

**EXPLORING ICT FOR HIGHER EDUCATION: THE CASES OF FRENCH AND
CAMBODIAN END/KEY USERS**

Research Journal Paper

by

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CHAPTER ONE INTRODUCTION

1.1 Introduction

Elwood and MacLean (2009) showed that Cambodia ranked 8th out of ASEAN's 10 countries in terms of Information and Communication Technology (ICT) infrastructure and use (it was not one of the 134 countries ranked in the Knowledge Economy Index (KEI)). Cambodia's first plan for using ICT in education was promulgated in 2004 with a target date of 2015 for full implementation of using ICT in education (Ministry of Education, Youth and Sport (MoEYS) 2004). Subsequently, in 2007, MoEYS, United Nations Educational, Scientific and Cultural Organization (UNESCO), the Open Institute, and the Asian Development Bank targeted development of ICT and its integration into education in Cambodia. This has been manifested in the allocation of software and hardware resources towards six Regional Teacher Training Centres and National Institute of Education (NIE) (K. Im, personal communication, 2008).

Additionally, as illustrated by Richardson (2008), Cambodia is in a unique situation in contrast to most other ASEAN nations. In many ways, Cambodia is just beginning to transform and thus has the potential to leapfrog old technologies and ways of educating its citizens and opt for new technological solutions to improve its education system. Kierans (2010) reported that in Cambodia, the percentage of Internet users in the past 10 years increased by 1,200 per cent to some 78,000 people or 0.5 per cent of the population.

In France, Information and Communication Technologies (ICT) are organized by taking into account the existing spatial structures, compared to constraints of distance, spatial position and urban hierarchy. In the context of the liberalization of the sector of telecommunications, ICT spread according to an economic logic of profitability. The concern of network operators collides with the principle of territorial equity in planning policies. To understand the diffusion of ICT in France, a cartographic analysis of their distribution is proposed (Houzet, 2007).

1.2 Background of the study

By December 2004, Richardson (2008) illustrated that through the Ministry of Education, Youth and Sport (MoEYS, 2004c); the Cambodian government adopted a policy entitled Policy and Strategies: Information and Communication Technology in Education in Cambodia. Specifically, 1,000 primary and secondary school educators have been trained on basic skills of ICT and established the National ICT-Based Clearing House for users outside of Cambodia. Tan (2010) added that MoEYS aims to train 5,000 existing educators and 10,000 new educators at all levels with ICT training per year from 2006.

Peterson (2011) illustrated that learners can use ICT (Information Communication Technology) in developing and improving their language skills (productive skills and receptive skills). The use of technology outside the language classroom or in the self-access centre can make learners more autonomous. While listening to digital audio or watching a video clip, learners have the opportunity to pause at will, and listen and read a transcript. Moreover, learners can get instant feedback on what they have done (e.g. you watch a video clip/listen to audio and check answers immediately after watching/listening).

1.3 Statement of Problem

In the context of ICT, Tondeur and Braak (2007) showed that education is put forward as the central actor to pursue and attain the objectives of the ICT policy and other sectors are expected to benefit indirectly from this approach. Other benefits derived from ICT usage are that it fosters collaborative learning and flexible learning. When such students' thinking processes are supported by ICT in a school, the school is considered to be at the transforming stage of ICT-mediated teaching and learning approach. However, Loo and Hang (2007) stated that the obstacles to greater usage of ICT in Cambodia are: high connection costs, lack of English language proficiency, difficulty of computerizing the Khmer script, lack of ICT human capital and inadequate financial resources to promote ICTs among the public. Anyway, educators have big challenges to adopting the use of new technologies was hardware incompatibility and language barriers. Some interactive equipment is too expensive to afford, and also hard for educators to use with a lack of experience using ICT tools and the students faced with language barriers. Students have limited knowledge on basic skills of ICT since all students only attend two hours per week in ICT courses which is not sufficient.

1.4 Research objectives

To investigate the basic knowledge of using ICT among Cambodian university students and teachers.

1.5 Research questions

How do students and teachers know about ICT Development at University Levels?

1.6 Hypothesis

University students and teachers have limited ability in ICT in education.

1.7 Scope of the research

This research is of significance to various groups in the field of English education in general, and in cognition and instructional design in ICT:

- The results of this research will be able to help researchers and lecturers in the field to know findings in order to improve concepts, definitions and theories related to ICT environment
- The findings of this research can be useful for policy makers in Ministry of Education, Youth and Sport that offer English programs by incorporating the use of multimedia-based learning. This means that the approach of ICT for education needs to be included in the course syllabus.

This research could make a lot of contributions, as follows:

- The information and guidelines for instructional designers and educators, students for developing contents for any subjects and also to select the most effective multimedia elements for the instruction in ICT environment.
- The results of the research conducted on the students from universities who scaled up and improved quality in ICT for to more effective and appropriate for educators and students in the teaching and learning in ICT context.

1.8 Limitations of the research

The research is subject to several limitations:

- The research will be conducted at National University of Management (NUM), Royal University of Phnom Penh (RUPP), Royal University of Law and Economics (RULE) and University of Health Sciences (UHS). The samples are limited to 100 students from first semester and 100 teachers. Therefore, purposive sampling has been conducted for the implementation of scaling up and improving quality in ICT for education.

This research illustrates the effects of using ICT for education on scaling up and improving quality variables, which are not much discussed and argued in previous studies on the use of multimedia components in ICT context using those variables.

CHAPTER TWO LITERATURE REVIEW

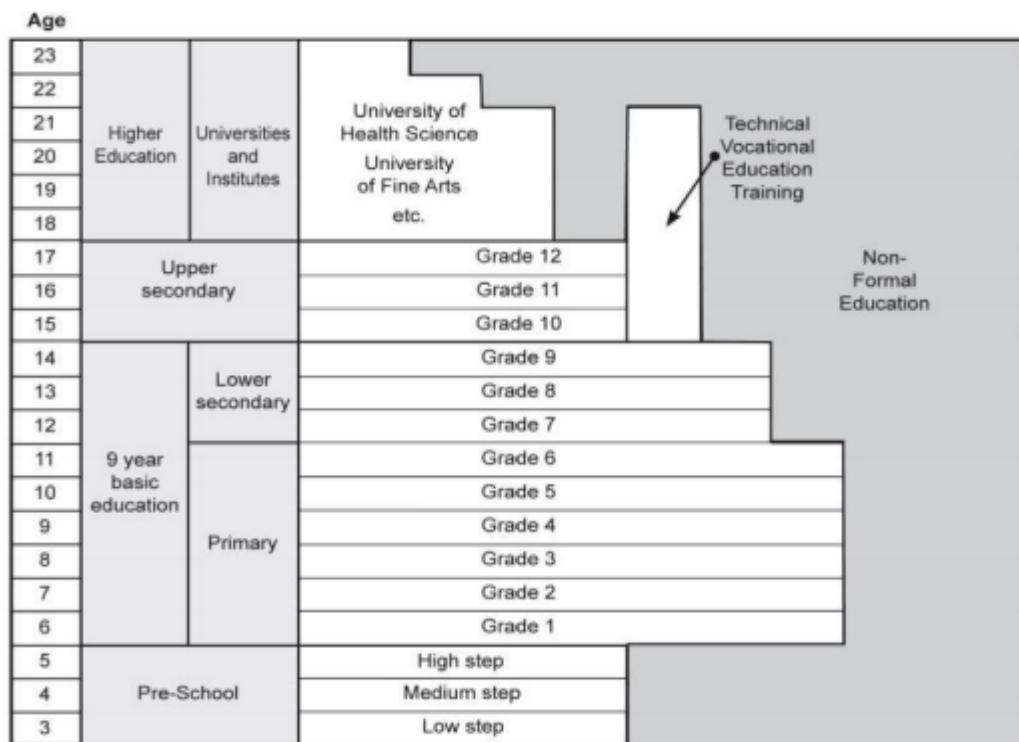
2.1 Introduction

This chapter provides a review of the literature related to the current studies in the area of ICT. The research associated factors have been presented in this chapter.

2.2 Education system in Cambodia

Dy, Olsson and Meek (2013) showed that Cambodia adopts a 6 years primary, 3 years lower secondary, 3 years upper secondary and 4 years tertiary model for its education system (Figure 2.1) with children starting their primary schooling at the age of six. The school year begins in October and concludes in July, with national examinations upon completion of grades 9 and 12. Basic education is constitutionally defined as consisting of nine years of education; it covers the primary (six years) and lower secondary (three years) levels. Access to quality basic education remains a challenge; in particular many children have difficulty staying on in school beyond the completion of primary schooling. The 2010 National Socio Economic Survey (National Institute of Statistics 2010) showed that only 5.2% of 15-to-64 years old had completed secondary education, and only 2.1% had engaged in any form of post-secondary education, including higher education. This situation raises serious questions about the skills and the productivity of the current work force.

Figure 2.1. Cambodia’s education system



Dy, Olsson and Meek (2013) stated that each additional year of either technical and vocational education and training (TVET), or of upper secondary education after basic education, enhances productivity and creativity in the labor market (World Bank, 2012). Levels of access to post-basic education in Cambodia, however, are among the lowest in Southeast Asia. According to the Department of Planning in the Ministry of Education, Youth and Sport (MoEYS), the net enrolment rate for upper secondary education for the 2011/12 academic year was 19.6%, and the transition

rate from lower secondary to upper secondary education was only 69.8%. The situation is worst in rural areas, where poverty is acute and where educational facilities are the least well developed. Over 80% of Cambodians depend upon subsistence agriculture and labor migration.

2.3 Information and communication technology (ICT) plays an important role in society

Tondeur and Braak (2007) showed that Information and communication technology (ICT) plays an important role in society when we take into account the social, cultural and economic role of computers and the Internet. Considering that all youngsters move through compulsory education, school is the appropriate place to develop crucial ICT competencies.

Kumar (2008) stated that the Information and Communication Technologies (ICT) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer, and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. When such technologies are used for educational purposes, namely to support and improve the learning of students and to develop learning environments, ICT can be considered as a subfield of Educational Technology.

Kumar (2008) added that the use of information and communication technologies in education makes teaching – learning process effective and interesting. To know the impact of ICT in education, we need to know two basic things: ICT, and education.

2.4 Teachers' Attitudes and Beliefs for students about ICT

Sang, Valcke, Braak and Tondeur (2010) showed that since the introduction of educational technologies into classroom settings, teacher education has faced the challenge of improving in-service teacher education and preparing pre-service teachers for successful integration of educational technologies into their teaching and learning practices.

2.5 Lack of Knowledge and Skill in ICT

Pelgrum (2001) expressed that the current belief is that ICT is not only the backbone of the Information Society, but also an important catalyst and tool for inducing

educational reforms that change our students into productive knowledge workers. ICT in education is an area which is in turmoil and in which many participants play a role. It is important for educational decision making to periodically assess the actual situation of ICT in educational practice.

2.6 The study of ICT in schools

Lim (2002) stated that as we move into the 21st century, schools have to acculturate students to be lifelong learners. Students need to learn how to seek out new information, think critically and show initiative to meet up with the challenges of the fast-changing world. Research studies of Information and Communication Technologies (ICT) in schools have established that ICT facilitates the enculturation processes of lifelong learning (Sivin-Kachala, 1998; Wenglinsky, 1998; Mann, Shakeshaft, Becker and Kottkamp, 1999). However, many of these studies lack detailed investigation of what actually takes place in the ICT learning environment and its sociocultural context. ICT does not exist in isolation; it is interwoven with the rest of the tools and participants in the learning environment.

2.7 The effective concepts in the ICT Context

Zhang (2013) emphasized that as ICT use has grown beyond organizational and work contexts into nearly every facet of our lives, interest in affect is particularly timely and relevant as we seek to understand individuals' use and exploration behaviors. Users' choices of ICTs have grown tremendously, with many competing ICT products and services available for similar purposes. For example, when choosing a mobile phone, one considers more than just usability, functionality, and reliability. The final decision is likely based on both cognitive factors (such as price, service, features, and usability) and effective factors (how cute the product is, how unique it is from others, or how it makes one feel). Such technological changes have prompted researchers to challenge the cognitive-dominant paradigm in studying individual reactions toward ICTs (Agarwal and Karahanna 2000; Beaudry and Pinsonneault 2010; Loiacono and Djasmasbi 2010; Sun and Zhang 2006a; Zhang and Li 2004; Zhang and Li 2005).

2.8 Information and Communication Technology (ICT) for education in Cambodia

Loo and Hang (2007) illustrated that in Cambodia, the internet was first used by journalists in 1994 when the Open Forum of Cambodia, a non-governmental organization in Phnom Penh provided the first email connectivity. Full connectivity to the internet happened in 1997 with the assistance provided by the International

Development Research Centre (IDRC) from Canada via a link to Singapore. The main organization providing ICT-related education and training is the Community Information Web Portal of Cambodia. The portal is accessible over the Internet and in 22 Community Information Centers (CICs) around Cambodia. Local contents for the web portal is collected and managed by the CIC Web Portal Team at Open Forum of Cambodia, which specializes in information technology issues. Open Forum is also developing a Khmer operating system- Khmer OS - which is translating free and open software applications to the Khmer language “to allow people in Cambodia to work with computers in their own language in order to give access to computers to people in lower levels of the economic scale, to students and people in rural areas, to small-and medium enterprises (SMEs) that required computers (but not English) and finally, to the government, for it to work in its own language”.

CHAPTER THREE RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology for this study. It describes research design, research population and sampling, data collection techniques and instruments, data analysis and research procedures.

The technology acceptance model (TAM) is an information systems theory that models how users come to accept and use a technology.

3.2 Sites Selection:

- National University of Management (NUM)- Cambodia
- Royal University of Phnom Penh (RUPP)-Cambodia
- Royal University of Law and Economics (RULE)-Cambodia
- University of Health Sciences (UHS)-Cambodia

3.3 Research Design, Sample Size and Methods:

Purposive sampling will be applied to make the research complete on the basis of household's condition. Sampling method was achieved by interviewing students and teachers in four universities above. Therefore, interviewees are two hundred university students. Samples were selected independently to introduce TAM model for all students and teachers.

3.4 Questionnaire Design:

A questionnaire was designed for the purpose of achieving the specific objectives being set for the research. This will be a test survey to get some mistakes in the questionnaires. There are three main points of questionnaires:

Part 1: General information of the respondents

Part 2: The program that university students attend related to ICT tools

3.5 Data Collection Procedures

3.5.1 Primary Data: Interviews:

A structured questionnaire was developed and students and teachers were interviewed face to face using these questions along with ICT interviews. This method was also useful in getting information. ICT interviews of students and teachers of four universities (NUM, RUPP, RULE & UHS) were done in order to get information on basic skills of using ICT for learning, etc. was gathered from such open-ended questions to answer questionnaire instrument.

Key-information interview:

Key information interviews were conducted with NUM, RUPP, RULE & UHS students and teachers.

3.5.2 Secondary Data:

Secondary data required for this research work were collected from various sources such as approved Reports of Phnom Penh Department of Education, Youth and Sport, published and unpublished reports, research papers, websites, etc.

3.6 Data Analysis:

Both qualitative and quantitative data was collected from various sources coded, and analyzed to achieve the defined objectives. Quantitative data was analyzed by using simple statistical tools, such as mean and qualitative data were presented in descriptive ways so that the basic findings of the research could be well interpreted and justified.

CHAPTER FOUR RESULT AND DISCUSSION

4.1 General Background of Respondents

4.1.1 Gender

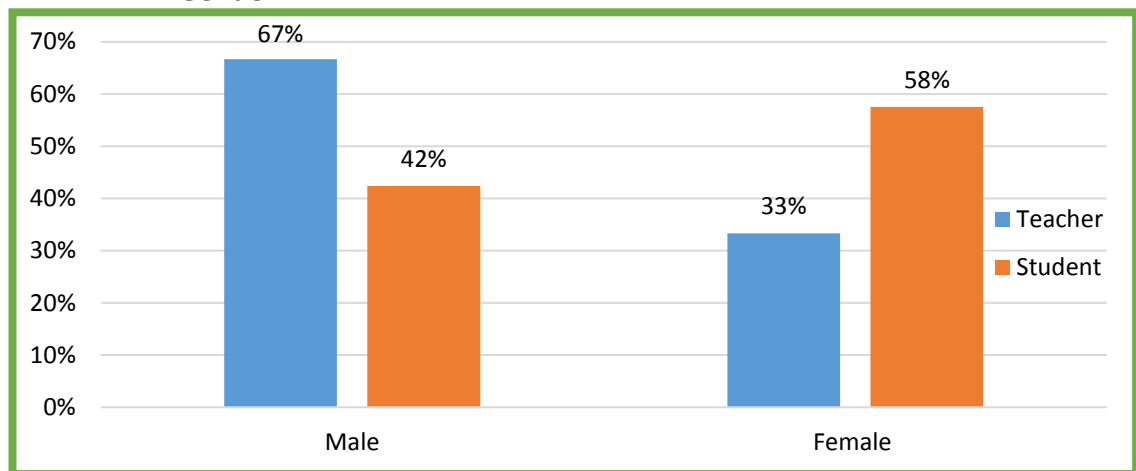


Figure 1: Gender

The graph compares the percentages between teachers and students that know and use Information Communication Technology (ICT) both are similar. 67% of teachers are male and 33% of teachers are female. Whereas 42% of students are male and 58% of students are female.

It can be clearly seen that most of teachers are male and most of students at universities are female that use ICT to do the work that related to internet in team of study and teach. The peak percentages are male teachers and the low is also teachers but refer to female.

To sum up, according to the graph most of teachers are use ICT more than students, even if, 58% of female students and 42% of male students use ICT. In contrast, 67% of male teachers and 33% of female teachers use ICT that is the big amount of teachers that know and use ICT over the amount of students.

4.2 What types of technology equipment do you use?

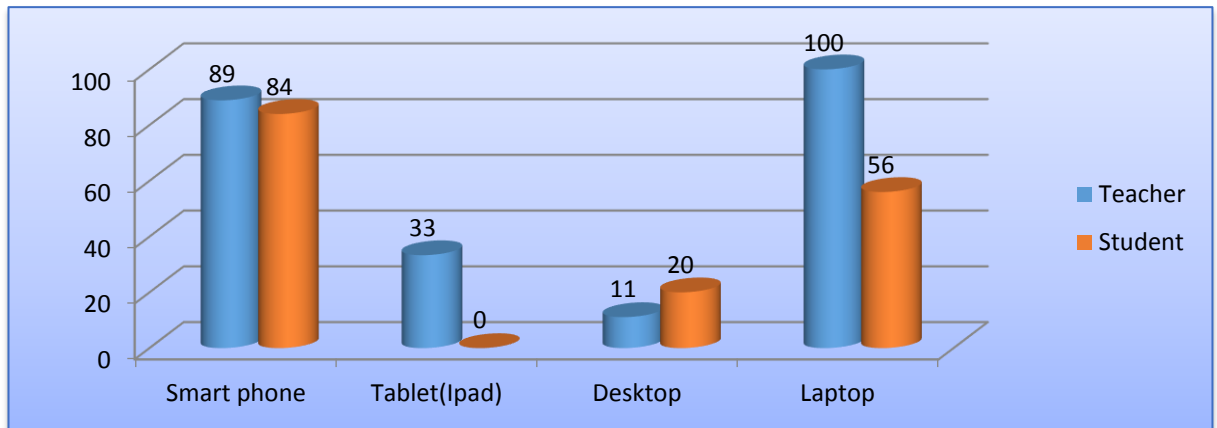


Figure 2: Types of technology equipment

The bar chart compares type of technology equipment between teachers and students that they have. It can be clearly seen that the lowest rates of teachers that use Desktop just only 11%.

The highest of teachers use Laptop 100%. For students are lowest rates that use tablet 0%. The highest rates for students that use smart phone 84%. We compare for using smart phone that teachers use more than students 5%. Using Tablet the teachers use 33% but students nothing 0%. For Desktop, students use more than teacher 9%. Laptop teacher use more than students 44%.

In conclusion, the report show that students never use and teachers useless of Desktop for teaching and learning but the teachers almost use laptop and students like to use smart phone for research because laptop and smart phone are easy to carry and can to do something else for them.

4.3 THE BENEFITS OF USING ICT'S PROGRAMS IN PEDAGOGY

4.3.1 What ways do you use ICT for?

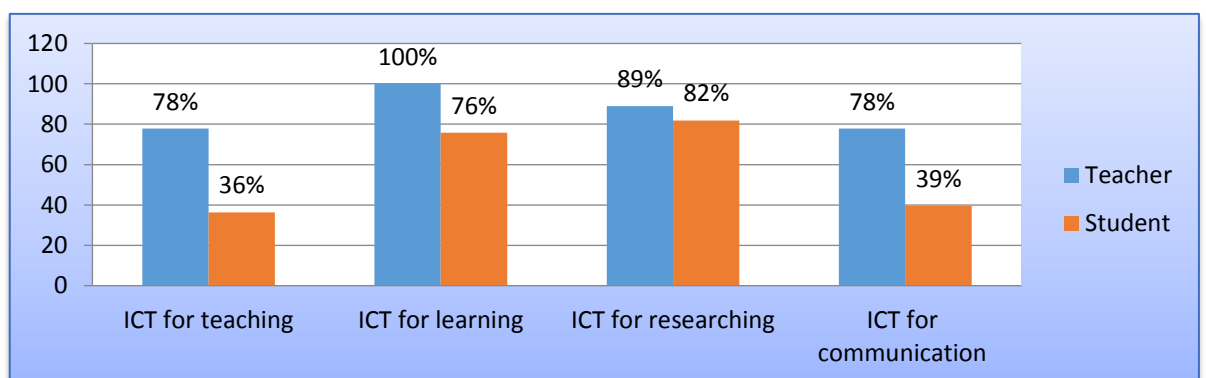


Figure 3: Usage of ICT

There are four ways of using ICT for education: ICT for teaching, ICT for learning and ICT for researching and ICT for communication. Based on the interviews teachers, the graph shows that ICT for learning is 100%. One more thing is that ICT for teaching and ICT for Communication are the same percent 78%, It is beneficial for teachers who attempt to upgrade more knowledge of teaching and communicating. In addition, ICT for researching 89% increase more than ICT for teaching and ICT for communication 78% which show that teachers need to do research more before teaching their students. Anyway, students need more research only 82% and other use of ICT for learning 76%, ICT for communication 39% and ICT for teaching 36%. In short, we need to persuade teachers to integrate more about ICT for teaching to the highest per cent in order to reach the goal of ICT for education.

4.3.2 How is your knowledge of ICT for these items?

A. Downloading

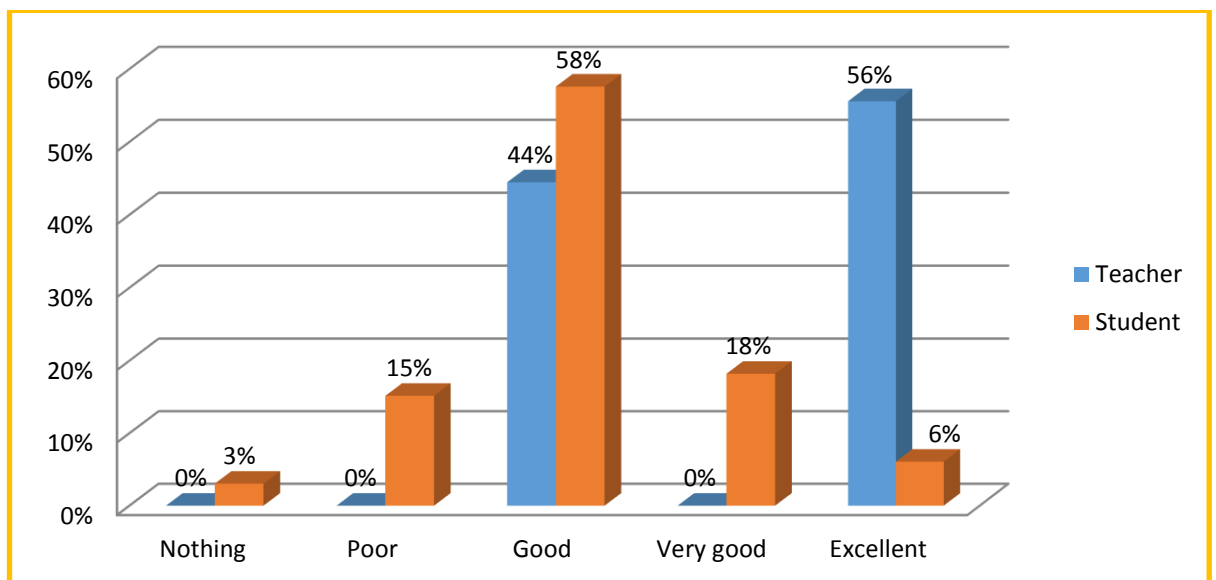


Figure 4: Knowledge of download

The graph shows that knowledge of ICT by downloading document for teachers are 56% for excellent and 44% for Good and 0% for nothing, poor and very good. So it can be clearly seen that teachers think that downloading is very important to develop their knowledge more and more because this item is very important for document extracted in teaching.

For students with downloading document is also in a high point for ICT by downloading because the result is 58% for Good, and other items for ICT for downloading very good 18%, poor 15% Excellent 6% and 3% for Nothing, which is the sign of lacking points and needed to integrate as soon as possible with these items. In conclusion, teachers and students still need more knowledge of downloading to develop more for teaching and learning for themselves.

B. Using internet-email

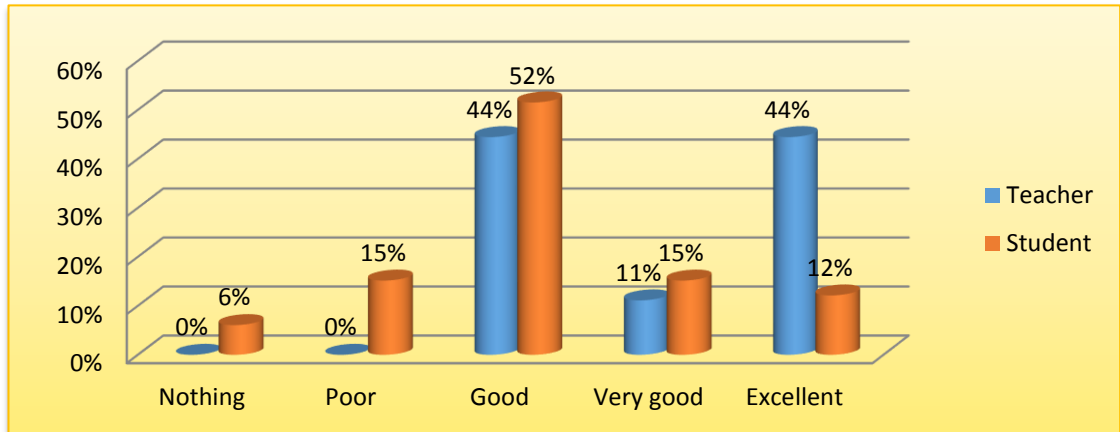


Figure 5: Knowledge of using Internet-Email

The graph says that knowledge of using Internet-Email for both teachers and students is still needed to develop more because teachers, the percentage of excellent is only 44%, very good 11% and good is also low 44%. In addition, students are also lower. The lacking points are a lot. Therefore, both teachers and students will require learning more how to use it in order to make them qualified enough of ICT for teaching and learning.

C. Using PowerPoint

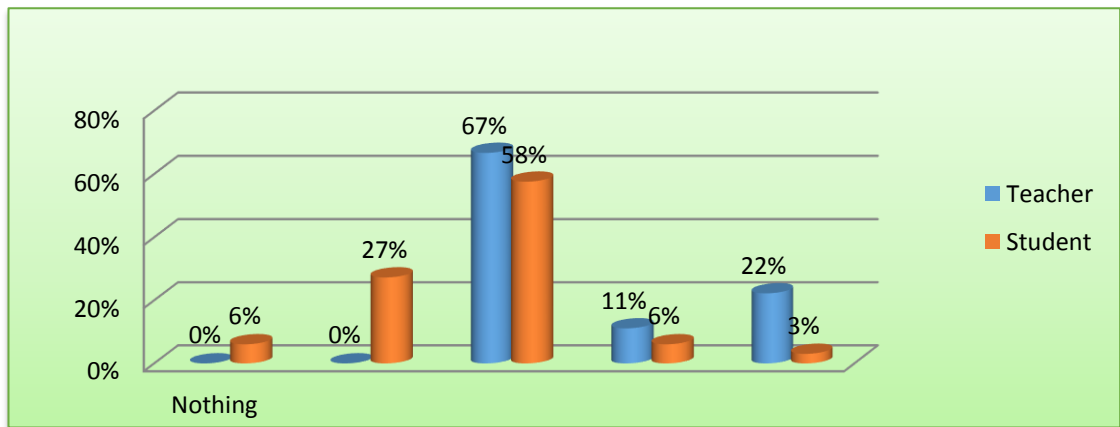


Figure 6: Knowledge of using PowerPoint

According to the report, it can be clearly seen that the percentage of teachers using PowerPoint is a bit higher than students. Students themselves do not use this item often just only teachers use it a lot for the presentation. We can see that PowerPoint is very important to teachers to use for teaching as well as in any workshops.

D. Using Work-Excel

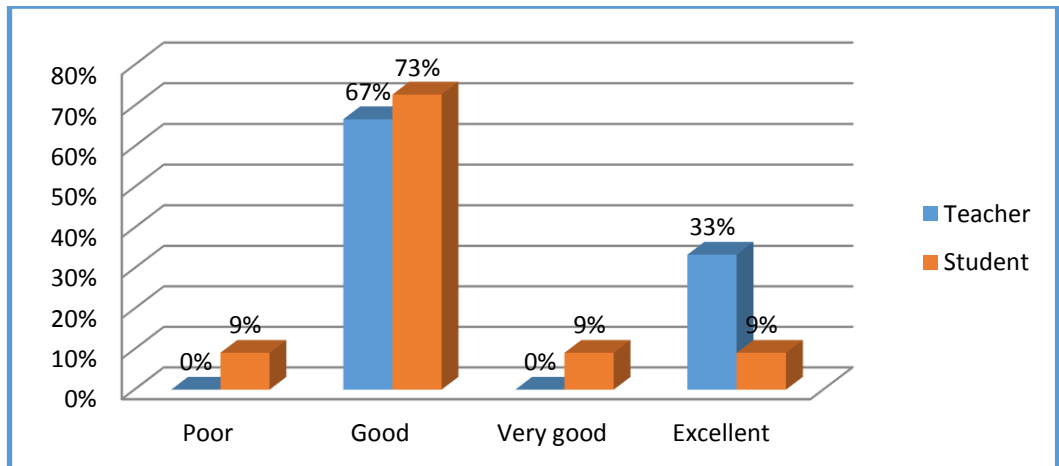


Figure 7: Knowledge of using Word-Excel

The graph shows that teachers rarely use Microsoft Word-Excel for their teaching; they only use it for calculating a bit so as to make their students easy to understand some calculation because the percentage is good 67% and excellent is 33%. But students are possible because they are capable of using it 73% stands for good.

4.4. Do you think ICT is a good tool for education?

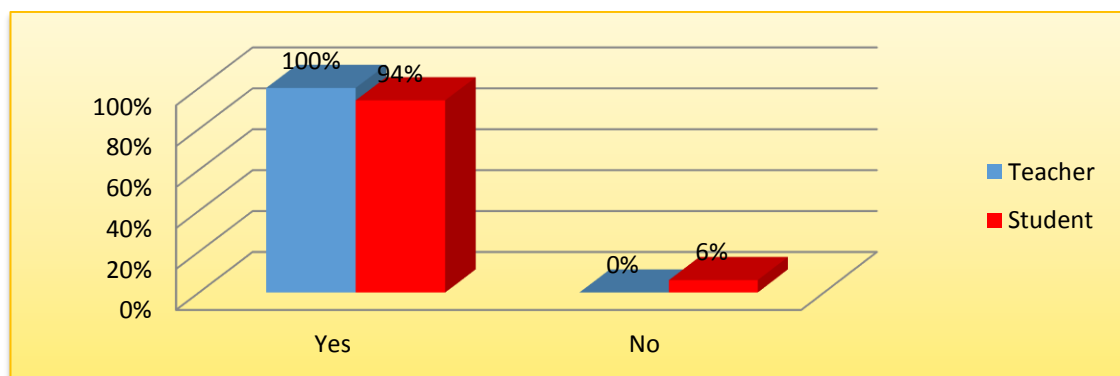


Figure 8: ICT is good or not

The bar chart compares the percentage of satisfaction of ICT between teachers and students. It can be clearly seen that satisfaction of ICT, the percentage of teachers is higher than students.

Based on the bar chart, 100% of teachers say yes for satisfaction of ICT, while there are only 94% of students. In addition, there are 6% of students say no, but 0% of teachers say no.

To sum up, it shows that there is slightly different between satisfaction of ICT between teachers and students. Both of them satisfy ICT because it gives them benefits.

4.4.1 What are the good points of ICT in education?

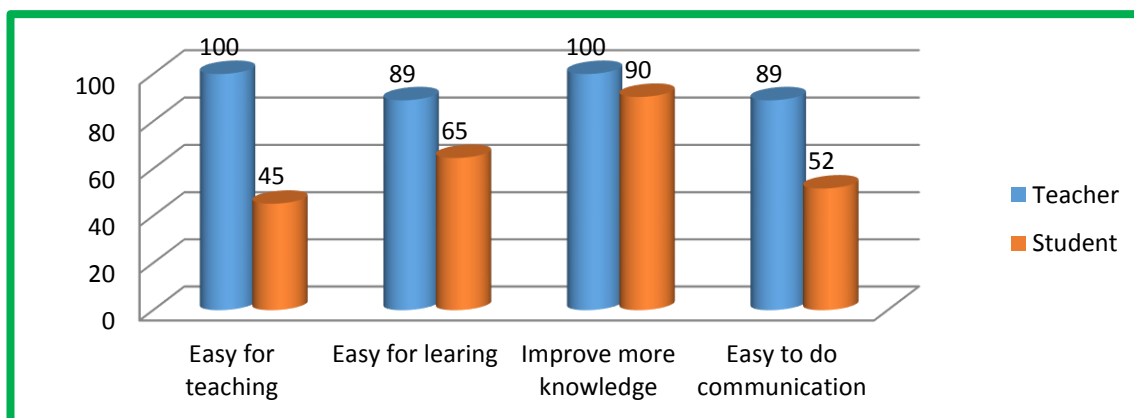


Figure 9: Good points of ICT in Education

The bar chart compares the idea of teacher and student about good points of ICT in education. It can be clearly seen that the lowest rate of student's idea about good point of ICT in education are easy for teaching and easy to do communication (45% and 52% of students).

The other two points is in highest rate, easy for learning 65% and improve more knowledge 90%. Teacher's idea about good points of ICT in Education looks higher in all points: the highest rate is improved more knowledge and easy for teaching which 100% of teacher chooses both of these points. For the rate of teacher's choice that choose easy for learning and easy to do communication is similar to each other which has 89% of teacher choose it.

In conclusion, the report shows that teacher's idea about good points of ICT in education is higher than the students.

CHAPTER FIVE CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Based on the results in location of the study can be concluded as follows:

Not so many teachers (20%) need to improve more basic computer skills and knowledge of using the Internet-Email. Furthermore, talking about ability to select the correct information from any websites is still limited for them (50%) and needed upgrading.

Also, about 40% of students need to improve more basic computer skills and practice more computer skills. They (65%) also have limited ability to select the correct information from any websites. Therefore, both teachers and students have all most the same needs of workshop training on ICT for teaching and learning.

5.2 Recommendation

Following the study and observation of both teachers and students, many positives along with some few negative things are found. So, to develop more knowledge of ICT education and ensure the ability of teachers and students at there, we have some recommendations as following:

- Prepare the workshop training for both teachers and students to consolidate their basic knowledge of ICT.
- Improve ICT and Pedagogy for high school and secondary school English trainees to make sure they can apply the knowledge to the students in the next soon time.
- Integrate ICT skills and ways of learning and teaching for trainees through ICT education.

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