FACTORS AFFECTING ICT INTEGRATION INTO ELT

IN NAKHON RATCHASIMA VOCATIONAL

EDUCATION INSTITUTES

Tarathip Tanakachane

A Thesis Submitted in Partial Fulfillment of the Requirements for

the Degree of Master of Arts in English Language Studies

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ปัจจัยที่มีผลต่อการบูรณาการเทคโนโลยีสารสนเทศและการสื่อสารในการสอนภาษาอังกฤษในสถานศึกษาระดับอาชีวศึกษาในจังหวัดนครราชสีมา

นายธราธิป ธนคเชนทร์

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตร์มหาบัณฑิต
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Suranaree University of Technology has approved this thesis submitted in partial fulfillment of the requirements for the Degree of Master of Arts.

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ธราธิป ธนคเชนทร์ : ปัจจัยที่มีผลต่อการบูรณาการเทคโนโลยีสารสนเทศและการสื่อสารใน
การสอนภาษาอังกฤษในสถานศึกษาระดับอาชีวศึกษาในจังหวัดนครราชสีมา
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การศึกษานี้มีวัตถุประสงค์ ดังนี้ คือ 1) เพื่อวัดระดับความรู้ความสามารถทางด้านเทคโนโลยี
สารสนเทศและการสื่อสารตามความคิดเห็นของตัวครูผู้สอนเอง 2) เพื่อศึกษาปัจจัยที่มีผลต่อการบูรณา
การเทคโนโลยีสารสนเทศและการสื่อสารในการสอนภาษาอังกฤษ

กลุ่มตัวอย่างคือครูชาวไทยที่เป็นผู้สอนภาษาอังกฤษในสถานศึกษาระดับอาชีวศึกษาทั้งหมด
จำนวน 64 คน ในปีการศึกษา 2548 ในจังหวัดนครราชสีมา การเก็บข้อมูลใช้วิธีการ 3 วิธีต่อไปนี้
1)การให้ครูผู้สอนตอบแบบสอบถามที่ผู้วิจัยจัดทำขึ้นและผ่านการตรวจสอบของผู้เชี่ยวชาญและ
ทดลองใช้แล้ว 2) การสัมภาษณ์เจาะลึกครูผู้สอนจำนวน 15 คนที่คัดเลือกมาโดยวิธีการสุ่มโดยกำหนด
สัดส่วน 3) การสังเกตอุปกรณ์เทคโนโลยีสารสนเทศและการสื่อสารในสถานศึกษาทั้งหมดโดยการใช้
แบบสังเกต การวิเคราะห์ข้อมูลใช้การหาค่าเฉลี่ย ค่าร้อยละ t-test และ one way ANOVA ผลการ
ศึกษาพบว่า ครูผู้สอนภาษาอังกฤษมีความรู้ความสามารถทางด้านเทคโนโลยีสารสนเทศและการสื่อสาร
ในระดับที่ต่ำมาก ส่วนปัจจัยที่มีผลต่อการบูรณาการเทคโนโลยีสารสนเทศและการสื่อสารในการสอน
ภาษาอังกฤษ นั้นมีระดับความมากน้อยเรียงตามลำดับ ดังนี้ คือ 1) ปัจจัยส่วนตัวของครูผู้สอนในแง่ของ
ระดับความรู้ความสามารถทางด้านเทคโนโลยีสารสนเทศและการสื่อสาร 2) ปัจจัยการขาดแคลนวัสดุ
อุปกรณ์ทางด้านเทคโนโลยีสารสนเทศและการสื่อสารเพื่อการใช้ในการเรียนการสอนในสถานศึกษา
3) การไม่มีการฝึกอบรมในด้านเทคโนโลยีสารสนเทศและการสื่อสาร อย่างไรก็ตาม กลุ่มตัวอย่าง
แสดงออกว่าเห็นประโยชน์ของการบูรณาการเทคโนโลยีสารสนเทศและการศึกษาในการเรียนการสอน
ภาษาอังกฤษ และแสดงความต้องการ ที่จะเข้ารับการฝึกอบรมเพื่อพัฒนาระดับความรู้ความสามารถใน
ด้านเทคโนโลยีสารสนเทศและการสื่อสารเพื่อที่จะได้นำเอาความรู้ไปใช้ในการสอนภาษาอังกฤษให้ได้
อย่างมีประสิทธิภาพมากขึ้น

ผลของการศึกษานี้แสดงให้เห็นสภาพปัจจุบันของระดับความรู้ความสามารถของครูผู้สอน
ภาษาอังกฤษในสถานศึกษาระดับอาชีวศึกษา และปัจจัยต่าง ๆ ทั้งภายในตัวครูและสภาพแวดล้อมที่มี
ผลต่อการบูรณาการเทคโนโลยีสารสนเทศและการสื่อสารในการสอนภาษาอังกฤษ รวมทั้งความ

ต้องการของครูที่จะพัฒนาความรู้ความสามารถของตนในการใช้เทคโนโลยีสารสนเทศและการ
สื่อสารเพื่อที่จะพัฒนาการเรียนการสอนภาษาอังกฤษต่อไป

สาขาวิชาภาษาอังกฤษ   ลายมือชื่อนักศึกษา _____
ปีการศึกษา 2548   ลายมือชื่ออาจารย์ที่ปรึกษา _____
             ลายมือชื่ออาจารย์ที่ปรึกษาร่วม _____

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ICT/ELT/ FACTORS AFFECTING ICT INTEGRATION

The purpose of this study was 1) to identify the level of ICT integration perceived by Thai English-language teachers in vocational education institutes in Nakhon Ratchasima; 2) to identify the factors that in the opinion of Thai English-language teachers in vocational education institutes in Nakhon Ratchasima affect the integration of ICT into their English teaching.

The participants were 64 Thai teachers teaching English in 22 vocational education institutes in Nakhon Ratchasima in the second semester in the academic year 2005. The study was conducted by means of questionnaire, interview, and observation. The data analysis was conducted using arithmetic mean, percentage, t-test and one way ANOVA.
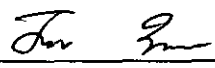
The findings of the study showed that the perceived level of ICT competency of the Thai teachers teaching English was very low and did not reach the first level of the ICT competency standards. The negative factors included personal factors related to ICT competencies, and educational institute factors for not having sufficient ICT devices and the insufficient professional ICT training for the participants. However, the participants showed their positive attitudes towards the integration of ICT into teaching in spice of their very low ICT competencies and lack of facilities. They
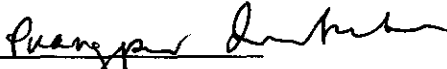
intended to participate in future ICT trainings so that they could integrate ICT into their teaching effectively.

In brief, the results of this study provided the information regarding the perceived ICT competencies of Thai English teachers in vocational education institutes in Nakhon Ratchasima and factors affecting the integration of ICT into teaching. It reviewed the teachers' positive attitudes towards the integration of ICT into teaching and their willingness to participate in future ICT training.

School of English

Academic Year 2005

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Advisor's Signature _____

Co-advisor's Signature _____

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I would like to dedicate this work to my beloved mother who has always provided me great and precious supports.

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Tarathip Tanakachane

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CHAPTER 1

INTRODUCTION

1.1 Rationale

According to the trend of educational reform, it is based on 3 main principles: 1) life long education for all, 2) participation of all segments of society, and 3) continuous development of knowledge and the learning process (National Education Act, 1999). The first principle refers to the ability of learners to keep studying as much as they want to for the rest of their lives. There is no limitation for anyone to learn even if they have finished with the highest level of education available. Moreover, they can further their studies individually. The second principle refers to the ability of learners to survive in the society by relying on what they have learned. The last principle refers to the learners' attitudes towards self-development. In supporting the learners to reach the above mentioned goals, some educators have recommended teachers to integrate information and communication technology (henceforth ICT) into their teaching (Martin, 2003; Rader, 2003; Dillon, Needham, Hodgkinson, Parker, and Baker, 2003).

In language teaching, the integration of ICT into teaching can enhance the learners' language improvement in many ways. ICT provides opportunities for learners to use computers to write and chat using a certain language to interact with each other via ICT and use feedback for their corrections. ICT can be effectively deployed on the learners' abilities (Morris, 2005; Benzie, 1997). Thus, they could adopt learning strategies that enable them to acquire practical skills that could lead them to the realization of possibilities to use their language skills in their real lives.

Many educators suggest some advantages of the integration of ICT into teaching. Burns (1994) suggested that having children use some computer programs as tools for learning increased their motivation more than traditional teaching methodology in school. Hubbard (2005) reported that multimedia software and web sites developed by educators offered a range of new opportunities for learners to develop listening proficiency in the target language. Krischner and Selinger (2003) stated that ICT offered an essential potential to satisfy the learning needs of individual students, promoted equality of learning opportunity, offered high-quality learning materials, and increased self efficiency and independence of learning among learners of all ages.

For language teachers, ICT is advantageous in terms of various tools and teaching styles for language teachers to choose and integrate them into their teaching. Krischner and Selinger (2003) stated that teachers can make use of ICT as an essential tool in their daily work. It can be used to encourage new ways of working as part of professional learning teams. Cabanatan (1999) also stated that there is a clear direction towards using the internet to provided education to students everywhere. The use of the internet ranges from making course materials available on-line to using the internet as a communication tool for a course. Thus, teachers can use the internet as powerful teaching material by using the educational web sites available in the internet as a part of learners' tasks. In fact, there are many functions available in the internet for language teaching. Both teaching material and professional development forums for innovation teaching methodology are available. There are several kinds of internet-based activities for ESL/EFL classrooms and some strategies to help ensure that the activities would keep the students' interest (Lee, 2000). Newly qualified

teachers accept ICT as an integral part of their professional life, as do many of their more experienced colleagues. These teachers understand the criteria involved in judging the effectiveness of ICT in lessons. However, there are still many teachers who struggle with unfamiliar technology and are sometimes apprehensive about using it. These teachers, in particular, need good professional support to help them move forward (Office for Standards in Education, 2002). In order to be able to use ICT appropriately and effectively, teachers need the vision of the ICT' potential, opportunities to integrate ICT into teaching, training about integrating ICT into teaching, immediate support when teachers require, and time to experiment the integration of ICT into teaching (Malaiwong, 2002; Pongsart, 2005; Kongsanay, Sittidamrong, Burasirirak, Ananto, and Srichantrawirote, 2005).

In order to ensure that teachers were prepared for integrating ICT into teaching, levels of ICT competencies were created (Teacher Technology Competency Committee, 1997). The ICT competencies were normally created in 3 levels. They were basic, intermediate, and advance levels (Aguilar, 2004; Montahan, 2004; Niland, 1999; UNESCO, 2002; Kirschner, 2003; Selinger, 2003). A number of recognized educational institutes such as some universities and colleges in both the United States and other western countries had created standards for ICT competencies for language teachers. In the United States, there is International Society for Technology in Education (ISTE) and New Technologies into Methods of Education (INTIME). These two standards were adopted in some European countries such as England and Netherlands. There is Ministerial Advisory Council on the Quality of Teaching (MACQT) standard created for their teachers in Australia. Some Asian countries such as Singapore, the Philippines, Indonesia, Malaysia and Thailand have developed

many professional developments or trainings to integrate ICT into teaching for language teachers. Even though there are no standards available yet, training is designed to set educational standards.

Even though ICT competency standards are designed by different educators in different educational institutes and used in different countries at different levels, the domains of competencies used in the standards are similar. There are three common domains among these competencies. The first domain focuses on the ability to manage and organize files, solve technical problems and use ICT devices in teaching. This domain also includes creating material and tools by using multimedia technology through CD-ROM. The second domain focuses on the ability to integrate ICT into teaching and the ability to gather information from the World Wide Web (WWW) or website and communicate with others via ICT such as e-mail or synchronous chatting software. The third domain focuses on the ability to use web authoring software to create webpage or Hyper Text Markup Language (HTML) documents as material for teaching. This domain also covers using advanced authoring software for creating interactive and multimedia material and tools. (See appendix A for the comparison of technology competencies among five different regions.)

In integrating ICT into teaching, teachers encounter at least two levels of problems, administrative and personal level (Christensen, 1998). However, many surveys and studies reported personal problems as one of the main problems that obstructed the integration of ICT into teaching. The personal problems include teachers having a high teaching load, lacking confidence in using ICT in teaching and technical supports, and unreliable equipment (Malaiwong, 2001; Keawdaeng, 2001; Becta ICT research Network, 2003). To solve the problem of teachers possessing poor

ICT competencies, many educational institutes provided professional training for their teachers (Foell, 1998). It was found that the trained teachers showed significant improvement and found ways to integrate ICT into their teaching. They demonstrated their positive attitudes towards the integration of ICT into teaching (Jager, 1999; Anthony, 2002; Banerjee, 2004; Benton, 2004; Becta ICT Research Network, 2003; Bottino, 2003; Bridges.org, 2002).

In vocational education, Foell (1998) reported the same problem of integrating ICT into teaching of vocational education institutes in the United States. These teachers failed to integrate ICT into teaching. Therefore, they avoided the integration of ICT into teaching. However, after they were trained, Foell also stated that teachers showed more positive attitudes towards the integration of ICT into teaching; they also tried to find more effective ways to integrate ICT into their teaching.

In Thailand, there are many studies that aimed at integrating ICT into teaching. The Center of Educational Technology (2003) conducted some studies about the integration of ICT into teaching in primary schools, secondary schools, and non-formal education institutes. The surveys studying the readiness and the integration of ICT in teaching in non – formal education institutes revealed that a lot of learners in non-formal education institutes tried to use ICT to assist their studies. However, teachers could not assist their students as they expected to due to their low ICT competencies. Moreover, the necessary ICT devices such as VCD, DVD, television, telephone, radio, and computers were not sufficient. Even though some Computer Assisted Instruction (CAI) and web-based learning materials were being developed for the particular target groups, the number of teachers and staff who

lacked ICT competencies was high, and they were consequently unable to assist their students effectively.

To solve the problem of lacking ICT competencies, the Minister of Education granted a budget to Suranaree University of Technology (SUT) to conduct a professional development project in cooperation with the Strategic Consulting Group (SCG), an education company, in a project called SEQIP (Secondary Education Quality Improvement Project). All the targeted teachers showed more positive attitudes towards integration of ICT into teaching after they were trained, and they tried to find ways to integrate ICT into teaching effectively (Minister of Education, 2004).

However, in case of vocational education institutes in Thailand, no evidence showed any readiness to use ICT, the integration of ICT into teaching, or assessing the levels of teachers' ICT competencies. Thus, the present study aimed to fill this gap. The researcher intended to conduct a survey to find the levels of technology competencies of English teachers in vocational education institutes in Nakhon Ratchasima as they perceived. This study also examined different factors such as ages, genders, levels of education, teaching experiences, types of education institute which influenced the integration of ICT into teaching. The results obtained were expected to be a source of information for future training.

1.2 Purpose of the Study

The purpose of this study was as follows:

1. To explore the gap between the expected ICT competency

    standards constructed after the intensive discussion of the 10 Thai ICT

experts from various institutes and the real ICT competencies of teachers teaching English in vocational educational institutes in Nakhon Ratchasima.

2. To find out factors affecting teachers' integration of information and communication technology into their English teaching.

1.3 Research Questions

1. At what level of ICT competency standards do the English language teachers in vocational educational institutes in Nakhon Ratchasima think they posses?

2. What are factors affecting the teachers' integration of ICT in their English language teaching?

1.4 Scope and Limitation of the Study

The present study aimed at finding out the teachers' perception of their levels of ICT competencies and factors affecting their integration of ICT into English language teaching. The subject of this survey was 64 English language teachers teaching certificate and diploma students in 22 vocational institutes in Nakhon Ratchasima. The number of the subjects of this study was quite small to be representative of teachers in other provinces. However, the findings of the study could be used for further professional development for English language teachers in relation to the future integration of ICT into English teaching.

1.5 Operational Definition of Key Terms

Information and communication technology (ICT)

This term refers to any new technology device or application used to communicate with others. It includes 3 main types of technology, 1) communication technology such as communication satellite, mobile phones, and communication cables, 2) computer technology such as hardware and software to create document by some authoring software, for example, word processing, spreadsheet, presentation, database, and another interfaces that were used for communicational purposes, and 3) teaching material created to be used for information and communication technology such as a database, websites, films, music and photos.

Technology competencies or ICT competencies

This term refers to 1) the ability to use various kinds of software such as word processing, spreadsheet, database, PowerPoint presentation, photo editor, audio authoring, web authoring, the Internet, as well as ICT devices such as digital cameras, scanners, and Liquid Crystal Display (LCD) projectors, 2) the ability to operate ICT devices and various kinds of software to create teaching materials for educational purposes, and 3) the ability to integrate ICT into teaching as well as providing the professional development for colleagues.

ICT competency standards

This term refers to performance indicators that hold a list of abilities that teachers should be able to do. The abilities are categorized into three levels: 1) a basic level with basic ICT competency to operate various kinds of software and use ICT devices for various purposes, 2) an intermediate level with ability to use various resources, various kinds of software and ICT devices to create the educational

material, and 3) an advanced level with ability to apply and integrate the ICT into teaching as well as to be an expert assisting colleagues to use ICT in teaching.

Factors affecting the integration of ICT into teaching

This term refers to the variables that influence the integration of ICT into teaching. There are 2 types of factors. They are 1) the positive factors referring to internal supports from the teachers themselves and external supports provided by educational institutes or colleagues to assist and encourage teachers to integrate ICT into their teaching, and 2) the negative factors referring to internal problems (e.g. lack of confidence) and external problems (e.g. heavy teaching load, lack of technical support) that reduce or block the integration of ICT into teaching.

Vocational educational institutes

This term refers to 22 vocational institutes in Nakhon Ratchasima used in this study. (Appendix B)

Vocational English language teachers

This term refers to 66 English language teachers teaching English in the above mentioned vocational educational institutes in Nakhon Ratchasima in the academic year 2005.

1.6 Summary

The national education reform aims at three main principles for all Thai learners They are 1) life long education for all, 2) participation of all segments of society, and 3) continuous development of knowledge and a learning process

(National Education Act, 1999). To achieve these goals, teachers are recommended to use ICT, a powerful tool, into teaching. However, it has been reported that many teachers can not succeed in integrating it into teaching because of lacking self-confidences in integrating ICT into teaching unless they have been well trained before hand. In Thailand, the integration of ICT into teaching is increasingly used and developed for teaching in primary schools, secondary schools and universities. Teachers have been trained to integrate ICT into teaching and the ICT facilities are being offered by the government continuously (Malaiwong, 2001; Keawdaeng, 2001). However, there is no evidence reporting the integration of ICT into teaching in vocational educational institutes. This study then aimed at finding the information relating to the integration of ICT in teaching in vocational education, and their relevant factors supporting and hindering the teachers from integrating it in their teaching. The study is expected to be advantageous as the results of this survey and other research conducted in the future in order to develop the vocational teachers teaching English to be able to integrate ICT into teaching. This will lead to a new innovation of English language teaching methodology encouraging learners to reach the expected goals as stated in the national education act.

CHAPTER 2

REVIEW OF RELATED LITERATURE

This literature review is organized into three sections: ICT competency standards for language teachers, factors affecting the integration of ICT into teaching, and the impact of the professional development to teachers' attitudes towards the integration of ICT into teaching.

2.1 ICT Competency Standards for Language Teachers

ICT competency standards are designed by various educators according to three similar domains to guide them in evaluating their needs for technology training and providing professional development (Loudoun Country Public School, 2005). Many educational organizations design the ICT competency standards for language teachers. In the United States of America, many standards have been designed for teachers. For example, they are ICT4LT, INTIME, ISTE and standards of Austin College of Education. In Australia, MACQT standard was created. However, there has not had any standards created in Asian countries yet, but a lot of purposeful trainings.

2.1.1 ICT4LT

Montahan (2004) and his team have designed three ICT levels of abilities for language teachers as shown in Information and Communication

Technology for the English Language Teaching (ICT4LT) website. The three ICT levels: basic, intermediate, and advanced levels are described as follows:

1. The Basic Level

The basic level focuses on the teachers' ICT knowledge and how to use them in language teaching. This level includes some knowledge about hardware, software, and tools in modern foreign language classrooms. Teachers can easily gather this basic knowledge on CALL and on the Internet.

2. The Intermediate Level

The intermediate level focuses on the teachers' capability to integrate existing CALL, including multimedia ones into their study program. To explore World Wide Web resources online and offline, and use concordance programs in classrooms. It also focuses on the teachers' abilities on basic CALL authoring programs.

3. The Advance Level

The advance level focuses on the teachers' ability to manage multimedia language centers, design and implement CALL software, create a World Wide Web site, and be able to use linguistic corpus.

2.1.2 The Standards of Austin College of Education

The Teacher Technology Competencies Committee (1997) at the University of Texas at Austin College of Education designed a standard for teachers. The ICT competency standards included 3 following domains:

1. **Basic technology operation**

Instructional staff must be able to demonstrate the use of a multimedia computer system with related devices in order to run programs; to access, generate, and manipulate data; and to communicate results.

2. **Personal/professional use of technology tools**

Instructional staff will apply tools for enhancing their own professional growth and productivity. They will use technology in communicating, collaborating, conducting research, and problem solving.

3. **Social, ethical, and human Issues**

Instructional staff will demonstrate knowledge of equity, ethics, legal, and human issues concerning the use of computers and technology.

2.1.3 ISTE

The International Society for Technology in Education (ISTE) developed ICT competency standards for teachers and they were adopted by many educators around USA. There are three standard levels. However, only the teachers' technology standards are described because they are relevant to this study.

Standard 1.1 Basic Computer/ Technology Operations and Concepts

1. Use imaging devices such as scanners, digital cameras, and video cameras with computer systems and software.

2. Demonstrate knowledge of uses of computers and technology in business, industry, &society.

Standard 1.2 Personal and professional use of technology

1. Apply productivity tools for creating multimedia presentations and web-based products.

2. Use computer-based technologies including telecommunications to access information and to enhance personal and professional productivity.

3. Identify computer and related technology resources for facilitating lifelong learning and emerging roles of the learner and educator.

2.1.3.3 Standard 1.3 Application of technology in instruction

1. Apply current instructional principles, research, and assessment practices as related to the use of computers and technology resources in the curriculum.

2 Design, deliver, and assess student learning activities that integrate computers/technology for a variety of student group strategies and for diverse student populations.

2.1.4 INTIME

Aguilar (2004) and her team formed INTIME website (Integrating New Technologies into the Methods of Education) for the University of Northern Iowa and they designed ICT competency standards for teachers.

INTIME was also adopted widely by others educational institutes in USA and some European countries. INTIME holds 3 domains of teachers' technology competencies. It was adopted and/or modified widely in different places and countries.   For example, it was adopted by   Kirschner (2003) at Open University of Netherlands. Also it was adopted by Selinger (2003) at Cisco system, England for European teachers. The INTIME standards for teachers are described as follows:

Domain 1 Technology equipment operation

- File managing and organizing
- Terminology using
- Technical problem solving
- Use of new technology devices such as digital camera, scanner, LCD projector
- Awareness of using computer technology in society, and business
- Demonstration of knowledge of equity, ethics, legal, and human issues concerning use of technology
- Demonstration of awareness of resources for adaptive assistive devices for students with special needs

Domain 2 Technology resources and tools for information
- The information in WWW
- Accessing and analyzing information from CD-ROM
- Accessing and analyzing information from tape, videos or slides
- Use of internet and e-mail to communicate with others
- Use of video conference to communicate with others
- Use of multimedia software to create multimedia reports or presentations
- Use of web authoring software to create educational web sites
- Use of audio/visual technology to create audio/visual project

- Use of word processing
- Use of database
- Use of spreadsheet
- Use of graphics organizer software
- Use of instructional software

Domain 3 Technology resources and tools for content areas
- Use of CAD or other instructional software
- Use of educational physical instructional software for physical education
- Use of audio/visual technology to provide feedback
- Use of instructional software for theatre instruction
- Use of instructional software and Midi for music composing or instruction
- Use of digital imaging program as a tool for creation
- Use of instruction software for appropriate skills
- Use of foreign language instruction technologies and associate for teaching
- Use of instructional software for role-playing, simulation or research

2.1.5 MACQT

Niland (1999) and members of MACQT (Ministerial Advisory Council on the Quality of Teaching) designed ICT competency standards for Australian teachers. According the MACQT standards, the competencies required of the new teachers fall into five categories shown below.

1. **Basic operations**
   - An understanding of the functions of the various components of the computer

- Use of a variety of software, including basic word processing, database

  and spreadsheet functions

- Information retrieval through the use of CD-ROMS and other

  commercial programs

- Preparation of graphics and art works

- Simple desktop publishing

- Drill and practice activities

2. Information Technology

- Using multi-media presentations

- Using interactive presentations

- The ability to use the Internet and electronic mail programs

- Awareness of overall developments in communications and

  information technologies   and of the potential these have for student

  learning.

3. Evaluation of software

- The ability to select and evaluate technology   based learning materials

- The ability to determine underlying pedagogical assumptions, gender and

  ethnic bias, educational relevance, social impact, and suitability for the

  classroom environment, for   cooperative learning and for peer
interaction.

- Generating lesson plans

- Matching computer applications to specific curriculum content and

  Processes

4. Pedagogical issues – classroom management/learning theories/learning styles an understanding of how computer technology can enhance student learning and help learners explore their world;

- The creation of self-regulating learning environments

- The management of classroom environment and school resources

- The ability to use computers for student profiling and reporting, lesson preparation and class/faculty administration.

5. Values and ethics.

- Recognizing plagiarism

- Understanding the issues of copyright, of censorship and of privacy

- Recognizing the issues of appropriate access to and verification of information gained from such sources as the Internet

- Interpersonal skills for working in environments where colleagues have a wide range of abilities in using the new technologies.

2.1.6 Technology Competencies Standards for This Study

UNESCO office in Bangkok (2002) identified projects in some Asian countries with the purposes of developing teachers to integrate ICT into teaching. It identifies Wan Kota as a project SchoolNet in Indonesia and Thailand, Smart School Pilot in Malaysia, edu.MALL project in Singapore. All the projects are designed with their own ICT competency standards to enhance their teachers to develop their teaching with the integration of ICT into teaching. However, all the standards in Asian countries are similar. Appendix A shows a table comparing the ICT competency standards in different regions.

In this study, based on the frameworks of the ICT competency standards reviewed in combination with the advice given by Thai ICT experts, the researcher constructed ICT competency standards appropriate to Thai context for this study to assess the ICT competencies of the participants. The three levels of ICT competency standards used in this study were described as follows:

Level 1 ICT Competencies and Abilities to Use ICT devices

Teachers must be able to use various kinds of computer software to create various documents, use ICT devices for various purposes as well as be able to solve basic technical problems found in using computers or ICT devices.

Level 2 Using Resources and Technology to Create Educational Contents

Teachers must be able to gather various kinds of data such as text, image, audio, movie, or software from the Internet, CD ROM, and other multimedia materials as well as to communicate with others using ICT. Moreover, the teachers must be able to create teaching materials, especially the multimedia ones for their learners.

Level 3 Applying and Integrating the ICT into Teaching and Being Experts to Assist Colleagues to Use ICT in Teaching

Teachers must be able to integrate ICT into their teaching using various kinds of software and their own developed teaching materials and to be experts assisting colleagues to integrate ICT into teaching.

Besides the standards mentioned above, the researcher also included the criteria for assessing the teachers' attitudes towards integrating ICT into English language teaching and the necessity of writing references.

2.2 The Factors Affecting the Integration of ICT into Teaching

Christensen (1998) stated that the frequency, quantity and quality of the integration of ICT into teaching depend on teachers' attitudes towards computers. According to the reports both in Thailand and other countries, there are two kinds of factors affecting the integration of ICT into teaching: positive and negative factors. The results of many surveys show two levels of negative factors. They are at the administration and management level and at the personal level.

2.2.1   Negative Factors

2.2.1.1 **Negative Factors at the Administration and Management Level of Government and Private Education Institutes**

According to the administration and management level, the directors or heads of schools could not allocate enough budgets for ICT (Malaiwong, 2002). Moreover, they could not provide their teachers enough and effective training on ICT (Keawdaeng, 2001). Malaiwong (2002) surveyed the readiness to the integration of ICT into teaching in the secondary schools in Thailand and found that the budget allocated by the government was not sufficient to prepare enough computers for teachers and students. The research conducted by the Non-formal education commission focusing on the integration of ICT into teaching in non-formal education institutes stated that 65.58% of the administrators held the medium level of ICT

competencies (3 levels; low-medium-high). The study also found that 81.90% of the administrators agreed that the computers and ICT devices were not enough for the learning process. Moreover, the different policy between governmental and private institutes also influenced the number of the ICT devices. Private education institutes were able to afford more. (Kongsanay, Sittidamrong, Burasirirak, Ananto, and Srichantrawirote, 2005).

2.2.1.2 Negative Factors at the Personal Level

In case of personal level, teachers showed their worries about their confidence, problems of using or not using, and comments concerning the integration of ICT into teaching (Kongsanay, Sittidamrong, Burasirirak, Ananto, and Srichantrawirote, 2005). Many teachers felt there was a real gap between their ICT competencies and what they wanted to do in classrooms (Research Machines plc, 1998). 65% of the teachers in the United Kingdom primary schools stated that integration of ICT into teaching was not easy and comfortable to use in classrooms (Research Machines plc, 2003). Some teachers had negative attitudes towards the integration of ICT into teaching or used it with lack of confidences (Becta ICT research Network, 2003).

According to some surveys and studies conducted with teachers and the integration of ICT into teaching, a number of variables influence the integration of ICT into teaching. Some example variables were ages and teaching experiences, teaching levels, level of education, and genders.

Ages and teaching experiences

Tankitwanich (2002) suggested age was a variable to be considered for the study related to the integration ICT into teaching. He reported that old teachers who worked for a very long time said that learning to use computer when they were young was really fun and exciting but when they were older and held more responsibilities and things to do both at work and home, they felt bored to keep professional working on computer and technology and then they gave up finally.

Genders

Galanouli, Colette, & Gardner (2004) found differences between male and female teachers in the United Kingdom in terms of the integrating ICT into teaching. Male teachers have more self-confidence in integrating ICT into teaching than female teachers. Attitudes toward the importance of the integration of ICT into teaching were similar.

Level of education

Tangkitwanich (2002) stated that the study conducted in Australia reported that teachers' level of education affected the students' ability to integrate ICT into their learning. The teachers in Australia graduated with traditional teaching methodology so they could not enhance their students learning with ICT appropriately.

Teaching level

The study of the readiness for the integration of ICT into teaching in primary and secondary schools in Thailand showed that the teachers' attitudes were different related to the level of their teaching levels. In the higher level of education, teachers tent to try integrating ICT into teaching more than primary school teacher because of their less workload (Malaiwong, 2001, Keawdaeng, 2001).

Personal problems

The personal problems relate to teachers' motivation and attitudes towards the integration of ICT into teaching. Pongsart (2005) stated some negative factors in influencing Thai teachers to avoid the integration of ICT into their teaching. They were shyness and reluctance to tell the truth, time constraints, and priority in job requirement, self-discipline, and self-confidence. Moreover, they also thought that the ICT was not helpful because they judged it from its cover or label. The survey of the Non-Formal Education Commission found some personal negative factors that the personnel were low on ICT competencies. They could not assist the students to use computers and ICT devices and they also could not solve the technical problems found in the integration of ICT into teaching (Kongsanay, Sittidamrong, Burasirirak, Ananto, and Srichantrawirote, 2005).

The study on the preparation of teachers' license in Thailand reported that the Thai teachers were responsible for many and various duties but they were offered very low salary. Therefore, a lot of Thai teachers were in financial difficulties and it reduced their motivation to put the effort into their work resulting in children's poor learning ability Pitiyanuwat, Boonnim, Parnpoonnang, Saensakorn, Shoosheap, 1999). The Office of Education Council (2004) conducted a study on the models of

technology and change in higher education and the report stated that teachers in higher education showed low positive attitudes towards the integration of ICT into teaching in case of time consuming. They felt that the integration of ICT into teaching was not advantageous for their teaching. Though the feedbacks from learners were positive, there was no significant positive motivation from teachers. This showed that teachers in higher education needed professional development in terms of innovation teaching methodology.

2.2.2 Positive Factors

2.2.2.1 Positive Factors at the Administration and Management Level

Many studies indicated that professional development in ICT provided by educational institutes, and enough ICT devices are the two main factors that supported the integration of ICT into teaching (Foell,1998; Minister of Education, 2004; Malaiwong, 2001).

Professional Development in ICT for Teachers

Professional development in ICT for teachers increase their positive attitudes towards integration of ICT into teaching. Foell (1998) stated that teachers' attitudes towards the integration of ICT into teaching became more positive after they were trained. They also tried to find ways to integrate ICT into their teaching more effectively. Not only in some western countries, the professional development in terms of the integration of ICT into teaching was also promoted in Thailand. The Minister of Education granted the budget to Suranaree University of Technology

(SUT) to conduct a professional development project in cooperative with the Strategic Consulting Group (SCG), an education company, in a project called SEQIP (Secondary Education Quality Improvement Project). The project was meant to train teachers in the primary schools that also taught lower secondary level to integrate ICT into their teaching for 20 days. Science, math, English language and computer teachers were the population of the project. All of the teachers were trained to create teaching materials, using the internet as resources for teaching and solving technical problems. One month after training, a group of SUT staff visited all the teachers for interview session and found that all the teachers showed more positive attitudes towards integration of ICT into teaching. And they tried to find ways to integrate ICT into teaching effectively (Minister of Education, 2004).

ICT Devices in Educational Institutes

Malaiwong (2001) stated that the number of teachers using ICT was related to the number of ICT devices provided in schools. The more the schools had a large number of ICT devices, the more the teachers integrated ICT into their teaching.

2.2.2.2 Positive Factor at Personal level

Motivation is considered to be the positive factor at personal level. Widespread integration of ICT in teaching motivated teachers to integrate ICT into teaching. High motivation could be supported by appropriate professional development (Cabanatan, 1999; Galanouli, Colette, & Gardner, 2004).

In conclusion, factors affecting the integration of ICT into teaching were considered to be important before any solution of resisting the integration of ICT into teaching. There were two kinds of factors, positive and negative factors. The positive

factors were 1) the ICT for educational purposes professional development provided for teachers that could improve teachers' positive attitude towards the integration of ICT into teaching, and 2) sufficient ICT devices provided in schools. The more teachers had positive attitudes towards the integration of ICT into teaching and there were sufficient ICT devices for them, the more teachers integrate ICT into their teachings (Cabanatan, 1999; Galanouli, Colette, & Gardner, 2004; Foell,1998; Minister of Education, 2004; Malaiwong, 2001). The negative factors were lack of time, lack of training, lack of ICT knowledgeable staff, inconvenience, and lack of teachers' motivation (The Council of Ontario Directors of Education, 2004). In order to solve the above mentioned problems, teachers should be trained to integrate ICT into their teaching.

2.3 The Impact of the Professional Development to Teachers' Attitudes towards the Integration of ICT into Teaching

In today's world, teachers need to be equipped not only with subject-specific expertise and effective teaching methodologies, but also with the capacity to assist students to meet the demands of the emerging knowledge-based society. Teachers therefore require familiarity with new forms of ICT and needed to have the ability to integrate ICT to enhance the quality of teaching and learning (UNESCO, 2003). Foell (1998) stated that teachers' attitudes towards the integration of ICT into teaching became more positive after they were trained. Many surveys found the improvement of teachers' positive attitudes towards the integration of technology into teaching after they had professional development. A study was done to determine how to effectively integrate technology into teaching, with an emphasis on teachers' attitudes. The study

concluded that the teachers who were exposed to the training had more positive attitudes towards the integration of technology into teaching (Christensen, 1998; Gilemore,1998).

In Thailand, the National Education Act 1999 states in category 9 (technology for education) at section 65 that the government supports teachers to become ICT developers and users who integrate ICT knowledge and skills into their teaching appropriately. Therefore, the Ministry of Education has conducted a lot of ICT training as professional development for Thai teachers in primary and secondary schools. In addition, it provides a large number of computers to schools so that teachers can integrate ICT into their teachings. The number of teachers integrating ICT in their teaching is increasing, and more ICT trainings are planned to be conducted for their teachers (Malaiwong, 2001, Keawdaeng, 2001). However, at present, there has neither been a study related to vocational education nor to the adaptation of ICT competencies standards for teacher in Thai context (Kongsanay, 2005).

In conclusion, the professional development in ICT not only improve teachers' ICT competencies that enhance positive attitudes towards the integration of ICT into teaching, but also it helps the development of the innovation teaching methodology that is advantageous for Thai learners to cover all the required abilities in the National Education Act.

2.4 Summary

The ICT competencies standards are designed and widely adopted by a lot of educators and educational organization in many places. There are no standards for

Thai teachers. Some positive and negative factors were found widely in many reports and seemed to be a serious problem. However, many studies conducted by the Center of Educational Technology, the Ministry of Education aimed at professional development based on the integration of ICT into teaching stated that professional development assisted teachers to improve their positive attitudes towards the integration of ICT into teaching. Nevertheless, there are no ICT competency standards for Thai teachers especially in vocational education.

CHAPTER 3

RESEARCH METHODOLOGY

The study aimed at finding the levels of technology competencies of English language teachers in vocational educational institutes in Nakhon Ratchasima by using questionnaires, semi-structured interview and observation as the means of gathering data.

3.1 The Population

The population of this study comprised 64 Thai English-language teachers in 22 vocational education institutes in Nakhon Ratchasima as shown in the Appendix B. All of them were asked to respond to the questionnaires in relation to their present technology competencies.

3.2 ICT Competencies Standards Construction

The standards in this study were constructed for the appropriateness in Thai contexts. The researcher used focus-group discussion comprising of 10 ICT educational experts from different educational institutes, universities, and vocational colleges. There were 3 steps in constructing the standards.

Steps of Standards Construction Procedure:

1. Inviting ICT for educational experts

   The researcher sent invitation letters to the group of ICT for educational experts 1 week before meeting. The letters included the drafted ICT competencies standards for teachers.

2. Focus-group discussion

   The researcher conducted the discussion focusing on the ICT competencies standards of individual items and took note of the discussion, especially different points of view of each individual expert.. See the list of ICT for educational experts in the Appendix J.

3. Conclusion

   The researcher summarized the results of the discussion and sent them back to the experts for their approvals. Then, the researcher revised the ICT competencies standards as suggested by the experts before finalizing them.

3.3 Instruments

There were three kinds of instruments used in the study in order to obtain triangulated data: questionnaire, semi-structured interview, and observation. The questionnaire included three main parts. The first part consisted of the population's self-report on gender, educational level, teaching experience, age, teaching level, and type of educational institutes. The self report provided the independent variables of the study. The second part consisted of the population's statements rating their ICT competencies based on their language teaching components: input, process,

assessment. The format of the self report was the rating scale that consisted of five levels of ICT competencies they posses: unable to use, poor, fair, good, and excellent. The scores from the responses were 0, 1, 2, 3 and 4 respectively. The third part consisted of the questions about their opinions towards the factors affecting the integration of ICT into teaching: workload, financial problem, learners' problems, institute supports, and teacher's personal problems. The format of the self report was the rating scale that consisted of five levels of opinions: no idea; strongly disagree, disagree, agree, and strongly agree. The scores from the responses were 0, 1, 2, 3, and 4 respectively.

The second instrument the researcher used to gather data was a semi-structured interview. The semi-structured interview was derived from the questionnaire to confirm the data obtained from the questionnaire. The questions in the semi-structured interview focused on ICT competencies and factors affecting their integration of ICT into teaching. The constructed questions were designed to ask for the information about ICT devices competencies, ICT for information competencies, ICT for content area competencies, factors blocking and supporting the integration of ICT into teaching, and the needs for professional development.

The data was also gathered by means of observation. The observation focused on the teaching environment and ICT facilities and was made during questionnaire distribution session.

3.4 Instrument Construction

Questionnaire Construction

The questionnaire was constructed in order to have appropriate and suitable questions for Thai contexts. There were 7 steps in constructing the questionnaire.

Constructing Procedure

Questions Construction

1. The questionnaire was constructed and translated into the Thai language for clear understanding.

Validity

2. The questionnaire was validated by 2 English language teachers from Rajamangala University of Technology Isaan for the comprehensible translation (Asst. Prof. Pichai Nantaburom and Mrs. Mayuree Samtalee).

3. The questionnaire was validated by 2 experts of measurement and evaluation from Suranaree University of Technology focusing on the appropriateness and quality of the questionnaire in terms of validity (Assoc. Prof. Dr. Thai Tipsuwankul and Mr. Thanyathep Promsorn).

Reliability

4. The researcher conducted a pilot test with 10 respondents who were English teachers from Rajamangala University of Technology Isaan, Rajbhat University Nakhon Ratchasima, and Nakhon Ratchasima Vocational College.

5. The researcher collected the questionnaires and feedbacks from the

respondents.

6. The results and feedbacks of the pilot test was validated by measurement

and evaluation experts (Assoc. Prof. Dr. Thai Tipsuwankul

and Mr. Thanyathep   Promsorn).

7. The researcher revised the questionnaire as recommended by all experts.

See appendix C for the questionnaire used in the study.

The Questions Used for Semi-Structured Interview

The questions used were also validated to make sure that the questions were appropriate and suitable to gather the data needed for the study. There were 5 steps in constructing the questions.

Constructing Procedure

1. The researcher created the questions that could effectively gather data

related to the ICT competencies and factors affecting the integration of

ICT into teaching.

2. The questions were translated into the Thai language for clear

understanding.

Validity

3. The questions were validated by 2 English language teachers from

Rajamangala University of Technology Isaan. Nakhon Ratchasima for

appropriate translation (Asst. Prof. Pichai Nantaburom and Mrs.

Mayuree Samtalee)

4. The questions were validated by 2 experts of measurement and

evaluation from Suranaree University of Technology focusing on the

appropriateness and quality of the questions in terms of measurement and evaluation (Assoc. Prof. Dr. Thai Tipsuwankul and Mr. Thanyathep Promsorn).

5. The questions were revised as recommended by all experts.

(See the Appendix D for the questions and the Appendix E for the form used in semi-structured interview session.)

Observation Checklist Construction

In order to gather the data during the observation session effectively, the researcher constructed an observation checklist. There were 3 steps in constructing the checklist:

1. The researcher constructed an observation checklist which included types of institutes and a list of ICT devices. Then, the checklist was translated into the Thai language.

2. The observation checklist was validated by 2 experts of measurement and evaluation from Suranaree University of Technology (Assoc. Prof. Dr. Thai Tipsuwankul and Mr. Thanyathep Promsorn).

3. The observation checklist was revised as recommended by all experts. See the Appendix F for the observation checklist.

3.5 Data Collection Procedure

There were three steps in collecting quantitative data.

1. For the first visit, after making an appointment by phone, the questionnaires were administered to sixty six Thai English-language teachers in twenty two vocational education institutes in Nakhon Ratchasima

2. A week later the researcher visited all the participants again to collect all the questionnaires previously administered. Some participants who did not complete the questionnaires were asked to send them back to the researcher by mail.

3. After all the data were collected, they were tabulated in the data table and the usable data were selected in accordance with each questionnaire item before data analysis procedure.

There were four steps in collecting qualitative data.

1. The researcher categorized the participants into six groups: age, gender, education level, teaching experience, teaching level, and type of education institute. Then, the researcher conducted proportional sampling to select fifteen teachers. See the Appendix H for the information of participants in the proportional sampling.

2. The researcher telephoned the selected fifteen participants for making appointments. They were informed about kinds of questions asked during the interview session.

3. The researcher approached the selected fifteen participants and conducted the semi-structured interview, which was for the purpose of making interviewees relax while they were interviewed. All answers supplied by the participants were recorded by means of note taking. The data were recorded in the prepared form. (See the Appendix D for the list of questions and the Appendix E for the form used during the interview session.)

4. During the first visiting session, the researcher also observed the ICT devices available in each institute and recorded on a checklist. The checklist included ICT devices currently available in the institute. (See the Appendix F for the form used in observation session).

3.6 Data Analysis

The data analysis procedure included six steps as shown below.

Data from questionnaire

1. The percentage of participants was calculated and classified into different categories according to their personal information.

2. The means ($\overline{X}$) and standard deviation (SD) of the scores obtained from the questionnaire were calculated item by item in order to show the macro view.

3. The results concerning gender, teaching level, and type of educational institute were analysed by means of t-test.

4. The results concerning age, education level, and teaching experience were abalysed by means of ANOVA /F-test.

Data Obtained from the Interview

5. The researcher conducted content analysis in terms of participants' categories, synthesized the results of content analysis, and then made a written report.

Data from Observation

6. The researcher conducted the content analysis in terms of types of ICT devices currently available, synthesized the results of the content analysis and then made a written report.

CHAPTER 4

RESULTS AND DISCUSSION

This chapter reports the data and research findings obtained using the study's research methodology and discusses these findings in relation to the primary objectives of the study. Questionnaires were distributed to the 66 participants for completion. A total of 64 questionnaires (97%) were completed. Data was obtained from the completed questionnaires and used in the research findings of this study. Research findings are organised as follows:

1. Profile of teachers participating in the study

2. The level of ICT competencies possessed as perceived by participants

3. The factors affecting the integration of ICT in the opinion of the participants

4.1 Profile of Participants

Using information supplied by participants on the questionnaire form, a profile of the group based on a range of personal demographics, education, teaching level, teaching experience, and teaching institution was established.

4.1.1 Age

Participants were asked to identify their age within four bands: 20 - 30 years, 31 - 40 years, 41 - 50 years, and over 51 years. More than half of the teachers were aged over 30 years. The Figure 4.1 represents the age profile of the participants.

Figure 4.1 Age Profile of the Participants.

Age
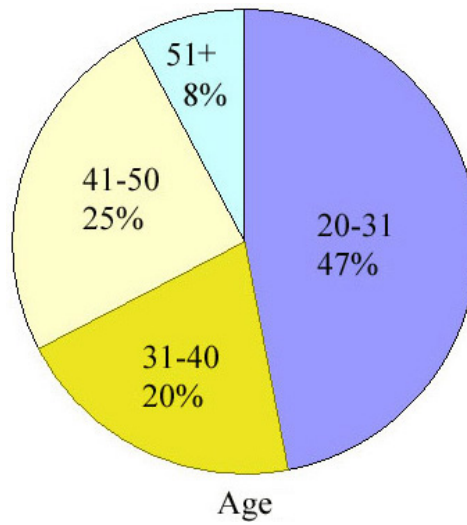
4.1.2 Gender

The majority of the participants were female, representing three quarters of the group. The Figure 4.2 represents the gender profile of the participants.

Figure 4.2 Gender Profile of the Participants

Gender
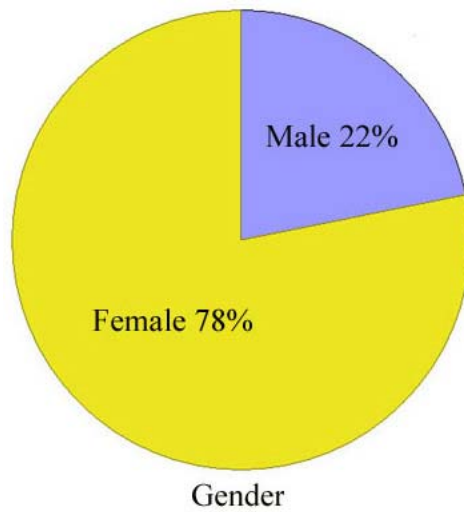
4.1.3   Educational Level

The highest level of education completed by the participants included teaching certificate, bachelor's degree, and master's degree. Of the teachers participating in this study, the majority had completed a bachelor's degree. One teacher interviewed held a teaching certificate only. The Figure 4.3 represents the highest education completed by the participants.

Figure 4.3 The Highest Education Completed by the Participants
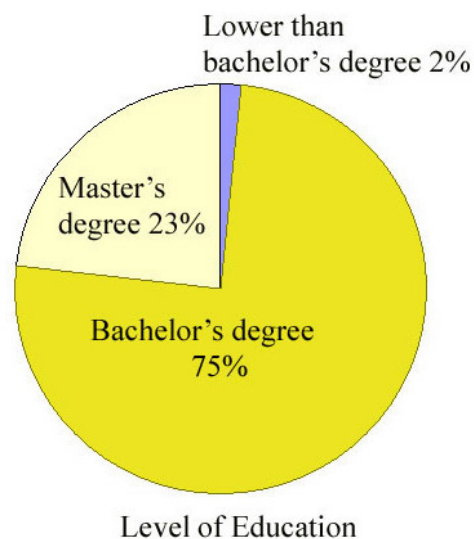
4.1.4   Teaching Level

Participants teach English to students at certificate level and diploma levels. Approximately three quarters of teachers surveyed taught at the diploma level. The Figure 4.4 represents the level at which English is taught by the participants at vocational education institutes.

Figure 4.4 Level at which English is Taught by the Participants at Vocational Education Institutes

Levels of Teaching
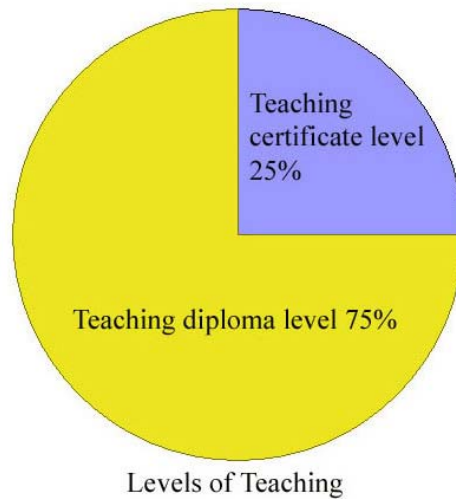
4.1.5 Teaching Experience

Participants were asked to identify their teaching experience within three bands: less than 10 years, 10 – 20 years, more than 20 years. Approximately two thirds of the teachers reported that they had been teaching for less than 10 years. The Figure 4.5 represents the teaching experience profile of the participants.

Figure 4.5 Teaching Experience Profile of the Participants

Teaching experience
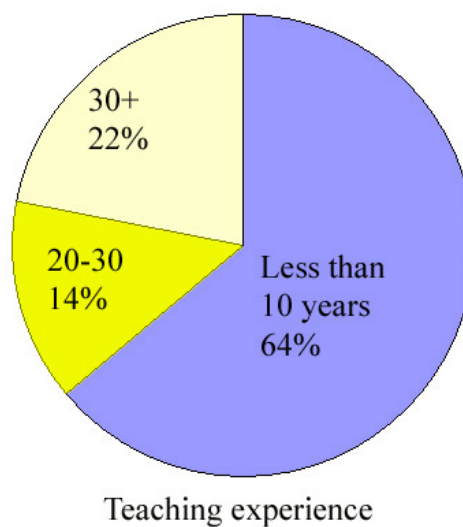
4.1.6 Teaching Institution

Participants taught at government and private vocational education institutes with approximately a similar number teaching at each. The Figure 4.6 represents the teaching institution profile of the participants.

Figure 4.6 Teaching Institution Profile of the Participants
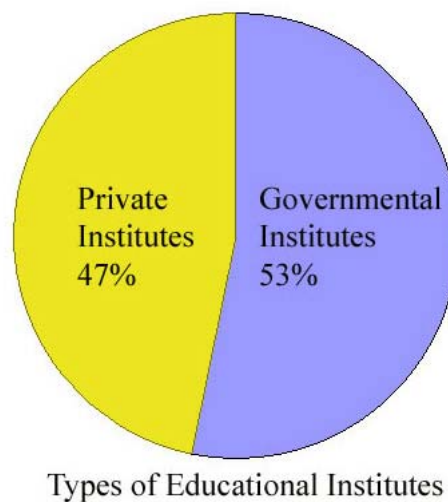
4.2 Perceived level of ICT Competencies

The first research question posed in this study was "What level of ICT competencies do the Thai English-language teachers in Nakhon Ratchasima vocational education institutes perceive they possess?" Quantitative and qualitative data were obtained to answer this question.

4.2.1 Quantitative Data for Perceived ICT Competencies

Quantitative data relating to participants' perceived ICT competency was obtained through participants' completion of a questionnaire form.

Parts 2 and 3 of the questionnaire form provide quantitative data relating to ICT competency. Participants were asked to identify what they considered their computer competencies to be for everyday use and teaching. Each participant was asked to respond to questions by providing an assessment of their own ability, using the ratings 'unable to use', 'poor', 'fair', 'good' or 'excellent'. Quantitative data is also obtained through the application of tests including t-tests and ANOVAs.

4.2.1.1 Ability to Use Computer Software

Each participant was asked to assess their own ability to use various types of computer software. Based on the participants' responses, the results show that only their ability to use word processing and email software is considered good. Use of chatting, spreadsheet and presentation software was reported as fair. The ability to use the remaining eight software applications was rated as poor. The Figure 4.7 represents the ability to use computer software by the participants.

Figure 4.7 Participants' Ability to Use Computer Software

Definitions: 0-0.99 - Poor   1-1.99 - Fair
            2-2.99 - Good   3-4 - Excellent
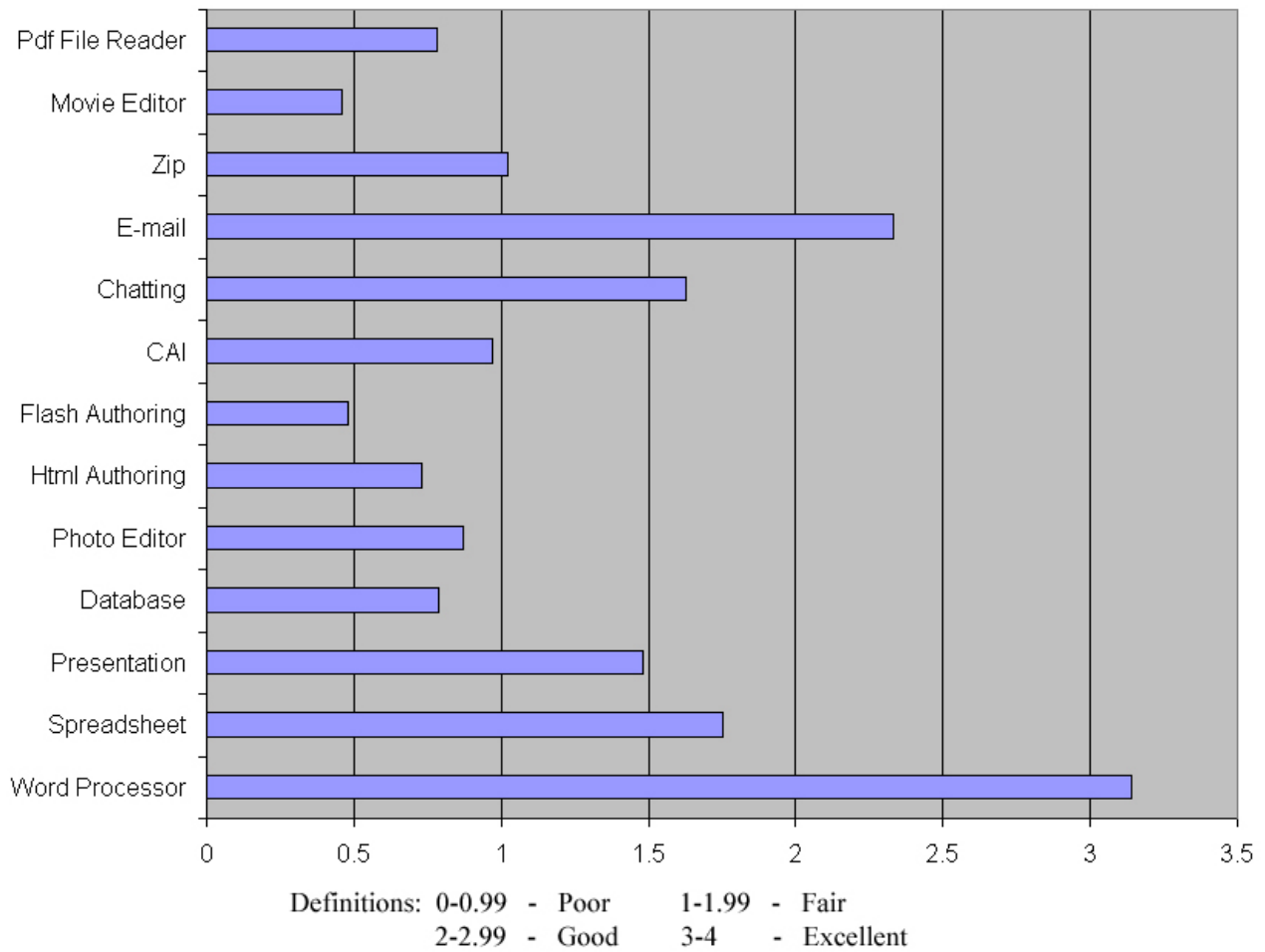
4.2.1.2 Ability to Solve Technical Problems

Each participant was asked to assess their own ability to solve various technical problems. Based on the participants' responses, the results show that they rate their ability to adjust sound volume as good. Their ability to solve the problems of the computer 'freezing', re-starting the computer, and minor computer hardware errors, were rated as fair. The Figure 4.8 represents the ability for participants to solve various technical problems.

Figure 4.8 Participants, Ability to Solve Technical Problems

Definitions: 0-0.99 - Poor   1-1.99 - Fair
              2-2.99 - Good   3-4   - Excellent
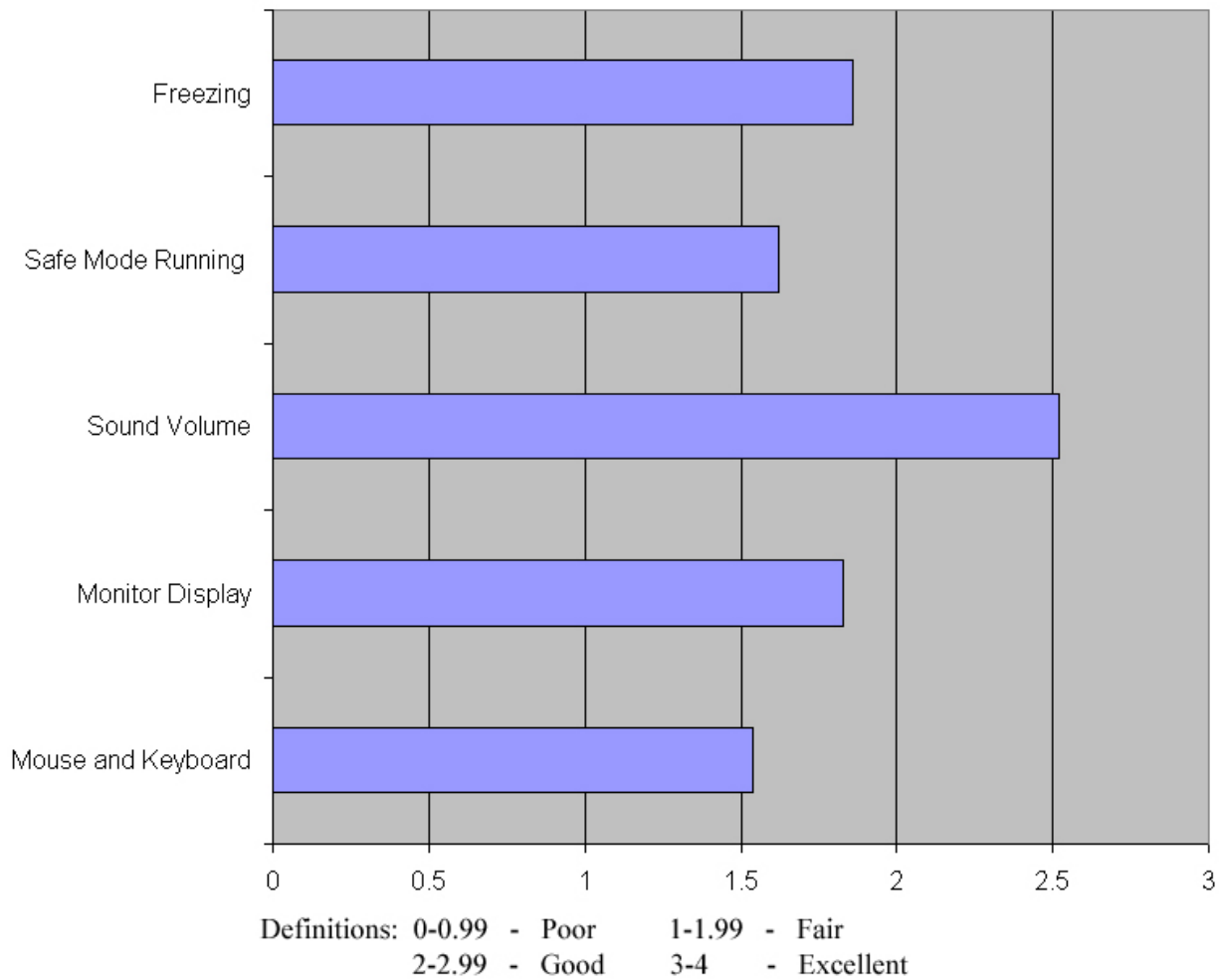
4.2.1.3 Ability to Use ICT Devices and Conferencing Tools

Each participant was asked to assess their own ability to use the following ICT devices: digital camera, scanner, LCD projector, CD/DVD writer/flash drives/handy drive, visual presenter. They were also asked to comment on their ability to use computer, video and audio conferencing tools. Based on the participants' responses, the results show that they rate their ability to use the ICT devices as fair to good. However the overall rating of their ability to use computer, video and audio conferencing tools was poor. The Figure 4.9 represents the ability for participants to solve various technical problems.

Figure 4.9 Participants, Ability to Use ICT Devices and Conferencing Tools

Definitions: 0-0.99 - Poor   1-1.99 - Fair
             2-2.99 - Good   3-4   - Excellent
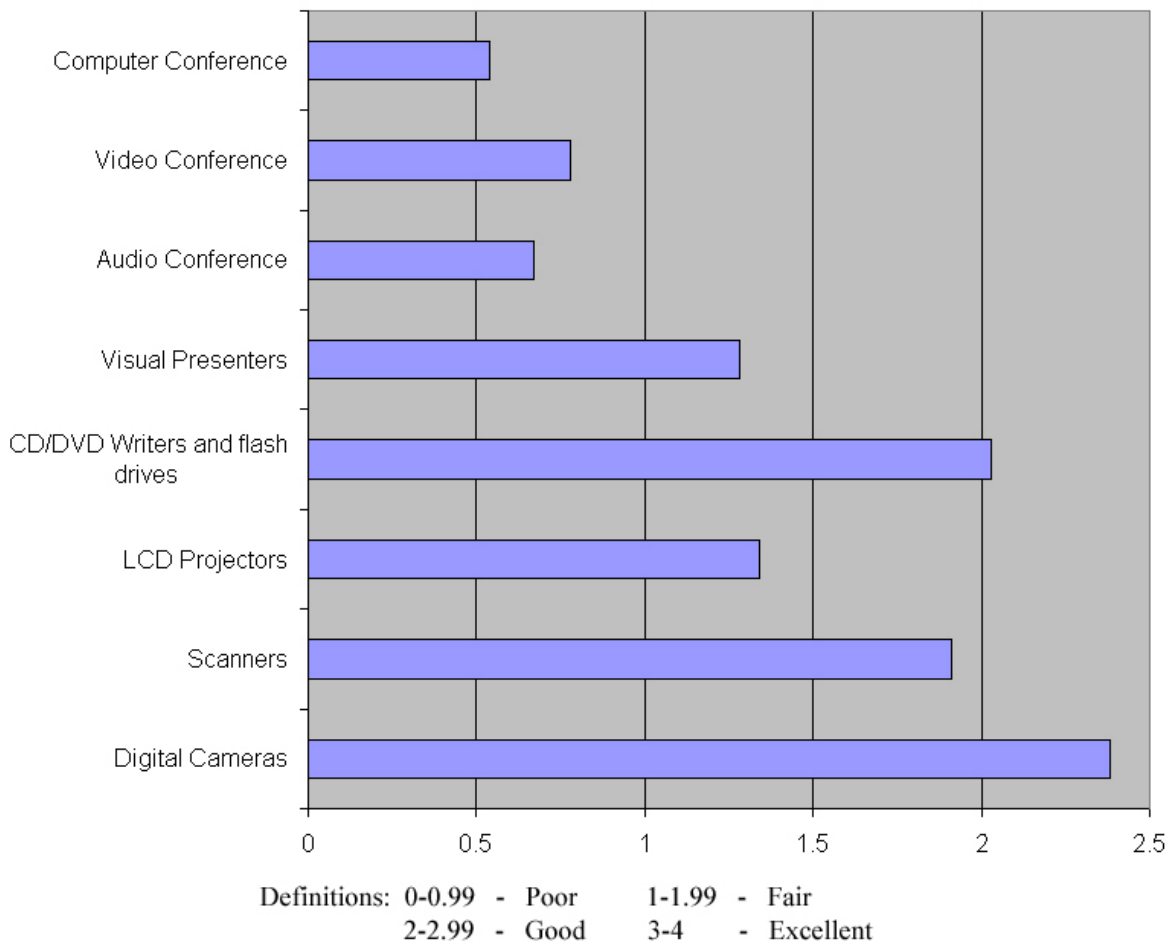
Each participant was asked to assess their own ability to obtain texts, images, multimedia files from various sources. Based on the participants' responses, the results show that they rate their ability to obtaining music and movies as good. Ability to download information from Listserv, websites and webboards were reported as fair, as was obtaining information from CAI. However the overall rating of their ability to obtain information using databases was poor. The Figure 4.10 represents the ability of participants to obtain texts, images, and multimedia files.

Figure 4.10 Participants' ICT Competencies to Use ICT for Research

Definitions: 0-0.99 - Poor   1-1.99 - Fair
              2-2.99 - Good   3-4   - Excellent
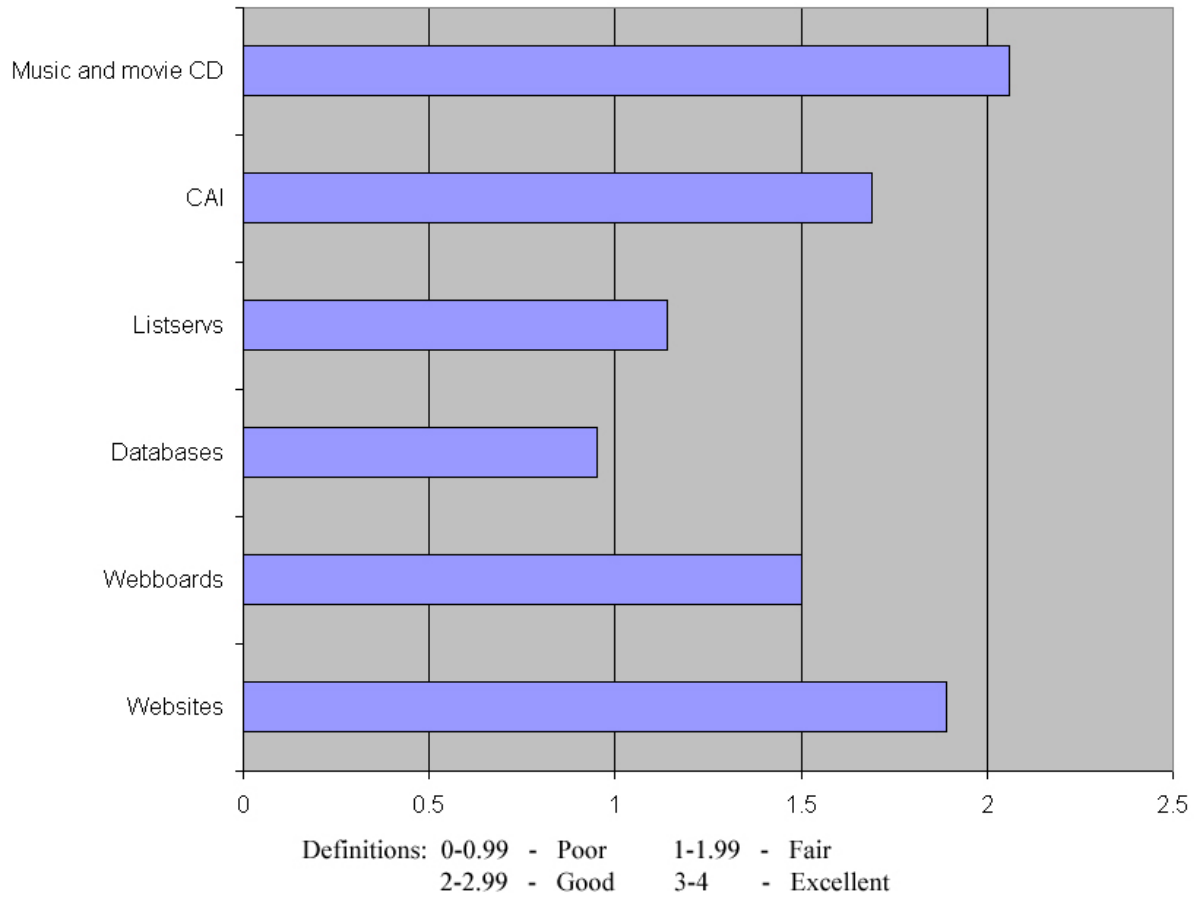
4.2.1.5 Ability to Use ICT in Teaching

Each participant was asked to assess their own ability to use ICT in the classroom as a teaching tool, to allow the students to directly use or access. Based on the participants' responses, the results show that they rate their ability to use websites as a teaching tool as good. E-mail, webboard, CAI, word processing, and spreadsheet applications rated as fair while presentation software and databases rated as poor. The Figure 4.11 represents the ability of participants to to use ICT as a teaching tool in the classroom.

Figure 4.11 Participants' Ability to Use ICT in Teaching

Definitions: 0-0.99 - Poor   1-1.99 - Fair
              2-2.99 - Good   3-4   - Excellent
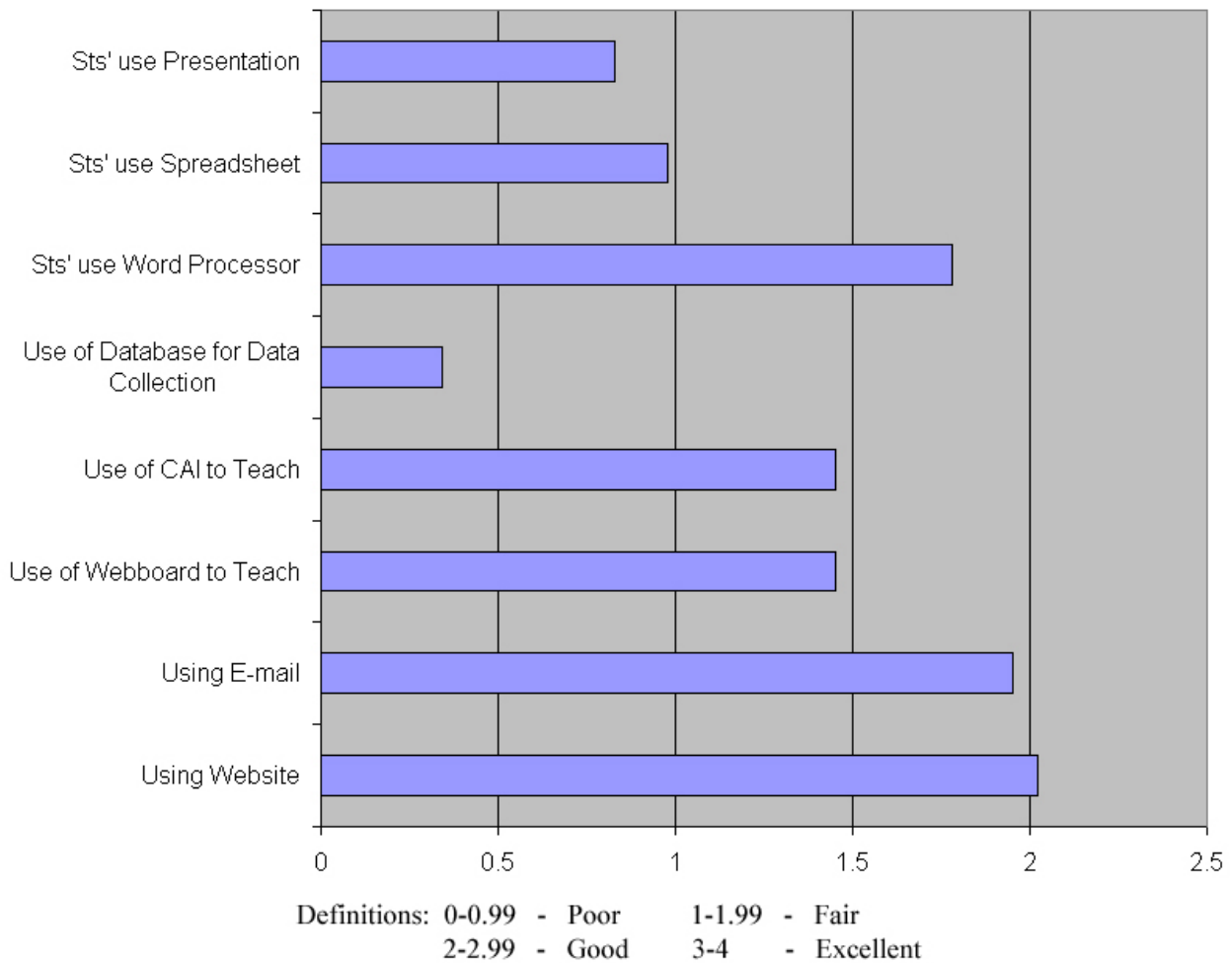
4.2.1.6 Ability to Assist Others with ICT

Participants were asked to assess their own ability to assist their colleagues to use ICT, to provide assistance to solve difficulties and problems that may arise, and to conduct formal training for their colleagues in ICT integration. Based on the participants' responses, the results show that they rate their ability as 'fair' to encourage colleagues to use ICT, to provide ICT material to colleagues to trial, and assisting colleagues with solving problems and difficulties that they may encounter. However the overall rating of their ability to train colleagues in the use of ICT was 'poor'. The Figure 4.12 represents the ability of participants to assist others with ICT.

Figure 4.12 Participant's Ability to Assist Others with ICT

Definitions: 0-0.99 - Poor   1-1.99 - Fair
              2-2.99 - Good   3-4   - Excellent
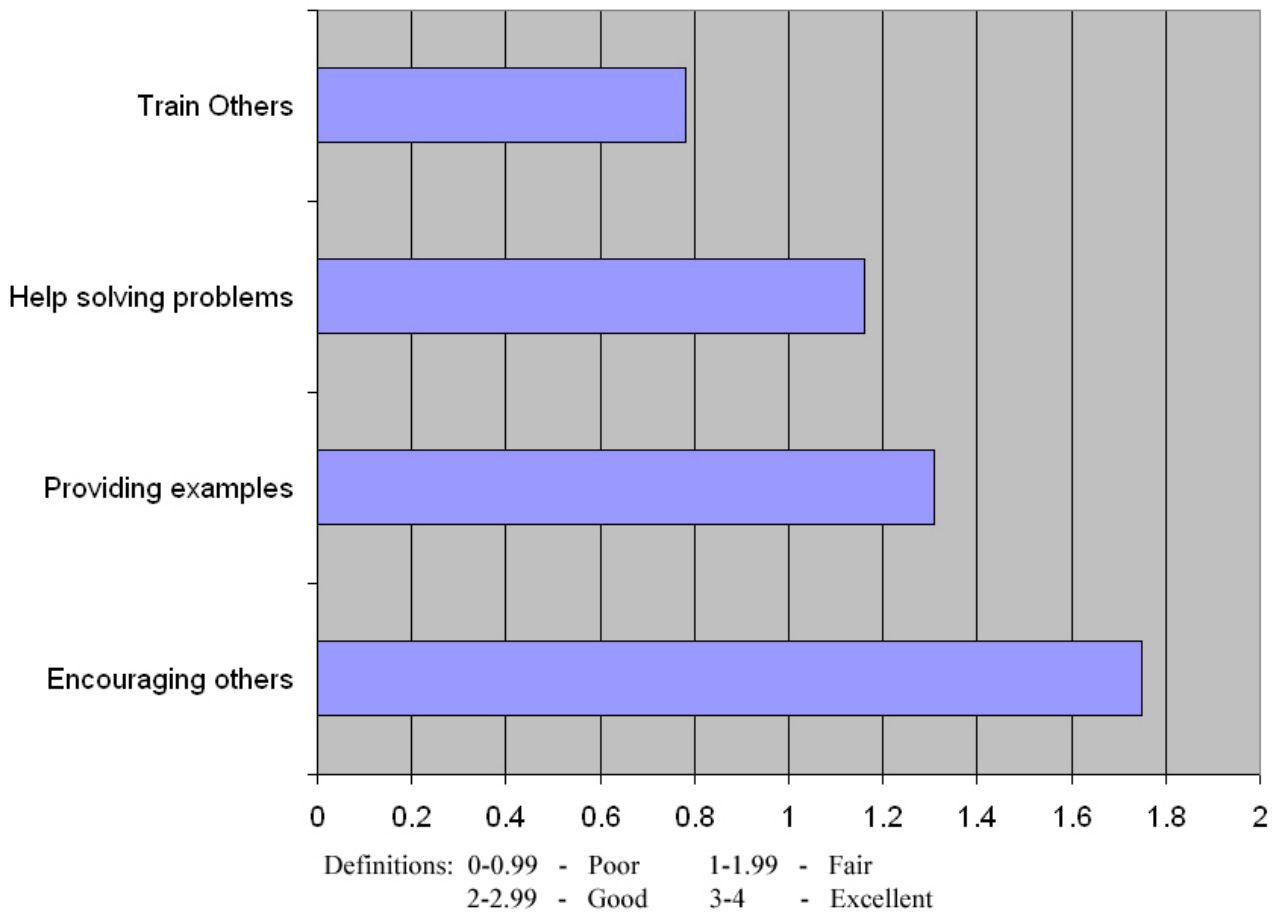
4.2.1.7   Conduct of *t*-tests and ANOVAs

Quantitative data was also obtained through the application of a series of *t*-tests and ANOVAs. These tests were conducted to generate responses to the first research question and relate to the difference in genders, ages, teaching levels, teaching experiences, levels of education and types of educational institutes. The results were described below.

Differences by Genders

The comparison of the average values of all scores obtained from the questionnaires concerning the genders of the participants showed interesting results. The mean values and the *t* values were presented in the Table 4.1 showing no significant difference in this comparison. However, the level of competency was rather low because the average value of scores in each item was lower than 2.

Table 4.1 Genders and Levels of ICT Competencies

Technology competencies	Means		SD		*t*-test
	M 14	F 50	M 14	F 50	
1. Operating computer software	1.35	1.23	0.671	0.566	0.622
2. Solving technical problem	2.08	1.80	0.910	1.034	0.917
3. Using ICT devices	1.97	1.73	0.931	0.932	0.835
4. Using conferencing technology	0.95	0.58	0.932	0.889	1.346
5. Using various resources	1.60	1.52	0.726	0.910	0.328
6. Using resources for teaching	1.83	1.67	0.724	1.065	0.657
7. Using computers in teaching	1.25	0.91	0.713	0.682	1.631
8. Supporting colleagues in using ICT	1.50	1.17	1.165	0.926	1.115

M = male participants

F = female participants

Differences by Teaching Levels

The comparison of the average value of all scores obtained from the questionnaires concerning the teaching levels of the participants also showed interesting results. The mean values and the *t* values were presented in the Table 4.2. In using computer programs in teaching, the certificate level participants had the significant higher average value of scores than the diploma level participants ($t = 2.238$). In supporting colleagues, the certificate level participants assisted their colleagues to use ICT in teaching more significantly than the diploma level participants ($t=2.214$).

Table 4.2 Levels of Teaching and Levels of ICT competencies

Technology competencies	Means		SD		t-test
	C 16	D 48	C 16	D 48	
1. Operating computer software	1.36	1.22	0.616	0.579	0.800
2. Solving technical problem	2.12	1.78	0.692	1.086	1.469
3. Using ICT devices	1.87	1.75	0.835	0.965	0.432
4. Using conferencing technology	0.83	0.61	1.011	0.870	0.849
5. Using various resources	1.68	1.49	0.767	0.902	0.785
6. Using resources for teaching	1.71	1.71	0.763	1.072	0.030
7. Using computers in teaching	1.31	0.87	0.580	0.705	2.238*
8. Supporting colleagues in using ICT	1.68	1.10	1.018	0.936	2.214*

C = certificate level participants, D = diploma level participants, * $P<0.05$.

Differences by types of educational institutes

The comparison of the average value of all scores obtained from the questionnaires concerning the types of the educational institutes showed interesting results. The mean and t values were presented in the Table 4.3. There was not any significant difference between the participants working for governmental educational institutes and private educational institutes.

Table 4.3 Types of Educational Institutes and Levels of ICT Competencies

Technology competencies	Means		SD		t-test
	G 34	P 30	G 34	P 30	
1. Operating computer software	1.20	1.33	0.623	0.547	0.896
2. Solving technical problem	1.72	2.02	1.066	0.932	-1.147
3. Using ICT devices	1.74	1.83	0.934	0.938	-0.368
4. Using conferencing technology	0.87	0.43	0.971	0.773	1.983
5. Using various resources	1.50	1.58	0.903	0.840	-0.377
6. Using resources for teaching	1.68	1.75	1.023	0.984	-0.274
7. Using computers in teaching	0.87	1.10	0.710	0.674	-1.342
8. Supporting colleagues in using ICT	1.19	1.30	1.085	0.867	-0.463

G = governmental educational institutes
P = private educational institutes

Differences by Ages

The results of the two-way ANOVAs regarding the levels of ICT competencies in terms of the different ages showed the significant differences in two

topics. The use of various resources for teaching of the 51+ year-old group was significant and this group had the highest level (F = 3.391 and $P<0.05$) followed by the 31-40 year-old group, the 20-30 year-old group , and the 41-50 year-old group respectively. In addition, supporting their colleagues to use ICT in teaching of the 51+ year-old group was significant and this group had the highest level (F=3.815 and $p<0.05$) followed by the 20-30 year-old group, the 41-50 year-old group, and 31-40 year-old group. See the Table 4.4 showing the ages of the participants and levels of ICT competencies.

Table 4.4 Ages of the Participants and Levels of ICT Competencies

Technology competencies		Data		F-test
		Mean	SD	
1. Using computer software	20-30	1.3026	0.51579	0.563
31-40		1.2234	0.41777	
41-50		1.1396	0.85991	
51+		1.5077	0.39449	
2. Solving technical problems	20-30	2.100	0.90325	1.962
31-40		1.8769	0.87001	
41-50		1.3511	1.21485	
51+		2.000	0.9798	
3. Using ICT devices	20-30	2.0067	0.94611	1.418
31-40		1.4308	0.70165	
41-50		1.625	1.10484	
51+		1.92	0.41473	
4. Using conferencing technology	20-30	0.8	0.96926	1.022
31-40		0.3333	0.57735	
41-50		0.7708	1.05211	
51+		0.4	0.54772	
5. Using various resources	20-30	1.5523	0.61663	1.148
31-40		1.2161	0.50082	
41-50		1.2213	0.96088	
51+		1.4569	0.47988	
6. Using resources for teaching	20-30	1.5889	0.79115	3.391 *
31-40		1.4359	0.65099	
41-50		1.3452	1.07774	
51+		2.1333	1.03682	
7. Using computers in teaching	20-30	1.725	0.88413	1.049
31-40		1.8077	0.77159	
41-50		1.275	1.10076	
51+		2.8	1.19111	
8. Supporting colleagues to use ICT	20-30	1.1333	0.64905	3.815 *
31-40		0.8654	0.59174	
41-50		0.7813	0.88447	
51+		1.05	0.51235	

* P<0.05.

Differences by Levels of Education

The results of the two-way ANOVAs regarding the levels of ICT competencies in terms of the different levels of education showed no significant difference, since there was only one participant graduated with a diploma and her opinion was omitted to be calculated for the difference among the age groups. See the Table 4.5 showing levels of education of the participants and levels of ICT competencies

Table 4.5 Levels of Education of the Participants and Levels of ICT competencies

Technology competencies		Data		F-test
		Mean	SD	
1. Using computer software	Diploma	1.3846	.	1.300
Bachelor's degree		1.1947	0.54172	
Master's degree		1.4718	0.70673	
2. Solving technical problems	Diploma	2.8	.	0.469
Bachelor's degree		1.8738	0.98983	
Master's degree		1.7867	1.09926	
3. Using ICT devices	Diploma	2	.	0.035
Bachelor's degree		1.775	0.92862	
Master's degree		1.8133	0.99561	
4. Using conferencing technology	Diploma	2.6667	.	3.364 *
Bachelor's degree		0.5625	0.90482	
Master's degree		0.8667	0.75383	
5. Using various resources usage	Diploma	1.8333	.	0.922
Bachelor's degree		1.4033	0.81136	
Master's degree		1.9556	0.96458	
6 Using resources for teaching	Diploma	2.25	.	2.185
Bachelor's degree		1.5656	0.89729	
Master's degree		2.15	1.2167	
7 Using computers in teaching	Diploma	1.5	.	0.500
Bachelor's degree		0.9427	0.69236	
Master's degree		1.0833	0.74202	
8. Supporting colleagues in using ICT	Diploma	3	.	2.239
Bachelor's degree		1.1476	0.85784	
Master's degree		1.45	1.25783	

* $P < 0.05$

Differences Relating to Teaching Experiences

The results of the two-way ANOVAs regarding the levels of ICT competencies in terms of the abilities to solve technical problems, the participants with less than 10-year-experience had the highest level (F=5.884 and $P<0.01$), followed by those with the 21-30-year experience , and then those with the 10-20-year experience. See the Table 4.6 showing teaching experiences of the participants and levels of ICT competencies.

Table 4.6 Teaching Experiences of the Participants and Levels of ICT competencies

Technology competencies	Data		F-test
	Mean	SD	
1. Using computer software Lower than 10 years	1.3118	0.48712	0.721
10-20 years	1.0513	0.82759	
20-30 years	1.2589	0.70162	
2. Solving technical problemsLower than 10 years	2.1577	0.84377	5.884 **
10-20 years	1.1556	1.12151	
20-30 years	1.4462	1.08368	
3. Using ICT devices Lower than 10 years	1.9268	0.8692	1.315
10-20 years	1.4889	1.14066	
20-30 years	1.5714	0.94415	
4.Using conferencing technology Lower than 10	0.7154	0.97343	0.195
10-20 years	0.5185	0.7286	
20-30 years	0.619	0.83571	
5. Using various resources Lower than 10 years	1.6347	0.80287	0.955
10-20 years	1.2037	0.89279	
20-30 years	1.4762	1.03539	
6 Using resources for teaching Lower than 10	1.772	0.83502	0.240
10-20 years	1.5278	1.20833	
20-30 years	1.6607	1.32145	
7 Using computers in teaching Lower than 10	1.1037	0.5968	1.708
10-20 years	0.75	0.81009	
20-30 years	0.7857	0.85966	
8. Supporting colleagues to use ICT Lower	1.3252	0.79818	0.632
10-20 years	0.9167	1.32288	
20-30 years	1.2321	1.24601	

** $P<0.01$.

4.2.2   Qualitative Data for Perceived ICT Competencies

Qualitative data was obtained by individually interviewing a sample of participants.   The sample comprised 15 participants, these participants being

representative of categories and category bands identified in *4.1 Profile of participants*. At interview, participants were asked six questions designed to allow the interviewer to make an assessment of the participant's ICT competencies and also confirm the accuracy of the questionnaire answers that the participants had supplied. Inconsistencies evident between questionnaire answers and interview response were recorded.

Observations of available ICT devices were made in vocational education institutes to confirm the accuracy and consistency of data obtained from the questionnaires.

4.2.2.1 Levels of ICT Competencies in the Interview Session

The qualitative data obtained from the interviews indicated that the participants could not satisfy the abilities required in the ICT competencies standards that were created as a tool for this study. Figure 4.13 shows a comparison between the levels of ability required in the study's ICT competencies standards and the results of the qualitative data obtained from participants at interview. Participants acknowledged a low level of competency in some areas of ICT. They identified an insufficient number of ICT devices and lack of training as two factors attributing to their low competencies. Participants interviewed also expressed a desire to participate in any future professional development training.

Figure 4.13 Levels of ICT Competencies from the Interview

Definitions: 0-0.99 - Poor   1-1.99 - Fair
              2-2.99 - Good   3-4   - Excellent
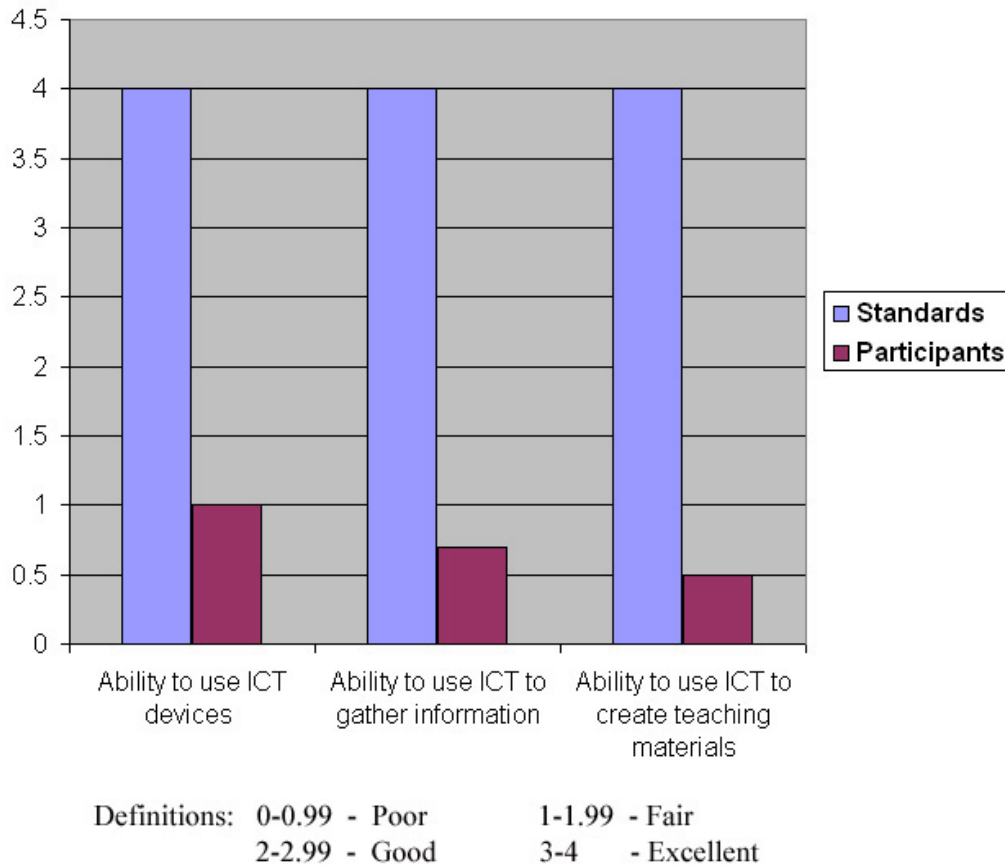
4.2.2.2 ICT Devices Available in the Vocational Education Institutes

In the questionnaire, participants were requested to comment on their ability to use ICT devices and conferencing tools in the workplace, *4.2.1.3Ability to use ICT devices and conferencing tools* refers. In order to use the ICT devices, it is necessary that the vocational education institute possesses the devices. Qualitative data was obtained by visiting all vocational education institutes and confirming through observation that ICT devices identified as being used by participants were available. ICT devices and conferencing tools observed were counted. The observation showed inconsistencies in some questionnaire responses in that ICT devices and conferencing

tools reported as being used were not available in the workplace. The number of ICT devices and conferencing tools observed supported the comments made by participants at interview as to the low level of ICT competencies being commensurate to the availability and number of ICT devices and conferencing tools. See the Table 4.7 showing details of the number ICT devices available in the educational institutes.

Table 4.7 ICT Devices Available in the Vocational Education Institutes

ICT devices	Governmental (11)			Private (11)		
	Yes	No	X	Yes	No	X
Computer room	11	0	0	11	0	0
More than 30 computers	6	0	0	0	0	0
More than 60 computers	1	0	0	5	0	0
More than 90 computers	4	0	0	6	0	0
Internet	11	0	0	11	0	0
Available for English teaching	6	5	0	5	6	0
Sound lab	11	0	0	11	0	0
More than 30 seats	11	0	0	11	0	0
LCD projector	6	5	0	6	0	5
Visual presenter	3	3	5	3	4	4
Electronic teaching materials for English language teaching						
CAI	1	0	10	0	0	11
Created html teaching material	1	0	10	0	0	11

* "X" refers to "could not observe"

4.3 The Factors Affecting the Integration of ICT into Teaching

According to the participant's opinions affecting the integration of ICT into teaching, the data obtained from the questionnaires showed that most factors were positive, except the learner factors. The participants expressed their opinions towards the learner factors as the main negative factors affecting the integration of ICT into teaching.

4.3.1 The Factors Affecting the Integration of ICT into Teaching: the Quantitative Results

According to the data obtained from the questionnaires about the participants' opinions affecting the integration of ICT into teaching, the participants stated that their workloads were not the negative factors obstructing them to integrate ICT into teaching. The participants disagreed at the average values of 1.77 and 1.70 that preparing and teaching more than one subject and doing the office work were the negative factors for them. However, on the topic about a heavy teaching workload the participants showed their opinions at the average value of 2.00 showing the agreement that a too heavy teaching workload might become one of their negative factors. See the Figure 4.14 showing the data concerning the participants' opinions towards workload factors.

Figure 4.14 Participants' Opinions towards Workload Factors
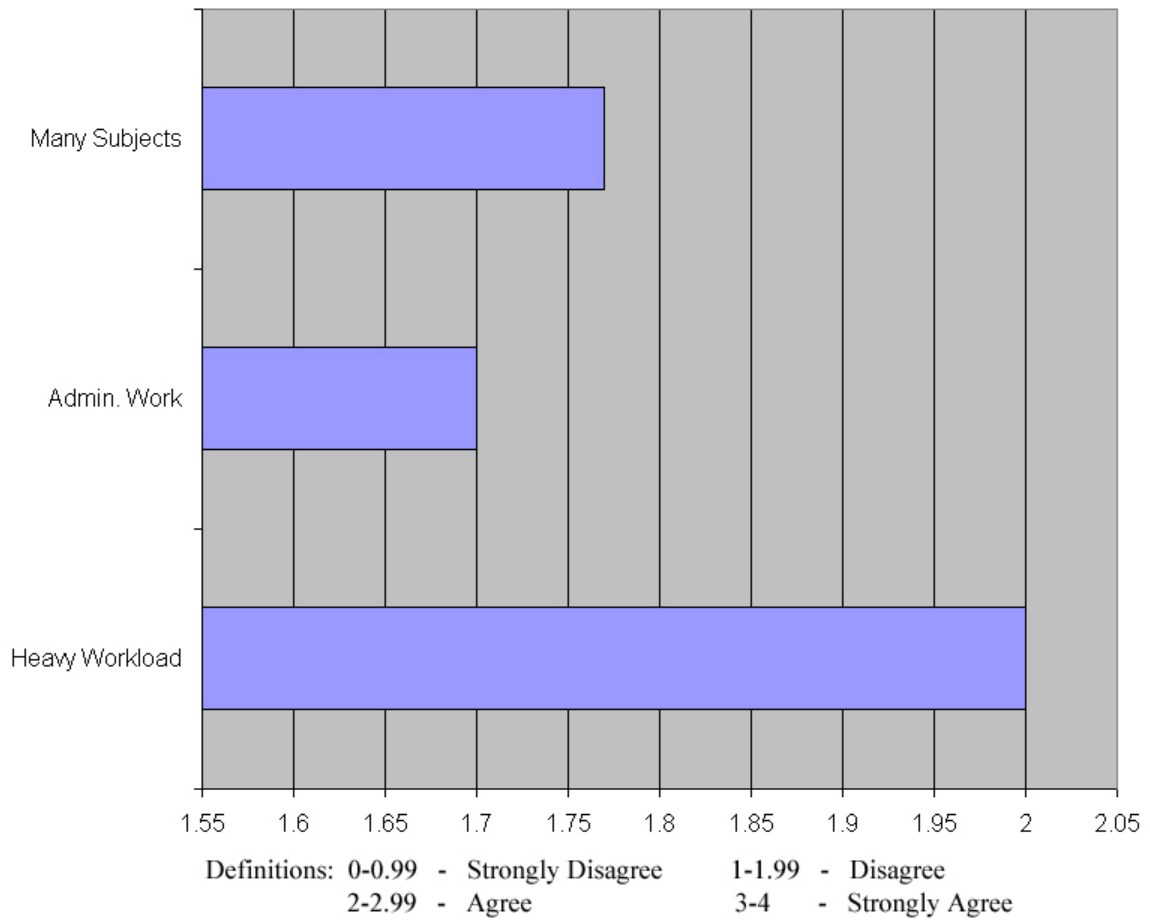
buying personal computers. The participants disagreed at the average value 1.81 that the ICT devices and services were so expensive that they could not afford them. The participants also disagreed that the extra payment was one of the negative factors. These meant that the financial factors were not the main negative factors affecting the integration of ICT into teaching.

Figure 4.15 Participants' Opinions towards Financial Factors
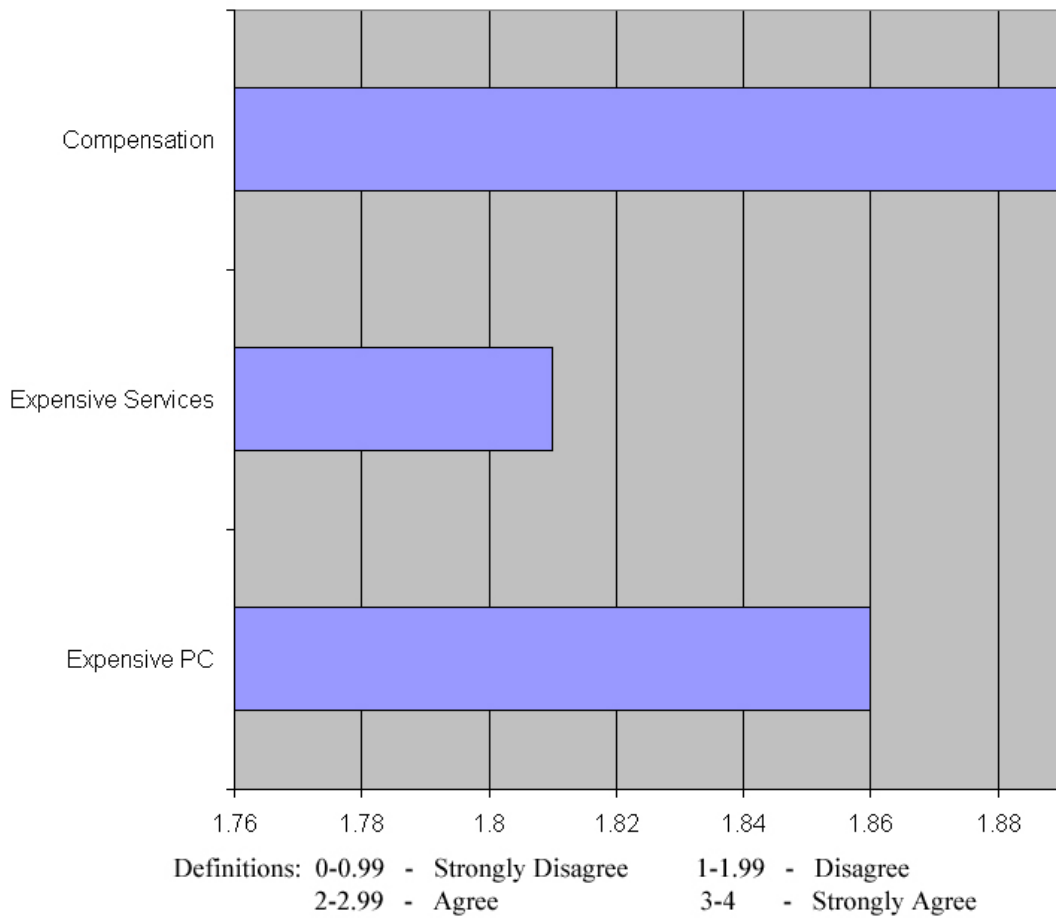
For the learner factors, the participants agreed at the average value of 2.17 that they had too many learners in each of their classes. They also agreed at the average value of 2.33 that their learners did not possess sufficient basic computer skills and they agreed at the average value of 2.65 that some learners who possessed lower computer skills could not study as effectively as their friends. Moreover, they agreed at the average value of 2.65 that their learners used ICT for doing other extra activities instead of learning ones. This showed that teachers agreed that learner factors were the factors obstructing the integrating of ICT into teaching. The Figure 4.16 showed the information concerning the participants' opinions towards learner factors.

. **Figure 4.16 Participants' Opinions towards Learner Factors**

Definitions: 0-0.99 - Strongly Disagree   1-1.99 - Disagree
2-2.99 - Agree   3-4 - Strongly Agree   e average
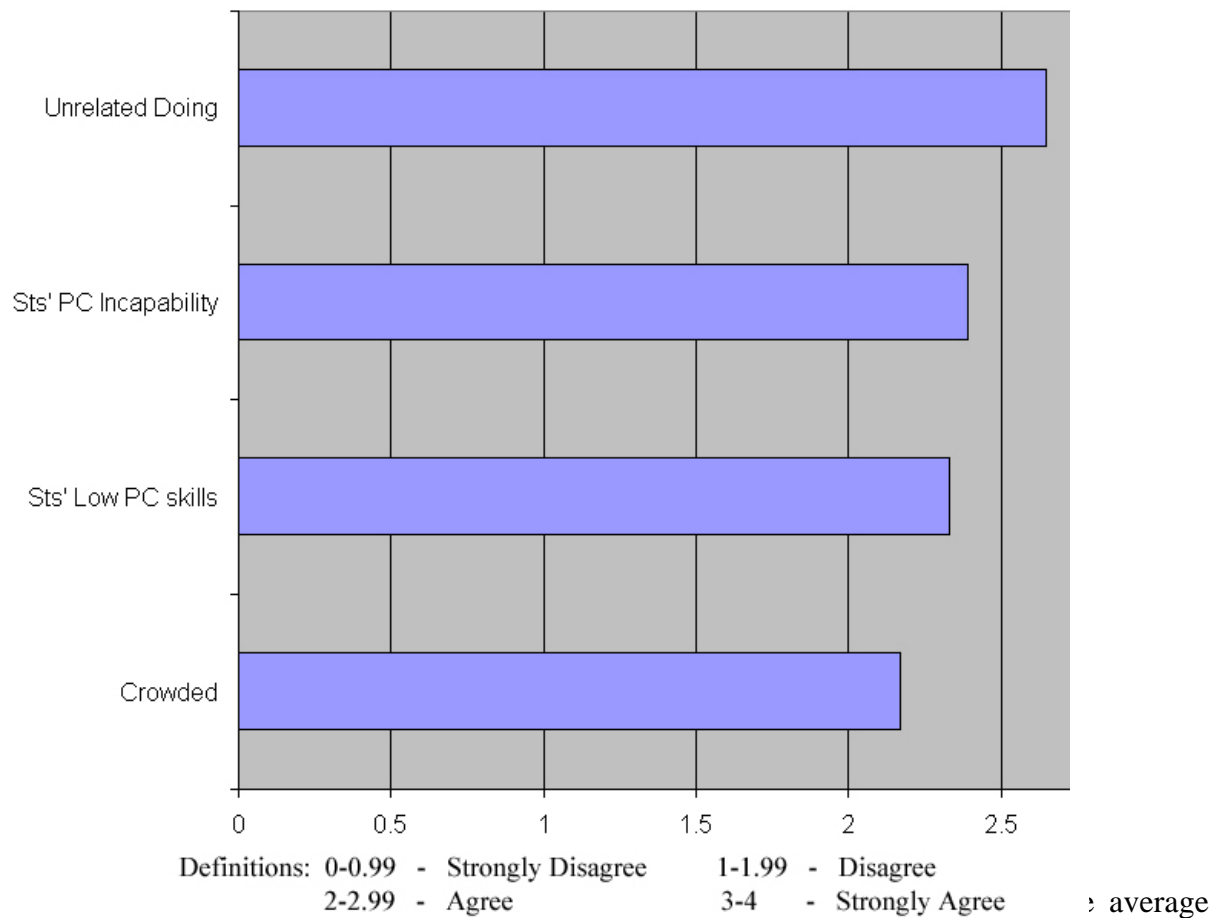
value of 2.06 that they did not use ICT because there were no computers on their

desks. The participants stated their disagreement with most items: 1) the educational

institutes forced them to us ICT too much, 2) no computer connected to the internet

was available for them, 3) no one assisted them when they faced the problems in

using ICT, 4) no digital camera was available for them at work, 5) no LCD projector

was available for them at work, 6) there was no visual presenter for them at work, and

7) there was no computer lab for their learners at the average   values of 1.47

(disagreed),   1.81(disagreed),1.83(disagreed),   1.47(disagreed),   1.66(disagreed),

1.64(disagreed), and 1.70 (disagreed) respectively. However, the participants agreed

at the average value 2.16 that there were insufficient computers for their learners.

According to the information above, the participants did not find that they themselves were the factors obstructing the integration of ICT into teaching. However, their learners, ICT devices available, and the other supports from the institutes were their negative factors obstructing them to integrate ICT into teaching. See the Figure 4.17 showing the information concerning the participants' opinions towards educational institute factors.

Figure 4.17 Participants' Opinions towards Educational Institute Factors

For personal opinion factors, the participants agreed at the average value of 2.34 that they had to spend more time for teaching preparation using ICT. However, the participants disagreed at the average value of 1.64 that using ICT for teaching was complicated and difficult. Moreover, they disagreed at the average value of 1.59 that using ICT in teaching did not consume more time than ordinary teaching. In addition, they also disagreed at the average value of 1.23 that the results of the learners' learning would not be as good as the traditional teaching style. See the Figure 4.18 showing the information concerning the participants' opinions towards personal opinion factors.

Figure 4.18 Participants' Opinions towards Personal Opinion Factors

Definitions: 0-0.99 - Strongly Disagree   1-1.99 - Disagree
2-2.99 - Agree   3-4 - Strongly Agree

4.3.2 The Factors Affecting the Integration of ICT into Teaching: the Qualitative Results

The results of the data obtained from fifteen participants during the interview session were classified into three main topics as follows:

4.3.2.1. The Low Level of ICT Competencies

The participants showed their opinions focusing on their low levels of ICT competencies obstructing them to integrate ICT into their teaching. They needed professional development to improve their ICT competencies. The samples of their answers gathered from the interviews were listed below.

> *"I do not know much and I can only type. I think it is good if I know how to use it."*

> *"I do not know anything but typing."*

> *"I want to know a lot. I want to know how to create teaching materials."*

> *"If I know how to use it, I can use it without waiting for the others to do it for me."*

4.3.2.2. The Lack of Supports from the Educational Institutes in Terms of ICT Devices and Professional Development

The participants stated that their main problem was the insufficient ICT devices in their workplace and this affected the integration of ICT into teaching. There were insufficient computers with the Internet connection for them to use and practice. Moreover, they needed professional development which helped them to be able to integrate ICT into teaching effectively. The samples of their answers gathered from the interviews were listed below.

"There is no computer lab for language teaching. The computer lab available here is for computer course and it is hardly free."

"Computers in this institute are not only a few, but some of them are broken. There is no the Internet connection here. I only use it to create teaching materials."

"I have to wait for computers provided by the director."

"I have no computers for my students. When I assign them to work, they have to work by using the outside computers."

"There is no computer and the Internet here"

4.3.2.3. The Positive Factor Affecting the Integration of ICT into Teaching

The participants stated that the widespread integration of ICT into teaching motivated them to integrate ICT into their teaching. Moreover, they also showed their positive opinions towards the integration of ICT into teaching. The samples of their answers obtained from the interviews were listed below.

"It is interesting and I will try to use it."

"I think it helps a lot for teachers and students."

"I think it is very important. Students should know how to use it."

"Teaching materials are various and they can be adapted to use effectively."

"It would be advantageous if I have computers and the Internet."

4.3.3 The Factors Affecting the Integration of ICT into Teaching: the ICT Devices in Educational Institutes

The results of observation revealed the number of computers currently available in the vocational education institutes in Nakhon Ratchasima as mentioned below.

Private Educational Institutes

All the private educational institutes provided at least 1 laboratory with 30-40 computers for their learners. There were also some computers connected to the Internet for their learners. All computers were available for teaching ad learning computer subjects, but they were not available for English language teaching. There were some computers connected to the Internet for English teachers in the English department, but few teachers used them for the purposes of teaching English. They used them as their material resources and they used e-mail as a tool to communicate to their learners. The institutes with a large number of learners provided LCD projectors, overhead projectors in special classrooms. Almost large institutes provided at least one room for language sound laboratory for English teaching. There was no significant evidence proving that the participants used CAI or other related ICT for English teaching. Most participants kept teaching in the usual way using text books and cassette players when teaching English.

Governmental Educational Institutes

For the governmental education institutes, there were only three institutes which provided computers connected to the Internet for their English language teachers. Every governmental educational institute had at least one laboratory for computer teaching. The computer laboratories were always in use, therefore, they were not available for English language teaching. English teachers who wanted to use the Internet had to use it outside their workplace. At most institutes, there were a few computers available for English teachers to create their teaching materials, but few

computers connected to the Internet. Some teachers in the institutes far away had no computers in their staff rooms.

There were language sound laboratories for language teaching in almost institutes, but only a few laboratories were in good conditions.. Some laboratories were broken and there was no one repairing them. Most teachers had to teach their learners in the traditional way using textbooks and cassette players and so did the teachers in private institutes. See the above Table 4.2 showing the ICT devices available in the educational institutes.

4.3.4 Conduct of *t*-tests and ANOVAs

A series of *t*-test, one way and two-way ANOVAs were conducted to generate responses to research question 2 regarding the difference in genders, ages, teaching levels, teaching experiences, levels of education and types of educational institutes. The results were described below.

Differences by Genders

The comparison of the average values of all scores obtained from the questionnaires concerning the genders of participants showed interesting results. All male participants agreed that their workloads were the factors obstructing the use of ICT in teaching, while all female participants absolutely disagreed. For this item, the male participants showed a significant difference on their opinions ($t = 2.266$). See the Table 4.8 showing the difference by genders and factors affecting the integration of ICT into teaching.

Table 4.8 Genders and Factors Affecting the Integration of ICT Into Teaching

Factors affecting the integration of ICT into teaching	Means		SD		t-test
	M 14	F 50	M 14	F 50	
1. Workload factor	2.35	1.67	1.049	0.983	2.266*
2. Financial factor	1.59	1.92	0.944	1.046	-1.069
3. Learner factor	2.41	2.38	0.800	0.743	0.100
4. Educational Institute factor	1.69	1.77	0.872	0.673	-0.334
5. Personal Opinion factor	1.67	1.71	0.723	0.720	-0.144

* $P<0.05$.

M = male participants

F = female participants

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Differences by Teaching Levels

The comparison of the average values of all scores obtained from the questionnaires concerning the teaching levels of the participants also showed interesting results. The mean scores and the t values were presented in the Table 4.11. In terms of their opinions affecting the use of ICT in teaching, the participants teaching at both certificate and diploma levels agreed that their learners were the main problem obstructing their integration of ICT into teaching, but they disagreed with some other factors. However, the participants teaching at the certificate level significantly agreed that the financial factors were the main factors obstructing the use of ICT in teaching, whereas the participants teaching at the diploma level disagreed with this ($t=3.111$ and $P<0.01$). See the Table 4.9 showing the teaching levels and factors affecting the integration of ICT into teaching.

Table 4.9 Teaching Levels and Factors Affecting the Integration of ICT into Teaching

| Factors affecting the integration of ICT into teaching	Means		SD		t-test
	C 16	D 48	C 16	D 48	
1. Workload factors	1.91	1.79	0.811	1.099	0.417
2. Financial factors	2.31	1.70	0.446	1.119	3.111**
3. Learner factors	2.50	2.35	0.570	0.802	0.783
4. Educational Institute factors	1.81	1.73	0.429	0.785	0.547
5. Personal Opinion factors	1.85	1.65	0.397	0.790	1.377

** $P<0.01$.
C = certificate level participants
P = diploma level participants

Differences by Types of Educational Institutes

The comparison of the average values of all scores obtained from the questionnaires concerning the types of the educational institutes showed interesting results. The mean scores and the *t* values were presented in the Table 4.10. In terms of their opinions affecting the integrating of ICT into teaching, both groups of participants agreed only that learner factors were factors obstructing them to use ICT in teaching. There was no any significant different in this term.

Table 4.10 The Types of Educational Institutes and Factors Affecting the Integration of ICT Into Teaching

Factors affecting the integration of ICT into teaching	Means		SD		t-test
	G 34	P 30	G 34	P 30	
1. Workload factors	1.92	1.68	1.096	0.950	0.977
2. Financial factors	1.90	1.80	1.187	0.823	0.394
3. Learner factors	2.55	2.20	0.635	0.833	1.849
4. Educational Institute factors	1.79	1.70	0.843	0.542	0.500
5. Personal Opinion factors	1.57	1.85	0.862	0.471	-1.615

G = governmental educational institutes
P = private educational institutes

Differences by Ages

The results of the two-way ANOVAs affecting the integration of ICT into teaching in terms of the different ages showed no significant differences. For the workload factors, most participants disagreed that they were the main problems obstructing them to use ICT in teaching. However, the 31-40 year-old participants slightly disagreed with this item. For the financial factors, the 51+ year-old participants agreed that they were the main problems for them to integrate ICT into teaching, while the rest of participants disagreed. For the learner factors, all participants agreed that they were the main problems obstructing them to integrate ICT into teaching. Moreover, the 51+ year-old participants had the strongest agreement with these factors. For the educational institutes` factors, the 31-40 year-old participants agreed that they were the main problems obstructing them to use ICT in teaching while the rest participants disagreed. For the personal opinion factors, all the participants disagreed that they were the main problem obstructing them to integrate ICT into teaching.. The 51+ year-old participants showed the strongest disagreement with these. See the Table 4.11 showing ages of the participants and factors affecting the integration of ICT into teaching.

Table 4.11 Ages of the Participants and Factors Affecting the Integration of ICT Into Teaching

Factors affecting the integration of ICT into teaching		Data		F-test
		Mean	SD	
Workload factors	20-30	1.4444	0.8488	0.556
31-40		0.6538	0.37553	
41-50		1.0938	1.24791	
51 up		2.1	1.14018	
Financial factors	20-30	1.8556	1.0638	0.519
31-40		1.5897	0.6825	
41-50		1.9583	1.29314	
51 up		2.2	0.55777	
Learner factors	20-30	2.5583	0.60772	1.425
31-40		2.1346	0.98221	
41-50		2.225	0.79267	
51 up		2.6	0.57554	
Educational institutes factors	20-30	1.6667	0.63862	1.976
31-40		2.1709	0.79558	
41-50		1.5972	0.78029	
51 up		1.7111	0.42017	
Personal opinion factors	20-30	1.825	0.55379	0.696
31-40		1.5577	1.02141	
41-50		1.5625	0.73314	
51 up		1.8	0.64711	

Differences by Levels of Education

The results of the two-way ANOVAs regarding the factors affecting the integration of ICT into teaching in terms of the different levels of education showed no significant difference. In terms of their opinions on the factors affecting the integrating of ICT into teaching, the only diploma participant agreed that her workloads were the factors obstructing her to integrate ICT in teaching. However, the master's degree and bachelor's degree participants disagreed with these. For the financials factors, all participants disagreed that they were the main problems obstructing them to integrate ICT into teaching. For learner factors, all participants agreed that they were the main problems obstructing them to integrate ICT into teaching. For the educational institute factors and the personal opinion factors, the only diploma participant had the slight disagreement, while the rest of participants

disagreed that both educational institute factors and personal opinion factors were the main problems obstructing them to integrate ICT into teaching. See Table 4.12 showing the level of education of the participants and factors affecting the integration of ICT into teaching

Table 4.12 Level of Education and Factors Affecting the Integration of ICT into Teaching

Factors affecting the integration of ICT into teaching		Data		F-test
		Mean	SD	
Workload factors	Diploma	2.3333	.	1.114
Bachelor's degree		1.9167	0.97122	
Master's degree		1.4889	1.20097	
Financial factors	Diploma	1.6667	.	0.740
Less Bachelor's degree		1.9444	1.06599	
Master's degree		1.5778	0.90384	
Learner factors	Diploma	2.75	.	0.196
Bachelor's degree		2.4083	0.79535	
Master's degree		2.3167	0.62297	
Educational institute factor	Diploma	2	.	0.411
Bachelor's degree		1.794	0.71053	
Master's degree		1.6148	0.75577	
Personal opinion factor	Diploma	2	.	0.104
Bachelor's degree		1.7083	0.73538	
Master's degree		1.6667	0.69222	

Differences by Teaching Experiences

The results of the two-way ANOVAs regarding the factors affecting the integration of ICT into teaching in terms of the different teaching experiences showed no significant differences. The 10-20-year experience participants agreed that their workloads were the main problems obstructing them to integrate ICT into teaching, while the less than 10-year experience participants and 21-30-year experience participants disagreed. For the financial factors, all participants agreed that they were not the main problems obstructing them to integrate ICT into teaching. For the learner

factors, all participants agreed that they were the main problems obstructing them to integrate ICT into teaching. For the educational institute and personal opinion factors, all participants disagreed that they were the main problems factors obstructing them to integrate ICT in teaching. See the Table 4.13 showing teaching experiences of the participants and factors affecting the integration of ICT into teaching

Table 4.13 Teaching Experiences and Factors Affecting the Integration of ICT Into Teaching

Factors affecting the integration of ICT into teaching		Data		F-test
		Mean	SD	
Workload factors	Less	1.813	0.88521	1.020
10-20 years		2.2222	1.424	
20-30 years		1.5952	1.1486	
Financial factors	Less	1.8374	1.04116	0.015
10-20 years		1.8889	0.91287	
20-30 years		1.881	1.12171	
Learner factors	Less	2.4415	0.7048	0.398
10-20 years		2.1944	0.98249	
20-30 years		2.375	0.7516	
Educational institutes factors	Less	1.8726	0.63759	1.678
10-20 years		1.6296	0.67128	
20-30 years		1.4921	0.90342	
Personal opinion factors	Less	1.7683	0.66	1.422
10-20 years		1.3333	0.93541	
20-30 years		1.75	0.70027	

4.4 Opinions towards ICT for Everyday Use and the Necessity of Writing References

4.4.1 The Opinions towards ICT for Everyday Use and the Necessity of Writing References: the Quantitative Results

The data obtained from the last two parts of the questionnaires showed the participants' opinions towards ICT for everyday use and the necessity of writing references. These data were used as a part of data analysis related to the personal

opinion factors. The participants showed their different opinions as shown below in the Figure 4.19.

Figure 4.19 Participant's Opinion towards the Necessity of ICT for Everyday Use and the Necessity of Writing References
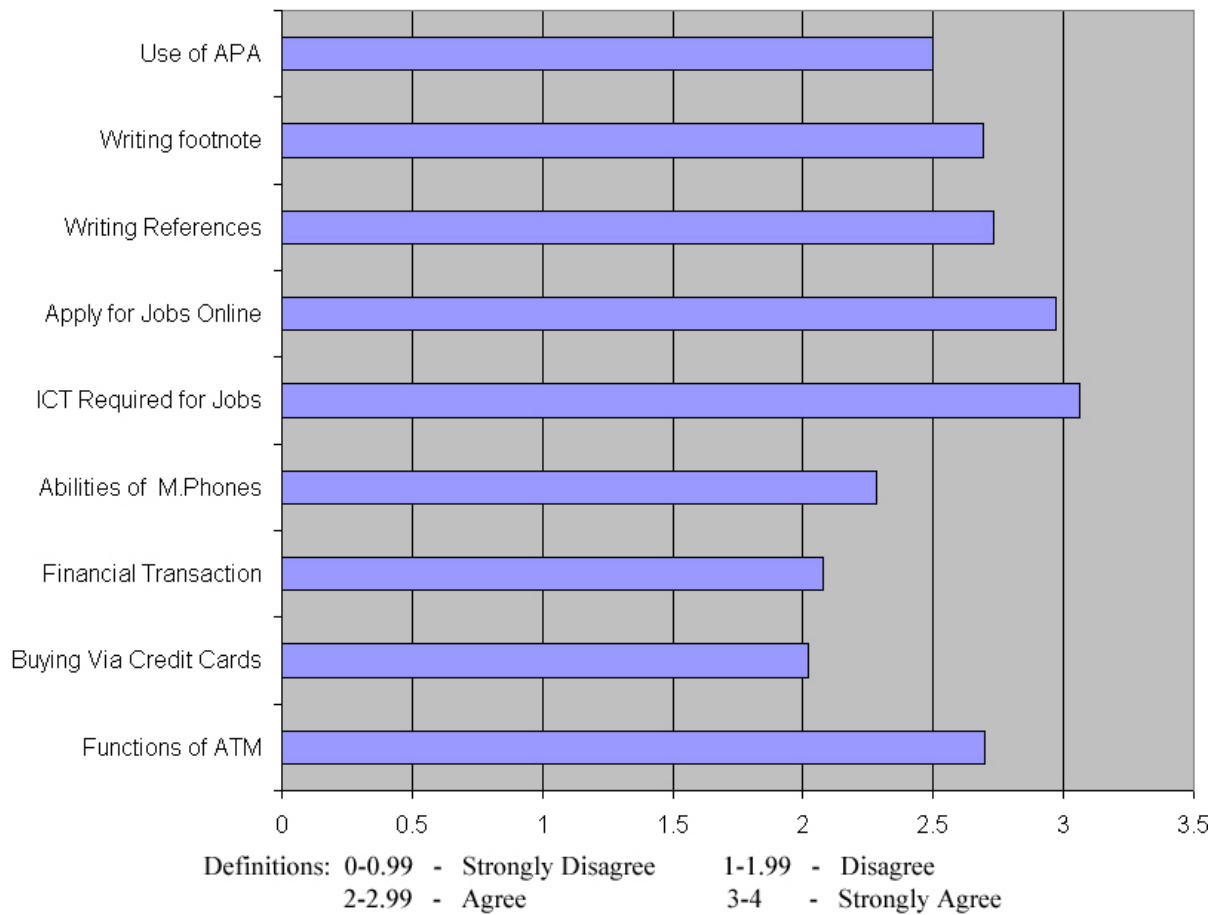
necessity of writing references, all participants agreed that these two requirements were necessary both for them and their learners.

4.4.2 The Opinions towards ICT for Everyday Use and the Necessity of Writing References: the Qualitative Results

The information gathered during the interview session indicated that the participants had positive opinions towards ICT for everyday use and the necessity of writing references, especially in creating and developing teaching materials.

Differences by genders

The comparison of the average values of all scores obtained from the questionnaires concerning the genders of the participants showed the significant difference that all female participants had stronger agreement with the necessity of ICT for everyday use than the male participants (t=-2.107 and P<0.05). See the Table 4.14 showing the genders and the attitudes towards the necessity of ICT for everyday use and the necessity of writing references.

Table 4.14 Genders and the Opinions towards the Necessity of ICT for Everyday Use and the Necessity of Writing References

Opinions towards ICT for everyday use and writing references	Means		SD		t-test
	M 14	F 50	M 14	F 50	
Necessity of ICT for everyday use	2.17	2.61	0.873	0.622	-2.107*
Necessity of writing references	2.28	2.74	1.190	0.985	-1.456

* P<0.05.
M = male participants
F = female participants

Differences by Teaching Level

The comparison of the average values of all scores obtained from the questionnaires concerning the teaching levels of the participants showed no significant difference. The certificate level participants had stronger agreement than the diploma level participants. See the Table 4.15 showing the teaching level and the

opinions towards the necessity of ICT for everyday use and the necessity of writing references

Table 4.15 Teaching Levels and the Opinions towards the Necessity of ICT for Everyday Use and the Necessity of Writing References

Opinions towards ICT for everyday use and writing references	Means		SD		*t*-test
	C 16	D 48	C 16	D 48	
Necessity of ICT for everyday use	2.69	2.45	0.361	0.776	1.665
Necessity of writing references	2.70	2.61	0.824	1.110	0.298

C = certificate level participants
D = diploma level participants

Differences by Types of Educational Institutes

The comparison of the average values of all scores obtained from the questionnaires concerning the types of the educational institutes showed no significant difference. Private educational institute participants had stronger agreement than the governmental educational institute participants. See the Table 4.16 showing the types of educational institutes and the participants 'opinions towards the necessity of ICT for everyday use and the necessity of writing references.

Table 4.16 Types of Educational Institutes and the Opinions towards the Necessity of ICT for Everyday Use and the Necessity of Writing References

Opinions towards ICT for everyday use and writing references	Means		SD		*t*-test
	G 34	P 30	G 34	P 30	
Necessity of ICT for everyday use	2.45	2.59	0.848	0.486	-0.815
Necessity of writing references	2.53	2.75	1.241	0.757	0.852

G = governmental educational institutes
P = private educational institutes

Differences by Ages

The comparison of the average values of all scores obtained from the questionnaires concerning the ages of the participants showed no significant difference. The 51+ year-old participants had stronger agreement than the younger participants. See the Table 4.17 showing the ages and the opinions towards the necessity of ICT for everyday use and the necessity of writing references

Table 4.17 Ages and the Opinions Towards the Necessity of ICT for Everyday Use and the Necessity of Writing References.

Opinions towards ICT for everyday use and writing references		Data		F-test
		Mean	SD	
Necessity of ICT for everyday use	20-30	2.45	0.5726	0.526
31-40		2.4231	1.01975	
41-50		2.6563	0.70309	
51 up		2.7333	0.43461	
Necessity of writing references	20-30	2.5333	0.89099	0.711
31-40		2.9231	1.1479	
41-50		2.5	1.30526	
51 up		3	0.62361	

Differences by Level of Education

The comparison of the average values of all scores obtained from the questionnaires concerning the level of education of the participants showed no significant difference. The only diploma participant and the master's degree participants had stronger agreement than the bachelors' degree participants. See the Table 4.18 showing the level of education and opinions towards the necessity of ICT for everyday use and the necessity of writing references

Table 4.18 Levels of Education and the Opinions towards the Necessity of ICT for Everyday Use and the Necessity of Writing References

Opinions towards ICT for everyday use and writing references		Data		F-test
		Mean	SD	
Necessity of ICT for everyday use	Less	2	.	1.959
Bachelor's degree		2.4375	0.68815	
Master's degree		2.8111	0.69826	
Necessity of writing references	Less	3	.	1.443
Bachelor's degree		2.5139	1.05848	
Master's degree		3.0222	0.94673	

Differences by Teaching Experiences

The comparison of the average values of all scores obtained from the questionnaires concerning the teaching experiences of the participants showed no significant difference. The participants with less than 10-years teaching experience had stronger agreement than the rest of participants. See the Table 4.19 showing the teaching experiences and the opinions towards the necessity of ICT for everyday use and the necessity of writing references

Table 4.19 Teaching Experiences and the Opinions towards the Necessity of ICT for Everyday Use and the Necessity of Writing References

Opinions towards ICT for everyday use and writing references		Data		F-test
		Mean	SD	
Necessity of ICT for everyday use	Less	2.5488	0.55932	2.508
10-20 years		2.0741	1.07726	
20-30 years		2.7143	0.72332	
Necessity of writing references	Less	2.748	0.85888	0.632
10-20 years		2.5185	1.47301	
20-30 years		2.4048	1.24158	

4.5 Discussion

As a matter of fact, all findings of this research have already been presented above. This part presents a discussion of research findings in accordance with the purposes of the study, which are known as the participants' perceived levels of ICT competencies including the impact of variables towards the participants' levels of the ICT competencies and the factors affecting the integrating ICT into teaching.

4.5.1 Level of ICT Competencies of the Participants

4.5.1.1 The perceived Level of ICT competencies

The results of the study obtained from the questionnaires showed that the participants had the ability to do all requirements at all three standards levels namely basic, intermediate, and advanced. However, their abilities in each level were rather low and the average values of all participants' abilities were lower than 2.0, which were referred to fair abilities. Therefore, the participants seemed to be able to conduct the activities required the expected abilities in terms of the ICT standards.

However, the data gathered during the interview session provided the different findings. In fact, the participants did not possess such sufficient abilities that they stated in the questionnaires. These different results could be derived from two causes presented below.

Shyness and reluctance to tell the truth

The participants were shy to allow the researcher to explore their real levels ICT competencies. Therefore, they tried to rate their responses by stating that they could do the required abilities at the acceptable level. Nevertheless, the answers obtained during the interview session for more information on the same topics firmly

proved that they did not report their real levels of ICT competencies. This could support Pongsart's work (2005) stating that Thai teachers avoided the integration of ICT into teaching because of their shyness and their reluctance to tell the truth that they were not capable enough to use ICT.

Unclear Concept of Technical Terms

The participants intended to report all the facts related to their present ICT competencies so that they could have some opportunities to obtain professional development in the future. However, the findings revealed that they misunderstood some technical terms listed in the questionnaires, because of insufficient ICT knowledge. As a result, they tried to guess unknown technical terms by rating "poor","fair", or "good" instead of "Unable to use/Do not know". Therefore, they supplied the responses, which were unreliable without any intention. This kind of problem was not reported by any researcher. However, this kind of data was beneficial to confirm the participants' perceived levels of ICT competencies that were exactly lower than what they stated in the questionnaires.

Moreover, the data obtained during the observation session did not show any evidence supporting the participants' abilities as they stated. For example, although the participants indicated that they could use most ICT devices listed in the questionnaires, there was no evidence supporting that, since there were no ICT devices currently available in their workplace. Especially in relation to conference technology, the participants stated that they could fairly use audio, video and computer conferences. During the observation session, there were no conference technology devices availably seen in all twenty two educational institutes. This also

reflected the causes of shyness to tell the truth as well as the unclear concept of technical terms as mentioned above.

4.5.1.2 The Impact of Variables towards the Participants' Levels of the ICT Competencies

According to the variables used in this study, the results were summarized as follows:

Ages and Teaching Experiences

The younger participants teaching for less than 10 years showed more positive opinions towards the integration of ICT into teaching than the rest of participants. This finding firmly supported the study of Tankitwanich (2002) who reported that old teachers who worked for a very long time said that learning to use computer when they were young was really fun and exciting, but when they were older and held more responsibilities and things to do both at work and home, they felt bored to keep professional working on computer and technology and then they gave up finally.

Genders

The male participants showed more self-confidence and interests to integrate ICT into teaching than the female participants. This finding firmly supported the study of Galanouli, Colette, & Gardner (2004) in terms of self-confidences. However, during the questionnaires administration, a large number of female participants showed their enthusiasms to integrate ICT into teaching by informing the researcher about their needs and interests in terms of the integration of ICT into teaching Moreover, more than fifty per cent of participants needed some books, research journals or reports related to the integration of ICT into teaching to enlarge their visions and become a

large number of the beginners integrating ICT into teaching. They stated that widespread using of ICT into teaching available in governmental primary and secondary school motivated them feel eager to try using ICT into teaching. The female participants' points of view could firmly support the results of the studies conducted by Cabanatan (1999) and Galanouli, Colette, & Gardner (2004). They stated that the widespread of the integration of ICT in teaching motivated the teachers to integrate ICT into teaching.

Level of Education

The master's degree participants graduated showed higher ICT competencies in terms of gathering the information from the internet than the rest of participants.. This is because they had to expose this kind of technology while they were studying for their master's degree whereas the bachelor's degree participants might have less chance to expose ICT. The result firmly supported Tangkitwanich 's study (2002) stating that the teachers' level of education affected the integration ICT into teaching.

Teaching Level

The certificate level participants showed higher level of ICT competencies than the rest of participants. This could be described in terms of workloads factors. The diploma level participants had to teach both certificate level and diploma level students so they had a more heavy teaching load than the certificate level participants. Moreover, they had less free time to practice themselves to improve ICT skills. However, there was no significant evidence proving that the diploma level participants had a lower level of positive opinions towards the integration of ICT into teaching. For the results related to the teaching level, it firmly supported the studies of

Malaiwong (2001) and Keawdaeng (2001) that workloads influenced the level of ICT competencies.

Types of Educational Institutes

The data obtained from both the questionnaires and the interview confirmed the results that the types of educational institutes affected the participants' level of ICT competencies. The participants in both private and governmental educational institutes did not have sufficient computers and ICT devices to practice, to use, and to integrate ICT into teaching. There was also no sufficient professional development provided by the institutes for their teachers, so the participants' level of ICT competencies appeared low. This result firmly supported the studies which stated that sufficient support from the educational institute both the ICT devices and professional development affected the participants' level of ICT competencies (Foell,1998; Minister of Education, 2004; Malaiwong, 2001)

In conclusion, the participants in this study possessed a very low level of ICT competencies and the current perceived level of their ICT competencies did not match any level provided in the ICT competencies standards. Professional development was required.

According to the participants' opinions, the insufficient ICT devices available in the institutes and the lack of professional training provided by the educational institutes for the participants become the causes of the low level of ICT competencies of the participants. The present level of ICT competencies becomes the factor influencing the participants' personal opinions in terms of negative factor. The participants are worried about the lack of self-confidence to integrate ICT into teaching since there are insufficient ICT devices for them to practice and develop

their ICT skills and their confidences. The limited of ICT competencies supported the findings of the study conducted by Kongsanay, Sittidamrong, Burasirirak, Ananto, and Srichantrawirote (2005) that personal negative factor for teachers was low ICT competencies. Therefore, they could not assist the learners to use computers and ICT devices in learning process, and they also could not solve the technical problems found in the integration of ICT into teaching. Integration of ICT into teaching was not easy and comfortable to use in classrooms (Research Machines plc, 2003), and so they avoid the integration of ICT into teaching after they failed (Foell ,1998)

4.5.2 Factors affecting the integrating of ICT in teaching

According to the data obtained from the questionnaire, all participants agreed that learner factors were the main problems obstructing them to integrate ICT into teaching. The participants recommended that their learners needed more training in both typing skills and basic computer skills before learning English language via ICT. The participants disagreed that workload factors, financial factors, educational institute factors, and personal opinion factors were obstructing them to integrate ICT into teaching.

However, the data obtained from the interview session was different from the questionnaires findings as described below.

4.5.2.1 Internal negative factor: personal opinion factors-the low level of ICT competencies

Most participants stated that their personal opinion in terms of the ICT competencies were the negative factors obstructing them to integrate ICT into teaching. They could not use ICT to do other activities required in the standards. They

stated their ability to operate word processing. They had limited ideas about the integration of ICT into teaching and they were confused how to begin the integration of ICT into teaching. This result firmly supported the studies reporting that the low level of ICT competencies affected the integration of ICT into teaching (Kongsanay, Sittidamrong, Burasirirak, Ananto, and Srichantrawirote, 2005; Research Machines plc, 1998).

4.5.2.2 External Negative Factor: Insufficient Supports from the Educational Institutes.

Insufficient ICT devices in workplace were another problem for the participants. They were one of the main problems obstructing the teachers to integrate ICT into teaching. In deed, these teachers did not have enough computers at work, so they hardly ever integrate ICT into teaching or avoid using it. The data obtained from the observation also supported the data from the interview. Besides, the educational institutes did not provide sufficient professional development for the participants. These findings were firmly supported by the studies conducted by Foell (1998); Minister of Education, (2004); and Malaiwong, (2001).

4.5.2.3 Internal and External Positive Factors

These results derived from the two topics mentioned above, insufficient computers and ICT devices and the lack of professional development. For internal positive factors, the widespread integration of ICT into teaching available in governmental primary and secondary schools nearby encouraged the participants to feel eager to integrate ICT into their teaching. For external positive factors, the sufficient professional development and sufficient ICT devices in the participants' workplace could enhance them to integrate ICT into teaching. The results firmly

supported the studies reporting high motivation could be supported by appropriate professional development (Cabanatan, 1999; Galanouli, Colette, & Gardner, 2004) and the more the schools had a large number of ICT devices, the more the teachers integrated ICT into their teaching (Malaiwong, 2001).

4.5.2.4 The Impact of Variables Affecting the Integration of ICT into Teaching

There is no any significant difference appeared in terms of the variables affecting the integration of ICT into teaching. The participants from various age groups, genders, teaching experiences, teaching levels, level of education and types of educational institutes reported their negative factors obstructing them to integrate ICT into teaching as personal factors in terms of their own low level of ICT competencies. Moreover, they reported that the levels of their ICT competencies were the impact of insufficient ICT devices and professional development in their workplace. However, the level of their opinions towards ICT and the integration of ICT into teaching were positive. The data obtained from the interview session confirmed that the participants realized the necessity of ICT and the need to integrate ICT into teaching.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

This final chapter of research restates the purpose of the study and reviews the major methods used in the study. The major sections of this chapter summarize the results and recommend additional research.

5.1 Conclusions

The present study has been conducted in order to explore the level of ICT competencies possessed by English language teachers in vocational institutes in terms of their opinions, and the factors affecting the integration of ICT into teaching.

The samples were 66 Thai English-language teachers in 22 vocational education institutes that teach certificate level and diploma level students in Nakhon Ratchasima. All the teachers were asked to answer the questionnaires at the beginning of the second semester of the academic year 2005. The researcher also conducted an observation session to gather more data about the ICT devices available in each institute. 15 samples were selected to be interviewed focusing on their opinions about ICT competencies and factors affecting the integrating of ICT into teaching.

The research procedure was made by constructing the standards that are appropriate and suitable for Thai context by 10 ICT educational experts' discussion. After the discussion, the questionnaires were designed relating to the standards and they were distributed to 66 English language teachers in 22 education institutes by visiting and giving the questionnaires to the participants directly. At the same time, the researcher conducted the observation finding the ICT devices available in the

institutes. The researcher visited all the teachers in all institutes again a week later to collect the questionnaires. Any teachers who were not unable to give back the questionnaires on time were asked to send them back by mail.

After that, the researcher conducted interview session with 15 participants asking for their opinions about ICT competencies and factors affecting the integrating of ICT into teaching. The data obtained from different instruments was analyzed in two main ways: quantitative data analysis and qualitative data analysis. The quantitative data analysis referred to the data from the questionnaires. The qualitative data was the data from the interview session and education institute observation. The statistical analysis of the data included t-test, F-test or ANOVAs, calculations of means, and percentage.

The results of the research can be summarized as follows.

1. The level of ICT competencies of all English teachers in vocational education institutes in Nakhon Ratchasima was very low and can not satisfy the first level of the ICT competency standards.

   There were significant findings that the male participants showed their confidence to integrate ICT into teaching more than female participants. The younger participants who had less teaching experience possessed higher level of ICT competencies.

2. The factors affecting the integrating of ICT into teaching were

   2.1 In terms of negative factors, there were two factors found in the study, the personal opinion factors and the educational institute factors. The personal opinion factors referred to the participants' low level of ICT competencies. The educational institute factors referred to the

insufficient number of computers and ICT devices for the participants as well as the professional development.

2.2 For internal positive factor, it was personal opinion factor in terms of the positive opinions towards the integrating of ICT into teaching and participants' motivation to integrate ICT into teaching. These positive opinions were supported by the external factors which were the supports from the government for primary and secondary school teachers both ICT devices and trainings. Though the participants had very low ICT competencies, they recognised the advantages shown by trained teachers. It encouraged them to feel eager to try integrating ICT into teaching and made them need professional development as well.

5.2 Implications and recommendations

Some recommendations based on this research may be made as follows.

Implications and recommendations in terms of the practicum

5.2.1 Participants should be trained in terms of ICT competencies to reach the level 3 of the ICT competencies as well as the innovation teaching methodology to integrate ICT into their teaching.

5.2.2 The research journal, reports, and news related to the innovation of the integration of ICT into ELT teaching should be distributed to all the participants in order to improve their ICT for education knowledge and enlarge their ICT for education vision.

Implications and recommendations for policy and administration

5.2.3   Professional developments should be arranged and provided to all the participants by the directors of the educational institutes to improve their ICT competencies and to gather innovation ideas to integrate ICT into their teaching.

5.2.4   Education institutes should not only support professional training, but also provide necessary ICT devices. There should be sufficient computers in good condition connected to the Internet for both teachers and students.

5.2.5   Education institutes should provide all students at least one course of basic computer at the first semester to improve learners' computer basic skill.

Implications and Recommendations for the Further Research

5.2.6   Since the participants of this study consist of English teachers in all vocational education institutes in Nakhon Ratchasima, the abilities and bias may not be able to represent all the English teachers in the vocational institutes in other provinces. Thus, there is a need for future research to find out the further information related to vocational teachers in the northeast of Thailand for the better and more effective teaching with the innovative methodology.

5.2.7   Since the participants in this study consist of Thai teachers who may possess a lot of positive opinions towards Thai traditional teaching methodology that can affect the results in terms of their bias and their

opinions towards ICT into teaching. Thus, there is a need for the future research to cover more foreign teachers.

5.2.8 The participants in this study are only English teachers. The information in terms of teachers' perceptions may not be informative to find the appropriate way to solve the problems reported in the findings. Future research should be conducted in triangulate questionnaires for teachers, learners, and directors of the educational institutes to obtained more data to create the professional development for teachers appropriately.

5.2.9 For the questionnaires used in the research, the researcher needs to provide more time for the participants to comprehend the questions and answer them completely before the questionnaires are collected back.

5.2.10 Number of participants in the interview session should be more than 15% of all to obtain more information.

5.2.11 The directors in every educational institute and some samples of students in every educational institute should be interviewed for triangulate data as well as asking all the directors for the permission to observe all the ICT devices available in the educational institutes to obtain the sufficient data to support the finding from the questionnaire.

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APPENDIX A

Table comparing the ICT competency standards among different areas

Country	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5	Domain 6
USA	Technology Operations and Concepts Teachers demonstrate a sound understanding of technology operations and concepts. Teachers: A. demonstrate introductory knowledge, skills, and understanding of concepts related to technology (as described in the ISTE National Educational Technology Standards for Students). B. demonstrate continual growth in technology knowledge and skill to stay abreast of current and emerging technologies.	Planning and Designing Learning Environments and Experiences Teachers plan and design effective learning environments and experiences supported by technology. Teachers: A. design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners. B. apply current research on teaching and learning with technology when planning learning environments and experiences. C. identify and locate technology resources and evaluate them for accuracy and suitability D. plan for the management of technology resources within the context of learning activities. E. plan strategies to manage student learning in a technology-enhanced environment.	Teaching, learning, and the curriculum Teachers implement curriculum plans that include methods and strategies for applying technology to maximize student learning. Teachers: A. facilitate technology-enhanced experiences that address content standards and student technology standards. B. use technology to support learner-centered strategies that address the diverse need of students. C. apply technology to develop students' higher order skills and creativity. D. manage student learning activities in a technology-enhanced environment.	Assessment and Evaluation Teachers apply technology to facilitate a variety of effective assessment and evaluation strategies. Teachers: A. apply technology in assessing student learning of subject matter using a variety of assessment techniques. B. use technology resources to collect and analyze data, interpret results, communicate finding to improve instructional practice and maximize student learning. C. apply multiple methods of evaluation to determine students' appropriate use of technology resources for learning, communication, and productivity	Productivity and Professional practice Teachers use technology to enhance their productivity and professional practice. Teachers: A. use technology resources to engage in ongoing professional development and lifelong learning. B. continually evaluate and reflect on professional practice to make informed decisions regarding the use of technology in support of student learning. C. apply technology to increase productivity. D. use technology to communicate and collaborate with peers, parents, and the larger community in order to nurture student learning.	Social, ethical, legal, and human issues Teachers understand the social, ethical, legal, and human issues surrounding the use of technology in PK-12 schools and apply that understanding in practice. Teachers: A. model and teach legal and ethical practice related to technology use. B. apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities. C. identify and use technology resources that affirm diversity. D. promote safe and healthy use of technology resources. E. facilitate equitable access to technology resources for all students.

Country	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5	Domain 6
USA (INTIME STANDARD)	File managing and organizing Terminology using Technical problem solving Use new technology devices such as digital camera, scanner, LCD projector Aware of using computer technology in society, and business Demonstrate knowledge of equity, ethics, legal, and human issues concerning using technology Demonstrate awareness of resources for adaptive assistive devices for students with special needs	Access and analyze the information in WWW Access and analyze information from CD-ROM Access and analyze information from tape, videos or slides Use internet and e-mail to communicate with others Use video conference to communicate with others Use multimedia software to create multimedia reports or presentations Use web authoring software to create educational web sites Use audio/visual technology to create audio/visual project Use word processer Use database Use spreadsheet Use graphics organizer software Use instructional software	Use CAD or other instructional software Use educational physical instructional software for physical education Use audio/visual technology to provide feedback Use instructional software for theatre instruction Use instructional software and Midi for music composing or instruction Use digital imaging program as a tool for creation Use instruction software for appropriate skills Use foreign language instruction technologies and associate for teaching Use instructional software for role-playing, simulation or research			

Country	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5	Domain 6
AUSTRALIA (MACQT)	Basic Computer An understanding of the functions of the various components of the computer Use of a variety of software, including basic word processing, data base and spread sheet functions Information retrieval through the use of CD-ROMS and other commercial programs Preparation of graphics and art works Simple desktop publishing Drill and practice activities.	Information Technology Using multi-media presentations Using interactive presentations The ability to use the Internet and electronic mail programs Awareness of overall developments in communications and information technologies and of the potential these have for student learning.	Evaluate Software The ability to select and evaluate technology based learning materials, The ability to determine underlying pedagogical assumptions, gender and ethnic bias, educational relevance, social impact, and suitability for the classroom environment, for cooperative learning and for peer interaction. generate lesson plans match computer applications to specific curriculum content and processes evaluate computer software for educational purposes structure subject programs and lessons to incorporate useful and appropriate computer activities evaluate student learning from computer-based activities.	Pedagogical Issues An understanding of how computer technology can enhance student learning and help learners explore their world; The creation of self-regulating learning environments; The management of classroom environment and school resources; The ability to use computers for student profiling and reporting, lesson preparation and class/faculty administration.	Values and Ethics Recognising plagiarism Understanding the issues of copyright, of censorship and of privacy, Recognising the issues of appropriate access to and verification of information gained from such sources as the Internet Interpersonal skills for working in environments where colleagues have a wide range of abilities in using the new technologies.	

Country	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5	Domain 6
PHIPHILIPPINES, INDONESIA AND SINGAPORE , MALAYSIA	Basic Computer File managing and organizing Interaction Multimedia Technology graphic design, sound, video, and story board Computer fundamental Web search E-mail	Information Technology Information Literacy and Telecollaborative Learning Ready for implement Skills in posting, sharing and accessing information	ICT and Curriculum Integration Produce on-line web ICT-base learning Design Instructional media			
THAILAND	Basic Computer File managing and organizing Interaction Multimedia Technology graphic design, sound, video, and story board Computer fundamental Web search E-mail Use word processer Use database Use spreadsheet Use graphics	Information Technology Using multi-media presentations Using interactive presentations The ability to use the Internet and electronic mail programs	ICT and Integrating to teaching Use web authoring software to create educational web sites Use audio/visual technology to create audio/visual project Skills in posting, sharing and accessing information			

(Aguilar, 2004; Montahan, 2004; Niland, 1999; UNESCO, 2002; Kirschner, 2003; Selinger, 2003)

The information in Asian countries are listed from the purposes of the training projects.

APPENDIX B

List of Vocational Education Institutes in Nakhon Ratchasima

1. Nakhon Ratchasima Technical College
2. College of Business Administration and   Tourism
3. Nakhon Ratchasima Polytechnic College
4. Nakhon Ratchasima Vocational College
5. Suranaree Technical College
6. Luangpor Khuun Technical College
7. Bua Yai Industrial and Community College
8. Pak Thong Chai Technical College
9. Phimai Industrial and Community College
10. Chum Phuang Industrial and Community College
11. Nakhon Ratchasima College of Agriculture and Technology
12. Pak Chong Industrial and Community College
13. Chanapolkhan Institute of Technology
14. Korat Technology Engineering Commercial School
15. Vocational Education Technology School
16. St. Mary's Business Administration College
17. Mery Technology School
18. Nakhon Ratchasima Assumption Commercial School
19. Bua Yai Technology and Commercial School
20. Ku Sum Technology School
21. Pak Chong Commercial School
22. Rajamangala University of Technology Isaan

Source: The Royal Institute (2000)

Questionnaire

Questionnaire for English Teachers in Vocational Education Institutes who Teach Certificate and Diploma Level regarding ICT competencies and Opinions regarding the Integration of ICT into English Language Teaching

There are 6 parts in this questionnaire 1) Personal Information 2) Computer competencies for everyday use 3) Computer competencies for teaching 4) Opinions regarding integrating of ICT into teaching 5) Opinions regarding using ICT in society and business and 6) Opinions regarding writing the references

Explanation Please tick ✓ in the appropriate box that fit you the most. Please answer all the questions. All of your information will be kept confidently.

Part 1 Personal Information

1. Age ❑ 20-30 ❑ 31-40 ❑ 41-50 ❑ 51 up

2. Gender ❑ male ❑ female

3. Education ❑ Lower than Bachelor's degree ❑ Bachelor's degree

❑ Master degree ❑ PhD degree

4. Teaching level ❑ certificate ❑ diploma

5. Teaching experience ❑ lower 10 years ❑ 10- 20 years

❑ 21-30 years ❑ 31 years up

6. Type of education institute ❑ Governmental ❑ Private

Part 2 Computer Competencies for Everyday Use

1. How well can you use this computer software?	Unable to use	Poor	Fair	Good	Excellent	Researchers
1.1 Word processing such as Microsoft Word						
1.2 Spreadsheet such as Microsoft Excel						
1.3 Presentation such as Microsoft Power Point						
1.4 Database such as Microsoft Access						
1.5 Photo Editor such as Adobe Photoshop						
1.6 Html authoring						
1.7 Flash authoring						
1.8 Computer Assisted Instruction (CAI)						
1.9 Chatting software						
1.10. E-mail software						
1.11 File zipping software						
1.12 Movie editors						
1.13 Pdf. File reader						
1.14 Others……………………………………………						

2. How well can you solve these technical problems?	Unable to use	Poor	Fair	Good	Excellent	Researchers
2.1 Mouse and keyboard can not be detected						
2.2 Adjusting monitor display properties						
2.3 Adjusting the sound volume level						
2.4 Solve the problem when the computer runs in "Safe Mode"						
2.5 Solve the problem when the computer Freezes						
2.6 Other problems……………………………………						

3. How well can you use these ICT devices?	Unable to use	Poor	Fair	Good	Excellent	Researchers
3.1 Digital Camera						
3.2 Scanner						
3.3 LCD Projector						
3.4 CD/DVD Writer/ Flash drive/Handy drive						
3.5 Visual Presenter						
3.6 Others...						

4. How well can you use these technologies?	Unable to use	Poor	Fair	Good	Excellent	Researchers
4.1 Audio Conference						
4.2 Video Conference						
4.3 Computer Conference						

Part 3 Computer Competencies for Teaching

5. How well can you obtain texts, images, audio files or other medias from these sources?	Unable to use	Poor	Fair	Good	Excellent	Researchers
5.1 Website						
5.2 Webboard						
5.3 Database such as Science Direct						

(Continue) 5. How well can you use texts, images, audio files or other medias from these resources??	Unable to use	Poor	Fair	Good	Excellent	Researchers
5.4 List serve / news group						
5.5 Computer Assisted Instruction (CAI)						
5.6 Music and movie CD						
5.7 Others..						

6. How well do you use these resources as teaching tools?	Unable to use	Poor	Fair	Good	Excellent	Researchers
6.1 Website						
6.2 E-mail						
6.3 Webboard						
6.4 Multimedia you developed						
6.5 Others..						

7. How well do you use these programs as your teaching tools?	Unable to use	Poor	Fair	Good	Excellent	Researchers
7.1 Learners use Microsoft Word to submit their works.						
7.2 Learners use Microsoft Excel to submit their works.						
7.3 Learners use Microsoft PowerPoint to Submit their works.						
7.4 Teacher uses Microsoft Access for Database						
7.5 Others..						

8. How well do you assist or make suggestion to your colleagues about these activities?	Unable to use	Poor	Fair	Good	Excellent	Researchers
8.1 Suggest your colleagues use ICT						
8.2 Provide samples to integrate ICT into Teaching for your colleagues.						
8.3 Suggest and solve the problems found after integrating ICT into teaching for your colleagues.						
8.4 Conduct training for your colleagues.						
8.5 Others..						

Part 4 Opinions regarding Integrating ICT into Teaching

Explanation Please mark a tick ✓ in the box that fits your opinion the most

9. Workload factor	No idea	Strongly Disagree	Disagree	Agree	Strongly	Researcher
9.1 You have such a heavy teaching load that you can do nothing else.						
9.2 You have so much administration work to do that you can do nothing else.						
9.3 You have to teach more than 1 subject so you can do nothing else.						
9.4 Others..						

10. Financial factor	No idea	Strongly Disagree	Disagree	Agree	Strongly	Researcher
10.1 You think that your income can not support a personal computer at home.						
10.2 You think that ICT devices and ICT services are so expensive that you can not afford them.						
10.3 You think that there should be extra payment for teachers using ICT in teaching.						
10.4 Others..						

11. Learners factor	No idea	Strongly	Disagree	Agree	Strongly		Researcher
11.1 You think that you have too many learners for a class.							
11.2 You think that your learners posses no basic computer skills.							
11.3 You think that some learners who possess lower computer skills are left behind their friends.							
11.4 You think that your learners use ICT doing others activities instead of learning such as playing games or visiting web sites.							
11.5 Others...							

12. Educational Institutes factor	No idea	Strongly	Disagree	Agree	Strongly		Researcher
12.1 You think that you do not use ICT because there is no computer at your desk.							
12.2 You think that you do not use ICT because your educational institute forces you to use ICT too much.							
12.3 You think that you do not use ICT because there is no computer connected to the Internet available for you.							
12.4 You think that you do not use ICT because you have no one assisting you when you face the problems in using ICT.							
12.5 You think that you do not use ICT because there is no digital camera for you at work.							
12.6 You think that you do not use ICT because there is no LCD projector for you at work.							
12.7 You think that you do not use ICT because there is no visual presenter for you at work.							
12.8 You think that you do not use ICT because there is no computer lab for							

	No idea	Strongly Disagree	Disagree	Agree	Strongly	Researcher
your learners.						
12.9 You think that you do not use ICT because there are insufficient computers for your learners.						
12.10 Others...						

13. Personal opinion factor	No idea	Strongly	Disagree	Agree	Strongly	Researcher
13.1 You think that you have to spend more time to prepare teaching using ICT.						
13.2 You think that using ICT for teaching is complicate and difficult.						
13.3 You think that using ICT in teaching consumes more time than ordinary teaching.						
13.4 You think that the result of the learners' studying will not be as good as the ordinary teaching.						
13.5 Others..						

Part 5 Opinions regarding Using ICT in Society and Business

14. Do you agree if these ICT are necessary for learners?	No idea	Strongly	Disagree	Agree	Strongly	Researcher
14.1 Function of ATM						
14.2 Buying via credit card						
14.3 Doing financial transaction via the Internet						
14.4 The abilities of modern mobile phones						
14.5 The computer abilities required by Employers						
14.6 How to apply for a job via the Internet						

Part 6 Opinions regarding Writing References

15. How much are you concerned about writing references?	No idea	Strongly	Disagree	Agree	Strongly		Researcher
15.1 You think that there should be references when a teaching material is developed.							
15.2 You think that there should be some footnotes in the teaching material.							
15.3 You think that the referencing should be made using the international standard referencing form such as APA style(American Psychological Association)							

Other comments

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Thank you for your kindly answering the questionnaire

แบบสอบถามครูผู้สอนภาษาอังกฤษระดับประกาศนียบัตรวิชาชีพและประกาศนียบัตรวิชาชีพชั้นสูงเกี่ยวกับความรู้ความสามารถทางด้านเทคโนโลยีสารสนเทศและการสื่อสารและความเห็นที่มีต่อการบูรณาการเทคโนโลยีสารสนเทศและการสื่อสารเข้าไปในการเรียนการสอนภาษาอังกฤษ

แบบสอบถามนี้มี 6 ส่วน ดังนี้คือ 1) ข้อมูลส่วนบุคคล 2) ความรู้ความสามารถในการใช้เทคโนโลยีคอมพิวเตอร์ในชีวิตประจำวัน 3) ความรู้ความสามารถในการใช้เทคโนโลยีคอมพิวเตอร์ในการเรียนการสอน
4) ความเห็นที่มีต่อการใช้เทคโนโลยีคอมพิวเตอร์ในการเรียนการสอน 5) ความเห็นที่มีต่อการใช้เทคโนโลยีคอมพิวเตอร์ในสังคมและธุรกิจ และ 6) ความเห็นที่มีต่อการอ้างอิงแหล่งข้อมูล

<u>คำอธิบาย</u> ให้ท่านขีดเครื่องหมาย ✔ ระบุลงในช่องที่ท่านเห็นว่ามีความเหมาะสมตัวท่านมากที่สุด กรุณาตอบคำถามให้ครบทุกข้อ โดยข้อมูลของท่านทั้งหมดในแบบสอบถามนี้จะถูกเก็บไว้เป็นความลับ

ส่วนที่ 1 ข้อมูลส่วนบุคคล

1. อายุ ❏ 20-30   ❏ 31-40   ❏ 41-50   ❏ 51 ปีขึ้นไป

2. เพศ ❏ ชาย   ❏ หญิง

3. การศึกษาสูงสุด   ❏ ต่ำว่าปริญญาตรี   ❏ ปริญญาตรี
                                    ❏ ปริญญาโท   ❏ ปริญญาเอก

4. ระดับที่สอน   ❏ ปวช.   ❏ ปวส.

5. ประสบการณ์สอน   ❏ ต่ำกว่า 10 ปี   ❏ 10- 20 ปี

                                        ❏ 20-30 ปี   ❏ 30 ปีขึ้นไป

6. ประเภทสถานศึกษา   ❏ รัฐบาล   ❏ เอกชน

1. ท่านสามารถใช้โปรแกรมคอมพิวเตอร์เหล่านี้ได้ดีมากน้อยเพียงใด?	ไม่รู้จัก	ใช้ได้น้อย	ปานกลาง	ใช้ได้มาก	ใช้ได้มากที่สุด	สำหรับผู้วิจัย
1.1 โปรแกรมพิมพ์งาน เช่น Microsoft Word						
1.2 โปรแกรมช่วยคำนวณ เช่น Microsoft Excel						
1.3 โปรแกรมนำเสนอ เช่น Microsoft Power Point						
1.4 โปรแกรมฐานข้อมูล เช่น Microsoft Access						
1.5 โปรแกรมแก้ไขภาพ เช่น Adobe Photoshop						
1.6 โปรแกรมสร้าง html ต่างๆ						
1.7 โปรแกรมสร้างเอกสาร Flash ต่าง ๆ						
1.8 โปรแกรมสร้าง CAI ต่าง ๆ						
1.9 โปรแกรม Chat ต่าง ๆ						
1.10. โปรแกรม E-mail ต่าง ๆ						
1.11 โปรแกรมบีบเอกสาร (zip) ต่าง ๆ						
1.12 โปรแกรมตัดต่อภาพยนตร์ต่าง ๆ						
1.13 โปรแกรมอ่านเอกสารชนิด pdf						
1.14 อื่น ๆ (ระบุ)..						

2. ท่านสามารถแก้ปัญหาด้านเทคนิคเหล่านี้ได้มากน้อยเพียงใด?	ทำไม่ได้	รู้บ้าง	ปานกลาง	แก้ไขได้	แก้ไขได้ดีมาก	สำหรับผู้วิจัย
2.1 แก้ปัญหาคอมพิวเตอร์ไม่พบเม้าส์หรือคีย์บอร์ด						
2.2 แก้ปัญหาปรับหน้าจอให้มีความละเอียดได้ตามต้องการ						
2.3 แก้ปัญหาปรับเร่งหรือลดความดังของเสียง						
2.4 แก้ปัญหาเมื่อเปิดเครื่องแล้วเข้า Safe Mode						
2.5 แก้ปัญหาเมื่อเครื่องเกิดอาการแฮ้งค์ (Hault)						
2.6 ปัญหาอื่น ๆ ที่เคยพบ(ระบุ)..						

3. ท่านใช้อุปกรณ์เทคโนโลยีคอมพิวเตอร์เหล่านี้ได้ดีมากน้อยเพียงใด?	ไม่รู้จัก	ใช้บ้าง	ปานกลาง	ใช้มาก	ใช้มากที่สุด	สำหรับเจ้าหน้าที่
3.1 กล้องถ่ายรูประบบดิจิตอล (Digtal Camera)						
3.2 เครื่องสแกนภาพ (Scanner)						
3.3 เครื่องฉายภาพจากคอมพิวเตอร์ (LCD Projector)						
3.4 อุปกรณ์บันทึกข้อมูล เช่น ซีดีหรือดีวีดี (CD/DVD Writer) แฟลชไดรฟ (Flash drive) หรือ แฮนดี้ไดรฟ (Handy drive)						
3.5 เครื่องฉายภาพ Visual Presenter						
3.6 อุปกรณ์อื่น ๆ ที่ท่านเคยใช้ (ระบุ)..						

4. ท่านใช้เทคโนโลยีการประชุมทางไกลต่อไปนี้ได้ดีมากน้อยเพียงใด?	ไม่รู้จัก	ใช้น้อย	ปานกลาง	ใช้มาก	ใช้มากที่สุด	สำหรับเจ้าหน้าที่
4.1 การประชุมทางไกลแบบฟังเสียง (Audio Conference)						
4.2 การประชุมทางไกลแบบผ่านจอ (Video Conference)						
4.3 ประชุมทางไกลผ่านอุปกรณ์คอมพิวเตอร์ (Computer Conference)						

ส่วนที่ 3 ความรู้ความสามารถในการใช้เทคโนโลยีคอมพิวเตอร์ในการเรียนการสอน

5. ท่านใช้ข้อมูล ภาพ และเสียงหรือสื่ออื่น ๆ จากแหล่งข้อมูลนี้ในการเตรียมการสอนมากน้อยเพียงใด?	ไม่ใช้เลย	ใช้น้อย	ปานกลาง	ใช้มาก	ใช้มากที่สุด	สำหรับเจ้าหน้าที่
5.1 เว็บไซท์ (Website)						
5.2 กระดานสนทนา (Webboard)						
5.3 บทความฐานข้อมูล (database) เช่น Science Direct						

(ต่อ) 5. ท่านใช้ข้อมูล ภาพ และเสียงหรือสื่ออื่น ๆ จากแหล่งข้อมูลนี้ในการเตรียมการสอนมากน้อยเพียงใด?	ไม่ใช้เลย	ใช้น้อย	ปานกลาง	ใช้มาก	ใช้มากที่สุด	สำหรับผู้วิจัย
5.4 สารบบเว็บ (list serv / news group)						
5.5 ซีดีโปรแกรมช่วยสอนภาษาอังกฤษ						
5.6 ซีดีเพลงและภาพยนตร์						
5.7 อื่น ๆ (ระบุ)...						

6. ท่านใช้แหล่งข้อมูลนี้ในการสอนมากน้อยเพียงใด?	ไม่ใช้เลย	ใช้น้อย	ปานกลาง	ใช้มาก	ใช้มากที่สุด	สำหรับผู้วิจัย
6.1 เว็บไซท์ (Website)						
6.2 จดหมายอิเล็กทรอนิกส์ (E-mail)						
6.3 กระดานสนทนา (Webboard)						
6.4 สื่อประสม (Multimedia) ที่พัฒนาขึ้นเอง						
6.5 อื่น ๆ (ระบุ)...						

7. ท่านใช้โปรแกรมนี้เพื่อการจัดการเรียนการสอนมากน้อยเพียงใด?	ไม่ใช้เลย	ใช้น้อย	ปานกลาง	ใช้มาก	ใช้มากที่สุด	สำหรับผู้วิจัย
7.1 ให้ผู้เรียนใช้ Microsoft Word ในการส่งงาน						
7.2 ให้ผู้เรียนใช้ Microsoft Excel ในการส่งงาน						
7.3 ให้ผู้เรียนใช้ Microsoft PowerPoint ในการส่งงาน						
7.4 ใช้ Microsoft Access ในการทำฐานข้อมูล						
7.5 อื่น ๆ (ระบุ)...						

8. ท่านได้ให้การช่วยเหลือหรือแนะนำเพื่อนร่วมงานในเรื่องต่อไปนี้มากน้อยเพียงใด?	ไม่เคยเลย	น้อย	ปานกลาง	ทำมากมาก	ทำมากที่สุด		สำหรับเจ้าหน้าที่
8.1 แนะนำให้เพื่อนร่วมงานใช้เทคโนโลยีคอมพิวเตอร์							
8.2 แสดงตัวอย่างการใช้เทคโนโลยีคอมพิวเตอร์ในการสอนให้กับเพื่อนร่วมงาน							
8.3 แนะนำและแก้ไขปัญหาที่เกิดจากการใช้เทคโนโลยีคอมพิวเตอร์ในการสอนให้กับเพื่อนร่วมงาน							
8.4 ทำการอบรมให้ความรู้แก่ครูท่านอื่น							
8.5 อื่น ๆ (ระบุ)..							

ส่วนที่ 4 ทัศนคติที่มีต่อการใช้เทคโนโลยีคอมพิวเตอร์ในการเรียนการสอน

<u>คำอธิบาย</u> ให้ท่านขีดเครื่องหมาย ✓ ระบุลงในช่องที่มีความเหมาะกับความเห็นของท่านมากที่สุด

9. ปัจจัยภาระงาน	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ/กลางๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง		สำหรับเจ้าหน้าที่
9.1 ท่านคิดว่าท่านมีภาระงานสอนมากทำให้ไม่มีเวลาไปทำอย่างอื่น							
9.2 ท่านคิดว่าท่านต้องทำงานด้านธุรการนอกเหนือการสอนทำให้ไม่มีเวลาไปทำอย่างอื่น							
9.3 ท่านคิดว่าท่านต้องสอนมากกว่าหนึ่งวิชาทำให้ไม่มีเวลาไปทำอย่างอื่น							
9.4 อื่น ๆ (ระบุ)....................................							

10. ปัจจัยทางด้านการเงิน	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ	เห็นด้วย	เห็นด้วยอย่างยิ่ง	สำหรับผู้วิจัย
10.4 ท่านคิดว่าท่านรายได้ของท่านยังไม่สามารถใช้จ่ายเพื่อซื้อคอมพิวเตอร์ไว้ที่บ้านได้						
10.2 ท่านคิดว่าอุปกรณ์และบริการด้านเทคโนโลยีสื่อสารมีราคาแพงมากจนไม่สามารถจัดสรรเงินมาส่วนนี้ได้						
10.3 ท่านคิดว่าน่าจะมีการจ่ายเงินตอบแทนพิเศษสำหรับท่านในการใช้เทคโนโลยีคอมพิวเตอร์ในการสอน						
10.4 อื่น ๆ (ระบุ)..						

11. ปัจจัยด้านผู้เรียน	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ	เห็นด้วย	เห็นด้วยอย่างยิ่ง	สำหรับผู้วิจัย
11.1 ท่านคิดว่าท่านมีจำนวนผู้เรียนในแต่ละห้องมากเกินไป						
11.2 ท่านคิดว่าผู้เรียนของท่านไม่มีพื้นฐานในการใช้คอมพิวเตอร์						
11.3 ท่านคิดว่าผู้เรียนบางคนมีทักษะคอมพิวเตอร์น้อยทำให้เรียนไม่ทันเพื่อน						
11.4 ผู้เรียนใช้เทคโนโลยีคอมพิวเตอร์ทำกิจกรรมอื่นแทนที่จะใช้เรียน เช่น เล่มเกม เข้าชมเว็บไซท์						
11.5 อื่น ๆ (ระบุ)..						

12. ปัจจัยด้านสถานศึกษา	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ	เห็นด้วย	เห็นด้วยอย่างยิ่ง		สำหรับผู้วิจัย
12.1 ท่านคิดว่าท่านไม่ได้ใช้เทคโนโลยีคอมพิวเตอร์ เพราะ ไม่มีคอมพิวเตอร์ประจำโต๊ะทำงานของท่าน							
12.2 ท่านคิดว่าท่านไม่ได้ใช้เทคโนโลยีคอมพิวเตอร์ เพราะสถานศึกษาบังคับให้ท่านใช้เทคโนโลยีมากเกินไป							
12.3 ท่านคิดว่าท่านไม่ได้ใช้เทคโนโลยีคอมพิวเตอร์เพราะ ที่ทำงานไม่มีอินเตอร์เน็ต							
12.4 ท่านคิดว่าท่านไม่ได้ใช้เทคโนโลยีคอมพิวเตอร์ เพราะ ท่านไม่มี ผู้ช่วยเหลือเมื่อพบปัญหาจากการใช้งาน							
12.5 ท่านคิดว่าท่านไม่ได้ใช้เทคโนโลยีคอมพิวเตอร์เพราะ ที่ทำงานไม่มีกล้องดิจิตอลให้ท่านใช้							
12.6 ท่านคิดว่าท่านไม่ได้ใช้เทคโนโลยีคอมพิวเตอร์เพราะ ที่ทำงานไม่มีเครื่องฉายภาพจากคอมพิวเตอร์ให้ใช้							
12.7 ท่านคิดว่าท่านไม่ได้ใช้เทคโนโลยีคอมพิวเตอร์เพราะ ที่ทำงานไม่มีเครื่องฉายภาพ ภาพ Visual Presenter							
12.8 ท่านคิดว่าท่านไม่ได้ใช้เทคโนโลยีคอมพิวเตอร์เพราะ ที่ทำงานไม่มีห้องคอมพิวเตอร์สำหรับผู้เรียน							
12.9 ท่านคิดว่าท่านไม่ได้ใช้เทคโนโลยีคอมพิวเตอร์เพราะ จำนวนคอมพิวเตอร์ไม่เพียงพอกับผู้เรียน							
12.10 อื่น ๆ (ระบุ)..							

13. ปัจจัยด้านความคิดเห็นส่วนบุคคล	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ/เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง	สำหรับผู้วิจัย
13.1 ท่านคิดว่าต้องใช้เวลาเตรียมการสอนมากกว่าเดิม						
13.2 ท่านคิดว่าการใช้คอมพิวเตอร์ในการสอนนั้นยุ่งยาก						
13.3 ท่านคิดว่าการใช้คอมพิวเตอร์ในการสอนนั้นใช้เวลามากกว่าการสอนแบบเดิม						
13.4 ท่านคิดว่าผลการเรียนของผู้เรียนจะไม่ดีเท่าการสอนแบบเดิม						
13.5 อื่น ๆ (ระบุ)...						

ส่วนที่ 5 ทัศนคติที่มีต่อการใช้เทคโนโลยีคอมพิวเตอร์ในสังคมและธุรกิจ

14. ท่านเห็นด้วยหรือไม่ที่เทคโนโลยีเหล่านี้มีความจำเป็นต่อผู้เรียน?	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ/เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง	สำหรับผู้วิจัย
14.1 การใช้งานต่าง ๆ ของเครื่อง ATM						
14.2 การซื้อสินค้าด้วยบัตรเครดิต						
14.3 ทำธุรกรรมการเงินผ่านอินเตอร์เน็ต						
14.4 ความสามารถของโทรศัพท์มือถือที่ทันสมัย						
14.5 ความสามารถทางด้านคอมพิวเตอร์ที่เป็นที่ต้องการของตลาดแรงงาน						
14.6 วิธีการสมัครงานผ่านอินเตอร์เน็ต						

15. ท่านให้ความสำคัญในการอ้างอิงแหล่งข้อมูลเพียงใด?	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ/เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง	ทำเป็นประจำ
15.1 ท่านคิดว่าควรทำบรรณานุกรม (Reference) เมื่อจัดทำ เอกสารการสอน						
15.2 ท่านคิดว่าควรทำเชิงอรรถ (Footnote) ในเอกสารการสอน						
15.3 ท่านคิดว่าควรใช้รูปแบบการอ้างอิงแหล่งข้อมูลที่เป็น มาตรฐานสากล เช่น การอ้างอิงของ APA (American Psychological Association)						

ข้อเสนอแนะอื่น ๆ

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ขอขอบคุณที่ให้ความอนุเคราะห์ตอบแบบสอบถาม

APPENDIX D

List of Questions for Semi-Structured Interview

What are the population's opinion about these topics?

1. The ability to use technology devices - reasons

2. The ability to use ICT to gather general information - reasons

3. The ability to use ICT for resources of content area - reasons

4. The factor obstructing them to use ICT in teaching, - reasons

5. The factor that supports them to use ICT in teaching - reasons

6. The need for professional development - reasons

APPENDIX E

Form Used for Interview Session

Name………………………………. Age…………………………..

Gender…………   Educataional level……………

Teaching level ………………   experience…..years   ……Gov ……Pri

   1. The opinion about the ability to use technology devices - reasons

       ………………………………………………………………………………….

       …………………………………………………………………………………..

       …………………………………………………………………………………..

       …………………………………………………………………………………..

   2. The opinion about the ability to use ICT to gather general information - reasons

       …………………………………………………………………………………..

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   3. The opinion about the ability to use ICT for resources of content area - reasons

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4. The opinion about the factor obstructing them to use ICT in teaching, - reasons

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5. The opinion about the factor that supports them to use ICT in teaching - reasons

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6. The need for professional development - reasons

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APPENDIX F

Observation Form:

Educational Institute name ……………………………………………………….
❑   **Governmental**   ❑   **Private**
Data
    ❑   **Observation**
    ❑   **Are not allowed to observe because**…………………………………

Technology Devices
Computers   ❑   **No**   ❑   **Yes**………….**room (s)**
           ❑ **less than 10 computers**   ❑ **10 – 20 computers**
           ❑ **more than 30 computers**   ❑ **more than 60 computers**
           ❑ **more than 90 computers**
           ❑ **Are**   **not**   **allowed**   **to**   **observe**   **because**
           (Specify)………………………………………………………………

Sound lab   ❑   **No**   ❑   **Yes** ……….. **room(s)**
           ❑ **less than 10 seats**   ❑ **10 – 20 seats**
           ❑ **more than seats**   ❑ **more than 60 seats**
           ❑ **more than 90 seats**
           ❑ **Are**   **not**   **allowed**   **to**   **observe**   **because**
           (Specify)………………………………………………………………

The Internet ❑   **No**   ❑   **Yes**
           ❑ **Are**   **not**   **allowed**   **to**   **observe**   **because**
           (Specify)………………………………………………………………

LCD Projector ❑   **No**   ❑   **Yes** …………. **(Items)**
           ❑ **Are**   **not**   **allowed**   **to**   **observe**   **because**
           (Specify)………………………………………………………………

Visual Presenter ❑   **No**   ❑   **Yes** …………. **(Items)**
           ❑ **Are**   **not**   **allowed**   **to**   **observe**   **because**
           (Specify)………………………………………………………………

Computer Lab for English Teaching
           ❑   **No**   ❑   **Yes**……… **(rooms)** ………**computers**
           ❑ **Are**   **not**   **allowed**   **to**   **observe**   **because**
           (Specify)………………………………………………………………

Electronic Teaching Material
           ❑ **CAI (Specify)**………………………………………………..
           ❑ **Created Html teaching material**
           ❑ ………………………………………………………………
           ❑ **Are**   **not**   **allowed**   **to**   **observe**   **because**
           (Specify)………………………………………………………………

APPENDIX G

Standards of Information and Communication Technology for English teachers in Vocational Education Institutes Who Teach Certificate and Diploma Level

	Topics	Information

Level 1	**Technology competencies and abilities to use ICT devices**	**1.1 Files management and organization**
		Using computer software to create documents
		    1.1.1 Ability to create a new file
		    1.1.2 Ability to save a file in various storage resources.
		    1.1.3 Ability to open a file
		Using file managing software such as Windows Explorer
		    1.1.4 Ability to delete a file
		    1.1.5 Ability to copy a file
		    1.1.6 Ability to move a file to another location
		    1.1.7 Ability to create a folder
		    1.1.8 Ability to save a file in the folder
		    1.1.9 Ability to search for a file
		Using computer software for various documents
		    1.1.10 Ability to use these programs
		        Microsoft Word
		        Microsoft Excel
		        Microsoft PowerPoint
		        Acrobat Reader
		        CAI
		        Others...

		Using packing or unpacking files
		    1.1.11 Ability to use Winzip or Winrar to pack files to be extension .zip or .rar
		    1.1.12 Ability to use Winzip or Winrar to unpack files extension .zip or .rar
		Using file recovery program
		    1.1.13 Ability to restore files in the Recycle Bin
		    1.1.14 Ability to use files recovery software to recover files that can not be brought back by restoring from the Recycle Bin

		1.2 Solving basic technical problems
		Computer devices error
		    1.2.1 Mouse is not detected
		    1.2.2 Keyboard is not detected
		    1.2.3 Mouse can not be moved smoothly
		Computer adjusting
		    The screen shows only 16 colors

	Topics	**Information**

		1.2.5 The screen resolution is lower than
		          800 x 600 pixel
		    1.2.6 The sound volume is low
		1.3 Using technology devices
		    1.3.1 Digital Camera
		    1.3.2 Scanner
		    1.3.3 LCD Projector 1.3.4 CD-Writer
		    1.3.5 DVD-Writer
		    1.3.6 Visual Presenter
		    1.3.7 Flash Drive or Handy Drive

Level 2	**Using resources and technology to create the contents**	❑ **Teaching Preparation** **2.1 Using texts, images, audio files or other medias from various resources** Using the information form the Internet 2.1.1 Website 2.1.2 Webboard 2.1.3 Journal Online or Database 2.1.4 E-mail Using the information from CD-ROM 2.1.5 CAI 2.1.6 Audio CD 2.1.7 Video CD 2.1.8 Data CD Using the information from other materials 2.1.9 Cassestte Tape 2.1.10 Video Tape(VHS) 2.1.11 Slide **2.2 Using technology for communication** Using e-mail to communicate with others 2.2.1 Outlook Express 2.2.2 Eudora 2.2.3 Incredimail 2.2.4 Hotmail 2.2.5 Yahoo 2.2.6 Others .... Know the Tele Conference and Web Cam

		Communicate with others 2 .2.7 Audio Conference 2.2.8 Video Conference 2.2.9 Computer Conference
	Topic	**Information**

		❑ **Creating teaching materials**
		2.3 Using computer programs to create teaching materials both normal materials and multimedia materials
		Using programs to create teaching materials
		2.3.1 Using programs to create presentation and reports.
		Microsoft PowerPoint
		Macromedia Authorware
		Others ....
		2.3.2 Using programs to create online teaching materials
		Microsoft Frontpage
		Macromedia Dreamweaver
		Macromedia Flash
		Macromedia Firework
		Hot Potatoes
		Other……………………….
		2.3.3 Using programs to create off line teaching materials
		Macromedia Flash
		Macromedia Authorware
		Microsoft Visual Basic
		Microsoft C++
		Others…………………
		2.3.4 Using programs to create, edit images, audio and movies to teach English
		  2.3.4.1 Movies editing programs
		    Adobe Premier
		    Ulead Video Studio
		    Ulead Movie Factory
		    Others……………
		  2.3.4.2 Images editing programs
		    Adobe Illustrator
		    Adobe Photoshop 7 or CS
		    Others…………………..
		  2.3.4.3 Audio editing programs
		    Sound Forge
		    Creative Wave Studio
		
		    Others**........................**

	Topic	Information

Level 3	**Applying and integrating the information technology into teaching and being expert to assist colleagues to use ICT in teaching**	❑ **Using technology in teaching procedure**
		    3.1 Using multimedia teaching material appropriately towards to contents areas and skills.
		    <u>Using the Internet in teaching procedure</u>
		    3.1.1 Using web pages to teach English and providing images.
		    3.1.2 Using web pages to teach English and providing audio samples
		    3.1.3 Using web pages to teach English and providing movie samples
		    3.1.4 Using web pages for leaners to upload their data to the server.
		    3.1.5 Using web pages that learners can discuss (Discussion Webboard)
		    3.1.6 Using web pages that provide information for learners to download.
		    3.1.7 Using web pages to give assignments to submit via e-mail
		    3.1.8 Using web pages that practice learners with interactive exercises.
		    3.1.9 Using web pages that provide exercises that show the learning results to the learners.
		    <u>Using the developed teaching materials in teaching procedure.</u>
		    3.1.10 Program teaching the contents with images.
		    3.1.11 Program teaching the contents with audio samples.
		    3.1.12 Program teaching the contents with movie samples
		    3.1.13 Program teaching the contents with interactive exercises.
		    3.1.14 Program teaching the contents with exercises that provided the results of learning.

	Topics	**Information**
		<u>Using technology devices in teaching procedure</u> 3.1.15 Using audio technology to provide the learners samples such as cassette tape,

		CD, or computer audio files.
		3.1.16 Using movie technology to provide the learners samples such as video tape, VCD,DVD, or computer movie files.
		3.1.17 Using technology devices to teach such as LCD Projector, Visual presenter or others
		3.2 Allowing learners to use technology in learning procedure
		3.2.1 Using E-mail to submit assignment and discuss with their teachers.
		3.2.2 Using various presentation programs such as Microsoft PowerPoint create reports or presentation to present in the class.
		3.2.3 Using computers to search for the information from the Internet
		3.2.4 Using computers to gather the information from CD-ROM
		3.2.5 Using programs such as Microsoft Word, Microsoft PowerPoint, Macromedia Authorware or others to create their Port Folio and presentation in multimedia form.
		❑ **Using technology for assessing and evaluating**
		3.3 **Using programs to assess and evaluate the learners**
		3.3.1 Spreadsheet programs to calculating and grading such as Microsoft Word, Microsoft Excel or others.
		3.3.2 Database program to store the data such as Microsoft Access, Microsoft FoxPro or others.
	Topic	**Information**
		❑ **Being experts to suggest and assist other teachers to integrate technology into teaching**
		3.4 **Giving suggestions to other teachers to know and try to integrate technology into teaching.**
		3.4.1 Giving the advantageous of using technology in teaching.
		3.4.2 Giving the samples of using technology from the Internet.
		3.4.3 Giving the samples of using technology
		3.4.4 from other technologies such as CD ROM

		3.4.5 Giving other teachers chances to integrate technology into their teaching.
		3.5 Giving assistances to other teachers about resources, creating multimedia teaching materials, and integrating technology into teaching. 3.5.1 Suggest resources in the Internet. 3.5.2 Suggest resources in the other sources such as CD-ROM. 3.5.3 Assist solving the problems found in creating teaching materials. 3.5.4 Assist solving the problems found in using technology in teaching. **3.6 Being experts to give training or professional development to the other teacher to create multimedia teaching materials and integrate technology into teaching.** 3.6.1 Conduct training to create multimedia teaching materials to other teachers. 3.6.2 Giving suggestions about creating multimedia teaching materials. 3.6.3 Conduct training on how to integrate technology into teaching. 3.6.4 Giving suggestion and discussion for other teachers about the problems found in the integrating of technology in teaching.

The criteria suggested for assessing the teachers' attitudes towards using technology in English language teaching.

❑ **Notice the use of technology in English language teaching, society and business.**

    1.1 Present situation of using technology in society

        1.1.1 Notice about using technology in finance and banking

            1.1.1.1 Automatic Teller Machine (ATM)

            1.1.1.2 Cash Deposit Machine

            1.1.1.3 Automatic Passbook Update Machine

            1.1.1.4 Transferring money through ATM

            1.1.1.5 Buying products and services by credit card

            1.1.1.6 Transferring money through the Internet

            1.1.1.7 Checking balance though the Internet

            1.1.1.8 Buying products though the Internet

            1.1.1.9 Paying by credit card through the Internet

1.1.2 Notice about communication technology
    1.1.2.1 Sending-receiving message though mobile phone
    1.1.2.2 Sending images from mobile phone to another mobile phone
    1.1.2.3 Sending images from the Internet into mobile phone
    1.1.2.4 Sending messages to mobile phone though the Internet.
    1.1.2.5 Inputting ring tone into mobile phone
    1.1.2.6 Inputting ring tone from the Internet into mobile phone
    1.1.2.7 Listening to music through mobile phone
    1.1.2.8 Taking photo thought mobile phone
    1.1.2.9 Watching TV show though mobile phone
    1.1.2.10   Visiting website in the Internet thought mobile phone

1.1.3 Notice about the use of technology for the information about food and health.
    1.1.3.1 Nutritional information in the Internet
    1.1.3.2 Recipe and food information in the Internet
    1.1.3.3 Health information in the Internet
    1.1.3.4 Hospital and clinic information in the Internet.

1.2 Present situation of using technology in society

1.2.1 Notice the use of computer technology in business office.
    1.2.1.1 Using of Microsoft Word
    1.2.1.2 Using of Microsoft Excel
    1.2.1.3 Using of Microsoft PowerPoint
    1.2.1.4 Using of Microsoft Access
    1.2.1.5 Using of Adobe Photoshop
    1.2.1.6 Using of other commercial ware.

1.2.2 Notice the use of computer technology in designing business.
    1.2.2.1 Using of Auto Cad
    1.2.2.2 Using of 3d Studio
    1.2.2.3 Using of Maya
    1.2.2.4 Other programs

1.2.3 Notice the use of computer technology in international trading.
    1.2.3.1 Selling products in the Internet
    1.2.3.2 Selling via auctions in the Internet
    1.2.3.3 Selling secondhand items in the Internet
    1.2.3.4 Bidding for selling products and services via the Internet

1.2.4 Notice the use of computer technology in employees seeking.
    1.2.4.1 Job advertising in the Internet
    1.2.4.2 Job Application form filling via the Internet
    1.2.4.3 Announcing to seek for a job in the Internet.

1.2.5 Notice the use of computer technology in advertising

1.2.5.1 Using large size photo advertising sign
1.2.5.2 Advertising via the Internet
1.2.5.3 Advertising via mobile phone

❑ **Using technology without negative effects to the others in terms of legal, moral, and humankind advantages**

2.1 Using technology with moral judgments
    2.1.1 Using text, image, audio, and movie files and programs in the Internet that belong to the others only for educational purposes
    2.1.1 Using text, image, audio, and movie files and program in the Internet that is not against Thai culture and tradition.
    2.1.2 Using text, image, audio, and movie files and program in the Internet that is not against the religion belief.
    2.1.3 Examining the information in the Internet gathered by learners

2.2 Using technology legally
    2.2.1 Using text, image, audio, and movie files and program in the Internet that is not negatively affect to the owners for educational purposes only
    2.2.2 Using freeware and shareware or trial ware
    2.2.3 Using commercial ware that had been bought legally to produce educational work for career promotion

2.3 Realize the advantages of technology for learners and other related persons.
    2.3.1 Supporting learners who are interested in educational technology
    2.3.2 Adding various technological contents for learners
    2.3.3 Updating educational technology from various resources
    2.3.4 Self training for new technologies
    2.3.5 Joining professional development training in integrating of technology in teaching
    2.3.6 Joining educational seminar that related to the integrating of technology into teaching

❑ **Notice the importance of resources using for teaching or assisting learners.**

3.1 Writing references
    3.1.1 Writing reference of resources used in developing teaching materials
    3.1.2 Writing footnote of resources used in developing teaching materials

3.2 Using an international references such as APA (American Psychological Association) Style

3.3 Writing references correctly

มาตรฐานระดับความรู้ความสามารถทางด้านเทคโนโลยีและสื่อสารการศึกษาของครูภาษาอังกฤษ ระดับอาชีวศึกษา

	หัวข้อ	รายละเอียด

ระดับที่ 1	ความรู้ความสามารถทางด้านเทคโนโลยีและการใช้อุปกรณ์ทางด้านเทคโนโลยี	**1.1 การจัดการเอกสาร (File) และรวบรวมเอกสาร**
		การใช้งานโปรแกรมจัดทำเอกสารต่าง ๆ
		1.1.1 มีความสามารถในการสร้างเอกสารใหม่ (New)
		1.1.2 มีความสามารถในการบันทึกเอกสารในแหล่งบันทึกข้อมูลต่าง ๆ (Save)
		1.1.3 มีความสามารถในการเปิดเอกสารเก่ามาใช้งาน (Open)
		การใช้งานโปรแกรมเครื่องมือจัดการเอกสาร เช่น Windows Explorer เป็นต้น
		1.1.4 มีความสามารถในการลบเอกสาร (Delete)
		1.1.5 มีความสามารถในการคัดลอกหรือทำสำเนาเอกสาร (Copy)
		1.1.6 มีความสามารถในการย้ายเอกสาร (Move)
		1.1.7 มีความสามารถในการสร้างแฟ้มข้อมูล (Folder)
		1.1.8 มีความสามารถในการเก็บเอกสารเข้าแฟ้มข้อมูล (Save as)
		1.1.9 มีความสามารถในการค้นหาเอกสารในเครื่องคอมพิวเตอร์ได้ (Search)
		การใช้โปรแกรมต่าง ๆ
		1.1.15 มีความสามารถในการใช้โปรแกรมต่อไปนี้ได้
		   Microsoft Word
		   Microsoft Excel
		   Microsoft PowerPoint
		   Acrobat Reader
		   โปรแกรมช่วยสอนต่าง ๆ
		   อื่น ๆ..

หัวข้อ	รายละเอียด
	<u>การใช้โปรแกรมบีบอัดหรือคลายเอกสารได้</u> 1.1.16 ใช้โปรแกรม Winzip หรือ Winrar บีบอัด เอกสารให้เป็นสกุล zip หรือ rar ได้ 1.1.17 ใช้โปรแกรม Winzip หรือ Winrar คลายเอกสาร สกุล zip หรือ rar ได้ <u>การใช้โปรแกรมกู้คืนเอกสารที่ถูกลบ</u> 1.1.18 มีความสามารถในการกู้เอกสารใน Recycle Bin ได้ (Restore) 1.1.19 ใช้โปรแกรม File Recovery ในการกู้เอกสารที่ถู กลบและไม่สามารถกู้ได้จากวิธีการ Restore จาก Recycle Bin **1.2 การแก้ปัญหาทางด้านเทคนิคเบื้องต้น** <u>อุปกรณ์คอมพิวเตอร์ไม่ทำงาน</u> 1.2.1 คอมพิวเตอร์ไม่พบเม้าส์ (Mouse Detecting) 1.2.2 คอมพิวเตอร์ไม่พบคีย์บอร์ด (Keyboard Detecting) 1.2.3 เม้าส์ (Mouse) มีอาการเคลื่อนที่ลำบาก ฝืด <u>การปรับแต่งการแสดงผลต่าง ๆ</u> 1.2.4 หน้าจอแสดงผลเพียง 16 สี 1.2.5 หน้าจอมีขนาดความละเอียดต่ำกว่า 800 x 600 pixel 1.2.6 คอมพิวเตอร์เล่นแฟ้มเสียงได้เบามาก **1.3 การใช้อุปกรณ์เทคโนโลยี** 1.3.1 กล้องถ่ายรูประบบดิจิตอล (Digital Camera) 1.3.2 เครื่องสแกน (Scanner) 1.3.3 เครื่องฉายภาพจากคอมพิวเตอร์และวีดีโอ (LCD Projector) 1.3.4 เครื่องเขียนแผ่นซีดี (CD-Writer) 1.3.5 เครื่องเขียนแผ่นดีวีดี (DVD-Writer)

	หัวข้อ	รายละเอียด
		1.3.6 เครื่อง VSP (Visual Presenter) สำหรับ ฉายภาพวัตถุจริง เช่น กระดาษเอกสาร หนังสือ ภาพถ่าย 1.3.7 แฟลชไดรว์(Flash Drive) หรือ แฮนดี้ ไดรว์ (Handy Drive)
ระดับที่ 2	การใช้แหล่งข้อมูลเทคโนโลยีและเครื่องมือสำหรับสร้างข้อมูล	❑ การเตรียมการสอน 2.1 การใช้ข้อความ ภาพ และสื่อประสม (Multimedia) จากแหล่งข้อมูลต่าง ๆ <u>การใช้ข้อมูลจากอินเตอร์เน็ท (Internet)</u> 2.1.1 ข้อมูลจากเว็บไซท์ (Website) 2.1.2 ข้อมูลจากกระดานสนทนา (Webboard) 2.1.3 ข้อมูลจากบทความออนไลน์ (Journal Online) 2.1.4 ข้อมูลที่ได้จาก จดหมายอิเล็กทรอนิคส์ (E-mail) <u>การใช้ข้อมูลจากซีดีรอม</u> 2.1.5 ข้อมูลจากโปรแกรมคอมพิวเตอร์ช่วยสอน(CAI) 2.1.6 ข้อมูลเสียงจากซีดีเสียง (Audio CD) 2.1.7 ข้อมูลภาพยนตร์จากซีดี (Video CD) 2.1.8 ข้อมูลที่เอกสารที่บันทึกลงแผ่น ซีดี (Data CD) <u>การใช้ข้อมูลจากเทป วีดีทัศน์และสไลด์</u> 2.1.9 ข้อมูลเสียงจากแถบบันทึกเสียง (Tape) 2.1.10 ข้อมูลภาพยนตร์จากวีดีทัศน์ (VHS) 2.1.11 ข้อมูลภาพจากสไลด์ (Slide) 2.2 การใช้โปรแกรมเทคโนโลยีเพื่อการสื่อสาร <u>รู้การใช้จดหมายอิเล็กทรอนิคส์เพื่อสื่อสารกับผู้อื่น</u> 2.2.1 ใช้โปรแกรม Outlook Express 2.2.2 ใช้โปรแกรม Eudora 2.2.3 ใช้โปรแกรม Incredimail 2.2.4 ใช้บริการเมล์ของ Hotmail 2.2.5 ใช้บริการเมล์ของ Yahoo 2.2.6 ใช้บริการเมล์อื่น ๆ ....

	หัวข้อ	รายละเอียด
		<u>รู้การสื่อสารวีดีทัศน์ (Tele Conference)</u>
		<u>เพื่อสื่อสารกับผู้อื่น</u>
		2 .2.7 สื่อสารทางไกลแบบ Audio Conference
		2.2.8 สื่อสารทางไกลแบบ Video Conference
		2.2.9 สื่อสารทางไกลแบบ Computer
		Conference
		❑ **การสร้างสื่อการสอน**
		2.3 การใช้โปรแกรมต่าง ๆ เพื่อสร้างสื่อการสอนแบบธรรมดาและสื่อ
		ประสม (Multimedia)
		<u>การใช้โปรแกรมสร้างงาน</u>
		2.3.1 ใช้โปรแกรมเพื่อนำเสนอและสร้างรายงานได้
		Microsoft PowerPoint
		Macromedia Authorware
		โปรแกรมอื่น ๆ ....
		2.3.2 การใช้โปรแกรมทำการสร้างเว็บสอนภาษาอังกฤษ
		(Online)
		Microsoft Frontpage
		Macromedia Dreamweaver
		Macromedia Flash
		Macromedia Firework
		Hot Potatoes
		อื่น ๆ ....

	หัวข้อ	รายละเอียด
		2.3.3 การใช้โปรแกรมทำการสร้างโปรแกรมสอนภาษา อังกฤษ (Offline) Macromedia Flash Macromedia Authorware Microsoft Visual Basic Microsoft C++ โปรแกรมอื่น ๆ 2.3.4 การใช้โปรแกรมทำการสร้าง ดัดแปลง ภาพ เสียง และ ภาพยนตร์เพื่อการสอนภาษาอังกฤษ 2.3.4.1 โปรแกรมเกี่ยวกับภาพยนตร์ Adobe Premier Ulead Video Studio Ulead Movie Factory โปรแกรมอื่น ๆ 2.3.4.2 โปรแกรมเกี่ยวกับภาพ Adobe Illustrator Adobe Photoshop 7 โปรแกรมอื่น ๆ 2.3.4.3 โปรแกรมเกี่ยวกับเสียง Sound Forge Creative Wave Studio โปรแกรมอื่น ๆ

	หัวข้อ	รายละเอียด

ระดับที่ 3	การประยุกต์ใช้ข้อมูลทางเทคโนโลยีและเป็นผู้มีความสามารถในการแนะนำและช่วยเหลือผู้อื่นในด้านการประยุกต์ใช้เทคโนโลยี	❑ **การใช้สื่อเทคโนโลยีในกระบวนการการเรียนการสอน**
		
		  3.1 **การใช้สื่อประสมในการเรียนการสอนตามทักษะและเนื้อหา**
		  <u>การใช้สื่ออินเตอร์เน็ตในการเรียนการสอน</u>
		  3.1.1 เว็บเพจ (Webpage) ที่เสนอข้อมูลเพื่อสอนเนื้อหาพร้อมภาพประกอบ
		  3.1.2 เว็บเพจเสนอข้อมูลพร้อมตัวอย่างในการใช้ภาษาในรูปแบบเสียง
		  3.1.3 เว็บเพจเสนอข้อมูลพร้อมตัวอย่างในการใช้ภาษาในรูปแบบภาพยนตร์
		  3.1.4 เว็บเพจที่รับข้อมูล (Upload) จากผู้เรียน
		  3.1.5 เว็บเพจที่ผู้เรียนสามารถร่วมแสดงความเห็น (Discussion Webboard)
		  3.1.6 เว็บเพจที่เป็นแหล่งข้อมูลดาวน์โหลด (Download) แก่ผู้เรียน
		  3.1.7 เว็บเพจที่เป็นแบบฝึกหัดสั่งงานเพื่อส่งผ่านจดหมายอิเล็กทรอนิกส์
		  3.1.8 เว็บเพจที่เป็นแบบฝึกหัดแบบตอบโต้ (Interactive/Feedback) กับผู้เรียน
		  3.1.9 เว็บเพจที่เป็นแบบฝึกหัดแสดงผลการเรียนรู้ (Result) ของผู้เรียน
		  <u>การใช้สื่อโปรแกรมที่จัดสร้างในการเรียนการสอน</u>
		  3.1.10 โปรแกรมสอนเนื้อหาพร้อมภาพประกอบ
		  3.1.11 โปรแกรมที่มีตัวอย่างการใช้ภาษาในรูปแบบเสียง
		  3.1.12 โปรแกรมที่มีตัวอย่างการใช้ภาษาในรูปแบบภาพยนตร์
		  3.1.13 โปรแกรมที่มีแบบฝึกหัดแบบตอบโต้ (Interactive/Feedback) กับผู้เรียน

หัวข้อ	รายละเอียด
	3.1.14 โปรแกรมที่มีแบบฝึกหัดแสดงผลการเรียนรู้ (Result) ของผู้เรียน <u>การใช้วัสดุอุปกรณ์เทคโนโลยีในการเรียนการสอน</u> 3.2.15 อุปกรณ์เทคโนโลยีเสียงในการให้ตัวอย่างการใช้ภาษาเช่นเทป หรือ ซีดี 3.2.16 อุปกรณ์เทคโนโลยีภาพยนตร์ในการให้ตัวอย่างการใช้ภาษา เช่น ภาพยนตร์ซีดี และเทปวิดีทัศน์ 3.2.17 อุปกรณ์เทคโนโลยีนำเสนอประกอบการสอน เช่น เครื่องฉายภาพจากคอมพิวเตอร์และวีดีโอ (LCD Projector เครื่อง VSP (Visual Presenter) สำหรับฉายภาพวัตถุจริง เช่น กระดาษเอกสาร หนังสือ ภาพถ่าย 3.3 **การให้ผู้เรียนได้ใช้เทคโนโลยีในกระบวนการเรียนการสอน** 3.3.1 การใช้จดหมายอิเล็กทรอนิคส์ (E-mail)ในการส่งงานและขอคำปรึกษากับครูผู้สอน 3.3.2 การใช้โปรแกรมนำเสนอต่าง ๆ เช่น Microsoft PowerPoint สร้างรายงานหรือนำเสนอในชั้นเรียน 3.3.3 การใช้โปรแกรมเพื่อสืบค้นข้อมูลในอินเตอร์เน็ต 3.3.4 การได้สืบค้นข้อมูลจากซีดีรอมต่าง ๆ 3.3.5 การใช้โปรแกรมต่าง ๆ เช่น Microsoft Word, Microsoft PowerPoint, Macromedia Authorware หรือ อื่น ๆ เพื่อจัดทำ Port Folio และนำเสนอในรูปแบบสื่อประสม (Multimedia)

หัวข้อ	รายละเอียด
	❑ **การใช้เทคโนโลยีในการวัดผลและประเมินผล**
	3.4 **การใช้โปรแกรมต่าง ๆ ในการวัดผลและประเมินผล**
	3.4.1 โปรแกรมช่วยในการคำนวณคะแนน เช่น
	Microsoft Word, Microsoft Excelหรืออื่น ๆ
	3.4.2 โปรแกรมฐานข้อมูลในการเก็บคะแนน
	เช่น Microsoft Access, Microsoft
	FoxPro หรือ อื่น ๆ
	❑ **การเป็นผู้มีความสามารถในการแนะนำและช่วยเหลือผู้อื่นในด้าน**
	การประยุกต์ใช้เทคโนโลยี
	3.5 **สามารถให้คำแนะนำให้ครูผู้สอนท่านอื่นรู้จักและพยายามใช้**
	เทคโนโลยีสื่อสารเพื่อการสอน
	3.5.1 เพื่อให้เห็นข้อดีของการใช้เทคโนโลยีเพื่อการเรียน
	การสอน
	3.5.2 แสดงตัวอย่างการใช้เทคโนโลยีจากอินเตอร์เน็ต
	3.5.3 แสดงตัวอย่างการใช้เทคโนโลยีจากสื่อเทคโนโลยีอื่น
	เช่น ซีดีรอม
	3.5.4 ให้ผู้อื่นได้ทดลองใช้เทคโนโลยีเพื่อการสอน
	3.6 **สามารถให้ความช่วยเหลือครูผู้อื่นทางด้านแหล่งข้อมูล และการ**
	สร้างสื่อการสอนประสมรวมถึงการประยุกต์ใช้เทคโนโลยีใน
	การสอนได้
	3.6.1 แนะนำแหล่งข้อมูลจากอินเตอร์เน็ต
	3.6.2 แนะนำแหล่งข้อมูลจากสื่อเทคโนโลยีอื่น เช่น ซีดีรอม
	3.6.3 ช่วยแก้ปัญหาในการสร้างสื่อการสอน
	3.6.4 ช่วยแก้ปัญหาจากการใช้เทคโนโลยีในการสอน

หัวข้อ	รายละเอียด
	3.7 สามารถเป็นผู้ถ่ายทอดการใช้เครื่องมือสร้างสื่อการสอนแบบสื่อประสมและการประยุกต์ใช้เทคโนโลยีเพื่อการเรียนการสอนแก่ครูผู้สอนท่านอื่นได้ 3.7.1 อบรมการสร้างสื่อการสอนสื่อประสมแก่ผู้อื่น 3.7.2 ให้คำปรึกษาเรื่องการสร้างสื่อประสม 3.7.3 อบรมเรื่องการประยุกต์ใช้เทคโนโลยีเพื่อการเรียนการสอน 3.7.4 ให้คำปรึกษาเพื่อแก้ไขปัญหาจากการประยุกต์ใช้เทคโนโลยีในการเรียนการสอน

เกณฑ์บ่งชี้เจตคติ (Attitudes) ของครูผู้สอนต่อการใช้เทคโนโลยีเพื่อการเรียนการสอนภาษาอังกฤษ

❑การรับรู้เกี่ยวกับการใช้เทคโนโลยีในการเรียนการสอนภาษาอังกฤษ สังคม และธุรกิจ

2.4 สภาพปัจจุบันของการใช้เทคโนโลยีในสังคม

    2.4.1 รู้ถึงการใช้เทคโนโลยีเพื่อการเงินการธนาคาร

        2.4.1.1 เครื่องจ่ายเงินอัตโนมัติ (ATM)

        2.4.1.2 เครื่องฝากเงินอัตโนมัติ (Cash Deposit Machine)

        2.4.1.3 เครื่องปรับสมุดเงินฝากอัตโนมัติ

        2.4.1.4 การโอนเงินในเครื่องจ่ายเงินอัตโนมัติ (ATM)

        2.4.1.5 การใช้บัตรเครดิตซื้อสินค้าและบริการต่าง ๆ

        2.4.1.6 การโอนเงินผ่านอินเตอร์เน็ต

        2.4.1.7 การตรวจสอบยอดเงินผ่านอินเตอร์เน็ต

        2.4.1.8 การซื้อสินค้าผ่านอินเตอร์เน็ต

        2.4.1.9 การชำระเงินผ่านบัตรเครดิตในอินเตอร์เน็ต

2.4.2 รู้ถึงการใช้เทคโนโลยีเพื่อการสื่อสาร

    2.4.2.1 การรับ-ส่งข้อความในโทรศัพท์มือถือ

    2.4.2.2 การส่งภาพเข้าโทรศัพท์มือถือจากโทรศัพท์มือถือ

    2.4.2.3 การส่งภาพจากอินเตอร์เน็ตเข้าโทรศัพท์มือถือ

    2.4.2.4 การส่งข้อความจากอินเตอร์เน็ตเข้าโทรศัพท์มือถือ

    2.4.2.5 การส่งสัญญาณเรียกเข้าโทรศัพท์มือถือ

    2.4.2.6 การส่งสัญญาณเรียกเข้าโทรศัพท์มือถือจากอินเตอร์เน็ต

    2.4.2.7 การใช้โทรศัพท์มือถือในการฟังเพลง

    2.4.2.8 การใช้โทรศัพท์มือถือในการถ่ายภาพ

    2.4.2.9 การใช้โทรศัพท์มือถือในการชมรายการโทรทัศน์

    2.4.2.10 การใช้โทรศัพท์มือถือในการชมเว็บไซท์อินเตอร์เน็ต

2.4.3 รู้ถึงการใช้เทคโนโลยีเพื่อข้อมูลเกี่ยวกับอาหารและสุขภาพ

    2.4.3.1 ข้อมูลทางโภชนาการทางอินเตอร์เน็ต

    2.4.3.2 ข้อมูลตำราอาหารทางอินเตอร์เน็ต

    2.4.3.3 ข้อมูลทางด้านสุขภาพทางอินเตอร์เน็ต

    2.4.3.4 ข้อมูลสถานพยาบาลทางอินเตอร์เน็ต

2.5 สภาพปัจจุบันของการใช้เทคโนโลยีในเชิงธุรกิจ

  2.5.1 รู้ถึงการใช้เทคโนโลยีในสำนักงาน

    2.5.1.1 การใช้โปรแกรม Microsoft Word

    2.5.1.2 การใช้โปรแกรม Microsoft Excel

    2.5.1.3 การใช้โปรแกรม Microsoft PowerPoint

    2.5.1.4 การใช้โปรแกรม Microsoft Access

    2.5.1.5 การใช้โปรแกรม Adobe Photoshop

    2.5.1.6 การใช้โปรแกรมสำเร็จรูปอื่น ๆ

  2.5.2 รู้ถึงการใช้เทคโนโลยีในธุรกิจออกแบบ

    2.5.2.1 การใช้โปรแกรม Auto Cad

    2.5.2.2 การใช้โปรแกรม 3d Studio

    2.5.2.3 การใช้โปรแกรม Maya

    2.5.2.4 การใช้โปรแกรมอื่น ๆ

2.5.3 รู้ถึงการใช้เทคโนโลยีในการค้าในประเทศและระหว่างประเทศ

      2.5.3.1 การเสนอขายสินค้าในอินเตอร์เน็ต

      2.5.3.2 การเสนอขายสินค้าแบบประมูลในอินเตอร์เน็ต

      2.5.3.3 การเสนอขายสินค้ามือสองในอินเตอร์เน็ต

      2.5.3.4 การประกาศข่าวประกวดราคาในอินเตอร์เน็ต

2.5.4 รู้ถึงการใช้เทคโนโลยีในการจัดหาบุคลากร

      2.5.4.1 การประกาศรับสมัครงานในอินเตอร์เน็ต

      2.5.4.2 การกรอกแบบฟอร์มสมัครงานในอินเตอร์เน็ต

      2.5.4.3 การประกาศเสนอตัวแก่องค์กรธุรกิจในอินเตอร์เน็ต

2.5.5 รู้ถึงการใช้เทคโนโลยีในการโฆษณาประชาสัมพันธ์

      2.5.5.1 การใช้ป้ายโฆษณาภาพถ่ายขนาดใหญ่

      2.5.5.2 การโฆษณาผ่านเว็บไซต์ต่าง ๆ ในอินเตอร์เน็ต

      2.5.5.3 การโฆษณาผ่านโทรศัพท์มือถือ

❑ การแสดงให้เห็นถึงการมีดุลยพินิจ ด้านจริยธรรม กฎหมาย และผลประโยชน์ต่อมนุษย์ที่เกี่ยวเนื่องกับการใช้เทคโนโลยี

2.1 มีดุลยพินิจใช้เทคโนโลยีคอมพิวเตอร์อย่างไม่ผิดจริยธรรม

    2.1.1 ใช้ข้อความ ภาพ เสียง ภาพยนตร์ และโปรแกรมของผู้อื่นจากอินเตอร์เน็ตเน้นวัตถุประสงค์ด้านการเรียนการสอนในหน้าที่รับผิดชอบ

    2.1.2 ใช้ข้อความ ภาพ เสียง ภาพยนตร์ และโปรแกรมทางอินเตอร์เน็ตที่มีเนื้อหาที่ไม่ขัดกับวัฒนธรรมและประเพณีไทย

    2.1.3 ใช้ข้อความ ภาพ เสียง ภาพยนตร์ และโปรแกรมทางอินเตอร์เน็ตที่มีเนื้อหาที่ไม่ขัดกับหลักศาสนา

    2.1.4 คัดเลือกแนะนำแหล่งข้อมูลทางอินเตอร์เน็ตให้ผู้เรียนสืบค้น

    2.1.5 ตรวจสอบข้อมูลทางอินเตอร์เน็ตที่ผู้เรียนสืบค้น

2.2 มีดุลยพินิจใช้เทคโนโลยีคอมพิวเตอร์อย่างไม่ผิดกฎหมาย

    2.2.1 ใช้ข้อความ ภาพ เสียง ภาพยนตร์ และโปรแกรมของผู้อื่นจากอินเตอร์เน็ตเน้นวัตถุประสงค์ด้านการเรียนการสอนในหน้าที่รับผิดชอบโดยไม่เกิดผลกระทบเสียหายแก่เจ้าของข้อมูลนั้น

2.2.2 ใช้โปรแกรมที่มีให้ใช้โดยไม่เสียค่าใช้จ่าย (Freeware) หรือโปรแกรม
ทดลองใช้ (Shareware หรือ Trialware)

2.2.3 พยายามใช้โปรแกรมที่มีลิขสิทธิ์และจัดซื้อมาอย่างถูกต้องเพื่อสร้างผล
งานทางวิชาการ

2.3 เล็งเห็นประโยชน์ของเทคโนโลยีต่อผู้เรียนและผู้อื่นที่จะมีส่วนเกี่ยวข้อง

2.3.1 สนับสนุนผู้เรียนที่สนใจการใช้เทคโนโลยีเพื่อการศึกษา

2.3.2 พยายามเพิ่มเติมเนื้อหาการเรียนให้มีส่วนที่เกี่ยวข้องกับเทคโนโลยี
ด้านต่าง ๆ

2.3.3 ติดตามข่าวสารเทคโนโลยีเพื่อการสอนจากแหล่งข้อมูลต่าง ๆ

2.3.4 ฝนฝึกพัฒนาตนเองให้รู้ทันเทคโนโลยีใหม่ ๆ

2.3.5 เข้ารับการอบรมการบูรณาการเทคโนโลยีเข้ากับการเรียนการสอน

2.3.6 เข้าร่วมสัมมนาวิชาการที่เกี่ยวข้องกับการใช้เทคโนโลยีเพื่อการเรียนการ
สอน

❑ การแสดงให้เห็นถึงการให้ความสำคัญกับแหล่งข้อมูลที่นำมาเพื่อการเรียนการสอน
หรือช่วยเหลือผู้เรียน

3.1 มีการอ้างอิงแหล่งข้อมูล

3.1.1 จัดทำบรรณานุกรม (Reference) เพื่ออ้างอิงข้อมูลแหล่งข้อมูลในสื่อการ
สอน

3.1.2 จัดทำเชิงอรรถ (Footnote) หรือ คำอธิบายที่พิมพ์ไว้ส่วนล่างหรือส่วนหลัง
ของหนังสือเพื่ออ้างอิงแหล่งข้อมูล

3.2 ใช้รูปแบบการอ้างอิงของ APA (American Psychological Association) Style
ในการอ้างอิง

3.3 อ้างอิงได้อย่างถูกต้อง

APPENDIX H

Participants' Information for the Interview Session

Variables	Details	population	samples	total
Age	20-30 years old	30	5	15
	31-40 years old	13	4	
	41-50 years old	16	4	
	51 years old up	5	2	
Genders	Male	14	3	15
	Female	50	12	
Educational level	Lower than bachelor's degree	1	1	15
	Bachelor's degree	48	11	
	Master's degree	15	3	
Teaching level	Certificate level	16	6	15
	Diploma level	48	9	
Teaching experiences	Less than 10 years	41	5	15
	10-20 years	9	5	
	21-30 years	14	5	
Types of educational institutes	Governmental institutes	34	7	15
	Private institutes	30	8	

	age	Genders	education	institute	experience	level
Interviewee 1	20 -30	Female	Bachelor	Private	Less than 10	Cert
Interviewee 2	20 -30	Female	Bachelor	Private	Less than 10	Dip
Interviewee 3	20 -30	Male	Bachelor	Gov	Less than 10	Cert
Interviewee 4	20 -30	Female	Lower	Private	Less than 10	Cert
Interviewee 5	20 -30	Male	Bachelor	Gov	Less than 10	Dip
Interviewee 6	31-40	Male	Bachelor	Gov	Less than 20	Dip
Interviewee 7	31-40	Female	Master	Gov	Less than 20	Dip
Interviewee 8	31-40	Female	Master	Gov	Less than 20	Dip
Interviewee 9	31-40	Female	Bachelor	Private	Less than 20	Cert
Interviewee 10	31-40	Female	Bachelor	Gov	Less than 20	Dip
Interviewee 11	40-50	Female	Bachelor	Private	Less than 30	Dip
Interviewee 12	40-50	Female	Bachelor	Private	Less than 30	Cert
Interviewee 13	40-50	Female	Bachelor	Gov	Less than 30	Dip
Interviewee 14	40-50	Female	Bachelor	Private	Less than 30	Cert
Interviewee 15	51 up	Female	Bachelor	Gov	Less than 30	Dip

Gov = governmental; Cert = certificate; Dip = diploma

APPENDIX I

Interview Data

Interviewee 1: 20-30/female/bachelor's degree/private/less than 10 years/certificate

Questions	Answers
The opinion about the ability to use technology devices - reasons	I want to be able to use all of the devices but the problem is that I have none of the devices.
The opinion about the ability to use ICT to gather general information – reasons	I have no chance to use it and I think it is useful.
The opinion about the ability to use ICT for resources of content area – reasons	It is interesting and I will try to use it.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	I have no idea how to use it in teaching.
The opinion about the factor that supports them to use ICT in teaching – reasons	I have heard that it is effective in teaching so I want to try using it.
The need for professional development - reasons	I need it a lot and I need to be trained from the very beginning.

Interviewee 2: 20-30/female/bachelor's degree/private/less than 10 years/diploma

Questions	Answers
The opinion about the ability to use technology devices - reasons	I can use it basically not in advance level.
The opinion about the ability to use ICT to gather general information – reasons	I rarely use it. I do not have much knowledge about it.
The opinion about the ability to use ICT for resources of content area – reasons	I never use it to search for the information.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	I want to use it but there are not any computers for students.
The opinion about the factor that supports them to use ICT in teaching – reasons	The government promotes using it so it seems to be good.
The need for professional development - reasons	I need it a lot and I want to be trained until I can use it effectively.

Interviewee 3: 20-30/male/ bachelor's degree/government/less than 10 years/certificate

Questions	Answers
The opinion about the ability to use technology devices - reasons	I can use it quite well but the computers in this institute were broken and no one can fix them.
The opinion about the ability to use ICT to gather general information – reasons	I usually use it to search for information. I think that it is useful.
The opinion about the ability to use ICT for resources of content area – reasons	Sometimes I use it to search for information when I prepare teaching materials. It helps a lot.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	There is no computer lab for language teaching. The computer lab available here is for computer course and it is hardly free.
The opinion about the factor that supports them to use ICT in teaching – reasons	I think it helps a lot for teachers and students.
The need for professional development - reasons	I need it a lot. I want you to tell my director to hold the seminar for us.

Interviewee 4: 20-30/female/lower than bachelor's degree/private/less than 5 years/ certificate

Questions	Answers
The opinion about the ability to use technology devices - reasons	If I know how to use it, I can use it without waiting for the others to do it for me.
The opinion about the ability to use ICT to gather general information – reasons	I always use it for searching for information and reading news. It is very useful.
The opinion about the ability to use ICT for resources of content area – reasons	There is a lot of information for me to choose but I have to adapt it because it does not suit my students. And I have to adapt to create printed materials because there is no computer to use in classroom.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	A few teachers use it. It is not popular.
The opinion about the factor that supports them to use ICT in teaching – reasons	There are a lot of CALL so I would like to use it in teaching as well.
The need for professional development - reasons	I need it. And I want to be trained to create teaching materials.

Interviewee 5: 20-30/male/bachelor's degree/government/less than 10 years /diploma

Questions	Answers
The opinion about the ability to use technology devices – reasons	It is necessary nowadays. If I know how to use it, it would be more advantageous in working.
The opinion about the ability to use ICT to gather general information – reasons	I want to try using it, but the Internet is not available here.
The opinion about the ability to use ICT for resources of content area – reasons	I want to try using it.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	Computers in this institute are not only a few, but some of them are broken. There is no the Internet connection here. I only use it to create teaching materials.
The opinion about the factor that supports them to use ICT in teaching – reasons	I want to improve my teaching methodology.
The need for professional development – reasons	I need it. I want to be trained a lot and many times.

Interviewee 6: 31-40/male/bachelor's degree/government/less than 20/diploma

Questions	Answers
The opinion about the ability to use technology devices – reasons	It is good to know, but I have no chance to try it.
The opinion about the ability to use ICT to gather general information – reasons	There is no computer connecting to the Internet for teachers.
The opinion about the ability to use ICT for resources of content area – reasons	The internet must be available first.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	I have to wait for computers provided by the director.
The opinion about the factor that supports them to use ICT in teaching – reasons	My students can practice many skills.
The need for professional development – reasons	I need it.

Interviewee 7: 31-40/male/Master degree/government/less than 20 years/diploma

Questions	Answers
The opinion about the ability to use technology devices - reasons	I think it is very important. Students should know how to use it.
The opinion about the ability to use ICT to gather general information – reasons	It is useful. I always use it.
The opinion about the ability to use ICT for resources of content area – reasons	I often use it to create my teaching materials.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	I have no computers for my students. When I assign them to work, they have to work by using the outside computers.
The opinion about the factor that supports them to use ICT in teaching – reasons	Teaching materials are various and they can be adapted to use effectively. But I use only those ideas to practice in classroom without computers.
The need for professional development - reasons	I need new methods of teaching using technology outside the computers lab.

Interviewee 8: 31-40/female/master's degee/government/less than 20 years/ diploma

Questions	Answers
The opinion about the ability to use technology devices - reasons	I do not know much and I can only type. I think it is good if I know how to use it.
The opinion about the ability to use ICT to gather general information – reasons	I know there is a lot of information but I never try to use it.
The opinion about the ability to use ICT for resources of content area – reasons	I do not know how to search for information.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	I do not know how to use and I am afraid it would be difficult.
The opinion about the factor that supports them to use ICT in teaching – reasons	I want my students to study effectively. If it helps, I want to try using it.
The need for professional development - reasons	I need it a lot.

Interviewee 9:31-40/female/bachelor's degree/private/less than 20 years/ certificate

Questions	Answers
The opinion about the ability to use technology devices - reasons	I do not know anything but typing.
The opinion about the ability to use ICT to gather general information – reasons	I never try to use it before the computer lab is not free.
The opinion about the ability to use ICT for resources of content area – reasons	I never try to use it because I do not know how to begin.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	I have more teaching loads because there are a few English teachers here and there is no one to help me to use it.
The opinion about the factor that supports them to use ICT in teaching – reasons	I want to use it personally before using in classroom.
The need for professional development - reasons	I need it a lot.

Interviewee 10:31-40/female/bachelor's degree/governmental/less than 20 years/ diploma

Questions	Answers
The opinion about the ability to use technology devices - reasons	I want to know a lot. I want to know how to create teaching materials.
The opinion about the ability to use ICT to gather general information – reasons	There is no the Internet at my workplace and I have no computer at home. However, I need to try using it.
The opinion about the ability to use ICT for resources of content area – reasons	I have heard about it but there is no the Internet here.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	I want to use it but there is no one to help me and there is no the Internet here.
The opinion about the factor that supports them to use ICT in teaching – reasons	It would be advantageous if I have computers and the Internet.
The need for professional development – reasons	I need to be trained both teaching methodology and creating teaching materials a lot.

Interviewww 11: 40-50/female/bachelor's degree/private/less than 30 years/diploma

Questions	Answers
The opinion about the ability to use technology devices – reasons	I think it is really useful if we need a good job because it is required nowadays.
The opinion about the ability to use ICT to gather general information – reasons	I use only e-mail and read news. I never try another functions and I have no idea how to do it.
The opinion about the ability to use ICT for resources of content area – reasons	If there is any suggestion, it will help a lot.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	I have no idea about it. I need some suggestions.
The opinion about the factor that supports them to use ICT in teaching – reasons	If I have someone suggests me, it would be helpful.
The need for professional development – reasons	I need training a lot. And I am happy to pay for training.

Interviewee 12: 40-50/female/bachelor's degree/private/less than 30 years/ certificate

Questions	Answers
The opinion about the ability to use technology devices – reasons	I use word processing a lot and sometimes fr calculating. I use books more.
The opinion about the ability to use ICT to gather general information – reasons	I never use it. The computers here are for computer courses. The other courses are not allowed, even the teachers here.
The opinion about the ability to use ICT for resources of content area – reasons	I never use it.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	There is no computer and the Internet here.
The opinion about the factor that supports them to use ICT in teaching – reasons	I want to use it. I heard it is useful and widely used. Everything bases on the Internet.
The need for professional development – reasons	I need it a lot.

Interviewee 13: 40-50 /female/bachelor's degree/governmental/less than 30 years/diploma

Questions	Answers
The opinion about the ability to use technology devices - reasons	I think it is important. We should know how to use it.
The opinion about the ability to use ICT to gather general information – reasons	It is useful. A lot of information is there.
The opinion about the ability to use ICT for resources of content area – reasons	I never use it. I use e-mail for teaching a lot.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	I have a few ideas about it. It would be good if someone advices me.
The opinion about the factor that supports them to use ICT in teaching – reasons	I want to use it for various works.
The need for professional development - reasons	I need it. Please contact me.

Interviewee 14: 40-50/female/bachelor's degree/private/less than 30 years/ certificate

Questions	Answers
The opinion about the ability to use technology devices - reasons	I know nothing but word processing.
The opinion about the ability to use ICT to gather general information – reasons	I never use it but I know it is useful.
The opinion about the ability to use ICT for resources of content area – reasons	I never use it so I have no idea about it.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	I want to use it but the computers are broken and no one repairs them.
The opinion about the factor that supports them to use ICT in teaching – reasons	It sounds interesting and I want to try using it.
The need for professional development - reasons	I need it.

Interviewee 15: 51+/female/bachelor's degree/governmental/less than 30 years/diploma

Questions	Answers
The opinion about the ability to use technology devices - reasons	We should know a lot, it is important now.
The opinion about the ability to use ICT to gather general information – reasons	I sometimes search for some information. I think it is interesting to use them as teaching aterials.
The opinion about the ability to use ICT for resources of content area – reasons	I have never tried it.
The opinion about the factor obstructing them to use ICT in teaching, - reasons	I have heavy teaching loads. There are a few teachers here.
The opinion about the factor that supports them to use ICT in teaching – reasons	I know it is useful. I want to use it.
The need for professional development - reasons	I need it a lot.

ครูตัวอย่างที่ 1   อายุ 20-30 หญิง ป.ตรี เอกชน สอน ต่ำกว่า 10 ปี ปวช

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถใน การใช้อุปกรณ์เทคโนโลยีสื่อสาร	ก็อยากจะใช้เป็นทุกอย่าง แต่ปัญหาคือไม่มีของให้ใช้
ความเห็นเกี่ยวกับความรู้ความสามารถใน การใช้เทคโนโลยีสื่อสารเป็นแหล่งและ เครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	ยังไม่มีโอกาสได้ใช้ แต่คิดว่าน่าจะมีประโยชน์มาก
ความเห็นเกี่ยวกับความรู้ความสามารถใน การใช้เทคโนโลยีสื่อสารเป็นแหล่งและ เครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	ก็น่าสนใจ จะพยายามหาโอกาสลองใช้ดู
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการ บูรณาการเทคโนโลยีสื่อสารในการสอน	ไม่มีความรู้ว่าจะเอามาใช้ในการสอนอย่างไร
ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุด ในการบูรณาการเทคโนโลยีสื่อสารในการ สอน	ได้ยินมาว่ามีการใช้แล้วเกิดผลดี ก็อยากจะจะลองใช้
ความเห็นเกี่ยวกับความต้องการฝึกอบรม การใช้เทคโนโลยีสื่อสารในการสอน	ต้องการมาก อยากได้ตั้งแต่พื้นฐานที่จำเป็นเลย

ครูตัวอย่างที่ 2 อายุ 20-30 หญิง ป.ตรี เอกชน สอน ต่ำกว่า 10 ปี ปวส

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถใน การใช้อุปกรณ์เทคโนโลยีสื่อสาร	ก็สามารถใช้งานทั่วไปได้ ขั้นสูงคงไม่ได้
ความเห็นเกี่ยวกับความรู้ความสามารถใน การใช้เทคโนโลยีสื่อสารเป็นแหล่งและ เครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	ไม่ค่อยได้ใช้ ไม่ค่อยรู้เรื่อง
ความเห็นเกี่ยวกับความรู้ความสามารถใน การใช้เทคโนโลยีสื่อสารเป็นแหล่งและ เครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	ไม่เคยลองค้นหาเลย
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการ บูรณาการเทคโนโลยีสื่อสารในการสอน	อยากทดลองใช้แต่ไม่มีเครื่องคอมพิวเตอร์ในเด็กใช้

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	รัฐบาลพยายามสนับสนุน ก็เชื่อว่าน่าจะดี
ความเห็นเกี่ยวกับความต้องการฝึกอบรมการใช้เทคโนโลยีสื่อสารในการสอน	ต้องการมาก อยากให้ฝึกจนสามารถใช้งานได้จริง ๆ

ครูตัวอย่างที่ 3   อายุ 20-30 ชาย ป.ตรี รัฐบาล สอน ต่ำกว่า 10 ปี ปวช

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้อุปกรณ์เทคโนโลยีสื่อสาร	ก็พอจะใช้งานได้ แต่คอมที่นี่เสียแล้วไม่มีคนซ่อมให้
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	ปกติก็จะใช้ค้นหาข้อมูลที่ต้องการเสมอ ก็เห็นว่ามีประโยชน์ดี
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	ก็ใช้บ้างเวลาหาข้อมูลทำเอกสารประกอบการสอน ก็ช่วยได้เยอะ
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	ไม่มีห้องคอมสำหรับสอนภาษา ที่มีอยู่ก็สำหรับเรียนคอมพิวเตอร์ ซึ่งก็ไม่เคยว่างเลย
ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	คิดว่าน่าจะช่วยได้มากทั้งผู้สอนและผู้เรียน
ความเห็นเกี่ยวกับความต้องการฝึกอบรมการใช้เทคโนโลยีสื่อสารในการสอน	ต้องการ อยากให้มาจัดอบรมและเสนอผู้บริหารให้ด้วย

ครูตัวอย่างที่ 4   อายุ 20-30 หญิง ต่ำกว่า ป.ตรี เอกชน สอน ต่ำกว่า 5 ปี ปวช

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้อุปกรณ์เทคโนโลยีสื่อสาร	ถ้ารู้ก็น่าจะดี เพราะบางทีคนที่จะทำให้เราไม่ว่าง เราก็ไม่ต้องรอ ทำเองเลย
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและ	ใช้ประจำเพื่อหาข้อมูล อ่านข่าว มีประโยชน์มาก

เครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	มีให้เลือกมาก แต่เราต้องเลือกมาดัดแปลงเพราะเด็กเราอ่อน แต่ก็ต้องเอามาทำเป็นเอกสารใช้สอนเพราะไม่มีเครื่องคอม
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	ยังมีคนทำกันน้อย ไม่เป็นที่รู้จัก
ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	เห็นสื่อการสอนคอมพิวเตอร์ออกมามาก อยากเอามาช่วยสอน
ความเห็นเกี่ยวกับความต้องการฝึกอบรมการใช้เทคโนโลยีสื่อสารในการสอน	ต้องการ อยากให้สอนทำสื่อด้วย

ครูตัวอย่างที่ 5 อายุ 20-30 ชาย ป.ตรี รัฐบาล สอน ต่ำกว่า 10 ปี ปวส

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้อุปกรณ์เทคโนโลยีสื่อสาร	ก็น่าจำเป็นแล้วในสังคมปัจจุบันนี้ รู้ไว้ก็จะได้เปรียบคนอื่นเวลาทำงาน
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	ไม่มีอินเตอร์เน็ตให้ใช้ อยากลองใช้เหมือนกัน
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	อยากลองใช้
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	คอมพิวเตอร์ที่นี่มีน้อย เสียก็เยอะ และก็ไม่มีอินเตอร์เน็ตให้ ใช้ก็แค่ตอนทำเอกสารสอน
ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	อยากพัฒนาการสอนตัวเองด้วย
ความเห็นเกี่ยวกับความต้องการฝึกอบรมการใช้เทคโนโลยีสื่อสารในการสอน	ต้องการ อยากให้อบรมเยอะ ๆ บ่อย ๆ

ครูตัวอย่างที่ 6 อายุ 31-40 ชาย ป.ตรี รัฐบาล สอน ต่ำกว่า 20 ปี ปวส

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้อุปกรณ์เทคโนโลยีสื่อสาร	รู้ไว้ก็น่าจะดี แต่ไม่ค่อยมีโอกาส
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	ไม่มีคอมพิวเตอร์ให้ครูลองใช้ ไม่เคยลองใช้อินเตอร์เน็ต
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	ต้องมีอินเตอร์เน็ตก่อน
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	ต้องรอผู้บริหารซื้อคอมพิวเตอร์ให้
ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	เด็กจะได้ฝึกหลาย ๆ อย่าง
ความเห็นเกี่ยวกับความต้องการฝึกอบรมการใช้เทคโนโลยีสื่อสารในการสอน	ต้องการ

ครูตัวอย่างที่ 7 อายุ 31-40 หญิง ป.โท รัฐบาล สอน ต่ำกว่า 20 ปี ปวส

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้อุปกรณ์เทคโนโลยีสื่อสาร	คิดว่าสำคัญมาก นักเรียนควรจะมีความรู้พวกนี้
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	มีประโยชน์มาก ใช้ประจำ
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	ก็ใช้เพื่อการเตรียมการสอนบ่อย ๆ
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	เราไม่มีคอมพิวเตอร์ให้เด็กทำเวลาเรียน ต้องเป็นการสั่งงานไปทำข้างนอก

ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	สื่อมีหลากหลาย เอามาประยุกต์ใช้ได้ดี แต่ส่วนใหญ่เอารูปแบบมาฝึกเองกับเด็กในห้องเรียน
ความเห็นเกี่ยวกับความต้องการฝึกอบรมการใช้เทคโนโลยีสื่อสารในการสอน	ต้องการวิธีการสอนแบบใหม่ ๆ ที่ใช้เทคโนโลยีแบบไม่มีห้องคอมพิวเตอร์สำหรับสอนภาษา

ครูตัวอย่างที่ 8 อายุ 31-40 หญิง ป.โท รัฐบาล สอน ต่ำกว่า 20 ปี ปวส

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้อุปกรณ์เทคโนโลยีสื่อสาร	ตัวเองไม่ค่อยมีความรู้มาก พอจะพิมพ์ได้ แต่คิดว่าน่าจะดีถ้ารู้ไว้
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	ทราบว่ามีข้อมูลมากมาย แต่ไม่เคยลองใช้
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	ไม่รู้ว่าจะไปค้นหาอย่างไร
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	ไม่มีความรู้เรื่องพวกนี้ กลัวจะยุ่งยาก
ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	อยากให้เด็กเก่งขึ้น ถ้าช่วยได้ก็อยากจะทดลองใช้
ความเห็นเกี่ยวกับความต้องการฝึกอบรมการใช้เทคโนโลยีสื่อสารในการสอน	ต้องการมาก

ครูตัวอย่างที่ 9 อายุ 31-40 หญิง ป.ตรี เอกชน สอน ต่ำกว่า 20 ปี ปวช

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้อุปกรณ์เทคโนโลยีสื่อสาร	ไม่มีความรู้อะไรนอกจากพิมพ์งาน
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	ไม่เคยลองใช้เลย ห้องคอมจะไม่ว่างตลอด ใช้สอนตลอด
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	ไม่เคยลองใช้ ไม่รู้จะเริ่มอย่างไร
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	สอนเยอะมาก ครูน้อย ขาดคนช่วยแนะนำเรื่องพวกนี้
ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	อยากจะลองใช้ส่วนตัว ถ้าช่วยได้ ก็จะลองเอามาทดลองใช้ในห้องเรียน
ความเห็นเกี่ยวกับความต้องการฝึกอบรมการใช้เทคโนโลยีสื่อสารในการสอน	ต้องการมาก

ครูตัวอย่างที่ 10 อายุ 31-40 หญิง ป.ตรี รัฐบาล สอนต่ำกว่า 20 ปี ปวส

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้อุปกรณ์เทคโนโลยีสื่อสาร	อยากจะรู้มาก อยากทำสื่อเป็น
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	ที่นี่ไม่มีอินเตอร์เน็ต ที่บ้านก็ไม่มีคอมพิวเตอร์ แต่อยากลองใช้
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	ได้ยินเรื่องพวกนี้เหมือนกันแต่ก็เหตุผลเดิม คือ ไม่มีอินเตอร์เน็ตใช้
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	อยากใช้ แต่ขาดคนช่วยแนะนำ ไม่มีอินเตอร์เน็ต

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	ถ้ามีคอมพิวเตอร์ มีอินเตอร์เน็ต จะช่วยได้มาก ๆ
ความเห็นเกี่ยวกับความต้องการฝึกอบรมการใช้เทคโนโลยีสื่อสารในการสอน	ต้องการมาก ตั้งแต่การสอนถึงการทำสื่อเลย

ครูตัวอย่างที่ 11 อายุ 40-50 หญิง ป.ตรี เอกชน สอน ต่ำกว่า 30 ปี ปวส

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้อุปกรณ์เทคโนโลยีสื่อสาร	คิดว่าสำคัญมากถ้าอยากได้งานที่ดี ๆ หน่อย เดี๋ยวนี้เป็นที่ต้องการมากสำหรับความสามารถเรื่องพวกนี้
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	ก็ใช้แต่อีเมล์ กับอ่านข่าวผ่านเว็บ อย่างอื่นยังไม่เคยลอง ไม่รู้ด้วยว่าจะไปหาที่ไหน
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	ถ้ามีการแนะนำว่าจะหาได้ที่ไหน ก็น่าจะช่วยได้
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	ไม่มีความรู้เรื่องพวกนี้ ต้องการคำแนะนำ
ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	ถ้ามีคนช่วยแนะนำ น่าจะช่วยได้เยอะ
ความเห็นเกี่ยวกับความต้องการฝึกอบรมการใช้เทคโนโลยีสื่อสารในการสอน	ต้องการมาก ยินดีจะจ่ายค่าใช้จ่ายต่าง ๆ

ครูตัวอย่างที่ 12 อายุ 40-50 หญิง ป.ตรี เอกชน สอน ต่ำกว่า 30 ปี ปวช

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้อุปกรณ์เทคโนโลยีสื่อสาร	ส่วนใหญ่ก็ใช้แค่พิมพ์งานกับตัดเกรด นอกนั้นก็ใช้หนังสือแบบเรียน
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและ	ไม่เคยใช้ ห้องคอมที่นี่เอาไว้สอนวิชาคอมพิวเตอร์ เด็กแผนกอื่นไม่ได้ใช้ ครูเองก็ยังไม่ได้ใช้เลย

แนวคำถาม	คำตอบ
เครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	
ความเห็นเกี่ยวกับความรู้ความสามารถใน การใช้เทคโนโลยีสื่อสารเป็นแหล่งและ เครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	ไม่เคยลองใช้ ไม่มีให้ใช้
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการ บูรณาการเทคโนโลยีสื่อสารในการสอน	ไม่มีคอมและเน็ตให้ใช้
ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุด ในการบูรณาการเทคโนโลยีสื่อสารในการ สอน	อยากใช้ เห็นว่ามันมีบทบาทมากขึ้นเรื่อย ๆ อะไร ๆ ก็อินเตอร์เน็ต
ความเห็นเกี่ยวกับความต้องการฝึกอบรม การใช้เทคโนโลยีสื่อสารในการสอน	ต้องการมาก

ครูตัวอย่างที่ 13 อายุ 40-50 หญิง ป.ตรี รัฐบาล สอน ต่ำกว่า 30 ปี ปวส

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถใน การใช้อุปกรณ์เทคโนโลยีสื่อสาร	คิดว่าสำคัญ ควรจะรู้ไว้
ความเห็นเกี่ยวกับความรู้ความสามารถใน การใช้เทคโนโลยีสื่อสารเป็นแหล่งและ เครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	มีประโยชน์มาก มีข้อมูลเยอะ
ความเห็นเกี่ยวกับความรู้ความสามารถใน การใช้เทคโนโลยีสื่อสารเป็นแหล่งและ เครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	ไม่เคยใช้ ส่วนใหญ่ใช้อีเมล์ในการสอน
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการ บูรณาการเทคโนโลยีสื่อสารในการสอน	ไม่ค่อยมีความรู้ด้านนี้ ถ้ามีคนแนะนำจะช่วยได้มาก
ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุด ในการบูรณาการเทคโนโลยีสื่อสารในการ สอน	อยากจะลองใช้งานให้หลากหลาย
ความเห็นเกี่ยวกับความต้องการฝึกอบรม การใช้เทคโนโลยีสื่อสารในการสอน	ต้องการมาก ติดต่อมาได้เลย ยินดีเข้าร่วม

ครูตัวอย่างที่ 14 อายุ 40-50 หญิง ป.ตรี เอกชน สอน ต่ำกว่า 30 ปี   ปวช

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้อุปกรณ์เทคโนโลยีสื่อสาร	ไม่มีความรู้อะไรนอกจากพิมพ์งาน
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	ไม่เคยใช้เลย แต่รู้ว่ามีประโยชน์ดี
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	ไม่เคยลองใช้ ไม่รู้ว่าเป็นอย่างไร
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	อยากใช้ แต่คอมเสีย แล้วไม่มีคนซ่อม
ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	ฟังดูมันน่าสนใจ อยากทดลองใช้
ความเห็นเกี่ยวกับความต้องการฝึกอบรมการใช้เทคโนโลยีสื่อสารในการสอน	ต้องการ

ครูตัวอย่างที่ 15 อายุมากกว่า 51 หญิง ป.ตรี รัฐบาล สอน ต่ำกว่า 30 ปี

แนวคำถาม	คำตอบ
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้อุปกรณ์เทคโนโลยีสื่อสาร	ความรู้มาก ๆ มีความจำเป็นแล้ว
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้ข้อมูลต่าง ๆ ทั่วไป	ก็เข้าไปอ่านดูข้อมูลบ้าง น่าสนใจที่จะเอามาทำเป็นเอกสารการสอนได้
ความเห็นเกี่ยวกับความรู้ความสามารถในการใช้เทคโนโลยีสื่อสารเป็นแหล่งและเครื่องมือเพื่อให้ได้เนื้อหาเฉพาะทาง	ยังไม่เคยลองเลย
ความเห็นเกี่ยวกับปัญหาใหญ่ที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	สอนเยอะมาก ครูน้อย

ความเห็นเกี่ยวกับสิ่งที่สนับสนุนมากที่สุดในการบูรณาการเทคโนโลยีสื่อสารในการสอน	เห็นประโยชน์ อยากใช้
ความเห็นเกี่ยวกับความต้องการฝึกอบรมการใช้เทคโนโลยีสื่อสารในการสอน	ต้องการมาก

APPENDIX J

List of ICT for education experts

1. **Assoc. Prof. Dr. Puangpen Intraprawat**
   Suranaree University of Technology
   Doctor of Arts in English

2. **Mr. Thung- Ngern   Daotiang**
   Suranaree University of Technology

3. **Dr. Sak Sekkuntod**
   NECTEC (National Electronics and Computer Technology Center)
   Ph. D. Electrical Engineering

4. **Asst. Prof. Pichai Nantaburom**
   Rajamangala University of Technology Isaan
   M. Ed., Grad. Dip. TESOL

5. **Ms. Mayuree Samtalee**
   Rajamangala University of Technology Isaan
   M. Ed in Educational Linguistics
   Dip.TEFL

6. **Ms. Nattana Kotuta**
   Rajamangala University of Technology Isaan
   M.A. English Language Teaching

7. **Ms. Chaleow Sawaddipeera**
   Rajamangala University of Technology Isaan
   B.A. English Literature

8. **Mr. Pisit Puangmaliwan**
   Rajabhat University of Nakhon Ratchasima
   M. A. in English Language Study

9. **Ms. La-or tip Weerarak**
   Rajabhat University of Nakhon Ratchasima
   M. A. in English Language Study

10. **Ms. Nittaya Boonyakiat**
    Nakhon Ratchasima vocational college
    M.Ed. (TESOL)

CURRICULUM VITAE

Mr. Tarathip Tanakachane was born on July 9, 1974 in Nakhon Ratchasima. He studied in the Department of English, Faculty of Humanities and Social Science at Rajhbat University Nakhon Ratchasima, where he graduated with a B.A. of English in 1996. After that, he worked for Siam Computer and Language School in Nakhon Ratchasima province for 2 years. He has worked for Rajamangala University of Technology Isaan, North-eastern campus, Nakhon Ratchasima since 1998. He studied in the School of English, Institute of Social Technology, Suranaree University of Technology for a Master's Degree.