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Integrating ICT into Teaching and Learning Practices in Private and Government Higher Education to Improve Quality of Education

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Abstract

This study examines the extent of integration ICT into teaching and learning among the members of two private higher learning institutions and one government higher education to improve quality of education in Ethiopia. In this study, a mixed design (quantitative & qualitative) in line of comparative study methodology was used. The sample population consisted of 235 respondents from both private and government higher education (214 instructors, 14 deans and their vices and 7 department heads) from the eight departments. Instruments were observation, individual interviews and questionnaires. The analysis of data revealed that integrating ICT into teaching-learning is yet to be accomplished. The study revealed that the participants, the instructors have positive attitudes towards ICT and considerable knowledge and positive understanding of ICT and its potential in teaching and learning. However, the university fails to provide appropriate ICT-training courses for instructors to develop their technical ICT skills. Having said this, there are crucial examples of horizontal integration; that is, the instructors provide opportunities for the students to use ICT in meaningful contexts. The finding suggest that there is a relationship between the practitioners' stages of concern and stages of adoption, which can be described as follows: the personal level of concern moves from the _self-concerns' to _task and impact-concerns', the personal adoption level is also likely to move from entry to invention. Although the finding reveal some crucial factors that has prevented the instructors and students from using ICT in teaching and learning, among these the institutional ones such as lack of proper access to ICT resources, overcrowded-classrooms, lack of technical and pedagogical support are more influential on the integration process in improving quality of education. The researcher then recommended that, the ministry of education and sample university should pass a bill at the national assembly on the use of effective ICT facilities in the educational system by provision of adequate fund, securing of ICT experts in university and ensuring that these facilities are monitored from time to time.

Key words: *ICT integration, Private and government higher education, quality education, teaching-learning practice, university.*

Introduction and Background of the Study

As globalization continues, the national and international competition for the best students is likely to increase among private and government universities, thus only reinforcing pressure for quality education and integration of ICT into teaching-learning practices. It is likely that international rankings based on the quality of teaching-learning will be set forth, thus reinforcing the attractiveness of quality initiatives. Moreover, there are more and more students who study at various private and government universities, benefitting from opportunities like integration of ICT into teaching-learning practices. These students are likely to compare the quality of the teaching received at these different private and government universities. In the other words, ICT learning and utilization is one of the most concerns of educational authorities around the world and for a number of years there has been evidence that a training and development area, which may be labelled information literacy is being formed (Edwards, et al 2006).

Information and Communication Technologies (ICTs) are referred to as the varied collection of technological gear and resources which are made use of to communicate. They are also made use of to generate, distribute, collect and administer information. ICT is a force that has changed many aspects of the way we live. Information and Communication Technologies (ICTs) consist of the hardware, software, networks, and media for collection, storage, processing, transmission and presentation of information (voice, data, text, images), as well as related services. ICTs can be divided into two components, Information and Communication Infrastructure (ICI) which refers to physical telecommunications systems and networks (cellular, broadcast, cable, satellite, postal) and the services that utilize those (Internet, voice, mail, radio, and television), and Information Technology (IT) that refers to the hardware and software of information collection, storage, processing and presentation (Anderson & vanWeert 2002).

Information Technology (IT) is concerned with managing and processing information using electronics, computers and computer software to convert, store, protect, process, transmit and retrieve information. The advancement from Information Technology (IT) to Information and Communication Technology (ICT) was the result of the advent of the Internet, broadband connections and broad wave transmission energy, enabling a wider applicability in business, education and the like (Parker, Bianchi & Cheah 2008). ICTs are used as productivity tools or

enrichment resources; this generally means that they support the traditional teacher-led mode of instruction in subject areas such as math, language, social studies, or science.

Transformative applications of ICTs refer to non-traditional emerging uses where exposure to and deployment of ICTs fundamentally change the way education is conceived and delivered to students. ICTs are enablers that optimize student-centred pedagogical methods. They are used to develop broad, generic skills such as problem solving, independent and collaborative learning, and communication. They lead to more individualized instruction, less didactic delivery, and an emphasis on problem-solving and cooperative learning situations. Teachers play the role of facilitators and skills developers. They help the students achieve a greater understanding of information by making use of new technologies.

ICTs open up new ways of accessing information thereby changing the relationships between students and between students and their teachers. In addition, ICTs enable teachers to transform their teaching practices by facilitating student-student discussion and collaboration or by simulating 'real-world' problems thus providing students with authentic learning experiences. The educational effectiveness and quality of ICTs depends on how they are used and for what purpose. And like any other educational tool or mode of educational delivery, ICTs do not work for everyone, everywhere in the same way. It is difficult to quantify the degree to which ICTs have helped expand access to higher education since most of the interventions for this purpose have been small-scale and under-reported.

The teaching role of instructors reflects their centrality in addressing the primary educational mission among universities. Instructors are expected to provide instruction and student advising as assigned by the departmental chairman. In brief the main aspects of teaching responsibilities of instructors are classroom teaching, academic advisement, course development, academic program review and course duplication review, all of them can be categorized as curriculum development process. If ICT tools are to improve institutional effectiveness and efficiency, it is obvious that their application in support of teaching and learning should be seriously considered. However, investments in ICT application should always be carefully balanced against other ways

in which quality of teaching and learning may be improved and strengthened. In this study, the researcher is concerned with the way in which ICTs can play a role in enhancing quality education at higher education

Integration of ICT into teaching-learning practices is one of the most concerns of educational issues around the world and for a number of years there has been evidence in the training and development area (Edwards, et al 2006). It is essential that the pedagogy of ICT becomes the main focus of staff development and this will have to build upon in a constructive manner in order to allow private and government instructors to achieve the full benefits of using ICT in their daily tasks (McNergney 2000). It is generally understood that both private and government university teaching and learning refers to both the contents (skills, understandings and values) and the processes of teaching in higher education. In the case of an institution's internationalization efforts, this may apply to both the 'what' and the 'how' of teaching and learning, usually with reference to educational borrowing or lending from international sources. Ethiopia private and government universities like other higher education institutes in the Africa are in the process of internationalizing their respective curricula.

Quality teaching-learning practice has become an issue of importance as the landscape of private and government universities has been facing continuous changes. The student body has considerably expanded and diversified, both socially and geographically. New students call for new teaching methods. Modern technologies have entered the classroom, thus modifying the nature of the interactions between students and instructors. The governments, the students and their families, the employers, the funds providers increasingly demand value for their money and desire more efficiency through integration of ICT into teaching-learning practices at private and government.

The field of education has been affected by ICTs, which have undoubtedly affected teaching, learning and research (Yusuf, 2005) .ICTs have the potential to 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 (Yusuf, 2005). In a rapidly changing world, basic education is essential for an individual be able to access and apply information. Such ability must find include ICTs in the global village. ICTs can enhance the quality of education in several ways: by increasing learner motivation and engagement, by facilitating the acquisition of basic skills, and by enhancing teacher training. ICTs are also transformational tools which, when used appropriately, can promote the shift to a learner-centred environment. ICTs such as videos, television and multimedia computer software that combine text, sound, and colourful, moving images can be used to provide challenging and authentic content that will engage the student in the learning process.

According to Vallance (2008), the flexibilization time-space accounted for by the integration of ICT into teaching and learning processes contributes to increase the interaction and reception of information. Such possibilities suggest changes in the communication models and the teaching and learning methods used by teachers, giving way to new scenarios which favour both individual and collaborative learning". The use of ICT in educational settings, by itself acts as a catalyst for change in this domain. ICTs by their very nature are tools that encourage and support independent learning. Students using ICTs for learning purposes become immersed in the process of learning and as more and more students use computers as information sources and cognitive tools (Cabanatan 2003), the influence of the technology on supporting how students learn will continue to increase. In the past, the conventional process of teaching has revolved around teachers planning and leading students through a series of instructional sequences to achieve a desired learning outcome. Teachers generate meaningful and engaging learning experiences for their students, strategically using ICT to enhance learning. Students enjoy learning, and the independent enquiry which innovative and appropriate use of ICT can foster. They begin to acquire the important 21st century skills which they will need in their future lives.

The major teaching and learning challenges facing in university revolve around student diversity, which includes, amongst others, diversity in students' academic preparedness, language and schooling background. Education is perhaps the most strategic area of intervention for the empowerment of human in any society and the use of Information and Communication

Technologies (ICTs) as an educational tool in the promotion of human's advancement has immense potential. The application of ICTs as a tool for effective enhancement of learning, teaching and education management covers the entire spectrum of education from early childhood development, primary, secondary, tertiary, basic education and further education and training.

The integration of ICTs in teaching and learning is more likely if the tools and resources of the Internet, multimedia, and related technologies are seen as being integrally connected with literacy learning in the wider sense of learning as a matter of accessing information, communicating, and applying knowledge (Zhu, 2003). In other words, to the extent that they represent new tools, media, and functions of learning in the digital age, ICTs complement, extend, and transform the role of language-across-the-course in learning as the very basis of generic skills or competencies and applied knowledge as well as mere skill or content transmission. Thus, it might be argued that an across-the-course approach does not just complement and extend a more skills-focused and specialized use of ICT in formal education, but is a key to ICT integration in teaching and learning (Becta ICT Research 2006).

In addition to promoting the learning of generic skills and applied knowledge orientations instead of mere skill or content transmission, an across-the-course approach is useful for recognizing and promoting the idea that to effectively integrate ICT in education instructors need to increasingly become designers rather than merely transmitters of learning (Gibson, 2002). Such an approach naturally also extends a "new literacies" perspective of how language and literacy learning as formal study is more effective and relevant in various ways if grounded in the functions and aspects of informal everyday discourses and interactions outside the classroom (Francis & Ezeife 2007; Wang & Woo 2007).

Despite the undisputable importance of integration of ICT into teaching-learning practices (Rodrigues 2005b), there clearly remain a number of issues that are not understood sufficiently (Walsh 2002). These include the relationships between technological tools available for learning

delivery and their links with ethics and pedagogy/teaching-learning. Beside this the challenge of ICT integration is as much at the centre of a conflict between old and new pedagogies/teaching-learning as it is in terms of how educational values are alternately influenced by institutional imperatives for change and existing social contexts. Thus, the gap between older instructors and students, who embrace a global "wired" culture at home, is as significant as the cross-cultural clash between traditional educational practices and the imperative of progressive new theories of learning (MoE 2002).

In Ethiopian universities some instructors have never had an opportunity to use computers for educational purposes nor have received any training in this regard. Although some instructors have recently been exposed to ICT through furthering their studies at higher learning institutions, it appears that the vast majority of instructors are unable to successfully integrate ICT into pedagogy/teaching-learning process (Ministry of Capacity Building 2006). Further, ICT is available in many universities, but there is limited evidence that it has been integrated into the pedagogy/teaching-learning process (Hare, 2007). It appears that the primary reason for the lack of integration is that instructors' knowledge, skills and attitudes in Information Communication Technology (ICT) are inadequate, not only in terms of generic ICT competence, but specifically in integrating it into the pedagogy/teaching-learning process (Becta ICT Research 2005; Thorburn 2004).

ICTs can enhance the quality of education in several ways, by increasing learner motivation and engagement, by facilitating the acquisition of basic skills, and by enhancing teacher training. ICTs are also transformational tools which, when used appropriately, can promote the shift to a student-centred environment. ICTs, especially computers and Internet technologies, enable new ways of teaching and learning rather than simply allow teachers and students to do what they have done before in a better way. ICT has an impact not only on what students should learn, but it also plays a major role on how the students should learn. Along with a shift of curricula from "content-centred" to "competence-based", the mode of curricula delivery has now shifted from "teacher centred" forms of delivery to "student-centred" forms of delivery. ICTs such as videos, television and multimedia computer software that combine text, sound, and colourful moving

images can be used to provide challenging and authentic content that will engage the student in the learning process. Interactive radio likewise makes use of sound effects, songs, dramatizations, comic skits, and other performance conventions to compel the students to listen and become more involved in the lessons being delivered.

ICT changes the characteristics of problems and learning tasks, and hence play an important task as mediator of cognitive development, enhancing the acquisition of generic cognitive competencies as essential for life in our knowledge society. Students using ICTs for learning purposes become immersed in the process of learning and as more and more students use computers as information sources and cognitive tools (Pelgrum 2007), the influence of the technology on supporting how students learn will continue to increase. Learning approaches using contemporary ICTs provide many opportunities for constructivist learning through their provision and support for resource-based, student centred settings and by enabling learning to be related to context and to practice (Vallance 2008).

The challenge faced in use of ICT is that in many developing nations the basic requirement of electricity and telephone networks is not available as required. Also many universities do not have proper rooms or buildings so as to accommodate the technology. Another challenge is that the teachers need to develop their own capacity so as to efficiently make use of the different ICTs in different situations. The four most common mistakes in introducing ICTs into teaching-learning are: (a) installing learning technology without reviewing student needs and content availability; (b) imposing technological systems from the top down without involving teachers and students; (c) using inappropriate content from other regions of the world without customizing it appropriately; and (d) producing low quality content that has poor instructional design and is not adapted to the technology in use (Kalake 2007).

The hindrances affecting ICT in quality education are numerous but some include issues such as:
- Insufficient ICT facilities and unsophisticated accessories
- Epileptic electricity power supply

Insufficient ICT facilities and unsophisticated accessories: In Ethiopia, most ICT facilities are not sufficient to enhance quality education to learners and teachers, even where it exist there are not sophisticated enough to stand the taste of time like the ones acquired in developed countries (McRobb, Jefferies & Stahl 2007).

Epileptic electricity power supply: In Ethiopia, electricity power supply is irregular this affect most of the ICT operations in her universities and at homes thus causing frequent damages of the existing ICT equipment which hinder ICT uses in enhancing quality education. According to Kalake (2007) all ICT equipment, infrastructure and terminals depend on electricity to energize, unless this vital source is always available and reliable, Ethiopians will not be able to fully enjoy the benefits that the digital revolution offers and that overcoming the energy crises is a major pre-requisite for Ethiopia to achieve its Vision of national transformation.

However, others scholars listed the following as hindrances to ICT in quality education; Kalake (2007) noted that, the most common problems associated with the effective implementation of ICT are lack of qualified ICT personnel, cost of equipment, management attitudes, inconsistent electric power supply, inadequate telephone lines, particularly in rural areas and non inclusion of ICT programmes in teacher's training curricula and at the basic levels of education**.** Pelgrum (2007) stated that, obstacles for ICT implementation include the following: Insufficient number of computers, teachers' lack of ICT knowledge/skills, difficult to integrate ICT to instruction, scheduling computer time, insufficient peripherals, not enough copies of software, insufficient teacher time, not enough simultaneous access, not enough supervision staff and lack of technical assistance. In addition, Parker, Bianchi and Cheah (2008) summarized these barriers as limited equipment, inadequate skills, minimal support, time constraints and the teacher's own lack of interest or knowledge about computer.

Statement of the Problem
In this day and age, the role of technology in improving the lives of the people an enhancement of quality education cannot be underestimated. Most people, including minorities, more than ever before are now buying goods and services online, sending messages across the globe to loved ones, sending emails to donor agencies for support and receiving instant replies (Barret

2009; Becta ICT Research 2006). It has been suggested that information and communication technologies (ICTs) can and do play a number of roles in education. These include providing a catalyst for rethinking teaching practice; developing the kind of graduates and citizens required in an information society; improving educational outcomes and enhancing and improving the quality of teaching and learning (Betts 2003; Cox 2000). While all of these suggest the potential impact of ICTs in education in general and Ethiopia in particular, it is still difficult to demonstrate the potential of technologies in addressing specific teaching and learning problems faced by Ethiopian Universities.

In a baseline survey conducted by the Ministry of Education (MoE 2002), it shown that most universities and institutions of higher education in Ethiopia have computers. However, these computers are few and, therefore, shared at a student-computer ratio of 10:1 in most cases. The study also showed that despite the presence of computers, most of the universities lack a network infrastructure and have limited connectivity. The instructors are yet to adopt ICT as a teaching-learning tool, and only a small number of students use computers and the Internet as a learning resource.

Information and Communication Technologies (ICTs)—which include radio and television, as well as computers and the Internet—have been touted as potentially powerful enabling tools for educational change and reform. When used appropriately, different ICTs are said to help expand access to education, strengthen the relevance of education to the increasingly digital workplace, and raise educational quality by, among others, helping make teaching and learning into an engaging, active process connected to real life. However, the experience of introducing different ICTs in the classroom and other educational settings all over the world over the past several decades suggests that the full realization of the potential educational benefits of ICTs is not automatic. The effective integration of ICTs into the teaching-learning practices at private and government higher educational institutions is a complex, multifaceted process that involves not just technology, but also curriculum and pedagogy, institutional readiness, teachers competencies, and long-term financing, among others. The Ministry of Capacity Building (2006) donated ICTs in universities that were mainly used for administrative purposes, thus many

instructors working in government and private universities may not have realized that information communication technology is very useful for instructional purposes in education and they seem not to be exposed to integrate ICT into teaching-learning practices.

Particularly, private (Unity & Rift Valley) University College and government (Adama Science & Technology) University seem to have very few instructors that have access to ICT resources and other technology materials for integrating ICT into teaching-learning practice to improve quality of education. Therefore, it is very essential to study the integration between pedagogy/teaching-learning, ethics and Information Communication Technology (ICT), which are the three important constructs for the development of an e-teaching and e-learning strategy. It is with this reason that the researcher becomes interested to asses issues and challenges in integrating ICT to pedagogy/teaching-learning and ethics in private (Unity & Rift Valley) University College and government (Adama Science & Technology) University. In addition to this ICTs are timely issues of interest but the majority of research in the area is narrow in its scope and the Ministry of Capacity Building (2006:14) points out that very little is known about the characteristics of good instructor as there is insufficient recent and systematically-collected data on ICT instructor in education. It is important to explore, describe and explain the issues/challenges that contribute to instructors' use of technology; as well as on how they develop and spread effective ICT practice in the teaching environment through. The Ministry of Capacity Building (2006) policy document on e-Education indicates that ICT has to be integrated effectively into education to enhance the quality of teaching and learning. Hence the current study aimed to find solutions for the following research questions:

1. To what extent private and government universities instructors integrate ICT into teaching-learning practices to improve quality of education?

2. What issues and challenges (materials, trainings, attitudes, support, and classroom conditions) affect the use of ICT in private and government universities teaching- learning practices?

3. What ICT resources (Internet, E-mail, word processing, databases, spread sheets, digital scanners, and education software package and computer printer) knowledge, attitudes and skills do the sample private and government universities instructors have?

Objectives of the Study

The main objective of this study was to explore the integration of teaching-learning and Information Communication Technology (ICT), and surveying the issues and challenges affecting its implementation in private and government universities, and to identify the impact that they have on each other. The specific objectives of this study were:

- to analyze the competencies of private and government universities instructors in integrating/infusing ICTs as pedagogical tools and educational resources to facilitate student learning;
- to identify private and government universities instructors in ICT use in different teaching- learning environments;
- to put into operation university online instructors resource base and offline network of private and government universities to share instructor-developed educational courseware and innovative practices.
- to asses factors hindering the use of ICT in private and government universities teaching-learning practices.

Significance of the Study

The findings of this study would provide important information about the integration of ICT into teaching-learning practices. Therefore, the outcomes of this study might help Ministry of Education, private and government universities, faculty/school deans and department heads, instructors, students, and other concerned organs in universities to design preventive, intervention and rehabilitative measures regarding the integration of ICT into teaching and learning, and issues and challenges affecting its uses. Further, the researcher believes, particularly, this study has the following significances:

- it can provide policy makers and educational officials at private and government universities levels with the information about the integration of ICT into teaching and learning practices;
- it may help instructors to improve their methods of instructional process by minimizing factor hindering integration of ICT into teaching-learning practices;

- it may help facility/school deans and educational department heads to make the necessary follow up regarding the integration of ICT into teaching and learning process;
- it may also initiate, encourage and serve as a stepping- stone for further and more extensive research on ICT integration into pedagogy/teaching-learning.

Delimitation of the Study

The researcher believes that, it would be better to examine the extent of integration of ICT into teaching-learning practices of instructors in all universities across the country. Most reliable and valid information may be found if one could do so. However, due to constraints of time, financial and materials, as well as to make study more manageable and to complete the study within the available time the dimension of this study is confined to Rift Valley University College and Unity University College from Private Universities and Adama Science and Technology University from Government Universities.

Research Methodology

Research Design

The major components of this section are the methodology, source of data, the sampling techniques, instruments and procedures of data collection and method of data analysis. This study is aimed at exploring the integration of Information Communication Technology (ICT) into private and government universities teaching-learning practices to improve quality of education, as important constructs for the development of an e-teaching and e-learning strategy.

The study is a mixed approach (quantitative and qualitative study) that focuses in a case of selected private (Unity & Rift Valley University College) and government University (Adama Science & Technology University) that the researcher work in it. The researcher selected comparative and descriptive survey methods to assess instructors' experiences in integrating ICT into teaching-learning practice to enhance quality of higher education. These methods of study are relevant together detailed descriptions of the existing condition and current practices of an educational phenomenon. According to Creswell (2009:12) a descriptive study is "a study in which the researcher explores entity or phenomenon bounded by time and activity and collects

detailed information by using a variety of data collecting procedures during a sustained period of time". Data will be collected from the instructors, deans and department heads at the selected school through Questionnaires, interviews and observations.

Population and Sampling Techniques

The respondents included in this study were private (Unity and Rift Valley Private University College) and government (Adama Science and Technology Government University) universities instructors, department heads and school deans and vice deans. One-third of instructors from each sample schools Adama Science and Technology Government University were selected randomly. While, all instructors working in Unity and Rift Valley Private University College are taken as a sample. The total number of participants from the three universities was 235 i.e., 214 instructors, 14 school deans and their vices and 7 department heads.

Research Instruments

This particular study made use of a number of data collection techniques. They were observation, individual interviews and questionnaires.

Questionnaires: The questionnaire (structured and unstructured) was given to one-third of the total number of instructors in sample schools of Adama University, which are randomly selected and to all instructors of Unity and Rift Valley Private University College in order for them to express their knowledge, opinions, attitudes and preferences about ICT. According to Creswell (2009), a structured questionnaire is an instrument with questions or statements to which respondents must react. Instructors in questionnaires were asked questions to assess how much of ICT skills they have and how they use ICT for teaching-learning. Specifically the questionnaire focuses on: The instructors access to computers at university; how often do they use ICT resources (Internet, E-mail, scanner & etc.)? What they think about ICT integration into teaching-learning? What is their competency level of ICT? What ICT skills are they interested in developing further teaching and learning?   And how they feel ICT integration for pedagogy/teaching-learning?

Interviews: During the interviews, the researcher verbally asks the respondents questions in order to obtain the necessary information for the current study. The main aims of the interview were to explore: Instructors' perceptions of the relative successes, problems and challenges of working with integration of ICT into teaching-learning; change in teachers' approach and views to incorporate the use of ICT in their practice, how this relates to student learning and about ICT in teaching and learning over the period of the time.

Observations: In this research, observation was employed as a method of data collection in order to provide an accurate description on instructors' feeling about ICT integration into teaching-learning process and their attitude towards the use of ICT resources. The data gathered through observation assisted the researcher to interpret the findings and cross check instructors' responses to the questions in the questionnaire.

Methods of Data Analysis

 The data collected through different instruments was organized, presented in tables and graphs, and then analyzed statically using such statistical methods percentages, means, standard deviation, t-test and Ch-square. Finally the results of analysis were interpreted to answer the basic research questions.

Results and Discussion

As explained above, a descriptive survey design method is used in this current study. The chapter presents the findings of the study obtained by analyzing the data obtained regarding the extent at which instructors integrate ICT into teaching-learning practice and use ICT resources for teaching and learning at the sample government and private universities. Factors that affect the use of ICT resources in the teaching–leaning activities and the integration of ICT into teaching-learning practices in the sample universities are also presented in this chapter.

Instructors' Knowledge and Skills of Basic ICT Resources

This section attempts to present and analyze the data collected in response to the leading questions which were raised in the introduction part of this study.

Table1: Computer access in sample schools/faculty of Private and Government Universities

Schools	Non-extent(1)		Fair(2)		Good(3)		Very good(4)		Mean
	f	%	f	%	f	%	f	%	
School of Business	2	4.9	6	14.6	21	51.2	12	29.3	3.05
School of Engineering	3	5.6	8	14.8	29	48.1	17	31.5	3.05
School of Health	1	3.1	12	37.5	14	43.8	5	15.6	2.71
School of Humanity and Natural Science	2	4.2	17	35.4	21	43.8	8	16.7	2.73
School of Educational Science& Technology of Teachers Education	1	4	1	4	10	40	13	52	3.40
Grand mean									2.99
Rift Valley& Unity University College(Private)	-	-	1	3.1	13	40.6	18	56.3	3.53

As it can be observed from the above Table 1, the majority (51.2% & 48.1%) of the sample instructors in the School of Business and Engineering respectively and 43.8% in the School of both Health and Humanity and Natural Science responded that there is a good computer access in our schools. As it can be seen in the same Table except for the School of Educational Science& Technology of Teachers Education instructors the computer access is very good only for few (not more than17, 32%) instructor respondents in the sample government university. However, a computer access is very good for more than half (56.3%) of instructor respondents in the sample private universities. The grand mean (2.99) for Government University and the mean for Private University College (3.53) instructors' responses in Table1 show that Private University College (Rift Valley and Unity) instructors have better computer access than government (Adama Science and Technology) university instructors.

The researcher observed that the Adama Science and Technology University has ICT classroom fitted with a few networked students' workstations, instructors' computers, a server and other technology such as printer, and video conference set which is all operated by satellite dishes. The Government University ICT laboratory has access to the Internet and e-mail which are the components of ICT resources required for integrating ICT into teaching-learning practices. Further, the Government University ICT laboratory is earmarked for the use Internet and e-mail by instructors, students and the community members. Even though, the ICT laboratory in this university has no timetable for all department-learning allocating specific period for the integration of ICT in learning. Instructors are not allotted to do their ICT lesson preparations and administrative tasks.

Table 2: Use of computer at home

Schools	Yes		No	
	f	%	F	%
School of Business	28	68.3	13	31.7
School of Engineering	39	68.4	18	31.6
School of Health	19	59.4	40.6	5.5
School of Humanity and Natural Science	33	68.8	15	31.2
School of Educational Science & TTE	21	84.0	4	16.0
Rift Valley& Unity University College(Private)	10	31.2	22	68.8
Total	162	68.9	73	31.1

As can be seen from columns of Table 2 above the majority of instructor respondents from Government University (above 59%) and private university college (68.8%) are using computer in their homes. Interestingly it was found that in spite of the instructors feeling that the use of instructional technology tools was beneficial for teaching-learning practice.

Table 3: Frequency of using basic ICT resources

ICT resources	Daily(4)		Weekly(3)		Monthly(2)		Never(1)		Mean
	f	%	f	%	f	%	f	%	
Internet	46	19.6	127	54.0	29	12.3	33	14	2.20
E-mail	24	10.2	26	11.1	128	54.5	57	24.3	2.07
Word- processing	70	29.8	113	48.1	30	12.8	22	9.4	2.98
Databases	14	6.0	25	10.6	28	11.9	168	71.5	1.51
Spreadsheets	9	3.8	28	11.9	32	13.6	166	70.6	1.49
Digital scanners	2	1	10	4.3	55	23.4	168	71.5	1.34
Educational software package	20	8.5	34	14.5	129	54.9	52	22.1	2.09
Computer printer	56	23.8	127	54.0	17	7.2	35	14.9	2.87
Grand mean									**2.07**

As Table 3 above show smaller number of instructors of the surveyed sample universities (government& private) are using different ICT resources which are very important to integrate ICT to the teaching– learning practices (Internet, E-mail, Word- processing, Databases, Spreadsheets, Digital scanners, Educational Software package and Computer printer,) frequently that is daily. Thus, as indicated in columns of this table less than 20% of instructor respondents are using Internet daily, Computer printer(54%), word processing(48%) and internet (54%) weekly. Majority of them are using these computer resources weekly. However, there are instructor respondents(less than15%) that are using these three resources monthly and others that are not using Internet, Computer printer and word processing and the other computer resources at all for teaching and learning activities.

Less than 15% of respondents are using each of the remaining resources (E-mail-11%, Databases- 10.6%, Spreadsheets 11.9%, Digital scanners 23.4%, and Educational Software package 14.5%) weekly. Out of these resources two (E-mail 54.5% and, Educational Software package 54.9%) are used by more than 50% of the respondents monthly and the other three resources, Databases- Spreadsheets-and Digital scanners, are never used by majority(71.5%, 70%, 71.5% respectively) of the respondents . Internet 14%, E-mail 27%, Word- processing -

9.4% and Educational Software package 22.1% and Computer printer (14.9%) are also never used by the indicated percent of respondents.

In general the grand mean (2.07) in the above Table 3, shows that most of the computer resources are used by the majority of instructor respondents in the sample Universities monthly specially; E-mail (54.5%) and Educational Software package (54.9%) are used monthly by more than 50% of respondents. Internet (54.0%), Computer printer (54.0%) and word- processing (48.1%) are used weekly by majority (more than 48%) of instructor respondents. Only few instructor respondents (below 15%) are using these basic resources in their daily teaching activities. The predominantly used computer technology software are the Word Processor, Internet and computer printer. Basically, at the moment, there seem to be less ICT teaching-learning integration. The computer resources listed in column1 of the above table are also not used by different instructors at all. Especially Databases, Spreadsheets and Digital scanners are never used by more than 70% of instructor respondents for teaching-learning activities. The reasons given by most interviewees for not using these ICT resources include the following: lack of skills, training, pedagogical support, technical support, time, instructors reserved attitudes and not accessible when needed.

To sum up, most of *the* sample instructor respondents are using basic ICT resources (but not frequently) to integrate teaching-learning practices. This implies that most of instructors in different schools of Adama Science and Technology University, and Rift Valley and Unity University College have knowledge and skills of basic ICT resources that have the capacity to promote and encourage the transformation of education from a very teacher directed enterprise to one which supports more student-centered models.

Table 4: ICT competency of the instructor respondents

Schools	Unknown		Not competent		Competent		Very competent		Mean
	f	%	f	%	f	%	f	%	
School of Business	6	14.6	5	12.2	22	53.7	8	19.5	2.78
School of Engineering	14	24.6	26	45.6	16	28.1	1	1.7	2.09
School of Health	5	15.6	13	40.6	14	43.8	-	-	2.34
School of Humanity and Natural Science	-	-	17	35.4	31	64.6	-	-	2.60
School of Educational Science & Technology Teachers' Education	-	-	8	32	17	68	-	-	3.04
								Grand mean	**2.57**
Rift Valley and Unity University College (Private)	-	-	4	12.5	20	62.5	8	25	3.13

1=Unknown; 2=Not competent; 3=Competent; 4=Very competent

Table 4, above indicates that 53.7%, 28.1%, 43.8%, 64.6%, & 68% of instructor respondents from the school of Business, Engineering, Health, Humanity and Natural Science, and School of Educational Science& Technology Teachers' Education respectively are competent in ICT skills. Whereas, 12.2%, 45.6%, 40.6%, 35.4% & 32% of instructors from the school of Business, Engineering, Health, Humanity and Natural Science, and Pedagogy and Vocational Teachers Education respectively are not competent in ICT skills. The ICT competence level of the remaining instructor respondents is not known.

Extent of Integration of ICT to pedagogy/teaching-learning and ethics in teaching–Learning practices

Table 5 shows that 157(66.8%) of instructor respondents empower students to purposefully select activities, applications and modes of communication, while above 165 respondents provide processing and presentation tools,169(71.9%) and problem-solving challenges,167(71%).

Table 5: Instructors' use of ICT in teaching for conceptual development

Abbreviated items	Disagree		Agree		Undecided	
	f	%	f	%	f	%
Empower students to purposefully select activities, applications and modes of communication.	59	25.1	157	66.8	19	8.1
Use information from online sources.	30	12.8	197	83.8	8	3.4
Select and use learning objectives to create learning activities and sequences.	27	11.5	189	80.4	19	8.1
Provide processing and presentation tools.	49	20.9	169	71.9	17	7.2
Provide problem-solving challenges.	55	23.4	167	71.1	13	5.5
Engage students with virtual objects and worlds.	45	19.1	171	72.8	19	8.1

1=Disagree; 2=Agree; 3=Undecided

On the other hand less than 60 instructor respondents did not perform these activities. The remaining (less than 20) instructors did not decide whether these activities were done by them or not. As can be seen in Table4 above the majority 197 (83.8%) of respondents use information from online sources, and 189(80.4%) of them select and use learning objectives to create learning activities and sequences and these activities were not performed by less than 15% of respondents. Majority 171(72.8%) of the respondents engage students with virtual objects and worlds, whereas 19% of them did not engage students with virtual objects and world. From all this it can be said that almost all instructors in both government and private universities are using ICT for teaching-learning practices. During interview, the interviewees also responded that we are using ICT for teaching-learning practices and say that it is important to expose students to ICT because students will learn new knowledge, attitudes and skills and ICT would make lessons to be more interesting and students to be competent in the information technology age in which we are living.

In this regard, there are numerous benefits derived from the integration of ICT tools in enhancing quality of education, improving students' ability to choose when to learn irrespective of geographical location without stress. Secondly, ICT also enable students to discover and explore

new ideas or innovations from experts around the global world through the use of the common ICT available facilities. Thirdly, the existence of ICT in education system will enable teachers deliver to students, monitor students progress and timely asses.

Table 6: Instructors' use of ICT in building learning- environment

Abbreviated items	Disagree		Agree		Undecided	
	f	%	f	%	F	%
Provide communication and collaboration tools such as chat, e-mail, messaging, discussion forums, online meetings and video conferencing.	47	20	166	70.6	22	9.4
Provide opportunities for students to be part of broader communities.	45	19.1	168	71.5	22	9.4
Support student participation in online collaborative projects.	57	24.3	160	68	18	7.7
Make learning activities, information, courses and feedback available online anywhere – anytime.	61	26.0	157	66.8	17	7.2
Support students using online resources to share with other students and experts.	59	25.1	159	67.7	17	7.2

1=Disagree; 2=Agree; 3=Undecided

As can be seen in Table 6 above the majority of (70.6%) instructor respondents provide communication and collaboration tools, while 20% of instructor don't use this technique to facilitate leaning– environment. Similarly, 71.5% of the respondents also provide opportunities for students to be part of broader communities, whereas, 19.1% of the respondents don't provide this technique. As indicated in Table 6, the majority of instructor respondents use three other techniques (support student participation in online collaborative projects (68%) which facilitate students leaning through ICT; make learning activities, information, courses and feedback available online anywhere–anytime (66.8%), and support students using online resources to share with other students and experts (67.7%). Even though more than half of the respondents are facilitating students learning through ICT, there are instructors who don't use different techniques to facilitate students' use of ICT resources in their learning

Table 7: Instructors' practices in using ICT in teaching – learning processes

Abbreviated items	Disagree		Agree		Undecided		Mean
	f	%	f	%	f	%	
Preparing lectures and presentation	60	25.5	155	66	19	8.1	1.86
Communicating with others in the academic community	46	19.6	173	73.6	16	6.8	1.87
Preparing assignments and exams	46	19.6	171	72.8	18	7.7	1.88
Doing research	64	27.2	147	62.6	24	10.2	1.83
Preparing and reporting grade	54	23	168	71.5	13	5.5	1.82
Giving feedback on students learning	53	22.6	143	60.9	39	16.6	1.94
Track progress and record completion and achievement	41	17.4	165	70.2	29	6.0	1.95
Linking teaching with practical work	64	27.2	137	58.3	34	14.5	1.87
Align programs and resources with course frameworks	55	23.4	140	59.6	40	17.0	1.94
Giving information and material to others	28	11.9	169	71.9	16.2	18.5	1.76
Grand mean							**1.89**

1=Disagree; 2=Agree; 3=Undecided

Table 7 shows that private and government universities instructor respondents are using ICT in preparing lectures and presentation (66%); to communicate with others in the academic community assignments(73.6%); to prepare assignments and exams(72.8%); for preparing and reporting grade(71.5%); and for giving information and material to others(71.9%). As can be seen in Table 7, there are few teachers who don't use ICT in these instructional activities. Similarly, 70.2% of the instructor respondents use ICT for tracking progress record completion and achievement and giving feedback on students learning but 17.4% of them don't use ICT for this purpose. Whereas, equal number of respondents (27.2%) don't' use ICT to do research and linking teaching with practical work instructional activity; but less number of the respondents (not more than35) don't have stand to use or not to use ICT in those instructional activities. As the same time, more than half of the respondents use for further practical activities, for doing research (62.6%), linking teaching with practical work (58.3%) and for aligning programs and resources with course frameworks (59.6%). As can be seen in Table 7, even though ICT is used

in the sample schools of the university (grand mean, 1.89) instructors are not using ICT for instructional activities as expected at this level of education (all of the instructors are expected to use ICT instructional activities) that is the percent of respondents who are using ICT for different activities is not as expected. Beside this the sample lecturers do not respond positively questions like: Have you had direct experience of planning and managing lessons with ICT in the classroom? Do you feel confident about helping your students work with ICT in classrooms?. According to the information that was gathered through observations, the general use of ICT integration into teaching-learning practice in Sample University is inadequate. Thus, ICT resources are mainly used for professional development purposes in these universities and the instructors seem to view ICT learning as an added learning area rather than an integrated resource to be used within teaching and learning.

Factors affecting the use of ICT in the teaching-learning process in universities

In order to address questions concerning challenges affecting the use of ICT in universities teaching- learning process different items were presented to the sample instructors. The following tables present the data obtained through questionnaire.

Table 8: Instructors' extent of training on integration of ICT in to the teaching-learning process

Schools	Always		Occasionally		Never		Mean
	f	%	f	%	f	%	
School of Business	-	-	11	26.8	30	73.2	1.27
School of Engineering	-	-	43	75.4	14	24.6	1.75
School of Health	-	-	6	18.7	26	81.3	1.19
School of Humanity and Natural Science	-	-	12	25.0	36	75.0	1.25
School of Educational Science& Technology of Teachers Education	-	-	18	72.0	7	28.0	1.72
Rift Valley& Unity University College(Private)			20	62.5	12	37.5	
Grand mean							**1.57**

1= Never; 2= Occasionally; 3=Always

As shown in Table 8, the respondents from the school of Business (73.2%), Health (81.3%) and Humanity and Natural Science (75.0%) had never taken training on ICT integration in to the teaching-learning practices. Only 26.8% in the school of Business, 18.7% in the school of Health, 25% in the school of Humanity and Natural Science had taken this training occasionally and there is no any respondent in the sample universities who did take this training always. As it can be seen in items 2 and 5 of the above table even if the number of respondents in the Schools of Educational Science and Technology of Teachers Education, and Engineering who had taken training on integration of ICT is greater than the other schools and private universities respondents there are instructors who didn't take the training at all. During interview the *instructors were asked questions like: Have you ever received any ICT training? If yes, can you give details of this training and* do you feel that the training you received prepared you adequately for using ICT in the classroom. The first interviewee said that I did not receive *ICT training* so that still I cannot use computer well and she thinks of getting part time classes before she proudly say, " *I am computer literate*", Other interviewees agreed that they are in a better position to use ICT for preparing mark lists and prepare worksheets for students but they were not sure whether they could use it for teaching students. The interview result showed that the sample instructors in Adama Science and Technology University have never been exposed to ICT integration into teaching-learning training *except* for a few day orientations that was provided by the university and only few instructors have undergone a professional training in the field of computer-based education through different higher education institutions. The interviewees feel that the training that was provided by the Adama University for small number of instructors is very important. One instructor said, "It was for the first time that I use a computer". Indeed, it seemed to be for the first time that most instructors observed received ICT training, because some struggled to even move a mouse or use keyboard keys. The number of instructors in need of retraining to promote professional development in integrating Information Communication Technology (ICT) into classroom teaching is very large.

The priority of sample instructors is still for more basic computer skills and knowledge despite the fact that they have already received some basic ICT training. The evidence suggests that instructors are still in the early stages of ICT development. Regarding training, Phelps, Graham and Kerr (2004) suggests that the professional development in ICT has to be an essential part of

the instructor's career; it should be ongoing, intensive and well planned to be effective and sustainable. Cabanatan (2003) states that no matter how good the quality of the training is, if it is not related to the ICT resource available, it is 'likely to be seen by instructors as a waste of time and effort. It is important therefore that instructor training should be flexible enough in order for instructors to cope with ICT developments. It is clear, however that instructors needs have to be considered if training is to have the maximum impact (Seyoum 2004).

Table 9: Instructors' attitude towards ICT integration into teaching-learning process

Abbreviated items	Disagree		Agree		Undecided	
	f	%	f	%	f	%
I am interested to use ICT in teaching-learning process	44	18.7	176	74.9	15	6.4
I feel ICT training is appropriate to my teaching-learning	37	15.7	189	80.4	9	3.8
I feel I should develop my skills to keep up to date with developments in teaching- learning integration.	31	13.2	186	79.1	18	7.7
I need to develop my skills and knowledge of ICT	28	11.9	184	78.3	23	9.8
I am interested in teaching-learning process through ICT but I don't have access	55	23.4	155	66	26	11.1
I don't need to use ICT in my teaching-learning process	179	76.2	34	14.5	22	9.4
I am interested but training doesn't seem to be available	47	20	167	71.1	21	8.9
I feel my knowledge and skills in ICT are adequate	167	71	51	21.7	17	7.2
I feel that I am ready to integrate ICT into the teaching-learning process	96	40.9	116	49.4	23	9.8

1=Disagree; 2=Agree; 3=Undecided

As shown in Table 9 the majority 176(74.9%) of instructor respondents are interested to use ICT in teaching-learning process and 189(80.4%) of respondents feel that ICT training is appropriate to their teaching-learning and as they should develop skills to up to date with developments in teaching- learning integration. As it can be seen in Table 9, 186 (79.1%) of the instructor respondents need to develop their skills and knowledge of ICT and interested in teaching-learning process through ICT; one of the interesting was179 (76.2%) of respondents need to use ICT in their teaching-learning practices. Similarly, one of respondent said that "*I don't have*

access and the training doesn't seem to be available to me".   Further, 167 (71%) of the respondents also do not feel their knowledge and skills in ICT is adequate and not ready to integrate ICT into the teaching-learning process. Only few respondents feel that they have adequate knowledge and skills in ICT and are ready to integrate ICT into the teaching-learning process and the remaining instructors can't able to decide their position concerning those facts.

Table 10: Instructors' opinions toward ICT

Abbreviated items	Yes		No	
	f	%	f	%
I'd like to know more about ICT	201	85.5	34	14.5
I know the basics of ICT	98	41.7	137	58.3
I use it effectively for myself but I am not skillful to teach others	138	58.7	97	41.3
I found that using ICT is time consuming	51	21.7	184	78.3
It makes my work easier	169	71.9	66	28.1
I feel supported in my use of ICT	178	75.7	57	24.3
It helps me communicate with colleagues	161	68.5	74	31.5

Table 10 is about the respondents' opinion towards ICT. As shown in this Table, the majority (85.5%) of the respondents have opinions to know more about ICT and only 14.5% of them have no opinions. However, more than half (58.3%) of the respondents do not know the basics of ICT. About 58.7% of the respondents indicated as they use it effectively for themselves but not skillful to teach others. The remaining respondents (41.3%) do not use it effectively for themselves and not skillful to teach others. As seen in item four of Table 10, the majority of the respondents consider that using ICT is not time consuming (78.3%). However, more than71% of the instructors believe in that ICT makes work easier, feel supported by their use of ICT (78.3%) and respondents agree on the benefit of ICT for communication with colleagues (68.5%).

Table 11: Instructors' views on the integration of ICT into teaching-learning process

Effective integration of ICT can transform teaching-learning by empowering instructors to:	Disagree		Agree		Undecided	
	f	%	f	%	f	%
Focus on student-centered/ interactive learning	41	17.4	182	77.4	12	5.1
Connect with student expectations, experiences and needs.	42	17.9	185	78.7	8	3.4
Develop critical and ethical understandings of the value of the use of ICT.	36	15.3	199	84.7	-	-
Ensure that use of ICT adds value to the intended learning.	32	13.6	203	86.4	-	-
Design learning programs that ensure the integrity of the learning area and the inclusion of all students.	27	11.5	192	81.7	16	6.8
Scaffold learning using appropriate technologies, content, services and environments.	34	14.5	181	77.0	20	8.5
Appraise the effectiveness, efficiencies and ethics of the use of ICT while designing learning courses.	39	16.6	181	77.0	15	6.4
Make connections with learning goals and prior knowledge.	45	19.1	177	75.3	13	5.5
Understand the potential of ICT to support learning.	50	21.3	185	78.7	-	-

1=Disagree; 2=Agree; 3=Undecided

Table 11 is about instructors' views on their roles for effective integration of ICT into teaching-learning practices. As shown in this Table, the majority of the respondents replied that effective integration of ICT can transform teaching-learning by empowering instructors to: focus on student-centered/interactive learning(77.4%); connect with student expectations, experiences and needs(78.7%); develop critical and ethical understandings of the value of the use of ICT(84.7%); ensure that use of ICT adds value to the intended learning(86.4%); scaffold learning using appropriate technologies, content, services and environments(77.0%); appraise the effectiveness, efficiencies and ethics of the use of ICT while designing learning courses(77.0%); to make connections with learning goals and prior knowledge(78%); and understand the potential of ICT to support learning(78.7%). Less number of these instructors didn't believe on empowering instructors to the above activities for effective integration of ICT to transform teaching-learning practices.

Table 12: Priority context for developing knowledge and skills in ICT resources processing

Alternatives	Ranking							
	1st		2nd		3rd		4th	
	f	%	f	%	f	%	f	%
Professional development	26	11.0	56	23.8	131	55.7	22	9.4
Classroom practice	139	59.1	18	7.7	47	20.0	21	8.9
Personal use	32	13.6	156	66.4	25	10.6	21	8.9
Administration	15	6.4	22	9.4	52	22.1	146	62.1

As shown in Table 12 the majority instructor respondents rank classroom practice first (59.1%), personal use second (66.4%), professional development third (55.7%), and administration fourth (62.1%) as their priority context for developing knowledge and skills in ICT resources processing.

Table 13: Obstacles to do not use ICT resources in the teaching – leaning activities

Schools	Ranking											
	1st		2nd		3rd		4th		5th		6th	
	Lack of skills		Lack of training		Lack of support		Not accessible		Lack of confidence		Lack of time	
	f	%	f	%	f	%	f	%	f	%	f	%
School of Business	13	31.7	9	22	11	26.8	-	-	-	-	8	19.5
School of Engineering	15	26.3	12	21.1	11	19.3	8	14	11	19.3	-	-
School of Health	10	31.3	12	37.5	10	31.3	-	-	-	-	-	-
School of HNS	13	27.1	15	31.3	11	22.9	-	-	9	18.8	-	-
School of ES &TTE	-	-	18	72	7	28	-	-	-	-	-	-
Rift Valley & Unity University College (Private)	13	40.6	14	43.8	-	-	5	15.6	-	-	-	-

As can be seen in Table 13, the instructor respondents ranked the obstacles not use of computer sources in their teaching-learning activities were presented. Accordingly, lack of computer skills is the first (31.7%, 25.9% & 40.6%) most problem for instructor respondents of the government (School of Business, school of Engineering) university and Rift Valley and Unity University College (Private) respectively. While, (43.8%, 31.3%, 37.5% and 72%) of instructor respondents in the Rift Valley and Unity University College(Private) and government (School of Health, Humanity and Natural Science, and School of Educational Science and Technology of Teachers Education in each sample schools responded that lack of training is the second most obstacles to use computer resource respectively. As indicated in column of the above Table lack of support is the third problem almost for all instructor respondents in the sample schools. Lack of computer resources access, lack of instructor's confidence and lack of time to use computer resources results vary from school to school.

Discussions

In this part of the study, an attempt is made to explain the results of the study with reference to the basic questions formulated understatement of the problem. The major themes of the discussion are: Instructors' knowledge and skills of basic ICT resources (Internet, E-mail, word processing, databases, spread sheets, digital scanners, and education software package and computer printer); extent of Integration of ICT into teaching-learning practices and issues and challenges (trainings, attitudes, support, materials and classroom conditions) affecting the use of ICT in universities teaching- learning process.

Information arising from questionnaires, observations and interviews

Informants were asked questions aimed at determining how private and government university instructors (they) use ICT resources for integrating into learning and teaching to enhance quality of higher education; to what extent they are trained for using ICTs for pedagogy/teaching-learning. The data generated the following information concerning instructors:

- Instructors' access to ICT resources at sample private, Unity & Rift Valley University College, (mean=3.53) is better than Government, Adama Science and Technology

University (mean= 2.99).

- As can be seen from columns of Table 2 the percentage of instructor respondents who are using computer in their homes is much more in the sample Government University(above 59%) than in private university college (31.1%).

- It was found that the majority of instructors use ICT resources like Internet, e-mail, word-processing for administrative purpose.

- Most informants don't use the basic ICT resources frequently (daily) for integration into teaching-learning purposes; rather they use the resources weekly or monthly.

- It was discovered that most ICT resources like the digital cameras, database, digital scanners, and spreadsheets and educational software package were almost never used by the majority of respondent instructors.

- The reasons given by most respondent instructors for not using the above stated ICT resources and the other resources include the following: lack of skills, training, pedagogical support, technical support, time, instructors reserved attitudes and not accessible when needed (The above reasons reveal that most instructors in this sample university appear not to be familiar with some of the ICT resources itself.

- There was an increased level of interest on the majority of instructors who wish to know more about ICT in order to develop their skills and knowledge in ICT and how they can integrate ICT for pedagogy/ teaching-learning.

- A very low level of ICT resources competence was discovered in most instructors, which was shown by the non-utilization of the ICT resources laboratory for learning in this university.

- Most instructors agreed that they needed to develop their ICT skills and knowledge for the classroom practice but training seemed not to be available.

- Some instructors partially agreed that they are better at using computers for teaching after completing the computer training by them.

- A majority of the instructors agreed with the following statements:
  - ➢ to keep up-to-date with ICT integration.
  - ➢ to learn more about using ICT for teaching and learning.
  - ➢ to improve ICT skills and knowledge for the students' benefit.

- Respondents were asked to describe the priorities for developing their ICT skills and knowledge in each of the four contexts. Hence, they ranked classroom practice, personal use, and professional development and administration purposes respectively. Their responses were similar, as most instructors placed the majority of their ICT training priority in the context of the classroom practice.

The following information was learned during the interviews with instructors:

After the collection of data through the interviews, there were some concerns and problems that the instructors had (at the university where the study took place) with integrating ICT for pedagogy/teaching- learning. Most of the concerns were grouped into the following findings: The need for training to use ICT for teaching- learning; Instructors' preparedness to integrate ICT and Attitude towards ICT integration. The above findings and instructor concerns will now be discussed.

A need for training to use ICT for teaching and learning

The number of instructors in need of retraining is very large. Instructors provided evidence of the necessity for another ICT training to promote professional development in integrating Information Communication Technology (ICT) into classroom teaching. The training that was provided by the Adama University for small number of instructors is viewed as being very important to the instructors who were interviewed as they claim that it gave them the basic computer skills. One instructor said, "*It was for the first time that I use a computer*". Indeed, it seemed to be for the first time that most instructors observed received ICT training, because some struggled to even move a mouse or use keyboard keys. Instructors see a need to develop more confidence in using ICT as a necessary requirement to exploring more effective ways of using ICT for teaching and learning. As a result, their priorities are still for more basic computer skills and knowledge despite the fact that they have already received some basic ICT training. The evidence suggests that instructors are still in the early stages of ICT development. While they are interested in developing their skills and knowledge, many instructors still regard ICT as an extra learning area in their teaching, which is why they felt it was better if students had a computer period added in their timetable.

While instructors need to be aware of broad range of ICT software and resources, their training needs should relate to the technologies that are available to them on day-to-day basis. The above is stated because during the training observation, the Internet lesson unit was unclear to instructors as it was not live but stored on a computer. Cabanatan (2003) states that no matter how good the quality of the training is, if it is not related to the ICT resource available, it is 'likely to be seen by instructors as a waste of time and effort. It is important therefore that instructor training should be flexible enough in order for instructors to cope with ICT developments. It is clear, however that instructors needs have to be considered if training is to have the maximum impact (Scheffler & Logan 2000).

Instructors' preparedness to integrate ICT into teaching and learning

According to the questionnaire responses and the interview results, it is clear that instructor's knowledge and ICT skills are in short supply. Therefore the use of ICT should be improved and the focus should be on practical skills in the usage of ICT resources. According to the guidelines given to the university by the Ministry of Capacity Building, instructors are challenged to integrate ICT for teaching and learning. Instructors are to teach with ICT for a given periods in each learning area per term (Ministry of Capacity Building, 2006). They will have to use ICT to design an activity that students can learn from. This responsibility seems to be very difficult for instructors to deal with before mastering the basic computer literacy skills and showing confidence in the general use of ICT. In the university where this study is conducted, some instructors cannot use the computer for personal and administrative activities, let alone using it to teach students. Some rely on others to assist them in some administrative tasks like the spreadsheet for compiling mark lists, yet many instructors are required to teach without computers in every term.

Phelps, Graham and Kerr (2004) suggest that the professional development in ICT has to be an essential part of the instructor's career; it should be ongoing, intensive and well planned to be effective and sustainable. Most interviewees felt that there should be some sharing of experiences and discussions about their readiness to use ICT for learning so that instructors receive support in keeping up to date with ICT developments.

Attitude towards ICT integration

Seyoum(2004) states that universities that have good ICT resources and utilize them well have better standards than universities where good ICT resources were not well used. The use of ICT resources by university-instructors is still very rare and very few instructors have their students use ICT resources frequently (Seyoum 2004). Although policy-makers have clearly given statements about encouraging the use of ICT in universities, the use of ICT resources in this university is inadequate. The research findings in this university show that instructors are currently not using ICT resources available at the university teaching and learning. There is currently no professional development available for instructors. Many instructors are overwhelmed by the mandate to integrate ICT in every learning area and in each department. Private university college and government universities university authorities should support and encourage instructors, as they get ready to integrate ICT in a meaningful and challenging way across the courses in teaching and learning process.

The following information will give a description from the interview questions and responses of how ICT was or is being currently utilized in Sample University. The interviewees were asked exactly to explain how they used ICT in their classroom. In response, they said many students did not have access to ICT and the only time that these instructors used a computer was when they typed assessment activities for students. When asked if they feel that the training they received prepared them adequately for using ICT in their classroom. The first interviewee responded by saying that she still cannot use the computer well and she thinks of getting part time classes before she can proudly say, " I am computer literate", Other interviewees agreed that they are in a better position to use ICT for preparing mark lists and prepare worksheets for students but they were not sure whether they could use it for teaching students.

Using ICT resources for teaching and learning at the sample university

When interviewees were asked, if they should use ICT for teaching and learning. All the respondents agreed that it is important for the students to be exposed to ICT because students will learn new knowledge, attitudes and skills and it would make lessons to be more interesting. Others added by saying that ICT will make students to be competent as we are living in an information technology age.

The question asked was whether teaching has changed since the instructors have been using ICT. The responses were that they still teach the same way as they did before being introduced to ICT as they don't use ICT for learning but only for worksheets preparation and creating learning area mark lists. Some responded by saying that their teaching could change if all students can have an access to a computer at the same time because at the moment less number of computer are available and some classes have more than 50 students. When asked how students responded to instructors using ICT in class. The instructors' responses were: "My students haven't been taught using ICT, I haven't used ICT for teaching but I think my students can be excited, as they seem to love computers".

A lack of confidence in the instructor's computer skills appears to be a barrier to ICT integration. Although most instructors are interested in developing their ICT skills, it is important that they use those skills for pedagogy/teaching-learning integration. ICT need to be presented in a manner that course materials can be developed and delivered rather than as a separate unit (Reid in Cabanatan 2003). Reluctance to use ICT was more evident to foundation phase instructors; perhaps it is because instructors in this phase lacked the support on how foundation phase students are to be taught with computers. One foundation phase interviewee stated" I think ICT would make a lesson more interesting".

However most instructors had very firm ideas of how they would like to apply ICT in the classroom, they felt they could be held back by the lack of technical skills and confidence. This lack of confidence may be from the fact that instructors appeared to be less likely to be using ICT for their own professional development, personal use or administration purposes, of which practicing ICT skills might reinforce skills on a regular basis. The main ICT resources that are used more frequently are word processing followed by spreadsheets for compiling learning area mark lists. It appeared that the majority of instructors are still in the early stages of ICT development, what would be referred to as the" entry" or " adoption" according to the National Standards for ICT in a Ethiopian context (Ministry of Capacity Building, 2006). The use of ICT in this university is relatively low and focused on a fairly narrow range of ICT resources. There is a very little use of the Internet and the World Wide Web (WWW) by instructors, despite the fact that the university has an access to the Internet. The findings reveal that most instructors in

this university see ICT as an extra learning area rather than an integrated resource within teaching and learning. Many instructors were still concerned with teaching ICT skills rather than teaching with ICT.

Instructors who were interviewed were generally positive and wanted to develop their ICT skills and knowledge for integration. These instructors had basic ICT skills but they felt that they are not yet competent to integrate ICT for pedagogy/teaching-learning. Instructors were asked what their barriers of not using ICT for teaching and learning. The interviewees responded by saying that the appropriate training and an ongoing support were not received from the ICT coordinators. It was therefore clear that these two areas of development (training and support) needed to be addressed for the expansion of instructors' skills and knowledge for ICT integration.

Training for ICT integration

Most instructors stated that ICT training did not meet their needs for ICT integration. They claim that the training was not sufficiently relevant for ICT integration but it was mainly aimed at giving those basic ICT skills (of which they say they needed those skills). Most respondents expressed a need for more training in ICT skills and knowledge across all four contexts, that is, classroom practice, professional development, personal use and administration purposes but most particularly in relation to the use of ICT in the classroom practice. Interview comments mainly revealed a need for more training in the area of ICT pedagogy/teaching-learning integration. When instructors were asked if there were needs that they required to enhance their ICT integration, they identified the following: Training that is relevant for the classroom use; More practical examples of ICT integration lessons; Individual attention during ICT training; Opportunities to work and share ideas as a group regarding ICT integration and More support from ICT coordinators. The above are the needs that instructors require to enhance their ICT pedagogy/teaching-learning integration.

Summary, Conclusion And Recommendations

The previous chapter, chapter 3, presented the results and discussion of the empirical investigation. In this chapter, conclusions in line with the major findings and recommendations of the study are discussed. Finally, limitations of the research project are highlighted.

Summary

The main purpose of this study was to explore the integration of pedagogy/teaching-learning, ethics and Information Communication Technology (ICT) and surveying the issues and challenges affecting its implementation in private and government Universities. In order to meet these purposes the following three basic questions were set:

1. To what extent private and government universities instructors integrate ICT into teaching-learning practices to improve quality of education?

2. What issues and challenges (materials, trainings, attitudes, support, and classroom conditions) affect the use of ICT in private and government universities teaching-learning practices?

3. What ICT resources (Internet, E-mail, word processing, databases, spread sheets, digital scanners, and education software package and computer printer) knowledge, attitudes and skills do the sample private and government universities instructors have?

To find solutions for these basic questions, study was conducted on five schools in Government University and tow private university. The data were collected from 235 respondents. The data were gathered mainly through questionnaire, interview and observation. The data obtained were analyzed using percentages and means. Based on the analysis of the data collected through various instruments, the following summary was obtained from the study: This study was directed towards determining the extent of the instructors' readiness to integrate ICT for teaching- learning in a selected private and government universities. It uncovered the aim and the importance of the use of ICT in education. Instructors gave their views, needs and concerns of how important ICT support and training is towards understanding ICT integration.

Further, this study attempts to answer questions on the roles of ICTs in education, existing promises, limitations and the challenges of its integration in education systems. Information communication technologies are influencing all aspects of life including education. They are promoting changes in working conditions, handling and exchanging of information, teaching-learning process and so on. One area in which the impacts of ICT is significant, is education. ICTs are making major differences in the teaching approaches and the ways students are learning. ICT-enhanced learning environment facilitates active, collaborative, creative, integrative, and evaluative learning as an advantage over the traditional method. In other words, ICT is becoming more appropriate in the realization and implementation of the emerging pedagogy of constructivism that gives greater responsibility of learning for students. Several surveys are showing that ICT use in education systems of developed nations has comparatively advanced than ICT use in education systems of developing nations.

In addition, the major promises of ICTs use in education systems of Ethiopian University focus on training teachers in new skills and introducing innovative pedagogies into the classrooms, investing on ICT infrastructure for universities and creating networks among universities, improving overall standard of education by reducing the gap in quality of education between universities, initiation of smart university with objectives to foster self-paced, self-assessed, and self-directed learning through the applications of ICTs, and developing ICT policy for education and training. On the other hand, this study discusses the major challenges of ICT use in education as instructor related, student related, and technology related. In addition, the key challenges of ICTs integration into education systems discussed relate to policy, planning, infrastructure, learning content and language, capacity building and financing.

What will be the way forward then? There is a consensus that the development of any country depends upon the quality of education programs offered to citizens. ICTs, despite their known limitations, are believed to be beneficial in this regard. The computer and the internet are especially useful to enhance student engagement in learning and positively impact student performance and achievement. ICT integration can have a positive impact in teaching and

learning process, which takes place in the teaching and learning situation. It is not the ICT itself, but the approach in which it is used that makes a worthy or a worthless resource. The instructors continues to be the mediator in the teaching and learning situation, thus it is imperative for instructors to be prepared in order to make ICT resources to be functional in the university.

It follows that it is very important that ICT instructor training should be relevant to the integration of ICT for teaching and learning rather than just giving instructors computer knowledge and skills. To help instructors overcome the pressures of seeing ICT as an additional burden, and encourage greater integration of ICT, it will be important that future ICT instructor training focus on ICT integration skills and knowledge. It is important that instructors are able to relate the ICT training they are offered to their existing goals and objectives. It is further important that there is an ongoing provision for instructor development to enable instructors to move-on with ICT integration once they have acquired the basic computer skills, which many in this selected university feel they need. Future ICT instructor training and development opportunities should focus on the benefits of instructors and not simply how to use computers, this can be done through broadening the awareness of a wide range of ICT resources with less emphasis on word-processing and spreadsheets, and more on resources which are currently not in use such as the Internet, e-mail, multimedia software.

To date, ICT instructor training regarding ICT integration for teaching and learning has been short of what is required, as it has not sufficiently provided the instructors with the required skills of integrating ICT for learning. It is evident that what delays ICT integration in the selected university is the lack of appropriate ICT integration training, lack of administrative support, instructors' confidence in using ICT, reluctance towards the use of ICT and the roles to be played by instructors in ICT integration.

Moreover, ICT should be seen as a tool for life-long learning for instructors as well as their students. It should be the aim of the instructors in a selected university to teach students with computers and to allow students to have access to computers and software suitable for them, e.g. Microsoft PowerPoint and the Internet. Instructors should focus on using the resources available

on the computer laboratory and store to make ICT integration successful at a selected university. Instructors have to be encouraged to make decisions about their own ICT development needs on an ongoing basis. This will ensure more involvement and integration of ICT within the teaching and learning process. Opportunities for professional development have to be continuously available for instructors to continue improving their computer, knowledge, skills and attitudes. Professional development should not only provide instructors with perspective on the operational use of ICT, i.e. the use computer hardware and software, but also focus on the skills involving the use of computer-based tools to support teaching and learning. Instructors would therefore need to understand the rationale for integrating computer-based tools into teaching and learning environments.

ICT should be a compulsory course in the universities for instructors so that instructor can begin their teaching career as experts in the ICT field. University vice presidents, school deans and concerned bodies should offer mandatory workshops and courses to help instructors gain the knowledge and skills they require to teach their students with ICT resources. This is a better way to make sure that instructors continue to learn the latest ICT information. Instructors should not only attend workshops, but they should also come back and share the information as a team. Thus, instructors will have time to reflect on aims, instructional methods and assessment as they design ICT interactive lessons for their students.

Conclusions

In conclusion, the researcher would like to point to the words of Wood (in Anderson & vanWeert 2002), stating that to spend on ICT in universities does not necessarily guarantee improved teaching and learning environments and improved ICT student outcomes. Education is a long-term growth and integrating ICT in education is new to most instructors, therefore it can take time for instructors to learn and apply ICT into teaching and learning. It is a responsibility that is ever-changing due to technological advance and it cannot be completed in a short period of time. It is very clear that instructors will not get much scope in order to integrate ICT in curriculum or the teaching-learning process. In the university at the sample university level, the ICT education scenario is struggling with the following problems:

- Only at the awareness development level are objectives being achieved, but higher order thinking skills regarding the use of ICT tend not to be occurring.

- Technology, pedagogy and content area integration is a rare feature. All components are dealt with separately which creates confusion for students.

- Time duration of the courses related to ICT education is too short to develop knowledge and necessary skills among students to achieve higher order thinking skills.

- There is a lack of availability of proper infrastructural facilities at most of the schools/faculties in integrating ICT into teaching-learning process.

- There is a mismatch between available hardware and software to develop required learning resources.

- Support from technical staff for maintenance is limited.

The study has examined the relationships among instructors' levels of technology use and a number of key factors including years of experience, ease-of use, and access to resources. Achieving meaningful technology use is a slow process that is influenced by many factors. When educators and researchers look for ways to help instructors use technology effectively, it may be important to look at what they have (in terms of equipment) in addition to what they do not have (in terms of positive technology inclinations). Understanding instructors' visions for technology use and their beliefs about teaching and learning may be necessary if we want to initiate an adoption of modern technology interventions in teaching pedagogy.

In areas with a continuous change of technological content, as with information and communication technologies, the problem is the difficulty in selecting and organizing the knowledge to be taught. In terms of technical support, experts, and course materials ICT-based education system is expected to enhance its capability to satisfy the user groups. On the one hand, new knowledge has to be added to the curriculum constantly, and at the same time any other knowledge becomes obsolete. On the other hand, content has to be organized and ordered, relating every concept to others, which is not a trivial task because of their number and how often they change.

Many exciting applications of information technology in classrooms validate that new technology based models of teaching and learning have the power to dramatically improve educational outcomes. But, classroom computers that are acquired as panaceas end up as doorstops. Unless other simultaneous innovations in pedagogy, curriculum, assessment, and school organization are coupled to the usage of instructional technology, the time and effort expended on implementing these devices produces few improvements in educational outcomes – and reinforces many educators' cynicism about fads based on magical machines. To further the study, it is imperative to further research into whether instructors who use technology are smartly predisposed to democratic, collaborative, problem based pedagogy, or does technology bring these behaviors into the classroom? Does improved student learning occur only when technology is introduced along with different teaching practices? What teaching practices are best suited to maximizing the potential of technology to improve student learning?

Recommendations

The ICT enhancement of the integration of ICT into teaching-learning practice/quality education discovered in both literature and findings regarding among Ethiopian private and government universities requires that the following recommendations:

- The role of the deans, department heads, ICT leaders/coordinators and instructors in the ICT integration into teaching-learning and the utilization of the ICT resources should be specified.
- The positive and the negative impact that ICT integration into teaching-learning in the sample university need attention.
- The type of ICT instructors training that can be offered in order to equip instructors with all the necessary skills for ICT integration.
- There should be follow up mechanisms of ICT integration in this university;
- Sample University should offer ICT integration training, given that all instructors should be able to integrate ICT for pedagogy/ teaching-learning;
- Further research can be conducted regarding instructors support (related to instructional process & ICT integration) received from the School of Pedagogy and Vocational Teachers' Education with collaboration of ICT coordinators.

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