

# Assessing Teachers' Perception on Integrating ICT in Teaching-Learning Process: The Case of Adwa College

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## Abstract

Rapid growth and improvement in ICT have led to the diffusion of technology in education. The purpose of this study is to investigate teachers' perception on integrating ICT in teaching-learning process. The research questions sought to measure teachers' software usage as well as other instructional tools and materials, preferences for professional development on information gathering and support, factors that encourage teachers' usage of technology, teachers' perceptions of self-efficacy and barriers that teachers faced during technology utilization in teaching-learning process. A population of 72 teachers at Adwa College participated in this survey. The result on hardware and software usage shows that majority of teachers in the college are unable to use hardware in teaching learning process due to mainly shortage of resources. Teachers who cannot use ICT as instructional tool are 55.6 percent higher than those who can use it. This indicates that most teachers in the college are not integrating ICT in the course they teach. In regard the information and support services, there is no equal support service by the technical support units. Adwa College is found as poor by most of the teachers in preparing ICT trainings. The mean of the factors that encourage technology ranged from 2.72 to 2.99 which indicate that encouraging technology is important to apply ICT in teaching-learning process. Moreover, the mean for the perception of teachers about ICT usage ranged from 4.28 to 4.79 shows that Adwa College teachers have strong positive perception to use ICT in teaching-learning process. Pearson correlation ( $r=0.412$ ) shows that there is significant relationship between teachers' perception towards ICT integration into Teaching-learning process and the factors that encourage ICT usage. This indicates that the teachers' perception towards ICT integration into teaching-learning process increases if ICT usage is encouraged and vice versa. The results of the correlation for the relationship between teachers' perception toward ICT usage to increase quality of courses they teach and their productiveness due to ICT usage is also found as significant ( $r=0.615$ ). This indicates that the teachers' productiveness is realized if ICT is integrated to the course they teach. However, majority of the teachers pointed out that one of the barriers to technology implementation is lack of teachers' technical knowledge and shortage of resources. This shows that equipping the college with ICT is not enough for attaining educational change. Therefore, the college should critically focus to integrate ICT in each course to make courses interactive and easily understandable by their students.

**Key words:** Adwa, Barriers, Diffusion of technology, Hardware and Software, ICT, Integration, Perceptions.

## 1. Introduction

Information and communication technology (ICT) is a force that has changed many aspects of the way we live. It is playing a big role in many disciplines like medicine, tourism, travel, business, law, banking, engineering and architecture. The impact of ICT across the past two or three decades has been enormous. The way these fields operate today is vastly different from the ways they operated in the past because of the rapid development of technology. However, when one looks at education, there seems to have been lack of influence and far less change than other fields have experienced (Pramanik, 2011). But education is one of the most important investments in building human capital in a country and makes a nation technologically innovative and a good path to economic growth. Thus, rapid growth and improvement in ICT have led to the diffusion of technology in education (Gulbahar and Guven, 2008).

Educational systems around the world are becoming increasingly pressured to apply the new ICT tools to their curriculum to provide students with the knowledge and skills that they need in the 21<sup>st</sup> century (Hue and Ab Jalil, 2013). Their use is also underlined by many scholars as a necessity for improving quality in teaching and learning. Over the past decades, governments and education systems around the world have regarded the use of information and communications technologies as an important issue for improving the effectiveness of teaching and learning (Plump et al., 2009). Sahin-Kizil (2011) also reviewed that use of ICT for educational purposes yield positive outcomes on the part of the students such as increased motivation, active learning, providing efficient resources and better access to information. Moreover, Wang and Woo (2007) reviewed that technology has great potential to increase learners' motivation, link learners to various information sources, support collaborative learning, and allow teachers more time for facilitation in classrooms. Integrating ICT into teaching and learning has therefore become a great concern for many educators.

Development in computers, communication electronics and other multimedia tools provide a wide range of sensory stimuli. Due to this it is said, I see and I remember, I do and I understand. The animations, simulations, software packages to teach various subjects create virtual realities and experience for the learners, which in turn, help in making learning a more direct, useful and joyful. Learners' self-engaged learning is conceived as the core of good education.

Integration of Information and Communication Technologies into teaching and learning process is a growing field. According to different literatures, integration of ICT is necessitated to contribute to the learning process of the students (Cartwright and Hammond, 2003; Herzig, 2004; Lim and Chin, 2004; Lim et al., 2003).

Integrating ICT into teaching and learning is not a new concept. It may be as old as other technologies such as radios or televisions (Wang and Woo, 2007). However, with the rapid development of emerging technology such as web technology, ICT integration has increasingly attracted the attention of educators. The integration of information and communication technologies can help teachers and students to improve and develop the quality of education by providing curricular support in difficult subject areas (Gulbahar and Guven, 2008).

Integration has a sense of completeness or wholeness by which all essential elements of a system are seamlessly combined together to make a whole (Earle, 2002). In education, simply handing out to students a collection of websites or CD-ROM programs is certainly not ICT integration. According to Earle (2002), ICT and other crucial educational components such as content and pedagogy are molded into one entity to say that ICT integrated lesson is properly applied.

However, Integration of ICT is not a simple application (Bhasin, 2012). This means there are many barriers to apply it in teaching-learning process. Bingimlas (2009) findings show that teachers had a strong desire for the integration of ICT into education but they encountered many barriers. The major barriers were lack of confidence, lack of competence and lack of resources. Since lack of confidence, competence and accessibility have been found to be the critical components of technology integration in school. ICT resources including hardware and software, effective professionals' development, sufficient time and technical support need to be provided to teachers. No one component in itself is sufficient to provide good teaching. However, the presence of all components increases the possibility of excellent integration of ICT in teaching and learning opportunities (Ibid).

Therefore, educators commonly agree that ICT has the potential to improve student learning outcomes and effectiveness if it is used properly (Wang, 2001). If ICT is used under the right conditions, including suitable sources, training methods, and means of support, it can have a useful effect on teaching and learning (Hue and Ab Jalil, 2013). The key factor that influences the success of learning is not the availability of technology but the pedagogical design for effective use of ICT. The computer should be fitted into the curriculum, not the curriculum into the computer (Earle, 2002). Therefore, effective ICT integration should focus on pedagogy design by justifying how the technology is used. Different authors plan for integration of ICT into teaching and teaching process. Bhasin (2012) design a cyclical model on the questions (who, why and how should ICT resources and applications be used) to be answered in the integration process.

The question on what is the purpose of the integration process is important as teachers should be trying to strengthen students' learning by combining appropriate pedagogical approaches and ICT applications and resources in direction of acquisitions of topic. It is important also to determine the characteristics of learners who are the target group of the integration process. Moreover, in order to prepare and carry out learning environment which is appropriate to the purpose and the characteristics of the target group, the question "How" is very important.

Moreover, Wang and Woo (2007) developed a systematic model for ICT integration. It is a systematic because it follows a logical flow and has components organized manner. Systematic model starts with a problem statement, which describes the major problems or issues to be addressed in a topic. Learning objectives specify the intended learning outcomes at the end of the topic. In order to address the problem and achieve the learning objectives, teacher-designers need to carefully compare all possible technologies that can be used for learning this topic. The technologies in this model may include software such as multimedia courseware, web-based resources, communication tools (such as voice chat, textual discussion forums, or video conferencing), mind tools (such as concept mapping tools and multimedia authoring tools), or any other possible ICT tools. In the rationale for using the technology, technology should be used not because it is available or it has been shown effective in some cases. It should be used to enable the process and enhance learning. After determining what technology is needed and why, teacher-designers must now decide how to effectively and meaningfully incorporate the selected technology into the topic learning. Since a topic is usually composed of several lessons, details on ICT integration should be provided separately for each lesson as well as for the entire topic. At the end of the topic, the students will be assessed on how well they have mastered the topic.

Finally, a plan is never good until it is executed and proven right. In the planning process, very often teacher-designers are faced with many constraints and restrictions that limit their choices and strategies. After

conducting the ICT integrated lessons, the teacher-designers need to reflect upon their learning experiences of the ICT integration. The reflections can focus on the appropriateness of the technology used, strengths and weaknesses of the technology and possible improvement. Additionally, the teacher-designers can also provide further suggestions on how other teachers can use the lessons for different target students in different contexts. These suggestions may include alternative technology, instructional methods and activities, assessment approaches, and ways to improve the integration of ICT.

In recognition of the critical role of ICT for sustainable development, democratization and good government, Ethiopian government has taken bold and aggressive initiatives on several fronts in the development of ICT both at the federal and regional levels. The government provide justification for the initiative stating that in the globalized world, information and communication technology is vital installation of satellite receiving devices known as plasma display panels in every classroom at secondary level is necessary (FDRE, 2004). The pedagogical rationale is that the programme ensures all students have access to model teachers, can view laboratory demonstrations, are taught complex concepts in a simplified manner and receive simultaneous education regardless of location (Ibid). Even though the government plan at that time was appreciable, ICT is changing radically from day to day. Therefore, it is very critical to assess that perception of teachers in ICT integration in the course they teach to design a systematic plan for ICT integration.

### ***Statement of problem***

The use of ICT in teaching requires competencies on part of the teacher and has indeed made the profession more challenging experience and retain knowledge for a longer time. According to the UNDP (2001) statistics, almost 80% of the teachers in developing countries feel that they are not prepared to use the technology. The integration of information and communication technologies into curriculum is a crucial process in ensuring the quality of education (Hue and Ab Jalil, 2013). However, the presence of technology alone will not stimulate significant changes in a school. Teachers are an important ingredient in the implementation of ICT in education. Without the involvement of teachers, most students may not take advantage of all the available potential benefits of ICT on their own. Teachers need to actively participate in using ICT. But teachers in Adwa College have not been motivated in integrating ICT. Moreover, the new curriculum applied in 2013 minimized the credit of ICT subject even though it can help student to adapt technology easily. Before 2012, there was no broadband internet connection in Adwa College and many teachers were blaming that. To answer this, starting from the beginning of 2013, broadband connection is applicable in the college. However, most of the teachers are using the connection for social networks and entertainments rather that academic purpose. Therefore, since the tendency of using ICT in teaching and learning strongly depends on the attitudes of the teachers, this study aims to investigate teachers' perception towards ICT integration in teaching-learning process. This was based on the assumption that successful use of ICT is helpful to motivate the students in teaching-learning process and enhance quality of education.

### ***Research Questions***

To fulfill the objectives of this study, the researcher set up the following research questions.

1. Which ICT resources (software, instructional tools and materials) do ACTE teachers' use?
2. What are teachers preferred methods for professional development?
3. What are the factors that encourage teachers' technology usage?
4. What are teachers' perceptions in relation to ICT usage?
5. What are the barriers that ACTE teachers face during technology usage in the teaching-learning process?
6. What is the relationship between perception of teachers to integrate ICT and factors that encourage ICT usage?
7. What is the relationship between teachers' perception toward ICT usage to increase quality of courses they teach and their expected productiveness due to ICT usage?

### ***Objectives of the study***

#### **General objective**

The general objective of this study is to investigate teachers' attitudes towards ICT integration into teaching - learning process at Adwa College of Teachers Education.

#### **Specific Objectives**

- To assess on which Hardware or software instructional tools are ACTE teachers familiar
- To assess the information and support resources that ACTE teachers used/need
- To assess the Perceptions of Teachers about use of ICT
- To assess the barriers to technology usage
- To investigate the relationship between perception of teachers to integrate ICT and factors that

- encourage ICT usage
- To investigate the relationship between teachers' perception toward ICT usage and their productiveness

### ***Significance of the Study***

This study has a potential benefits on knowing teachers' readiness to use ICT. Hue and Ab Jalil (2013) reviewed that the success of technology use in education mostly depends on educators' attitudes towards technology use as the development of educators' positive attitudes towards ICT is a key factor in the enhancement of ICT integration and avoidance of their resistance to ICT use. Therefore, it can be concluded that the frequency and effectiveness of ICT usage in the classroom is largely related to educators' attitude (Ibid).

In addition, teachers' experiences of using ICT shade light on proper integration of ICT in teaching-learning and these experiences help to determine teachers' professional development needs for proper ICT integration in the classrooms. Moreover, the study helps to inform teacher preparation and educational technology curriculum developers on the actual use of ICT in context. As a result, the concerned parties can improve their programmes.

### ***Scope and limitation of the study***

This study specifically focuses on assessing teachers' perception on integrating ICT in teaching-learning process in the study area. The specific study area is Adwa College of Teachers Education which is found in Adwa town. Accordingly any of the analysis and the findings of the study are specific to the study area. Therefore, the findings of this study may not represent or correspond to other colleges of the region. Thus, because of the scope the findings of the study are limited to that college only. Methodologically, the research employed both qualitative and quantitative method to analyze the collected data. The content scope is assessing teachers' perception on integrating ICT in teaching-learning process. Therefore, conclusions and recommendations are limited to the teachers' perception on integrating ICT in teaching-learning. The study area is selected due to the current knowledge of the researcher about the integration of ICT in teaching-learning process in the college.

## ***2. Research Methodology***

### ***Data Type and Sources***

The study employed both qualitative and quantitative data. In this research basically, primary data source was employed to gather first-hand information to achieve the objectives of the research. Data obtained from respondents through questionnaire was the sources of primary data.

**Questionnaire:** the total population is 74 teachers. Thus, the researcher takes all these teachers using census study. Based on the list of teachers in the college, the researcher distributed the questionnaire appropriately to every teacher. Generally, 74 questionnaires were distributed for the respondents/ teachers. Furthermore, to articulate the problems as well as building logical frame works, journals-articles and related researches with the study are again analyzed.

### ***Research strategy and design***

Totally there are 74 teachers in Adwa College of Teachers Education. The total populations of this study are 74. Since the population is manageable, it is census study. The study employed both quantitative and qualitative method. In the data collection the study used individual unit. The study employed cross-sectional study.

### ***Data collection***

In this research, primary data source was collected through questionnaire. The questionnaire was composed of five parts. The first part of the questionnaire consisted of 19 items regarding teachers' software usage as well as other instructional tools and materials. The purpose of this part was to find out the self-expertise level of the ACTE teachers. The second part consisted of 6 items about preferences for professional development on information gathering and support. The third part consisted of 7 items about factors that encourage teachers' usage of technology. In the fourth part of the questionnaire there were 11 items related to teachers' perceptions of self-efficacy. Finally, the last part was composed of 10 items regarding the barriers that teachers faced during technology utilization in the teaching-learning process.

To collect data through questionnaire, the researcher distributed the questionnaire himself to the college teachers. Since the respondents are manageable and found in a one working place, the researchers did not hire enumerators at all. Data was collected on the month of December in the study area.

### ***Data processing and analysis***

The information collected from questionnaire was organized and statistical computations were made to explore the relationships among the different variables. The qualitative data obtained through open ended questions in the questionnaire is described qualitatively in sentence form. Responses for the closed end questions are fed into a computer and analyzed using SPSS version 20.0 software. Descriptive statistics was

applied to compute the percentage and frequency distributions of the respondents on the variables. Moreover, correlational analysis is used to see the relationship between variables. Finally, the results are summarized and meaningful interpretations of result are made to draw the conclusions and implications.

### 3. Results and Discussions

This chapter analyzes and discusses the major findings of the research based on the collected data through questionnaire. The results are presented using percentages in tables to show the percentage of Adwa College teachers on hardware and software they are using, information and support resources, their perception to integrate ICT and barriers they face to integrate ICT. The total teachers used for this study were 74. But this study analyzed data that were gained from 72 teachers because one questionnaire is not completed its filling and the other one is not returned.

#### *Hardware and Software usage*

Table 3-1: The ability to use hardware in teaching-learning process

<b>Hardware usage in teaching learning process</b>	<b>Responses</b>	<b>Percentage</b>
<b>Do you have your own computer?</b>	Yes	48.6
	No	51.4
<b>Do you have computer in your department?</b>	Yes	93.1
	No	6.9
<b>Do you use instructional animations, slideshows, Films (video, CD, DVD etc.)</b>	Yes	22.2
	No	77.8
<b>Have you ever used Computer – Projector system as instructional tool</b>	Yes	13.9
	No	86.1
<b>Do you use Television/Video or slide projector as instructional tool</b>	Yes	12.5
	No	87.5

According to Table 3-1, majority of teachers in Adwa College have the opportunity to get computers as some of them have their own computer and almost all have department's computers. More than half of these computers are not installed any electronic encyclopedia. The major reasons mentioned for this are skill gap and computers in departments are weak in processing.

In regarding the course they teach, teachers who cannot use instructional animations, slide shows and films to make their lesson interactive and easily understandable are 55.6 percent higher than those who can use it. Out of those who can't apply this, 5.6% of them believed that it is not important to use, 48.6% of them have knowledge gap on how and from where to use them and 45.8 % of them mentioned that the main obstacles are shortage of resources to apply it, low attention by the college in motivating to use such technology, lack of audio visual rooms and due to unconvertible classes to use slide shows and films. To use these instructional tools the computer-projector system is one of the important infrastructures. However, 7% and 6.9 % of the teachers are able to use it sometimes and rarely respectively. Teachers unable to use computer-projector system are 72.2 percent higher than those who can use it. The main reasons for this are skill gap on how to use it, lack of comfortable audiovisual and shortage of projectors in the college.

Moreover, majority of the teachers in the college are unable to use Television/Video or slide projector as instructional tool in teaching-learning process. Teachers who can't use this technology are higher by 75 percent from those who can use it. Out of those who can't use this, 23.6 percent of them have knowledge gap on how to use them and 61.1percent of them mentioned that the main obstacles are shortage of resources to apply it and the remaining percent of the teachers recommend that such technology should be incorporated during curriculum design in order to apply it easily and the college should also give attention in creating comfortable environment which motivates to use this technology.

Generally, most of the teachers are unable to use hardware in teaching learning process due to mainly shortage of resources. This indicates that most teachers in the college are not integrating ICT in the course they teach.

Table 3-2: The ability to use software in teaching-learning process  
According

to

<b>Software usage in teaching learning process</b>	<b>Responses</b>	<b>Percentage</b>
<b>Are you able to use Microsoft Offices?</b>	Yes	75
	No	25
<b>Are you able to search information using search engines like Google?</b>	Yes	81.9
	No	18.1
<b>Is your computer installed to any Electronic Encyclopedia?</b>	Yes	52.6
	No	41.7



Table 3-2, two-third of the college teachers can able to use Microsoft offices but they some gaps on some applications. One-third of them have difficulties to use Microsoft offices because of skill gap, shortage of computers to practice and limited continuous trainings.

Majority of the teachers in the college are able to search information using search engine. Teachers who can search engine are 63.8 percent higher than those who can't use it. The reasons mentioned by the teachers who cannot search information using search engine are the unavailability of network expansion to all departments, knowledge gap, less number of computers in departments and lack of consecutive trainings as the technology is changing radically. Those who can search also addressed that they search information regarding the course they teach. This indicates that even though the teachers are able to search information from internet which can help teaching-learning process, they are limited to apply to their students due to the constraints they face in hardware.

### *Information and support Resources*

Table 3-3: Information and support resources used in teaching learning process

<b>Variables</b>	<b>Responses</b>	<b>Percentage</b>
<b>Do you think that internet is helpful as information resource in teaching-learning?</b>	Yes	98.6
	No	1.4
<b>Have you ever got any experience sharing from different colleges/universities</b>	Yes	8.3
	No	91.7
<b>What is the contribution of the college on employing technical support units in ICT sector?</b>	Very Good	19.4
	Good	29.2
	Satisfactory	27.8
	Poor	19.4
	Very Poor	4.2
<b>How is your college in preparing ICT trainings</b>	Very Good	8.3
	Good	19.4
	Satisfactory	26.4
	Poor	31.9
	Very Poor	13.9

According to Table 3-3, almost all teachers in Adwa College believed that internet is helpful as information resource in teaching-learning. Only one teacher responded that he has a skill gap to use internet and cannot decide on the application of internet for teaching learning process. In regard to the experience sharing, majority of the teachers in the college have not got any experience sharing from different colleges/universities on how they integrate ICT in teaching-learning process though they prefer it.

Most of the teachers in the college agree that the contribution of the college on employing technical support units in ICT sector is good to satisfactory. Few teachers are responded that the contribution is very poor. The respondents' percentage on Very Good and poor is the same. This indicates that there is no equal support service by the technical support units in ICT sector. Adwa College is found as poor by most of the teachers in preparing ICT trainings. Few teachers agree the contribution of the college in preparing ICT trainings is very good. But the trainings are mainly on computer basics rather than on how to integrate ICT to each course.

### *Factors encourage technology usage*

Table 3-4: Factors that encourage technology usage in teaching- learning process

<b>Variables</b>	<b>Mean</b>	<b>Remark</b>
<b>Motivating and rewarding teachers to use ICT in instructional activities</b>	2.93	Important
<b>Investments of the college on infrastructure of instructional technologies</b>	2.76	Important
<b>Investments of the college on teachers training programs for instructional technologies</b>	2.99	Important
<b>Investments of the college on the support services of instructional technologies</b>	2.9	Important
<b>Developing the policies and plans for diffusion of the instructional technologies</b>	2.79	Important
<b>Providing support for the projects towards the expansion of instructional technologies.</b>	2.83	Important
<b>Integrate ICT into each subject during curriculum designing</b>	2.72	Important

The participants used a three-point likert-type scale (i.e. 3=Important, 2=Uncertain, =Not important) to rate their level of importance on 7 statements about factors that encourage technology (see Table 3-4). According to Hue and Ab Jalil (2013) mean range in liket-type scale, the researcher established three mean groups in which

the mean of factors that encourage technology ranged from 1.5 and below, demonstrating as not important. The mean of the factors that encourage technology ranged between 1.5 and 2.5, these factors that encourage technology are not concerned to the respondents. The mean of the factors that encourage technology ranged from 2.5 and above, demonstrating that the factors are important to encourage technology. The mean of the factors that encourage technology ranged from 2.72 to 2.99 which indicate that all mentioned factors that encourage technology are important to apply ICT in teaching-learning process.

According to the responses found from the teachers, investments of the college on teachers training programs for instructional technologies and support services of instructional technologies and motivating and rewarding teachers to use ICT in instructional activities should be prioritized to integrate ICT into teaching learning.

**Perceptions of teachers about use of ICT**

Table 3-5: perception of teachers about ICT usage in teaching-learning process

Variables	Mean	Remark
<b>Use of ICT for instructional purposes is important rather than printed materials only.</b>	4.35	Strong agreement
<b>Computers can play a big role in instructional environments.</b>	4.78	Strong agreement
<b>Creating awareness raising on the opportunities that computers offer.</b>	4.67	Strong agreement
<b>I am interested to use ICT in class activities more effectively</b>	4.28	Strong agreement
<b>ICT supported teaching can make learning more effective.</b>	4.65	Strong agreement
<b>Use of ICT as instructional tool can increase the interest of students toward learning courses.</b>	4.58	Strong agreement
<b>Students can actively pursuit knowledge if ICT is integrated in curriculum areas</b>	4.43	Strong agreement
<b>Use of instructional technologies can increase the quality of courses.</b>	4.58	Strong agreement
<b>Usage of instructional technologies makes it easier to prepare course materials (assignments, handouts etc.).</b>	4.79	Strong agreement
<b>Using instructional technologies make teachers more productive.</b>	4.64	Strong agreement
<b>Using technology makes it easier to reach instructional resources.</b>	4.65	Strong agreement

The respondents used a five-point likert-type scale (i.e. 5=Strongly Agree, 4=Agree, 3=Uncertain, 2=Disagree and 1=Strongly Disagree) to rate their level of agreement on 11 statements to investigate perception of teachers about ICT usage (see Table 3-5). Three mean groups were established based on Hue and Ab Jalil (2013), with the mean for the perception of teachers about ICT usage ranging from 2.8 and below, demonstrating as disagreement. The mean for the perception of teachers about ICT usage ranged between 2.8 and 3.2, demonstrating moderate agreement, and the mean for the perception of teachers about ICT usage ranged from 3.2 and above, demonstrating strong agreement. Therefore, mean for the perception of teachers about ICT usage ranged from 4.28 to 4.79 shows that Adwa College teachers have strong positive perception to use ICT in teaching-learning process.

Teachers strongly believed that usage of instructional technologies makes it easier to prepare course materials. This indicates that if good and interactive materials are prepared students can access and easily understand the course. As a result teachers' productiveness increases.

Table 3-6: Relationship between perception of teachers to integrate ICT and factors that encourage ICT usage

		Perception of teachers to use to integrate ICT
Factors that encourage ICT usage	<i>Pearson Correlation</i>	.412**
	<i>Sig. (2-tailed)</i>	.000
	<i>N</i>	72

\*\**. Correlation is significant at the 0.01 level (2-tailed).*

A Pearson's correlation was calculated to determine whether there was a relationship between teachers' perception towards ICT integration into teaching learning process and the factors that encourage ICT usage (see

**Table 3-6**). The results of the correlation indicated that there is significant relationship between teachers' perception towards ICT integration into Teaching-learning process and the factors that encourage ICT usage. This indicates that the teachers perception towards ICT integration into teaching-learning process increase if ICT usage is encouraged and vice versa. This result is similar to the finding of Gulbahar and Guven (2008).



Table 3-7: Correlations between teachers' perception toward ICT usage to increase quality of courses they teach and their productiveness due to ICT usage.

		Teachers perception toward ICT usage to increase quality of courses they teach
Teachers' productiveness due to ICT usage	<i>Pearson Correlation</i>	.615**
	<i>Sig. (2-tailed)</i>	.000
	<i>N</i>	72

\*\**. Correlation is significant at the 0.01 level (2-tailed).*

Quality of courses is one main factor that makes learners to be interested on the course or not and as a result productiveness of teachers is measured. Correlations between teachers' perception toward ICT usage to increase quality of courses they teach and their productiveness due to ICT usage is done. The results of the correlation indicated that there is significant relationship between teachers' perception toward ICT usage to increase quality of courses they teach and their productiveness due to ICT usage. This indicates that the teachers' productiveness is realized if ICT is integrated to the course they teach.

### **Barriers to Technology Usage**

Table 3-8: The barriers that teachers face to use technology during teaching learning process

	Mean	Remark
<b>Inefficient time to prepare materials based on technology</b>	2.42	Disagreement
<b>lack of teachers' technical knowledge to prepare materials based on technology</b>	3.85	Strong agreement
<b>Shortage of resources like computer, projector etc</b>	4.28	Strong agreement
<b>Inefficiency of college computer laboratory and audio visual rooms</b>	4.13	Strong agreement
<b>Inefficient number of media (printer, scanner etc.) for effective use of computers</b>	4.29	Strong agreement
<b>Shortage of computers used by teachers</b>	4.28	Strong agreement
<b>Absence of motivation and reward systems for ICT usage</b>	3.69	Strong agreement
<b>Inadequacy of computers used by learners</b>	3.97	Strong agreement
<b>Deficiency in support services in ICT usage for teaching-learning.</b>	3.76	Strong agreement
<b>Lack of interest of teachers in ICT usage for teaching-learning.</b>	2.54	Disagreement

The participants used a five-point likert-type scale (i.e. 5=Strongly Agree, 4=Agree, 3=Uncertain, 2=Disagree and 1=Strongly Disagree) to rate their level of agreement on 10 statements about barriers to adopt technology (see Table 3-8). Of the 10 statements, mean of 8 of them is ranged from 3.69 to 4.29 which indicate strong agreement by the respondents and these are rated as major barriers to adoption of technology into the teaching-learning process. Inefficient time to prepare materials based on technology and lack of interest of teachers in ICT usage for teaching-learning statement are not found as major barriers since their mean is below 2.8 and this demonstrates disagreement by the respondents. This indicates that teachers have interest to use their time to integrate ICT in to teaching-learning process if the major barriers are solved. The inefficient time to prepare materials based on technology result contradicts with the finding in Bingimlas (2009).

According to Table 3-8 result, Adwa College teachers pointed out that one of the barriers to technology implementation is lack of teachers' technical knowledge to prepare materials based on technology. This shows that equipping the college with ICT is not enough for attaining educational change. The introduction of ICT into education requires an equal level of innovation in other aspects of education. The inadequacy of the technology courses offered to teachers and the lack of incentives for encouraging technology are further barriers to ICT usage. To apply ICT in teaching learning, availability of resources is one of the key factors. However, the results showed that although teachers in Adwa College are willing to use ICT resources and they are facing problems with accessibility to ICT resources and lack of training opportunities. Inadequacy of computers used by learners is also found as barrier and this makes students not to be easily adapting technology during ICT integration in teaching-learning process. This result is similar with Bingimlas (2009) findings which indicate that teachers had a strong desire for the integration of ICT into education but they encountered many barriers. No one component in itself is sufficient to provide good teaching. However, the presence of all components increases the possibility of excellent integration of ICT in teaching and learning opportunities. Therefore, the college should provide ICT resources including hardware and software, effective professionals' development and technical support need to teachers and create environment to students in ICT usage.

### **4. Conclusion and Recommendation**

The purpose of this study is to investigate teacher's perception on integrating ICT in teaching-learning process. The research questions focus on the areas of software usage as well as other instructional tools and materials,

preferences for professional development on information gathering and support, factors that encourage teachers' usage of technology, teachers' perceptions of self-efficacy and barriers that teachers faced during technology utilization in the teaching-learning process.

### **Conclusion**

Majority of the teachers are unable to use hardware in teaching learning process due to mainly shortage of resources. This indicates that most teachers in the college are not integrating ICT in the course they teach.

Most of the teachers in the college agree that the contribution of the college on employing technical support units in ICT sector is good to satisfactory. Few teachers are responded that the contribution is very poor. The respondents' percentage on Very Good and poor is the same. This indicates that there is no equal support service by the technical support units in ICT sector. Adwa College is found as poor by most of the teachers in preparing ICT trainings. Few teachers agree the contribution of the college in preparing ICT trainings is very good. But the trainings are mainly on computer basics rather than on how to integrate ICT to each course.

Majority of the teachers in the college are able to search information using search engine. Teachers who can search engine are 63.8 percent higher than those who can't use it. The reasons mentioned by the teachers who cannot search information using search engine are the unavailability of network expansion to all departments, knowledge gap, less number of computers in departments and lack of consecutive trainings as the technology is changing radically

The mean of the factors that encourage technology ranged from 2.72 to 2.99 which indicate that all mentioned factors that encourage technology are important to apply ICT in teaching-learning process.

The mean for the perception of teachers about ICT usage ranged from 4.28 to 4.79 from the five likert-scale shows that Adwa College teachers have strong positive perception to use ICT in teaching-learning process.

The results of the correlation indicated that there is significant relationship between teachers' perception towards ICT integration into Teaching-learning process and the factors that encourage ICT usage. This indicates that the teachers perception towards ICT integration into teaching-learning process increase if ICT usage is encouraged and vice versa. Moreover, the results of the correlation indicated that there is significant relationship between teachers' perception toward ICT usage to increase quality of courses they teach and their productiveness due to ICT usage. This indicates that the teachers' productiveness is realized if ICT is integrated to the course they teach.

To apply ICT in teaching learning, availability of resources is one of the key factors. However, the results showed that although teachers in Adwa College are willing to use ICT resources, they are facing problems with accessibility to ICT resources and lack of training opportunities. Overall, although teachers stated that they believe in the benefits of the integration of ICT, they did not know how to realize that.

### **Recommendation**

- Investments of the college on teachers training programs for instructional technologies and support services of instructional technologies should be prioritized to integrate ICT into teaching-learning process.
- It is important to motivate and rewarding teachers to use ICT in instructional activities
- Technology should be incorporated during curriculum design in order to apply it easily and the college should also give attention in creating comfortable environment which motivates to use this technology.

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