing integrating the ICTs in the teaching learning process resulted scored with .708 Cronbach's Alpha. The Cronbach Alpha was used that multi-item measurement scales were incorporated in the questionnaire so as to assess different questions for the practice of ICTs in the teaching-learning process. To care for the reliability of such a multi-item measurement scales, the pilot study was carried out in Addis Ababa University College of Education in different Departments such as, Curriculum, Psychology and EDPM. After data were collected, results were entered in SPSS version 16 and reliability results were analyzed and discussed.

3.6.2. Ethical

There are two types of ethical issues that were considered for this research formal and informal or unwritten ethical issues. The participants were provided with written consent (informed consent) in the introduction part of the questionnaires, and given the opportunity to determine

their confidentiality or anonymity. Informal ethical issues are those that emerged in the field. The researcher was considerate and respectful of informant' requests; informants were informed that they would remain anonymous throughout the study. They were also requested to be audio taped before the interviews were held and recorded.

3.7. Procedure of the study

The investigation has been conducting in different phases. Accordingly, on the first phase a wide-ranging of literature review is made on the brief description of the integration and benefit of Information Communication Technologies to enhance the quality of education in general and particularly computer for the teaching-learning process.

The second phase bases on the following key activities, contacts have being established with respected stakeholders in relationship to education and Information Communication Technologies. Exploiting different ICTs policy documents, performance plan, moreover, holding discussion with different offices in relation to the content. The third phase is the data collection step which is on process to be formulated. The fourth and the final one is gathering significant information using the research tools sequentially and analyzes discuss and come with the result.

CHAPTER FOUR: PRESENTAION, ANALYSIS AND DISCUSSION

4.1. Introduction

Integration of ICTs in the teaching learning process has been analyzed based on the developed instruments. Questionnaire with Likert rating scale, observation and interview were the instruments used to gather the data from the respondents. The researcher has carried out interviews with different respondents.

The status of ICTs integration in the teaching leaning process in the College has been examined with a rating value of "very low, low, medium, high and very high". The attitude of instructors has been assessed based upon the integration of ICTs in the teaching learning process based on the given rating values such as, "strongly disagree, disagree, agree nor disagree, agree and strongly agree". In addition the Challenges of instructors has been also evaluated with the same rating value that of attitudes.

The findings are discussed based on the research questions; meaning that, the first question deals with the overall current status of integrating ICTs in the teaching-learning process of College of Business & Economics. The second one focuses on the attitudes of Instructors in College of Business & Economics in regarding ICT integration and the third emphasizes on the type of challenges the instructors encountered to interact ICT in the teaching-learning process in College. At last the discussion is held based upon in what degree do in-service teachers are integrating and utilizing ICTs to enhance the teaching learning process in College of Business & Economics.

The current status of ICTs in the College and the level of skill to utilize the instructional technology in general has been examined and analyzed according to the designed questionnaire.

The respondents have been asked to rate the status of ICTs in the College using the Likert-scale measurement, which are "Very High=5, High=4, Medium=3, Low=2 and finally Very Low=1". That is, 1 is least value and 5 is the highest value. Then the mean score values were computed. The interpretations are made based upon the mean score 3 as the reference point averaging the scales, which is considered as hypothesized mean against the rating of the respondents. The challenges of instructors to use ICTs in the day to day activities have been discussed using percentage.

4.2. Demographic Analysis of the Respondents

Instructors in College of Business and Economics (CBE) were requested to a fill-in questionnaire. The questionnaire was distributed in to two locations, at Faculty of Business and Economics (FBE) in different departments such as Economics, Management, Accounting & Finance, Public Administration, and Information Science. The second is the School of Commerce. It encompasses Accounting, Marketing Management, Economics, Management, Business Administration, and Purchasing & logistics. The questionnaire basically covered demographic background of the respondents, the profession and specialization, status of ICTs integration for the teaching learning process, the attitude of instructors towards the instructional technology manipulation and utilization, and the Challenges that they are facing in order to use ICTs for the teaching and learning processes.

The first part of the questionnaire for the respondents sought information on the demographic data, such as Department or School where they are teaching, sex, year of experience, academic rank of the respondents and field of studies and the subject they are currently teaching. The

questionnaire was distributed to 63 instructors. Of the total respondents, 53 were collected. Their responses are presented in the table below.

Table 4.1: Demographic characteristic of the respondents

Detail		Frequency	Percentage
Department/School	Economics	11	20.8
	Accounting & Finance	8	15.1
	Commerce	13	24.5
	Public Administration	8	15.1
	Informatics	3	5.7
	Management	5	9.4
	IT-PhD	2	3.8
	Information science	3	5.7
	Total	53	100
Gender	Female	9	17
	Male	44	83
	Total	53	100
Age group	Below 30	10	18.87
	31 to 35	24	45.28
	36 to 40	9	16.98
	41 to 45	4	7.55
	46 to 50	3	5.66
	> 50	3	5.66
	Total	53	100
Service year	Below 2	1	1.9
	2 to 4	10	15.1
	4 to 8	17	34
	>8	25	47.2
	Total	53	100
Academic rank	Associate Professor	1	1.89
	Assistant Professor	2	3.77
	Lecturer	50	94.34
	Total	53	100

As indicated in Table 1, 25% of the respondents were from School of Commerce and 75% respondents were from different departments in the College, which are found in the Faculty of

Business and Economics. The majority of the respondents were male (83%); the female respondents accounted for 17%. Regarding the age of the respondents, the majority of them were between 31 and 35 age groups (45.28%). Moreover, most of the respondents had experience of 8 and above years (47.2%), and most of them were lecturers (94.34%) in academic rank. Respondents were also asked about their field of the study. The results are illustrated in the table below.

Table 4.2:- Field of Study of the respondents

Detail	Frequency	Percent
Accounting	9	17.0
Economics	9	17.0
Management	11	20.8
Public Administration	5	9.4
B. Administration	2	3.8
Marketing Mgt	2	3.8
Information Science	8	15.1
Developmental studies	1	1.9
Statistics	3	5.7
TEFL	2	3.8
Phil & int. Relation	1	1.9
Total	53	100.0

According to the information from the collected data, subjects that are likely to be provided currently by the instructors are more than twelve, this shows that most subjects are addressed in order to probing ICTs as tool to enhance the teaching learning process. The result articulates most of the respondents were from business courses, such as Management, Accounting,

Economics and Public Administration; totally these courses have scored about 60% in both campuses.

4.3. The Status of the Integration of ICTs in the CBE

As indicated in the table below, the availability of instructional technology in College of Business and Economics have been rated by the respondents. The result shows that the availability of instructional technologies in the College is found to be average (mean =3.04; SD= 1.09). Whereas the general awareness of Computer related tools are rated (M=3.75), which implies the computer tools awareness is encouraging.

The next item presents the current status to use of overhead projector in the College, as a result, the rated score Mean value is 3.77.The result confers that the instructional tools which is mentioned above familiar to the respondents. Skill to use computer for teaching learning process has scored 3.94 Mean values so that instructional technologies can be integrated in teaching learning process. Whereas computers are being used currently for attendance and data warehousing purpose with the Mean value of M=4.25. Item number six talks about the status of "commitment in using instructional technology" for the teaching and learning purpose, with the result value 3.81. The response indicates that the respondents are willing to use the ICTs as a tool to improve the teaching and learning process. However, it doesn't assure that instruction technologies being used for teaching learning purpose at current.

Table 4.3:- The Status of integrating ICTs in the teaching-learning process

No.	Details	Test Value = 3			
		N	Mean	SD	T
1	Availability of instructional technology	53	3.04	1.091	.252
2	General awareness of computer related tools	53	3.75	1.054	5.211
3	Use of overhead/slide projector	53	3.77	1.296	4.347
4	Skill to use computer for teaching-learning	53	3.94	.969	7.087
5	Use of computer to record grades or attendance	53	4.25	.959	9.455
6	Commitment for flexibility of educational resources	53	3.81	1.110	5.319
7	Use of Microsoft power point, spreadsheets and simple database application	53	3.77	1.154	4.879
8	Knowledge about usage of blogs, group emails, online groups subject specific websites etc	53	3.09	1.148	.598
9	Using hardware and software troubleshooting	53	2.89	1.121	-.735
10	Creating own web-pages, generate sophisticated multimedia products	53	2.04	1.073	-6.526
11	Expert user and technology mentor skill	53	2.43	1.029	-4.006
12	Technology-based planning	53	2.43	1.065	-3.868
13	Availability of customized software for the subject you teach	53	2.21	1.199	-4.813
14	Handle large class size using instructional technology	53	2.45	.992	-4.017
15	Selecting specific instructional technologies to enhance teaching-learning	53	2.79	1.116	-1.354
16	Skill how to use ICTs as tool in teaching learning process	53	3.34	1.055	2.343
	Grand Mean		3.13		

While the status of the Use of Microsoft power point, spreadsheets and simple database application in the teaching and learning process which scores M=3.77. The result confirms that the respondents were able to manipulate the simple applications for the teaching learning process. The position of knowledge to the usage of blogs, group emails, online groups and subject specific websites utilization were limited with the computed value of 3.13. The result

has indicated that respondent's commitment to down load and upload data on their blogs, access to group emails and exploit the subject specific websites were inadequate.

The status of "using hardware and software troubleshooting" is the next assessing phrase with the result of 2.89, which indicates that the respondents have limitation for troubleshooting in the College so that most of the respondents are facing the challenge. Web page designing and generating of sophisticated multimedia production is rated with 2.04 mean values that demand more professional skills to operate. The result indicates that handling of instructional technology is hampered due to various reasons. The next item expresses the status of expert user and technology mentors skill with the rated value of M= 2.43. Subsequently, the status of operation was hindered by skill limitation of the respondents in the Colleges and requires the mentorship prospect to compute professionally.

The status of technology based planning is one of the items that was investigated and found weaker in the College with value of M=2.43. Indicating that technology based planning is poor interims of integrating with the teaching learning process. .

The availability of customized software for the particular subject is one of extracting concept. Accordingly, the respondents' results the Mean value of 2.21. Therefore, the result indicates that the uses of customized software for the particular subject were not found sufficiently in the College. Handling large class size using instructional technology is calculated with the mean value of 2.45 therefore, there was poor classroom management in using instructional technology in the CBE. In general, the researcher has analyzed and found that the status of integrating ICTs in the College is in the infant stage and far behind to benefit the students and instructors. The status of selecting specific instructional technologies to enhance the teaching learning activities is below the average value, 2.79. Meaning that the respondents were facing challenges of

selecting specific instructional technology to incorporate the teaching and learning activates with respective subjects. The skill how to use ICTs as tool in teaching learning process measures the respondents' level of skill with the computed mean value of 3.34. Therefore, the result indicated that there was good initiative how to encounter instructional technology in the teaching learning activities.

In general the status of ICTs in the college is summarized with 3.13 grand averages. The result indicates that ICTs integration in the teaching and learning process is not fully fledged. The result encompasses many variables such as the availabilities of instructional technology to the skill application to integrate in the teaching learning process.

4.4. Attitude of Instructors in Integrating ICTs in the teaching-learning process

Attitude is the nucleus of every action in all part of life. The instructors' attitude is extracted on the integration of ICTs in the teaching learning process based on the following leading phrases. These probing questions are based on the acceptance level of instructors then measure more on the application interest and practical use of ICTs in the teaching learning activities.

Table 4 presents the attitude of instructors to wards to ICTs integration in the teaching learning process. As shown on the above table, the first attitude measuring phrase is rated with the mean value 4.64. So that instructional technologies can empower the respondents' professional level of competency in the teaching learning activities. The next item is whether the instructors know that

ICTs can make significant contribution to achieve educational objective. As per the rated value, M=4.6, justified that ICTs can make significant contribution to achieve educational objectives.

Table 4.4: Attitude of respondent' towards integrating ICTs

No.	Item	Test value =3			
		N	M	SD	T
1	I believe that Instructional Technology can empower my profession	53	4.64	.963	12.41
2	I know that ICTs make significant contribution to achieve educational objective	53	4.60	.906	12.88
3	I am thinking about how to use technology in my classroom.	53	3.92	1.016	6.62
4	Adopting ICTs in education enhance the teaching-learning process.	53	4.38	1.078	9.30
5	Instructional technology encourages the Professional development	53	4.42	1.046	9.85
6	ICTs Practice give Prompt Feedback	53	4.28	.968	9.65
7	Computer encourages more active teaching-learning practice	53	4.13	1.020	8.08
8	ICTs in higher education is important	53	3.94	1.586	4.33
9	ICTs integrate lesson in higher education can encourage promising future	53	4.34	1.073	9.08
10	I believe that instructional technology can enhance teaching-learning process	53	4.42	1.184	8.70
	Grand Mean		4.3		

Notes: 1= Strongly Disagree; 2=Disagree; 3=neither/nor Agree; 4= Agree; 5= Strongly Agree

The next item probing about how to use technology in the classroom teaching leaning activities scored the mean value of 3.92. Here the result confers that using ICTs in the classroom are changing the approach and indicates that the Instructors being encouraged with personal commitment. The next item shows that the attitude of adopting ICTs in education to enhance the teaching learning, the rated mean value is 4.38, which indicates the respondents' positive attitude to adopt technology in education to enhance the teaching learning processes. Respondents also rated that the professional development could be improved using instructional technology

(4.42%). The practice of ICTs give prompt feedback is the other attitude query, with the rated value 4.28 using ICTs in the teaching learning activities has the access to have rapid responses. The next probing phrase is if Computer encourages more active teaching-learning practice. The scored mean value of 4.13 that is the instructors are confidence on the Computer use which encourages the teaching leaning practice and more facilitates to make easy the process from the preparation to provision of lesson. The next item is investigating the attitude of respondents if ICTs in higher education is important with the result of 3.94. This confirms that ICTs in the higher education give vital for the learning and teaching activities.

The next item articulates that the ICTs integrated lesson can encourage the higher education, the result obtained from the respondents is 4.34, meaning that the higher education qualities can be encouraged due to the intergradations of instructional technologies in the teaching learning activities. The last item inquiring to the instructors if ICTs can enhance teaching learning process, with the computed value of M=4.42, encounters that ICTs can improve the teaching and learning process of each instructor in various ways. ICTs can make easy to access teaching learning activities using websites, help to send and receive learning materials, quick feedback moreover ICTs can break the language and distance barriers.

4.5. Instructors' Challenges Integrating ICTs in the teaching-learning process in CBE

During the study attempts were made to assess the challenges that instructors encountered to integrate ICTs in the teaching-learning process. As illustrated in the Table 5 blow, though the majority of respondents indicated that they had confidence to use ICTs in the teaching-learning

process scoring 62.2% by summing-up of the strongly disagree and disagree results. The remaining 37.8% of them articulated that they had constraints to use ICTs with confidence to align their activities. Long process to design ICT-based lesson is one of the challenges that instructors were asked , accordingly 43.4%of the respondents indicated that they did not face the challenge of processing ICT based lesson in long process. On the other hand, lack of knowledge and understanding of ICT was remarkable (only 30.2% of the respondents agreed). It articulated that most of them had challenge for knowledge and understanding of ICTs in the teaching learning process. Lack of knowledge and understanding of ICTs is the main problem. The result has acknowledged that lack of knowledge and understanding of ICTs has hampered to integrate ICTs the teaching learning process.

Lack of training is one of the challenges that the respondents have rated. Thus, 39.6 % of the responses articulated that lack of training is the challenge to use ICTs in the teaching learning process, which is hindering the integration of ICTs in the teaching learning process. The Limitation of ICT equipment in the College is one of the challenges, according to the result, 39.6 % the respondents strongly agree that limitation of ICTs really created the problem to integrate with the teaching learning process in the College. Inadequate internet connection access in the college has judged as one of challenges with the strongly agree result that scores 35.8%, the result justified that connection problem had brought obstruct to implement the integration of ICTs in the teaching learning activities.

Table 4.5: Instructors' challenges to use ICTs in teaching learning activities

No.	Probing phrase	Percentage				
		SD	D	N	A	SA
1	Lack of confidence using ICTs	22.6	39.6	15.2	13.2	9.4
2	Long process to design ICT-based lessons.	7.5	43.4	18.9	18.9	11.3
3	Lack of knowledge and understanding of ICT	18.9	26.4	15.1	30.2	9.4
4	Lack of training	13.2	11.3	13.2	39.6	22.6
5	Limitation of ICT equipment in the college	5.7	15.1	9.4	30.2	39.6
6	Inadequate internet connection access in the college	3.8	9.4	22.6	28.3	35.8
7	Limitation to integrate the subject content with ICTs in to the teaching	3.8	22.6	20.8	30.2	22.6
8	Challenges to solve technical problems.	3.8	28.3	13.2	35.8	18.9
9	Lack of computer supply	15.1	28.3	15.1	26.4	15.1
10	Gap to use technologies in classroom to enhance what I teach, how I teach	5.7	34.0	17.0	32.1	11.3
11	Drawback to use intergradations of content, technologies, and pedagogy knowledge in classroom	5.7	30.2	17.0	35.8	11.3

The limitation of integrating ICTs with subject content is another probing phrase has agreed with 30.2%. As per the result, most of the respondents have real constraint to moderate the subject content with ICTs in the teaching learning process. On other hand, 22.6% of the respondents had not such limitation to integrate ICTs with their subjects' content. The remaining 20.8% scored indifference.

The next challenge is ability to solve technical problem; 35.8% of the respondents agreed that they had critical challenges to solve the technical problems. On the other hand 28.3% of the

respondents were justified solving technical issues were not the main challenges. Lack of computer supply is one of challenges with 28.3% were disagreed that supply is not the challenge.

There are gaps to use ICTs currently in the classroom integrating of subjects' in order to improve the quality of individual subject, the scored 34%. The respondents have measured the alignment of how to integrate ICTs in teaching & learning process. So that the computed results are justifying that they had gaps to use technology in the classroom. .

The last probing phrase articulates about the drawbacks to integrate content and pedagogy with technology to use in a classroom teaching learning activities. Accordingly, 35.8% of the respondents are agreed that they had drawbacks to integrate ICTs in the classroom.

The result articulates that the respondents have challenges to integrate the ICTs in the teaching learning activities. The above expressed phrases indicate that the level of limitation by the respondents in the College has determined the use of ICTs is not in the state of professionalism.

Mainly phrases that required professional skill were not applied by the respective respondents. This result is articulating the indentified challenges that hampered the computation of ICTs in the teaching learning process.

Open ended questions were part of the questioner to be replied by the respondents, accordingly each open ended question are summarized thematically. The first question was how the respondents explain the current status of ICTs in their teaching-learning process.

Low and very low responses are dominant and the tendencies to use ICTs in classrooms are mostly hampered due to the constraint of the availability of ICTs equipment. Lack of skill and training, the application is very low as compared to the level of the advancement of technology.

Most of the respondents justified that they couldn't use data base access or web based teaching. Some of the respondent articulated that the status of ICTs were helpful to their activities. Others articulated that they had known how to use the instructional technologies but these instructional technologies were mostly utilized to prepare short notes and to read from it. A few of the respondents were persuaded using the instructional technologies able them to enhance their activities by browsing internet access and preparing the lesson with power point.

The second open- ended question was how they perceive the importance of instructional technologies in their profession of teaching-learning process. A few of respondents justified that they are not sure that they need to depend much on the power point or video use in the teaching learning process. On the other hand, the majority of the respondents were justified using ICTs in the teaching learning process as an opportunity to update skills with high significance and perception. The technology development especially computer development as one of the professional progress and expressing the importance to integrate with subject based practice. Some of the respondents were comparing the importance of ICTs as vital as food and drink for daily consumption of ICTs for the teaching learning process.

The third question was what the challenges were to integrate ICTs in their profession to enhance the quality of teaching-learning processes. Accordingly, the respondents discussed the following core challenges to integrate ICTs in their daily activities. Such as lack of interest which is the worst one, skill constraint and lack of training opportunities to fill with gap to apply ICTs in the process. LCD shortage, Power interruption, Classrooms facilities problem, lack of ability to use integrated level of technology such as Soft ware and data manipulation, time management issue, lack of coordinated ICT technician regular support from the University and work load were the

major challenges expressed. Moreover, they explained that the environment were not conducive to manipulate the ICTs in teaching learning due to other related challenges, such as lack of skill to prepare course material for student as per the content of each course and lack of ability to integrate ICTs to the classroom teaching and limitation of electronics platform to improve the teaching learning activities.

The last open- ended question was questioned if they had any additional comments regarding the integration of ICTs in the teaching learning process. Applying ICTs in the teaching learning process, the system setup requires arrangement, the concerned stakeholders support is important to provide ICTs based education. The establishment of ICTs equipment in each classroom and training facilitation crucial to apply technology the use of soft and hard ware are mandatory. There was System gap in the College, for instance, projectors are in limited access moreover there were unfair distributions and use of ICTs' in the College.

The researcher had designed interview questions and conducted the interview with the selected department heads, assistance deans and ICT technicians regarding the integration of ICTs in the teaching learning process in the CBE as per the following leading questions. Therefore, the first question requiring about the current status of ICTs integration in the teaching learning process in their college/school with additional key phrases that could strengthen the extraction of the current status, such as addressing the skill of the instructors, administrative support and training facilitation interims of promoting the quality of education. The interview participants were articulated the current status of ICTs in the CBE in two angles in negative and in positive. In total the researcher had interviewed nine participants who were positioned in department heads, Ass. deans and IT experts.

Accordingly, there are different computer labs for different level of programs such as MA/Msc and PhD programs with limited Internet access for the searching of learning material. The skill of instructors depends on the individual competency and commitment level to the ICTs. They use very simple applications like word editing and accessing email with significant limitation. On the other hand, there are instructors with adequate level of ICTs use for teaching learning purpose. In general there are significantly visible capacity limitations to utilize ICTs among the Instructors. Training had not been facilitated to the instructors so far in the College; however, there are some Instructors who have taken different training related to ICTs by themselves. As per one of the participant "We have some ICTs technology as the strategy but in the high level use we are far behind to benefit with advanced technology access in our department. For instructional purpose the integration is very limited but we communicate via the email access. We are not using ICTs for classroom teaching learning purpose. There are some equipment such as Laptop, LCD and basic software, which are used basically for the graduate program".

The other participant uttered "ICT, in our school is in the established stage, we have managed with different ICTs equipments. Almost all classrooms are well established with the ICTs equipments. We are able to develop our power point for instruction purpose. We are using ICTs to facilitate the teaching learning process since four years ago. Most of our Instructors are able to develop their content integrating ICTs, such as power point access. They have the digital communication and paper edition capacity. But they do not use some high level technology access, such as group email, teleconferencing access".

Regarding the effect, purpose and use of ICTs for the teaching learning purpose in the IT-PhD program with the very professionals' level has promising future. Accordingly, "We have more than 50 professors from different corner of the world such as USA, Europe, and Africa and

Eastern world. In this program ICT plays the grate roll for the teaching learning activities. Because those professors are involving the program from distance, they use ICT intensively for discussion and research topics, research designs and for different teaching learning activities with video conferencing, Skype and the like. For courses offering they come and comp here not more than two weeks, but before they come and after they go back they continue teaching with ICTs. ICTs are the backbone of this program, IT-PhD. But we do not have the dedicated course management application therefore; we obliged to use other tools which are designed for other purpose.

On same concept, the IT department staff facilities are well equipped and designed for the teaching learning purpose. "Our program objective is to fabricate the IT professionals in the country, so that the facilitation and coverage are targeted under graduate and graduate level of profession. Mostly we teach MSC in linguistics & computational, MSC in health information and MSC in IT at the masters program. The undergraduate program takes more than 100 students every year".

The teachers' lack of perception makes the worst challenge to benefit ICTs in the teaching learning process. Even the ICT facility is on the ground with its problems". Attitude of the individuals, infrastructure availability, administrative support and the ICTs technician support and the lack of commitment of the management itself are part of challenges. IT technicians are not supporting on the gap of instructors limitation and Maintenance issue aggravating the instructors. No enough people to work in the lab as assistant, classrooms shortage are hindering activities to integrate and benefit ICTs. "Instructors can be identified the place where they come, rural or urban. Those who come from the rural areas may not familiar with computer or ICT in general. Instructors who are from the urban areas may have the access to be familiar with the

ICT use, but still there is attitude problem. In addition to the generation gap has its own influence; the elders may not be familiar with the new technology. They can be the change resistant; so that the ICT benefits are not being utilized by the instructors for the teaching learning purpose in the department as well as in school. In total there are some inherent problems to use the maximum benefit of the existing ICTs resources".

As an opportunity it is very impossible to think without ICT these days. The time by itself requires utilizing ICTs in the teaching learning process. It is difficult to envision without the use of ICTs and hard to think a professionalism. There are many tools encompass to the use of ICTs such as Laptop that is every instructor need to have and has been distributed by the College, classroom mounted LCD and limited wireless connection access in the campus. "I believe that ICTs can change the teaching approach in different ways providing materials for the teaching learning purpose. It can change the teaching approaches providing teaching materials online. The students and even teachers can benefit ICTs by their own pace if it is used properly. By arranging group mail, using blogs as a result the instructors focus on the discussion part in the classroom activities".

ICT is a key to all aspects of life and especially in education, first it cuts the distance barrier, wherever that the student can learn his/her education at any time convenient. ICTs can bring the paradigm changes too. We can see the use of power point as example to present our teaching. Even if some of us don't know how to prepare and use the Power Point, with different style or designs need to focus on the beauty and utility. Instead of talk and chalk method we have to use Power Point. At the same time our hand writings may not as such obvious and clear to our students. Within our smart classrooms mounted LCD projectors have to benefit the students and instructors. Whatever I have taken from different sources I have to send email to benefit my

students. This shows that the effort have to be made by the instructors to provide the access and at the same time the teacher can have confidence using ICTs. ICT makes the class more attentive than reading & writing so that it is better to forward course materials before the class provision. It plays a very determinate roll to enhance the quality of education.

"We have two strategies such as Making students motivated to use ICTs and benefit from it and making instructors to transfer their knowledge easily to their students using ICTs. To help the instructors and students to use online libraries to prepare the materials for their teaching learning activities, that motivates instructors and students to concentrate on and benefit ICTs.

The development of some graduate program should have built in different smart classrooms, with mounted LCD and email access, facilitating for the teaching learning process. Now a day's everybody start using ICT and benefiting with its limitations. Strategies shifting from the conventional mode of teaching to technology based one. Some people use white/black board to write and read lecture from it. But now a day's we are changing to Power Point, even if we have the limitation of applying of it. The principle of Power Point is to show key concepts with bullet point to make discussion easy, nevertheless, some of us misusing the approach.

Time is one of the constraints, the lab technician; incentive doesn't consider the external market so that many times the professionals look for other options in the market to win daily bread. On the other hand resource supplying system has create the critical challenge, although, there is support from the higher decision making body but the worst experience is that the purchasing and bid process is not transparent moreover time taking. Actually money is not a problem but the purchasing system that the University follows, the system is not open, at the same time not

transparent. Sometimes we summit our request but at the end we couldn't acquire what we requested so far then it is one of the hindrance for our performance.

The researcher has observed with checklist of ICTs resources as per the following table. As a result, in school of commerce the resources are found in an encouraging status. The instructors come into a classroom with soft copies of documents. The seating were arranged for the purpose of teaching learning activities. LCD projectors were mounted in all classes. The school has the power backup and subject based applications used by many instructors. On the contrary in Faculty of Business & Economics (FBE) resources are very limited except in Information Technology (IT) department. The observed classrooms were not arranged for the purpose of ICTs based teaching learning activities. Observed instructors were not supporting the classes with ICTs devices; they were mainly using the talk and chalk method of teaching. It is hard to find the LCD projector in FBE. If the power cut there was not backup access. White board/discussion and Video conferencing access were not found in both locations.

Table 4.6: Classroom Observation results regarding instructors' integration of ICT

No	Items	Number of classrooms observed							
		1	2	3	4	5	6	7	8
1	Laptop/Desktop	√	√	√	√	√	X	√	√
2	CD-Room Materials	√	X	√	√	X	X	X	X
3	Subject based Applications(software)	√	X	√	X	X	X	X	X
4	LCD Projector	√	√	√	√	X	X	√	X
5	Internet connection	√	√	X	√	√	X	X	√
6	Electrification facilities	√	√	√	√	√	X	√	√
7	Power Backup	√	√	√	√	X	X	X	X
8	Classroom seating facilities.	√	√	√	√	X	X	X	X
9	White Board /Discussion access	X	X	X	X	X	X	X	X
10	Video conference	X	X	X	X	X	X	X	X

ICTs integration activities have been observed when the instructors were teaching. The result depended upon the availabilities of ICTs in each location. Therefore, in school of commerce the integration of ICTs in teaching learning activities were on the way to benefit the instructors and students. However, in FBE the integration of ICTs were not on right track except in IT department.

In general there are inherent problems to the use of ICTs in the College that hamper the integration of ICTs. The responses of the open ended questions, the researcher classroom & ICTs equipment observation and the interview participants' were articulating with the very similar challenges such as attitude gap, resource limitation and lack of quick management decision making that hinder the use of ICTs in the teaching learning process in the College.

4.6. Discussion and interpretation

This section is part of making an attempt to have discussion and interpretation of the result. The discussion has been held in regard to the research questions and has been assimilated with the reviewed literature. In addition to, the results have been analyzed incorporating the interview finding and be evaluated comparing with the observations conducted by the researcher. Therefore, the data has been evaluated based on various data collection instruments according to each research questions and has been discussed significantly to give meaning.

4.6.1. The status of ICTs in CBE the teaching-learning process.

Instructional Technology is the systematic practice of managing, designing, using, developing and evaluating the way teachers teach and learners learn as well as the resources that can be used for learning. The availability of instructional technology in the College is one of the most vital

things to integrate ICTs in the teaching learning activities. Once the College has equipped all instructors with important instructional materials the integration of ICTs in the teaching learning process brings significant result. However, as per the respondents' data and the researcher's observation as well as the interview outcomes within the same College and with the same administration but in different location the availabilities and supply of instructional technologies are totally deferent. In school of Commerce each instructor has been provided laptop and there are smart classrooms which are well equipped with mounted LCD projectors, and desktop computer access. Even the seating arrangements are organized for the teaching learning purpose. In FBE, at 6 Killo, most of the instructors were not provided the laptop, here they have two options, the first arrival will be served to use LCD projectors from administrative offices to his/her classrooms, at end collect back to where borrowed. The other option is used talk and chalk method, which is more usual approach. The following statement is extracted from the open ended questionnaires, "I think everybody does know how to use laptop & projector, but they are utilized to prepare short notes then read from it. The basic problem is unavailability of resources, so that ICT is underutilized". This is for two reasons whether instructors have no ICTs access including LCD projectors in the office. "The tendency to use ICT in classroom is mostly hampered by absence of classroom facilities, lack of adequate electricity, table & appropriate display materials including LCD projector"

Instructional Technology combines teaching theory and methods with the use of technology as tools in all aspects of teaching-learning process in order to facilitate greater learning (Gagné, et.al, 1992). The instructional technology importance was articulated by one of the interview respondents; saying "ICT is a key to all aspects of life and especially for education, first it

facilitate making easy the teaching learning activities and cuts the distance barrier, wherever the student is; s/he can learn at any time convenient. ICTs break the language barrier too". Of course, considering the benefit of instructional technology without the availability of the equipment difficult to think because as mentioned bellow that the instructional technology is comprised of learning theories, "It is a set of technology-based practices as well as it is a combination of both theories and practices (Reiser in 2002)". The current status of ICT utilization based upon the skill of instructors. Instructors and students are not using ICT as part of the teaching learning process. They have skill and knowledge gap to manipulate the ICTs in day to day activities, there are challenges in line with as Sheingold (1990) said that integrating technology in the classroom is not about teaching students to operate computers, but integrating technologies is about helping instructors to use technology as a tool for learning. Computer for the teaching learning process could be depend on the operation skill, accordingly , teachers technology fluency promote by using technology in the classroom, applying technology across the curriculum and integrating technology to facilitate collaboration and cooperation among students (Fulton, 1997).

The integration of instructional technology in the teaching learning process encompasses different level of skill exploitation, selection of appropriate software, skill to plan and prepare lessons for the instruction purpose and commitment to design lesson in accordance with the subject content. The general awareness of Computer related tools is encouraging. Moreover they have awareness and some of them have got their own devises and using for the teaching and learning purpose. "The skill of instructors depends on the individual competency and

commitment to use ICTs. In general there are significantly different utilization capacities among the Instructors".

On the other hand, "ICT is good, but the basic problem is unavailability of resources" as one of the respondents stated the limitation of the resources. Technology in education is commonly defined as a technical device or tool used to enhance teaching learning process. Specifically, technology integration should incorporate the technological skill and ability to integrate pedagogical knowledge into teaching and learning process. The awareness of instructional technology is not based on the availability but the instructors' capability to manipulate, influence and expose to the technology due to the diffusion of technology, moreover the benefit of technology becoming vital in business world. On the other hand, ICTs require skill to operate and develop strategies to provide the technology based classes. Teachers have to motivate their students and keep them focused as instruction on progress. The instructors must consider the pace and interest of learning style of their students as much as possible.

There are some ICTs technologies as the strategy but far behind to use the advanced technology access in each department for instructional purpose. The integration is very limited however using email to communicate among the instructors is common. But they are not using for classroom teaching learning process.

ICT, in the college, is in the infant stage. Some of the instructors are able to develop their own subjects with power point for instruction purposes; they are using ICTs to facilitate the teaching learning process. Some of them have the digital communication and paper edition capacity. But not using various technology accesses, such as group email, teleconferencing access".

In terms of instructors skill it is difficult to measure, however, one of the respondents has articulated towards to ICT competency. Actually it is very difficult to speak about the personal

competency, however, there are data sharing mechanisms for different purpose among the staff. Instructor in different level of ICTs operations level such as senior & dynamic, mediocre and bellow the average. The status of lesson preparation using ICTs in the College is insufficient due to many justifiable reasons; among, the commitment to use instructional technologies for the teaching leaning purpose have no clear objectives except the information Science and the IT-Doctorial programs.

The level of application with different windows programs like Microsoft Power Point, spreadsheet and simple database skill are not in stat of professionalism. . The purpose of integrating these applications shall not mislead as Dunmire (2010) affirmed, about the use of Power Point for the teaching learning process by instructors, some say that PowerPoint is a great slide manager, but rather than supplementing a presentation, Instructors may use misguidedly it as a substitute for a presentation. The PowerPoint will not turn a bad presentation into a good one, and it will not convert an ineffective presenter into an effective one, (Dunmire in 2010). Power Point, of course, helps to manage and use as a tool in order to provide the presentation, however, the instructor should have the skill of preparing the lesson as per the subjects they teach. In academic circle the pedagogy and content knowledge is the center for the teaching learning process. Integrating technology with the content and pedagogy knowledge requires special skill in order to achieve the maximum benefit of the instructional technology in teaching learning activities. Instructors need to plan and design the lesson that they suppose to offer in classroom.

As per the researcher's finding with the interview respondents have any objective or strategy regarding ICTs in the education. Actually there are two different views. The first view that is organized for the Information science professionals, such as Information science department and

IT-PhD programs. Of course, these two departments are fabricating information science professionals for Universities in the country as well as the IT Doctorial has ambition to train individuals with international accreditation.

The following concept is extracted from one of the interview respondents "Regarding the effect, purpose and use of ICTs for the teaching learning process, more than 50 professors involved from different corner of the world, such as from USA, Europe, Eastern world and Africa. In this program ICT plays the main rolls for the teaching learning activities because those professors are involving the program from distance, they use ICT intensively for discussion and research topics, research designs and for different teaching learning activities with video conferencing, Skype and like. But we do not have the dedicated course management application, however; we use other tools which are designed for other purpose".

As discussed above the program is being in a good track, however, has limitation of the course management application, thus, they obliged to use other tools which is designed for other purpose. Another participant justified that, "The IT department and staff facilities are well equipped and designed for the teaching learning purpose. Since our program objective is to fabricate the IT professionals in the country, so that the facilitation and coverage are targeted for under graduate and graduate program. Regarding facilities we have fully functioning three computer labs for undergraduate program and two computer labs for the graduate programs, in addition we have small computer lab for staff use only". The objectives in some departments are being on the right path to maximize the benefit of ICTs in the teaching leaning process. The promising thing here is that the problem of professional that mentioned above on the challenges part will have solution due to these particular programs.

The second view is using ICTs as a tool to facilitate the teaching learning process. The College has higher level of graduating programs so that ICTs usage is compulsory requirement for the communication and data transferring access including managing the distance learning. Students have to access to learn by themselves, due to paradigm shift from conventional to technology based instruction, much of activities need to be designed digitally. Once instructors or students access the material online or digitally; they make their own soft copy or print out. Also they have opportunities to browse other material from various web pages as reference. The objective of different departments regarding ICTs integration in the teaching learning process justifies that the instructors demand commitment to transfer the knowledge. Using online access will encourage students to concentrate and benefit operating ICTs.

4.6.2. Instructors attitudes integrating ICTs in teaching-learning process

The attitude of instructors towards ICTs integration in the teaching learning process has been measured and the result has discussed. As Yushau (2006) stated that Instructors, whether male or female need to improve their attitude in order to become sufficiently competent to make personal use of ICT as a mind tool, to masters of using ICT, and also to become sufficiently competent to make use of ICT as a tool for teaching. Therefore, the perception to the usefulness of ICTs in general and computer in particular may influence attitudes towards to use computers, and create confidence of Instructors' implement to acquiring skills. The respondents have believed and affirmed that ICT empowers the professional level of comfort in their activities and all respondents have confirmed the importance of ICTs in their academic excellence.

As Kadijevich (2002) identified, some issues as critical to proper and effective use of computer technologies in teaching-learning process. Top among them is computer use attitude, followed by

software selection of a proper utilization, and web-based professional development of Instructors. Instructors attitude towards computer is an important factor related to the Instructors' role towards the effective use of ICTs in education. ICTs make significant contribution to achieve educational objectives and need to promote as it plays important personality in restructuring the teaching leaning practices matching with the current needs of an information society in the country. The deployment of ICTs equipment and a variety of software in the College neither improve nor change the quality of teaching learning activities unless the attitude of instructors and supportive staffs are changed. What matters are willingness, commitment and ability to integrate ICTs in the teaching learning activities are the vital actions that instructors and respective stakeholders' have. However, it is true the availability of instructional technology motivates to take initiative. Referring to scholars' discussion and shared their beliefs to the classroom use. Accordingly, Hawkins (1991) emphasized that Instructors need to be transformed from information consumers, using the internet to access resources, into information producers, adapting the information for their particular cultural and educational reality. Instructors need to use technology as a tool and then transform their classrooms into interactive, inquisitive learning environments. Adopting ICTs in the education enhance the teaching learning process, as Hawkins stated above instructors once adopted and accustomed with the technology they have to make progress always achieving the best for themselves in benefitting the accesses and create the better environment for their students. At the same time the instructors can be encouraged using the instructional technology into the professional developments. The exploitation and practice of ICTs in the teaching learning process gives on time feedback as uttered from a participant, Effectiveness covers many parts, requiring a simple behavioral orientation. Learning technology

of course complex and unfriendly but needs the open mind and learn technology to engage with professional opportunities.

Instructional technology requires commitment and attitude change, hard working and taking time to exercise furthermore. Moreover, ICTs need open mind to learn and add skill and how to manage the hardware and software simple troubleshooting. Success of technology depends on instructors use of related equipments, the integration of ICTs in the teaching learning process depends on the key factors such as the context of instructors interact, belief and attitude towards to teaching learning process. Of course, like computer hardware & software, and technical supports are helpful to integrate technology into instruction, however, the main factor, that takes the biggest share are attitude and commitment, such as instructors' have to believe about the teaching leaning process using ICTs. Therefore, ICTs in higher institutions are important, as of the Interview respondents uttered, "ICTs can change the teaching paradigm; no doubt about the facilitation of teaching learning approach using various techniques, making the lectures technology based such as Power Point, use a video recording and document sharing with email to students and among instructors. Arranging group mailing, using blogs as a result the instructors focus in the classroom mainly on the discussion part. Moreover, students and even instructors benefit ICTs by their own pace." In general the attitude of instructors to integrate ICTs in the teaching learning process has to be supported with the practice. It might be painful, time taking and tiresome, however, the outcome gives confidence, responsiveness and commitment moreover leads to professionalism. In general the attitude of instructors to integrate ICTs in the teaching learning process has to be supported with practical actions.

4.6.3. Instructors challenges to integrate ICT in the teaching learning process.

ICTs challenges start from the attitude of different stakeholders, which is the worst one hindering to use technology as a tool for the instructional purpose. Individual's application of instructional technologies for the teaching learning process hampered due to resource limitation. Supplying of instructional technology and training facilitation depends on the attitude of the supportive and main staffs, meaning that the decision making body have to play a decisive role to mitigate ICTs in education, especially; the supply system of the University should not discourage the use of ICTs. As per the researcher's gathered data the supplying of ICTs in the college is challenging. ICTs by nature, especially computers obsolete easily so that they have to be replaced with the latest version, since preceding ahead the teaching learning process with the old versions creates difficulty to use some applications. The Knowledge of the management and our leaders' created gap to benefit the advantage of ICTs for teaching learning purpose. Poor management system lack of willingness and sluggish decisions making are the sign for attitude problem. On the same talk, the interview participants from the IT department reflect similar challenges.

The effort of instructors in the Information Science & IT-PhD must be given recognition by the supportive staff for the job they have done. Unless things being done are not motivated and recognized then there will be challenges for the University. As base the situation the time is for survival so that the staff needs to be compensate as much as possible based on their merits. Giving awareness of ICT benefit in the country leads to professional level. There are e developed software; the staff is giving full contribution for the program effectiveness. The other challenge is skill, which is one of the key obstructions to use ICTs in teaching learning process in the College, lack of confidence and understanding. The data gathered by different tools has justified

that the skill of the respondents have discussed in various ways. Here under by, the confirmations for the limitation of skill from open ended questionnaire and interview session gathered. Some instructors faced lack of abilities to design the teaching materials for instructional purpose. Instructors need training how to use ICT in teaching learning activities. Just like the previous pedagogy center ICT center will have regularly assisted to provide training to instructors for the ICT skill. It must not be one time task but at continuous process. Similarly, the skill limitation has been articulated by interview respondents with the special causes, such as the instructors' upcoming, inconsideration of generation gap and other inherent issues are the mentioned. Similarly, lack of confidence by instructors plays part in instructors' dispositions toward ICTs use in the classroom.

ICTs usage can be evaluated from the sorting of appropriate software and skill to design technology based activities and manipulation in the teaching learning process. Regarding the training facilities to upgrade ICTs skill in the College no schedule has been confirmed. Instructors, starting from kindergarten to higher education, will be required to have the necessary teaching qualification and competency in the media of instruction, through pre-service and in-service teaching (MoE, 1994). Accordingly, training is one of policies to equip instructors with the necessary and relevant instructional Medias including instructional technologies. The Government is trying to make this policy to come true; however, the challenges are not as such simple and easy to control. The country is facing challenge for infrastructure constraint to have been linked with instructional technologies; mainly telecommunication, electricity and instructional equipments with compatible software to the particular subject content. The availability and use of instructional technologies provide an instructor with interest and persuasive platforms for handing over information since they motivate learners to learn more.

Furthermore instructors can be assisted in overcoming challenges that hinder her/his effective provision of a given subject content to the ICTs. In order to promote the quality, relevance and expansion of education, due attention will be given to the supply, distribution and utilization of educational materials, educational technologies and facilities (MoE, 1994). The purpose of instructional technologies is, according to MoE to promote efficiency of education by improving the quality of teaching-learning process. Presenting and incorporating in every institution the tools support and reinforces teaching-learning process. The use of instructional technologies leads to encourage Instructors and students to work collaboratively, moreover, motivate cooperative learning activities among the students themselves.

Technological pedagogical content knowledge refers to the knowledge that required by instructors to integrate technology in any content area. Here the combination of three conceptual knowledge and skill gap is the core finding of the study. At the same time, each of them has practical and special skill to implement according to their uniqueness. Moreover, the method of incorporation and execution differ by the nature of each subject, approaches and type of technology. Therefore, in the College of Business and Economics ICTs integration is not yet fully fledged.

Chen (2008) identified several issues that explained the inconsistency between Instructors' reported beliefs and technology-integration practices: (a) influence of external factors including not enough access to computers and software, insufficient time to plan instruction, and inadequate support, (b) lack of Instructors' understanding how to engage students in active problem-solving, and (c) Instructors' pedagogical beliefs to integrate ICTs. Teachers find that barriers continue to prevail and the continued evolution of new technology becomes

overwhelming. Barriers to integrating technology are not only the cost and distribution of hardware and software, but also the increased demand on Instructors' time for course preparations. Technology knowledge is always in a state of dynamics in relation with other two core knowledge domains which are the determinant factors in teaching-learning process. Technology is continually changing, and keeping up-to-date since technological development becomes a full-time job. Technology is reshaping the world of higher education, it has also influenced education but the nature and scope of such change are still contested many have trumpeted technology as education cure all sure to transform the delivery and nature of education processes. (Patricia J & Chun, 1997)

ICT can play different and harmonizing role in each approach, meaning that, new technologies are requiring new rolls of instructor, new pedagogy or method, and paradigm shift on the teaching learning process. The concepts of fundamental process of Instructors has to come to know how, where, when and when not to use technology for classroom activities. Bringing ICT into the classroom can have a considerable role on the practice of teaching-learning process, particularly, when ICT is used as a tool that supports a real change in the pedagogical approach. Newhouse (2002) points out that the real impact of ICT and the subsequent changes in pedagogy, development and training on teachers is varied and idiosyncratic although some general areas of impact may be identified as the balance of roles they play with a perceived risk of reduced influence, providing greater access to information, leading to increased interest in teaching learning process in incorporating TPACK, which are complex relationship of three bodies of knowledge such as Pedagogic, content and technology. Technology knowledge that refers to the knowledge about various technologies, ranging from low-tech technologies such as pencil and

paper to digital technologies such as the Internet, digital video, computers and software programs. As being the grand College in the country the level of knowledge and skill could be in the better status. However, the technology skill can be determined by different factors such as the availability of instructional technology, attitude of instructors and administrative staff, training facilitation and commitments to know and utilize the technology. Regarding the benefit that comes from the ICTs is vulnerable in the College of Business and Economics.

Instructors in the College of Business & Economics need to use varieties of ICTs integrating in the teaching learning activities. Technology can be used not only as an information management tool, but also as a means of reaching students with diverse subjects. On the same discussion, different departments in the College today have the responsibilities to prepare students in-lining with understanding technology based education and aliening with innovation. The impact of technology on the value of life and society has significant impact to change the living style. Instructors need to ensure that graduates are prepared with knowledge of technology-based then contribute productivity in the real world aptitude.

The University communities including the management have to adopt technology then enforce the students in order to use and benefit ICTs. The benefits of the instructional technologies are to facilitate the objectives of teaching-learning process. ICTs can facilitate learning or increase understanding of the learning material. Of course, communicating to facilitate learning can be a challenging process, often requiring creative efforts to achieve a variety of implicit instructional goals (University of Saskatchewan, n.d.)". According to Bauer and Kenton (2005) Instructors that are highly educated and skilled with technology and are adept at overcoming obstacles still do not integrate technology; besides time, skills, and equipment, the main significant factors

affecting technology integration which are Instructors' self-efficacy-and the Instructors' belief in their capacity to work effectively with ICTs.

ICTs implementation needs to be designed in terms of objectives that technology can organize and facilitate the improvement of education quality; ICTs able to attract the attention of students as well as instructors, ICTs develop interest of individuals and change leaning environment in promoting acceptance of ideas. Therefore, fine-tuning of ICTs in the College must be unavoidable setting to clear the direction regarding ICTs usage and benefit in the teaching learning process from different angles.

CHAPTER FIVE: SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS FOR FUTURE RESEARCH

5.1. Introduction

In the previous chapter, an attempt was made to analyze and discuss the study findings. This chapter presents the summary of the major findings, conclusions, recommendations and implications for further research respectively.

5.2. Summary of the Main Finding

The current situation of ICTs integration in the teaching learning process in the CBE is at the initial stage. Many instructors as well as students were not benefiting ICTs as part of the teaching learning process. They may use very simple applications like editing Microsoft office, accessing email with significant limitation and use for data warehouse. On the other hand, there are some instructors with adequate level of ICTs use for teaching learning purpose. In general there are significant and visible capacity differences among the instructors.

There were some ICTs as the strategy but in the high level use they were far behind to use the advanced technology access in each department except Computer science and IT-Doctoral programs. For instructional purpose the integration is very limited but many of the participants were communicating via the email. There were some departments not using ICTs for classroom teaching learning process unless for the graduate program with some equipment such as Laptop, LCD and basic software. ICT, in School of Commerce can be justified in a better status

compared to other campus of the College and the availabilities of ICTs devices were better; almost all classrooms were in good start to establish with the ICTs equipments, such as mounted LCD projector for power point use, setting arrangements were organized for the purpose of ICTs based teaching and learning process. Some instructors were also able to develop their own power point for instructional purpose. But they were not still using some level of technology access, such as group email and teleconferencing.

Regarding training, no ICTs, specially computer based training has been facilitated so far in the College for the purpose of teaching learning activities to the instructors; even no such a basic training has been given except SPSS software training. Of course, there are some instructors who have taken different computer training and application software by themselves. In terms of instructors' skill, there is limitation as per the information gathered. However, there was no level of competency designed so far by researcher in order to measure instructors' application. The poor connection of internet has brought the negative impact to exploit the benefit of ICTs..

The attitude of instructors to wards to ICTs integration in the teaching learning process has been measured and the result has discussed above. The participants believed and affirmed that ICT empowers the professional level of comfort in their activities. All respondents have justified the importance of ICTs in their academic excellence adding value. But what matters is instructors and respective stakeholder willingness to integrate ICTs in the teaching learning activities. Moreover, the Instructors' perspective makes the worst challenge for the benefit of ICTs in the teaching learning process. Even the ICT facility is on the ground with its problems without attitude change difficult to mitigating to the teaching learning process. A few numbers of instructors were exploiting the ICTs' benefit. However, the worst challenge were the attitude gap

in the administrative and supplying staffs, for example, in the same College but different locations, instructors were discriminated with the distribution of Laptop. Poor establishment of ICT worsen the integration of teaching learning process in some departments, shortage of ICTs devices such as, Laptop, LCD projector, internet connection and lack of ICTs' infrastructure.

Time is one of the main constraints in order to integrate ICTs in teaching learning process. ICTs training access were not considering integrating teaching learning process. IT department should have schedule to make a physical visit in every office and lab, well equipped lab with connection access is vital to enhance the quality of education. The availability of computer accessories and power cut are discouraging in order to minimize the rescue the power backup is mandatory.

5.3. Conclusion

Based on the findings of the study the researcher comes to conclusion of ICTs in the College is in infant stage, which needs the commitment of all stakeholders. However, ICTs in general computer in particular have brought new pathway, new paradigm shift in the business of education. The teaching and learning principles are formulating strong bond with ICTs in order to enhance the quality of education. It is obvious that the benefit of ICTs in the teaching learning activities hampered due to a lot of interrelated and inherent challenges among them are; the attitude of instructors' skill and time to facilitate and design of subject based content document for the teaching learning activities. The skill to incorporate ICTs in the content and pedagogy knowledge is complex and many instructors have faced challenges to implement the integration. Designing subject based Content to integrate with technology requires skills that depend on each course. Since all instructors need to align academic knowledge with technology in order to incorporate ICTs. Therefore, to minimize the gap the University needs to facilitate ICTs training

opportunities to the instructors. In general, an increasing use of ICTs are bringing changes to teaching and learning in all levels of higher education systems leading to the quality enhancements. There are endless possibilities with the integration of ICT in the education system. The use of ICT in education not only improves classroom teaching learning process, but also provides the facility of e-learning. ICT has been enhancing distance learning. The instructors able to reach remote areas and learners can access quality classes from anywhere and anytime. It is important that instructors or students should be made to adopt technology in their teaching learning process in providing pedagogical and educational gains. Successful implementation of ICT to lead change more about influencing and empowering teachers and supporting them in their engagement with students in learning rather than acquiring computer skills and obtaining software and equipment. ICT enabled education will ultimately lead to the democratization of education.

5.4. Recommendations

Based on the results obtained, the following recommendations are suggested:

- First for most the College has to supply ICTs devices, especially, Laptop distribution among its instructors without any discrimination.
- In relation with the researcher recommends to provide the best and high bandwidth internet connection in the College in all departments install the Intranet access or LAN for using data in different offices.
- Supply internet ports in all offices and classrooms. No instructor shall suffer due to lack of connection. As option the College has to provide wireless connection access.

- The researcher proposes to organize all classrooms with the ICTs facility in the College, smart classrooms with mounted LCD projector; therefore, the College needs to close the gap that created so far in providing the ICTs devices among the College's instructors.
- The researcher proposes that instructors need to have enormous knowledge on their respective subject content competence to integrate with ICTs. They have to consume the latest knowledge and update with new research findings in their subject using IT.
- Training is crucial in every level of occupation, especially; in education training is the heart to equip with latest and particular skill. Therefore, the researcher proposes that the College has to organize ICTs training regularly to its instructors targeting the teaching learning process in consideration of future generation opportunities and job world. Related to the ICT technicians incentive need to consider the external market unless the College running regularly with technicians turnover.
- The finding shows that instructors have various level of attitude. All instructors have to be stay tuned integrating with ICTs; the attitude change promotes to be connected and leads to professionalism in the academic excellence. Therefore, the positive change of attitude towards to ICTs integration needs to be given special consideration by the University in order to use ICTs in the teaching learning process.
- The next recommendation of the researcher is to the administration staff and decision making body need to make open and transparent purchasing and supplying system in order to mitigate the integration of technology in the teaching learning activities.
- Due to the challenges articulated so far the researcher has recommended the short and long term plan.

- ✓ The short term recommendation is to facilitate regular tearing options for every instructor in the College how to use technology integrated teaching learning to enhance the quality of education with supplying of devices to all instructors.
- ✓ The long term plan recommendation of the researcher is to establish the ICTs development center for the academic excellence purposing as research and development center for high level technology benefits.
- ✓ In line with the scarcity of hardware and software that hampered to mitigate the use and integration of ICTs to the teaching learning process. Therefore, the researcher has recommended as a long term goal to the respective stakeholders to facilitate device assembly center in the country. Since the country has untapped market opportunities and on a fast growing status with potential paradigm shift of the education sector from traditional system to technology base. It has many opportunities with huge market demand, young & productive manpower that are looking for the ICTs devices. Beyond these all potentials to export to other nearby countries then reserves the hard currency.

5.5. Future study suggestions

Finally, the researcher has recommended conducting a research on the attitude of students regarding the use of ICTs for the teaching learning purpose. It is important that the future investigation on the students can maximize the utilization of ICTs. Further studies can also be carried out to look into the impact of ICTs to enhance the quality of education.

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Appendices: - Data Collection tools

Addis Ababa University

School of Graduate Studies

Institute of Educational Research

Questionnaire to Instructors

Dear instructor,

The researcher is a student of Master's Degree in Educational Research and Development in Addis Ababa University, Institute of Educational Research (IER). The objective of the study is to assess the integration of information communication technologies in promoting the teaching-learning process at your College. This questionnaire will help the researcher in getting the right information on the issues. Results of the research will be used only for academic purpose. The researcher believes that your contribution by responding to the questions will add value and make the paper solid. So, the researcher kindly requests you to answer all the questions.

Please do not write your name on any page of the questionnaire. You may use a "√" mark to indicate your answer for items with alternative responses. Please provide brief answers for open-ended items.

Thank You for your kindly cooperation!

I. Demographic Data

1. Department/School: _____
2. Gender ☐ Male ☐ Female
3. Age ☐ less than 30 ☐31 to 35 ☐36-40
   ☐41 to 45 ☐ 46- 50 ☐. >50
4. Year of teaching experience: ☐ ≤ 2 ☐ 2 to 4 ☐ 4 to 8 ☐ >8
5. Academic Rank ☐ Professor ☐ Associate Professor ☐ Assistant Professor
   ☐ Lecturer ☐ Others (please specify) _____
6. Field of Study: _____
7. Subject you currently teach: _____

II. The Status of ICT Integration in the teaching learning process

Directions: The following phrases are to measure ICT use in teaching-learning process in your College. Please indicate your responses using the following rating scales: Very High=VH, High=H, Medium =M, Low =L and Very Low =VL

No.	Phrases	VL	L	M	H	VH
1	Availability of instructional technologies					
2	General awareness of computer -related tools					
3	Use of overhead/slid projectors					
4	Skill to use computers for teaching- learning process					
5	Use of computer to record grades or attendance.					
6	Commitment in use Instructional Technology					
7	Use of Microsoft PowerPoint, spreadsheets, and simple database application					
8	Knowledge about usage of blogs, group emails, online groups, subject specific websites, etc					
9	Using simple hardware and software troubleshooting					
10	Creating own web pages, generate sophisticated multimedia products					
11	Expert user and technology mentors skill					
12	Technology based planning					
13	Availability of customized software for the subject you teach.					
14	Handle large class size using instructional technology					
15	Selecting specific Instructional Technologies to enhance teaching-learning.					
16	Skill how to use ICTs as tool in teaching learning process					

III. Attitude of Instructors in integrating ICTs in teaching-learning process

Directions: The following phrases are to measure your attitude in integrating ICTs in the teaching-learning process. Please indicate your responses using the following rating scales: Strongly Agree =SA, Agree =A, Neither Agree/Disagree =N, Disagree =D, Strongly Disagree = SD

No.	Phrases	SD	D	N	A	SA
1	I believe that Instructional Technology can empower my profession					
2	I know that ICTs make significant contribution to achieve educational objective					
3	I am thinking about how to use technology in my classroom.					
4	Adopting ICTs in education enhance the teaching-learning process.					
5	Instructional technology encourages the Professional development					
6	ICTs Practice give Prompt Feedback					
7	Computer encourages more active teaching-learning practice					
8	ICTs in higher education is important					
9	ICTs integrate lesson in higher education can encourage promising future					
10	I believe that instructional technology can enhance teaching-learning process					

IV. Challenges of instructors to integrate ICTs

Directions: The following phrases are to assess challenges that hinder utilizing ICTs in your profession. Please indicate your responses using the following rating scales:

Strongly Agree = SA, Agree = A, Neither Agree/Disagree = N, Disagree = D, Strongly Disagree = SD

No	Phrases	SD	D	N	A	SA
1	Lack of confidence using ICTs					
2	Long process to design ICT-based lessons.					
3	Lack of knowledge and understanding of ICT					
4	Lack of training					
5	Limitation of ICT equipment in the college					
6	Inadequate internet connection access in the college					
7	Limitation to integrate the subject content with ICTs in to the teaching					
8	Challenges to solve technical problems.					
9	Lack of computer supply					
10	Gap to use technologies in classroom to enhance what I teach, how I teach					
11	Drawback to use intergradations of content, technologies, and pedagogy knowledge in classroom					

V. Describe in brief the following questions.

1. How do you explain the current status of ICTs in your teaching-learning process?

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2. How do you perceive the importance of instructional technologies in your profession of teaching-learning process?

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3. What are challenges to integrate ICTs in your profession to enhance the quality of teaching-learning processes?

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4. If you have any additional comments and ideas please write on the space provided.

Appendix 2: Data Collection tools

Addis Ababa University

School of Graduate Studies

Institute of Educational Research

Interview to Department Heads

I. Interview Questions to the Department heads, Ass. Deans and ICT technicians for the integration of ICT in teaching-learning process in CBE.

1. How can you explain the current scenario of ICTs integrations in the teaching-learning process in your college/school?
    a. Addressing the skill of the instructors
    b. Administrative support and training facilitation
    c. Interims of promoting the quality of education
2. What technology skills are essential to your instruction? (Probe questions)
    a. Communication tools:-
    b. Classroom tools:-
    c. Social networking tools:-
3. Do you believe that technology can change teaching approach? And how can be the teaching changed because of technology integration?
4. What teaching strategies have you changed in the college/school related to ICTs and how?
5. How effective do you feel these ICTs tools have been in helping
    a. Instructors teaching enrichment and building confidence?
    b. Students learn, especially, with the future opportunity relating to job world?

6. How do you determine the effectiveness of technology use in your college/school instructional activities? (Probe questions)
    a. What is the college's/school's key objective in teaching with technology?
    b. How have you seen that objective met?

7. What hinders you using instructional technologies, especially computer applications?

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Classroom Observation Checklist

General Directions: This checklist is designed to obtain information regarding the integration of ICTs in Promoting the Teaching-Learning Process through direct observation of the researcher. It is used to examine the routines of the college settings and thereby observe the various features of the school.

Department Observed: SC: - Management/Marketing Date: 2/06/14 Time: 5:45

Class observed: Course Title: Research methodology

Topic of the lesson: Method of estimating reliability

Part I: ICT Resources

Instruction: Please read the items in the table below and put a '✓' mark in the box that describes ICT resources of the department and classes observed.

No	Items	Yes	No	Remarks
1	Laptop/Desktop			There are many PC in the classroom
2	CD-Room Materials			
3	Subject based Applications(software)			
4	LCD Projector			
5	Internet connection			
6	Electrification facilities			
7	Power Backup			
8	Classroom seating facilities.			
9	White Board /Discussion access			
10	Video conference			

Please add if you have any other comments on availability of ICT resources in the Department/School.

The instructor was committed to use ICTs in his classroom presentation and has discussed the course. His approach was very good and attractive fully technology intensive. He had no any paper and writing materials with his hand when he enters to the classroom. Made active the mounted LCD projector and started to teaching. He opened his email and immediately opened then downloaded and started teaching.

Part II: **Activities Related to Instructors' integration of ICTs**

Instruction: Put a "√" mark in the boxes to rate the frequency occurrence of an activity to be observed in classroom.

Key to numbers: ***4 - Always; 3 –Sometimes; 2 - Undecided; 1 –Rarely; 0 -Never***

No.	Items	*4*	*3*	*2*	*1*	*0*
1	S/he has come without any other instructional technology into the classroom.					
2	S/he comes with the ICTs equipment to the classroom.					
3	S/he sets up all accessories properly to resume with lesson					
4	S/he uses ICTs to present lesson in the classroom					
5	S/he explains the lesson in clear and understandable manner					
6	S/he has the computer skill for the teaching-learning process					
7	S/he is able to use Microsoft power point properly					
8	S/he informs to use blogs and subject specific cite to benefit students					
9	S/he is able to handle hardware and/or software problems easily					
10	S/he has technologically planned learning-teaching process					
11	S/he is capable to select specific ICT application to enhance teaching objective					
12	S/he has skill to use ICTs confidently in teaching-learning process					
13	S/he has incorporated content, pedagogy and technology knowledge in teaching profession					

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Declaration

This is to certify that the Thesis, prepared by **Solomon Mekonnen Gebreyes** entitled **The Integration of Information Communication Technologies in Promoting the Teaching Learning Process: College of Business and Economic, Addis Ababa University in Focus** and submitted in fulfillment of the requirements for the Degree of Master of Art in Educational research and Development complies with the regulation of the University and meets the acceptance standards with respect to originality and quality.

Name: **Solomon Mekonnen Gebreyes**

Signature: _____

Date of Submission: **June 26, 2015**

Advisor

Name: **Birhanu Abera Kibret (PhD)**

Signature: _____

Date of Submission: **June 26, 2015**