The effect of EFL teachers' Technological Pedagogical Content Knowledge (TPACK) on EFL teaching in Saudi Arabian Secondary Schools

Sami Saad Alghamdi

Bachelor of English Language (Albaha University, 2004)

Master of Education in TESOL (New England University, 2011)

Postgraduate Diploma in Translation and Interpretation (Monash University, 2013)

A Dissertation submitted in fulfilment for the degree of Doctor of Philosophy

University of New England

November 2017

DEDICATION

This work is dedicated to

My father and mother

My beloved wife Hala

My daughters Fajer, Layal and Laura

For their unfailing love, support and encouragement throughout my candidature

CERTIFICATE

I certify that the substance of this thesis has not already been submitted for any degree and is not currently submitted for any other degree of qualification.

I certify that any help received in preparing this thesis, and all sources used, have been acknowledged in this thesis.

Signature 

ACKNOWLEDGEMENTS

I would like to extend my sincere thanks to the following people, without whom this thesis would not have been completed.

My first and most sincere thanks go to my principal and associate supervisors, Dr Mitchell Parkes and Dr Vicente Reyes for their assistance during my time as a PhD candidate. Their support and motivation have been an inspiration and their feedback and critique have proved invaluable.

My most special thanks go to my family members; my father, mother brothers and sisters for their support and sacrifices when I needed these most, and to my beloved wife Hala, who has always stood beside me and provided endless encouragement, support and patience throughout the course of my candidature. I also would like to express my sincere love and gratitude to my daughters Fajer, Layal and Laura who shared with me the ups and downs throughout the duration of my studies.

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ABSTRACT

This dissertation aimed to investigate the level of Technological Pedagogical Content Knowledge (TPACK) of English as Foreign Language (EFL) teachers in Saudi Arabian male public secondary schools. Precisely, the research investigated teachers' knowledge of and attitudes towards implementing Information and Communication Technology (ICT) into EFL classrooms. The research utilised a mixed method research design with two main sources of data. First, an online survey employed to determine EFL teachers' knowledge, skills and attitudes towards implementing ICT into the EFL classroom. Second, EFL teachers were invited to participate in a semi-structured interview to further explore EFL teachers' knowledge of and attitudes towards ICT integration into the process of EFL learning and teaching. The TPACK framework developed by Mishra and Koehler (2006) was applied as the theoretical framework for the study.

Findings of the study indicated that EFL teachers were able to use ICT in many different forms in an EFL teaching context. In particular, EFL teachers indicated a sound knowledge and skills of using ICT in an EFL context. This indicated that EFL teachers' use of technology was positively associated with their ICT knowledge and attitudes and with their perception of TPACK. Despite the many factors that influenced their responses, EFL teachers are mostly willing and ready to integrate ICT into the process of EFL teaching and learning.

CHAPTER ONE

INTRODUCTION

This chapter provides an introduction to the study and is divided into eleven sections. The first section presents the aim of the study. The second section provides an overview of the Kingdom of Saudi Arabia, the setting of the study. The third section provides an overview of the Saudi Education system. The fourth section examines Internet use in Saudi Arabia. The fifth section explores the use of ICT in English as Foreign Language (EFL) classrooms. The sixth section provides background on the researcher. The seventh section provides a concise statement of the research problem. The eighth section presents the research questions of the study. The ninth section describes the significance of the study. The tenth provides definitions of the key terms used in the study. The eleventh and final section, details the structure of the thesis.

1.1 STUDY AIM

Many countries around the world have adopted the use of Information and Communication Technology (ICT) in education including Saudi Arabia. The adoption of ICT into the process of teaching and learning in the Saudi Arabian Education system has been driven by government education policy. This has included both the provision of the required hardware and software and teacher ICT training. The successful integration of ICT into the process of teaching and learning requires a change of teaching approaches (Al-Aqeely, 2001). In response, some teachers have kept using their current teaching approaches while others have taken the initiative to change the way they teach (Al-Showaye, 2002). Teachers resisting these changes are considered to be underestimating the importance of implementing ICT in education (Oyaid, 2009). Educational innovations do not normally succeed if teachers are not provided with the skills and knowledge required to carry them out (Pelgrum, 2001). Consequently, it is this lack of skills and knowledge that may affect teachers' approaches in using ICT in their classrooms. The main aim of the current study was to investigate English as a Foreign Language (EFL) teachers' knowledge of, and attitudes towards, ICT. Precisely, the study investigated the level of Technological Pedagogical Content Knowledge

(TPACK) of English as Foreign Language (EFL) teachers in Saudi Arabian male public secondary schools.

1.2 BACKGROUND TO SAUDI ARABIA

Saudi Arabia, officially known as the Kingdom of Saudi Arabia, is the largest Arab state. It was founded by Abdul-Aziz bin Saud in 1932 after a 30 year campaign unifying the Arabian peninsula and placing the Al-Saud family on the throne (Echague. 2009). Saudi Arabia occupies approximately 2,250,000 square kilometres (Ministry of Economy and Planning, 2009). It is bordered on the east by Bahrain, United Arab Emirates and Qatar; on the north by Jordan, Kuwait and Iraq; on the south by Yemen and Oman (Figure 1.1).

Figure 1.1 - Map of the Kingdom of Saudi Arabia

Source: http://www.mapsopensource.com/images/saudi-arabia-map.gif

The kingdom occupies a strategically significant location situated between Africa and Asia with direct boundaries with the Red Sea, the Arabian Gulf and the Suez Canal that is close to the northwest borders of the country. Saudi Arabia has an estimated population of 28.3 million people where immigrants and non-Saudis making up 30% of the total population (Ministry of Economy and Planning, 2009). It is also estimated that almost half of the population are under the age of 20 years old. For gender balance, 50.9% of the population are male while 49.1% are female (Ministry of Economy and Planning, 2014). Arabic is the official language used in all the country public sectors and Islam is the official religion.

Saudi Arabia is considered the birthplace of Islam and the Holy book of Quran is the official constitution of the country. This has influenced Saudi Muslims in terms of shaping their cultural identity. Islam covers all aspect of people's lives including education in Saudi Arabia and contributes a clear emphasis on education to all societies members.

Males and females are segregated throughout the Saudi education system and this is considered a clear instance of the influence of Islamic religion (Prokop, 2003). Islamic religion is studied at all levels of schooling being taught as five subjects: Quran recitation, Quran Commentary, Prophet saying (Hadith), Islamic jurisprudence and monotheism (Echague, 2009).

1.3 THE SAUDI ARABIAN EDUCATION SYSTEM

There are three stages of schooling in the Saudi education system. The first stage is the *Elementary* stage, in which students attend from six to eleven years of age. The second is the *Intermediate* stage for students aged from twelve to fifteen years of age. The third, the *Secondary* stage, is for students from fifteen to eighteen years of age, (Ministry of Education, 2008). After the completion of these three stages of schooling students can choose to go to university, technical colleges or apply to work in labour jobs. It was the *Secondary* stage of schooling that was the focus of this research.

Two main agencies are responsible for providing education in Saudi Arabia are the Ministry of Education (MOE) and the Ministry of Higher Education (MOHE). In January 2015, the Saudi government made a decision to group these two agencies under one main agency named the Ministry of Education (Bin Abdulrahman, 2016). The MOHE was responsible for the provision of tertiary education while schooling is under the authority of the MOE. The administration of education in Saudi Arabia is highly centralised (Elyas, 2010). All correspondences to the MOE are made through the General Education Directorates (GED) in each region. There are 13 GEDs in Saudi Arabia, which work as links between schools and the MOE (Al-Maydani, 1992).

1.3.1 Teaching English in Saudi Arabian secondary schools

English is the only foreign language taught in Saudi Arabian secondary schools. The widespread use of English language has strengthened its status in Saudi Arabia (Elyas, 2010). Currently, English language is taught from the Fourth Grade of elementary school to university level. English is considered as a compulsory unit of the school

curriculum and is taught on a daily basis for about forty-five minutes each lesson (Rahman, 2013). The syllabus mandated by the MOE for the three stages of schooling focuses on the four language skills; speaking, listening, writing and reading.

In general, EFL teaching can be challenging. In an attempt to investigate the EFL situation, Fareh (2010) investigated the challenges of teaching EFL in the Arab world including Saudi Arabia. Major issues were identified including: insufficient training for EFL teachers and teaching approaches that largely depended upon teacher-centred rather than learner-centred approaches. (Fareh, 2010) stated that lack of both exposure to the English language and the poor English textbooks used were major factors hindering EFL teaching in the Arab world including Saudi Arabia.

Al-Asmari (2005) observed that the weakness of EFL students graduating from secondary schools could be attributed to many factors including the heavy use of Arabic language in instructions. English is only used in classes with no basic practices outside the class context The use of a grammar translation approach is considered as one of the main factors affecting EFL learners in Saudi Arabia since it does not emphasise communication amongst EFL learners (Al-Asmari, 2005; Elyas, 2010).

1.3.2 ICT in the Saudi Arabian Education System and related reform actions

ICT was first introduced in 1985 as an optional subject in secondary schools. This subject was highly appreciated and beneficial, which encouraged the MOE to introduce ICT studies into the curriculum as a compulsory subject in 1988 (Oyaid, 2009). Accompanying the introduction of ICT as a compulsory subject was the Computer Literacy Initiative. This initiative provided most secondary schools with computer laboratories and associated training courses for selected teachers (Al-Aqeely, 2001). However, due to the shortage of teachers and ICT support staff this initiative was discontinued.

The second phase involved the integration of ICT into the process of teaching and learning (Rugh, 2002). As a result, the MOE had to increase its commitments to build and develop the ICT infrastructure in the school environment (Oyaid, 2009). Several studies investigated the level of ICT use in Middle Eastern education systems, including Saudi Arabia particularly in EFL context. Al-Aqeely (2001) reviewed the history of reform actions of the educational system in Saudi Arabia particularly the ICT use in EFL context. The MOE introduced ICT training programs, which aimed to eliminate the ICT illiteracy amongst teachers. Al-Aqeely (2001) investigated the main

barriers to successful integration of ICT into the EFL teaching and learning in Saudi Arabia. These barriers were categorised into two main classifications: teacher-level barriers and school-level barriers. The teacher-level barriers were: lack of teacher confidence, lack of teacher competence, resistance to change, and negative attitudes. The school-level barriers were: lack of time, lack of effective training, lack of accessibility to resources and lack of technical support. The adoption of ICT into EFL context was conducted after extended processes of evaluation of the current level of ICT use in Saudi Arabian EFL context (Alshumaim, 2010; Bingimlas, 2009).

The adoption of ICT in education has been accompanied by further national reforms conducted by the Saudi Arabian Ministry of Education. In particular, four national projects have been conducted to develop ICT integration into the process of teaching and learning over the last three decades (Al-Maini, 2011).

The first project was the development of school libraries into Educational Resources Centres (ERC) (Oyaid, 2010). Each ERC contains all the pedagogical materials for the school including ICT equipment and facilities (Ministry of Education, 2008; Oyaid, 2010). Since its introduction the MOE has established over 1500 ERCs covering all the 13 directorates of education. These ERCs are planned to be provided as a basic facility in each school (Alenezi, 2014; Oyaid, 2010).

The second project was the introduction of *Watani* project in early 2000, which incorporated computers and the Internet into schools (Al-Maini, 2011). This project was planned in four phases: designing the network and trialling it in a few schools; extension to half the kingdom's schools; completion of the linkage between schools and the MOE; and the final phase, follow-up maintenance and upgrading (Al-Maini, 2011 ; Al-Showaye, 2002). As a result of this project, the decision was made by the MOE for the introduction of ICT into secondary stage as a compulsory subject in 1988 (Al-Maini, 2011).

The third project launched specifically for teachers was the *Jehazi* project, which enabled teachers to obtain laptops, printers and scanners at reasonable prices with no deposit and easy repayments (Ministry of Education, 2008; Oyaid, 2010). The purpose of this project was to raise awareness and increase technological knowledge amongst teachers (Al-Sulaimani, 2010).

The fourth project, considered the largest educational reform project in the country, was announced by King Abdullah in 2008 (Oyaid, 2010). The *Tatweer* project is based on the idea of technological learning environments. The project started with 50

secondary schools for male and females as pilot schools for the main project (Alshumaimeri, 2008).

The *Tatweer* project has built new schools making extensive use of ICT including: attendance systems in which electronic finger print machines have been installed at main school doors; teacher training to handle classes in the high-tech style; distribution of laptops to both teachers and students; and the provision of school wireless Internet connections. Within this project, 40,000 male and female teachers of different subjects were provided with ICT training and the required ICT equipment (Alshumaim, 2010). In the EFL context, English language teachers in these schools have been encouraged to adopt a learning approach supported equipped with ICT (Alshumaim, 2010).

These initiatives demonstrate the recognition by the MOE of the importance of ICT. However, they are still in their early stages, and in many schools, they have as yet had little impact (Robertson, 2012).

1.3.3 Current Use of ICT in the Saudi Arabian Education System

ICT is used in the MOE in many forms at all levels of management including schools. It is being used as a tool to store and process information related to student records, teachers and administrative issues (Alshumaim, 2010). After the start of the *Tatweer* national project, the MOE started providing schools in each directorate with ICT facilities, staff and regular maintenance. In addition, ICT training courses for teachers and administrative staff also began (Alshumaim, 2010). Internet connections were made available for most of the institutions related to the MOE; including schools located in urban and non-urban areas. All administrative issues between schools and MOE became electronically based rather than paper-based.

Teachers use ICT to contact the GED or the MOE for all correspondence including: transferring to another school, requesting pedagogical support, seeking off times and many other electronic services (Ministry of Education, 2008). The fingerprint attendance system launched along with the *Tatweer* project is one of ICT daily activities for teachers in schools and GED. In terms of the pedagogical ICT use, teachers have been provided in each classroom with data projectors, smart boards and a personal computer. Teachers are also strongly encouraged to use these ICT facilities in their teaching.

For students, ICT has been part of their daily activities in schools related to *Tatweer* and even in many other schools related to the MOE. In *Tatweer* for example, 24,000 laptops

were distributed to students in each of the schools involved in the project (Alshumaim, 2010). Students use ICT to communicate with teachers, submit assignments and create projects inside the classrooms. In *Tatweer* secondary schools, students circulate during school time attending different lessons distributed according to each subject department's location. This system, known as the flexible program, replaced the previous approach that required students to remain in the same classroom for the entire school day. The flexible program has made it easy for teachers to integrate ICT into the process of teaching, since schools have been equipped with the necessary ICT materials (Alshumaim, 2010; MOE, 2011). The King Abdullah project for developing the education system in Saudi Arabia is considered a new academic endeavour promoting the re-qualification of teachers, curriculum development and the improvement of the school environment (Alshumaim, 2010).

1.4 INTERNET USE IN SAUDI ARABIA

The public access to Internet in Saudi Arabia is considered a reasonably recent trend in which only become available early 1999 (Simsim, 2011). A plan called *The National Information Technology Plan* (NITP) was introduced which provided for local Internet providers and allowed public access to an Internet connection (Southwell, 2004). The provision of the Internet to the public was under the supervision of King Abdul-Aziz City for Science and Technology (KACST). The trading provider was the Saudi Telecommunication Company (STC). KACST introduced a unit called Internet Services Unit (ISU) to work in liaising the Internet services between Saudi Arabia and the worldwide Internet (Al-Fulih, 2002). This unit also raised the public awareness towards the use of Internet in Saudi Arabia. Additionally, KACST provides the Internet services to all the governmental sectors including universities hospitals and other governmental institutions.

As for the use of Internet in the education context, plans were developed to provide schools with access from Kindergarten to Year 12. Since the Year 2000, 12000 schools have been provided with access to an Internet connection for administrative purposes at a cost of over 1.5 billion dollars over five years (Al-Fulih, 2002; Al-Asmari, 2005). As the KACST also provided Internet connections to universities, the Higher Education sector has enjoyed a reliable access for most of its campuses and colleges around Saudi Arabia.

1.5 USE OF ICT IN SAUDI ARABIAN EFL CLASSROOMS

The *Tatweer* project emphasised extracurricular activities for the purpose of developing intellectual, creative and communicative skills of students (Alshumaim, 2010; Oyaid, 2010). In the EFL context within the *Tatweer* project, EFL students were asked to work in groups to create their own ICT lesson materials; including presentations through PowerPoint.

According to Alshumaim (2010), MOE support of English language teaching and learning saw the development of supplementary ICT support materials for both students and teachers. Additional software was published by private companies and approved by the MOE for the secondary schools' English curriculum. This included training exercises supporting English learning and teaching (Bedaiwi, 2007). The expectation, particularly for EFL teachers, was that there would be extensive use of ICT in teaching. This use of ICT included all areas of management in the classroom. English language in Saudi Arabia is basically treated as an academic discipline in the school system although it is not extensively used outside of the classroom. As a result, EFL teachers have realised the importance of using ICT in their classes to learn to operate in the Information Age and to maximise the practical use (Alshumaimeri, 2008; Alshumaim, 2010). Oyaid (2009) identified types of incentives available to EFL teacher to integrate ICT in their teaching. These incentives include bonuses to the given wages and career promotions. Numerous research studies (e.g., Al-Ghonaim, 2005; Al-Jamhoor, 2005; Al-Juhani, 1991; Al-Kahtani 2001) conducted in Saudi Arabia within an EFL context including have reported that EFL teachers have positive attitudes towards ICT integration in EFL teaching and learning. This means that EFL teachers have the potential to be able to apply ICT in their teaching provided that they have the knowledge of how to integrate ICT into EFL teaching.

In a study conducted in Saudi Arabia within an EFL context, Shaabi (2010) identified factors affecting the use of ICT in EFL classrooms in Saudi Arabia. These factors fell into three main categories: institutional factors, resources factors and teacher factors. Teacher factors were further grouped into three subcategories: personal, social and external factors each of which included references to ICT. The personal factors included, EFL teachers' attitudes and commitments toward the use of ICT in the EFL classroom. The social factors included the influence of the school environment whether it encourages or discourages the use of ICT in the EFL classroom. External factors included the accessibility, availability and quality of ICT in school (Shaabi, 2010).

Al-Maini (2011) investigated the availability and use of educational technology resources, and how this influences EFL teaching and learning in Al-Qasseem city in Saudi Arabia. One public secondary school containing 415 students and three EFL teachers were studied. The school had a computer laboratory but this was specifically provided for the teaching of computer studies while English classes were not allowed to use it. The only available ICT facilities were the Learning Centre (LC), which contained one computer connected to a data projector. While priority to access the LC was given to science subjects, EFL teachers found it hard to book a regular time for their EFL teaching. Even if an EFL teacher succeeded in booking the LC, in practice, since there was only one, teacher-controlled computer, the computer was used only as an aid to enhance the existing teacher-centred, drill-focused teaching, rather than enabling a more constructivist, communicative approach to language learning (Al-Maini, 2011).

It has been proposed that the process of ICT integration into teaching and learning is dependent on the interrelations between technology, pedagogy and content (Mishra & Koehler, 2006). These interrelations are described in the TPACK model (Mishra & Koehler, 2006). These interrelations are important in order to better understand EFL knowledge of and attitudes towards ICT. From this perspective, this investigation of EFL teachers' knowledge of and attitudes towards ICT integration into the process of EFL teaching and learning was explored from a TPACK perspective. The TPACK model will be examined in Chapter Two of this thesis.

1.6 ABOUT THE RESEARCHER

The researcher is an EFL teacher at a secondary public school in the city of Albaha in Saudi Arabia. He holds a Bachelor of Education in English language, Master of Educating in Teaching English to Speakers of Other Languages (TESOL). The interest of both teaching EFL and the use of ICT is one of the researcher's primary goals. The researcher is interested in the integration of ICT into the process of EFL teaching and learning which was the main motivation behind the current research. This interest has resulted from more than eight years of EFL teaching experience where the researcher realised the need for further investigation of the integration of ICT into the EFL teaching and learning.

Additionally, the motive behind the current study was the perceived lack of teacher skill and knowledge in using ICT in an EFL context. Furthermore, deficiencies in

student performance and poor outcomes apparent in ways of teaching EFL that mainly relies on traditional teaching approaches to Englsih language learning was another contributing factor of the desire to investigate this area in detail.

1.7 STATEMENT OF THE RESEARCH PROBLEM

The use of technological facilities has become an essential component that has been increasingly applied in education around the globe. Therefore, modern educational trends cannot be detached from the effectiveness of Information and Communication Technologies (ICT). The literature provides a body of research focusing on the teachers' perceptions, use of ICT and factors influencing ICT use in an educational context. However, to date, most of the research has been conducted in countries outside the Middle East region and very little is known about Seconday EFL teachers in Saudi Arabia particularly studies associated within the TPACK framework.

As the level of TPACK of EFL teachers in this context is not well understood, it is difficult to determine any future courses of action with respect to teacher training and teacher professional development. Situating the research within the TPACK framework allowed the researcher to investigate teachers' knowledge of, and attitudes towards, implementing ICT into EFL classrooms. It also helped identify potential enablers and barriers to ICT implementation amongst EFL secondary teachers. By building upon identifed enablers, and addressing identified barriers, not only can teacher learning needs be better addressed in the future, but also student learning outcomes can be improved.

1.8 RESEARCH QUESTIONS

It was expected that the presentation of TPACK dimensions to the EFL teachers would assist to illustrate the disparity between the ICT use and their attitudes. Accordingly, the research questions were framed around the research requirements and needs. The research questions were arranged into three main categories including the EFL teachers' knowledge of ICT, attitudes towards ICT and their level of TPACK. The following are the research questions, considered worthy of further investigation:

RQ1: What is the level of EFL teachers' ICT competency?

RQ2: What are EFL teachers' attitudes towards ICT integration into the process of teaching EFL?

RQ3: What is the level of EFL teachers' TPACK in Saudi male public secondary schools?

RQ4: What is the relationship between EFL teachers' attitudes towards ICT and their level of TPACK?

RQ5: What are the factors that influence the use of ICT in EFL in male public secondary schools in Saudi Arabia?

1.9 SIGNIFICANCE OF THE STUDY

This study contributes to the existing knowledge of ICT practices in education in an EFL context. This study provides information about the level of TPACK of EFL teachers in male public secondary schools in Saudi Arabia. It is expected that results of the current study will also lead to a better understanding of the ICT practices in the EFL context. The results presented can also provide insight into what EFL teachers think about using ICT in their teaching. Findings of the current study will also assist in identifying the main factors influencing the use of ICT in EFL contexts among Saudi Arabian male public secondary schools. It is also anticipated that the findings will point out to what extent EFL teachers implement ICT facilities in their current teaching practices Findings of this study should provide valuable information for consideration by the MOE for addressing future ICT practice in EFL classrooms. The shortage of similar studies in the EFL context in Saudi Arabia means this research will also help address this identified gap in the literature.

1.10 DEFINITION OF KEY TERMS

The definition of commonly used terms employed in the study follows.

ANOVA	Analysis of Variances
CALL	Computer Assisted Language Learning
CLIL	Content and Language Integrated learning
CLL	Cooperative Language Learning
CLT	Communicative Language Learning
CMC	Computer-Mediated Communication
EFL	English as a Foreign Language
ERC	Educational Resources Centre
GED	General Directorate of Education
ICT	Information and Communication Technology

MOE	Ministry of Education
MOHE	Ministry of Higher Education
RQ	Research Question
TESOL	Teaching English to Speakers of Other Languages
TPACK	Technological Pedagogical Content Knowledge

1.11 STRUCTURE OF THE THESIS

This chapter, *Chapter One* provided the background to the study and described the Saudi Education System. The chapter also provided an overview of the use of ICT in the Saudi schooling system in general, and in English as a Foreign Language (EFL) teaching in particular. The statement of the research problem was presented, as were the research questions for the study.

In *Chapter Two*, the literature review for the study is presented. This includes an overview of the ICT integration in EFL teaching and learning, Computer Assisted Language Learning (CALL) and computer use within the Saudi Arabian education system. The conceptual framework used in the study, TPACK, is discussed with the chapter concluding with background and application of TPACK in the EFL context.

Chapter Three, details the methodology used in the study. In this chapter, the study context is described including participant information. This is followed by a description of the study method, the research instruments used for the data collection process and the justification of the instrument selection. The chapter also presents classification of TPACK items and explanation of the semi-structured interview protocol used through the interviews. The data analysis process is also discussed in this chapter, which concludes with a discussion of reliability and validity.

Chapter Four presents the results for the web-based survey, the quantitative component of the study. Four main sections are discussed in this chapter: the study demographics, EFL teachers' ICT competencies, EFL teachers' attitudes towards ICT and EFL teachers' level of TPACK. Presentation of the results includes the interpretation of frequency distributions, independent t-tests and Analysis of Variance (ANOVA) tests. The chapter concludes with an examination of the reliability of the data collected in the study.

Chapter Five presents the results for the participant semi-structured interviews, the qualitative component of the study. The response rates along with the interview protocol are presented. The transcription and coding tables of the interviews are also

presented in this chapter. The chapter includes the reporting of the key elements and themes that emerged from the thematic analysis conducted for the interviews.

In *Chapter Six*, the quantitative and qualitative results are brought together and discussed to present the findings and answer the research questions. ICT enablers and barriers are also presented and discussed in this chapter. Potential solutions for optimal application of ICT into EFL teaching and learning are also presented. The chapter concludes with addressing the research questions.

In *Chapter Seven*, the implications of the study are described and reviewed. Next, the limitations of the study are examined. Finally, a number of recommendations are presented both for future research and the integration of ICT in EFL teaching.

CHAPTER TWO

LITERATURE REVIEW

As explained in Chapter One, the purpose of this study was to investigate the level of Technological Pedagogical and Content Knowledge (TPACK) of English as Foreign Language (EFL) teachers in Saudi Arabian male public secondary schools. This chapter provides a review of the literature related to the study and is divided into six sections. The first section explores the literature on teaching English as a Foreign Language. The second section examines the use of technology in English language teaching. The third section refines the focus and examines Computer Assisted Language Learning or CALL. The fourth section examines the theoretical framework used in the study - TPACK. The fifth section presents the study's research questions. The sixth section provides a chapter summary concluding the chapter.

2.1 TEACHING ENGLISH AS A FOREIGN LANGUAGE

This section compares the context of English as a Foreign Language (EFL) and English as a Second Language (ESL) in general and in Saudi Arabian context in particular. It also presents the challenges encountered when teaching EFL in Saudi Arabia.

2.1.1 English as a Foreign Language (EFL) versus English as a Second Language (ESL)

The terms *English as a Foreign Language* (EFL) and *English as a Second Language* (ESL) are often used interchangeably but have different meanings. EFL refers to the English language being taught in a particular society while another dominant language is used in that society. On the other hand, ESL refers to the English language being taught side-by-side along another language in a particular society (Brown, 2007). In Saudi Arabia, the English language is being taught as EFL as Arabic is the dominant language used for instructions. However, in Australia for example, English language is being taught to students of non-native English language background and is considered as teaching ESL (Wu, 2008).

2.1.2 English as a Foreign Language (EFL) in Saudi Arabia

Teaching English in Saudi Arabia is regarded as teaching a foreign language in the sense that it is only used inside the classroom (Elyas, 2010). In other words, English is treated as a subject for study rather than as a spoken language used in the public sphere on a daily basis (Wu, 2008).

Despite adequate planning, qualified teachers, a purposive curriculum and mostly integrated textbooks, the achievement level in English proficiency and students' overall learning in English is below expectations (Khan, 2011). As the English language has become an international language of business and science, this has forced stakeholders worldwide, including Saudi Arabian decision-makers, to emphasise English language learning and teaching. The dominance of the English language and the vast numbers of people seeking to learn it has brought to the attention of the Saudi decision-makers the increased importance of English language teaching and learning (Al-Jarf, 2008).

According to Crystal (2012), there are around one billion students learning English worldwide. English is being taught as a foreign language (EFL) or as a second language (ESL) in many different countries (Al-Jarf, 2008). For this reason, the Ministry of Education in Saudi Arabia (MOE) introduced plans to implement EFL teaching and learning at the early stages of the schooling system - the Fourth Grade of the elementary school (Elyas, 2010). EFL is considered a compulsory unit of the school curriculum and is taught on a daily basis for about forty-five minutes per lesson (Rahman, 2013). As evidence of its importance, the MOE has stressed that English should be taught along the same lines as Arabic (Al-Jarf, 2008).

2.1.3 Challenges in EFL teaching and learning

There are a number of significant challenges in EFL teaching and learning, particularly in the Saudi Arabian context. Syed (2003) identified the most overwhelming challenges that EFL instructors encountered during the course of their teaching. These are explored next.

Motivation

Student motivation has been found to be one of the most challenging factors affecting the process of EFL teaching and learning (Syed, 2003). Motivation is challenging for both students and teachers due to the limited use of English in daily life and the lack of

surrounding English language communities (Wu, 2008). The absence of a motivating environment reduces the students' motivation towards learning EFL. This was confirmed by a study by (Chang, 2000) which demonstrated a positive relationship between the learning environment and student motivation, particularly in a language context.

Reliance on rote education and memorisation

Teaching approaches vary from one context to another but remain vital in the process of delivering information (Marshall, 2007). In EFL teaching, the approaches to be used should not focus primarily on rote and memorisation. Additionally, many out-dated teaching approaches may not be suitable for EFL teaching and learning (Elyas, 2010). Current approaches and trends in EFL teaching should be taken into consideration. For example, a number of researchers have tackled the Communicative Language Teaching (CLT) in the language teaching fields. CLT refers to the use of language in form of communication. Its main objective is to develop the student's communicative skills and competence using English language (Richards, 2014). The concept of the communicative competence is determined with the knowledge of what to say and how to say it (Ozsevik, 2010).

Another current approach in EFL teaching is the Content-Based Instruction and Content and Language Integrated learning (CLIL). The main objective of this approach is to arrange the language instruction in meaningful content instead of emphasizing the language skills (Crandall, 2012). This approach emphasizes the teaching the content of a specific subject matter using English language for instructions.

Cooperative Language Learning (CLL) is additionally another current approach in EFL teaching and learning. This approach emphasizes the student-centred learning process (Azizinezhad, 2013). It refers to the collaboration amongst learners in small groups. Learners are motivated to collaborate and maximize each other's learning in order to achieve mutual objectives (Pan, 2013).

Outdated curricula

Issues of curricula and methodology have always been viewed as controversial in the context of EFL teaching and learning in Saudi Arabian (Abu-Rabia, 2004). There have been a number of attempts to develop the curricula, but these mostly failed. These attempts encountered many obstacles. One major obstacle is the religiously-motivated challenge that always exerts its authority to localise every imported aspect, including

the EFL curricula and textbooks (Bingimlas, 2009). The heavy use of Arabic as the language of instruction amongst EFL learners is considered another obstacle that affects successful EFL teaching and learning in Saudi Arabia (Al-Asmari, 2005).

Other challenges

The challenges above are coupled with insufficient support, the lack of well qualified EFL teachers and inadequate teaching facilities (Syed, 2003). These challenges, along with the increasing number of students in schools, have led to unimpressive outcomes and an unflattering image of EFL in the Gulf countries, particularly in Saudi Arabia (Oyaid, 2009). Unchanging policies towards the process of EFL teaching and learning and inconsistent reform actions have been also major obstacles.

The attitudes and perceptions of EFL teachers are vital in the process of integrating ICT into EFL teaching and learning. The following section discusses ICT integration into EFL teaching and learning from the point of view of both teachers and students. It addresses a number of contextually related studies that have been conducted in Asia, Europe and the Middle East, including Saudi Arabia.

2.2 USING TECHNOLOGY IN ENGLISH LANGUAGE TEACHING

As the study focused on the use of ICT to enhance EFL teaching, this section explores the teaching of EFL with ICT. EFL teachers' perceptions of ICT are taken into consideration in this respect and discussed in this section as well.

2.2.1 Approach of teaching English with the presence of Technology

Literature shows a number of studies that examined the advantages of integrating technology to language learning and teaching. Most of these studies have concluded that the technology has positive advantages to pedagogy while learning and teaching EFL. In the language context, Yubune (2007) examined the effect of different computer display methods on the reading skill of language learners. Their findings indicated that the use of different computer display methods enhanced the reading skill amongst the young learners in their study.

Harris (2009) indicated that the use of any particular technology in language teaching and learning might result in a different pedagogical use of that certain device. Therefore, modifying the pedagogical methods to the appropriateness of technology use is not determined by the underlying relationships between ICT, content and pedagogy (Harris, 2009).

2.2.2 ICT integration in EFL teaching and learning

The significant presence of ICT tools in education has unlocked a new era of investigations around this issue. Research supports the idea that ICT effectiveness is crucial in the process of EFL teaching and learning. Investigations have revealed that ICT has the capacity to improve prospects for an influential teaching and learning atmosphere (Rahimi, 2011). The following section presents the EFL teachers' perspectives about the use of ICT in their EFL teaching and learning process.

ICT supported EFL – EFL teachers' perceptions

Teachers' attitudes and perceptions towards ICT differ in many contexts across different countries. In an EFL context, Albirini (2006) investigated teachers' attitudes towards the use of ICT in EFL teaching. The investigation studied the relationship between EFL teachers' attitudes towards computers and three independent variables. These variables were computer attributes, cultural perceptions and computer competencies (Albirini, 2006). Findings indicated that the independent variables predicted positive attitudes of EFL teachers towards ICT. Additionally, findings revealed that cultural attributes and computer competencies might hinder successful integration and hence affect EFL teachers' attitudes towards ICT. In contrast, a randomly selected sample for pre-service teachers in a study conducted by (Abbitt, 2007) found that the lack of familiarity with ICT tools can be seen as a challenge rather than hindrance (Abbitt, 2007; Alahmari, 2013).

Albirini (2006) claimed that the process of ICT integration in an EFL context is a complex and mostly deliberate process. This is due to the number of key factors that influence successful and consistent integration. These key factors include the characteristics of the users, EFL teachers and students in this case; the ICT setting and infrastructure; TPACK of EFL teachers, and government education ICT policy in general (Albirini, 2006; Rahimi, 2011). Albirini (2006) investigated the relationship between teachers' computer attitudes and a number of variables including; cultural perceptions, computer competency, computer access, personal characteristics and computer attributes. The findings indicated that teachers had very positive attitudes towards ICT in education. The findings indicated that teacher perceptions and ICT experience played an important role in shaping teacher attitudes towards technology and its integrations in their educational practices.

There have been a number of investigations (Alenezi, 2014; Al-Maini, 2011; Al-Kahtani, 2001; Al-Asmari, 2005; AlKahtani, 2007) conducted in different settings around the issue of ICT integration into EFL teaching and learning. However, none of these investigations have been conducted from a TPACK point of view, as in the current research interest. Hence, there is a need to conduct a comprehensive study seeking the technological, pedagogical and content knowledge of EFL teachers who are integrating ICT into EFL teaching and learning.

ICT in classrooms

The notion of implementing ICT technologies in a particular classroom varies across the reviewed literature. A classroom-based research study by Nicholl (2013) was conducted to determine the effectiveness of technology in classroom activities such as creativity and problem-solving. This qualitative study employed pre- and post-intervention interviews. Findings indicated that technology in classroom could be used to provide an authentic and engaging learning experience for students. Nicholl's conclusion stated evidence of a link between the thorough provision of technology in classroom and the students' proficiency across different subject areas (Nicholl, 2013).

Andrews (2004) studied the impact of ICT on literacy and learning English. The primary aim was to investigate whether the ICT technology could be used in a classroom instead of the teacher. Findings showed that the presence of the teacher was as important as the teaching materials, including the ICT tools, in a particular classroom. The teacher in a certain classroom is meant to be a mediator who facilitates the process of learning and guides students in ways that utilise the context (Andrews, 2004). This study addressed teachers' concern in terms of limiting their roles with the extensive use of ICT technology in classrooms.

In contrast, Weller (2013) claimed that there is still no clear evidence that educational ICT improves student learning. However, Weller (2013) agreed that ICT is an important tool in allowing the learners to experiment, stating that they enjoy the fun learning activities and obtain certain concepts that undoubtedly could be challenging in print or speech. Furthermore, Dawes (2004) indicated that ICT is considered an effective innovation for creating an extremely motivating classroom environment. Dawes and Wegerif (2004) used an approach called thinking together, which used computer-based activities to support collaborative learning (Dawes, 2004). Students were given instructions about listening and speaking skills, which were later used within their groups through ICT. Dawes and Wegerif (2004) stressed that such group

work with the use of ICT combined with the appropriate task can significantly improve students' achievement. This also stresses the idea of the continuous evaluation of certain approaches used while teaching in a particular classroom context. Additionally, the constructive feedback in such initiatives of using ICT in EFL teaching should be taken into consideration in order to maximise the positive preferred outcome. The constructive feedback stage in most ICT classroom initiatives appears to be neglected and is barely mentioned across the reviewed literature. The prior knowledge of a particular classroom setting and the appropriateness of the chosen ICT tool are crucial to optimal use of ICT in that classroom (Somekh, 2007).

The following section presents contextually-related studies that examine the process of integrating ICT into EFL teaching and learning. The majority of these investigations were conducted in an EFL context, while there are other studies conducted on an English as a Second Language (ESL) context that revealed no significant difference in this regard.

2.2.3 ICT application applied by EFL teachers

Levy (2009) presented a modular approach that involved classifying ICT application according to the language instructional purposes. These categories included the development of students' knowledge and skills for grammar, reading and writing, speaking and listening, vocabulary and pronunciation. These categories also included the cultural aspect associated with the language teaching and learning.

For example, in the grammar, vocabulary and pronunciation categories, most of these applications apply a skill and drill approach which intended to process the input to a particular learner, diagnose errors and offer feedback A well-known program for this category is called Hot Potato that emphasises activities for grammar and vocabulary teaching and learning (Levy, 2009). In regard to the development of the pronunciation skill, Chen (2001) explored the use of word recognition computer-based applications. Using the word recognition application, students could listen to a particular word or model speech presented by a native speaker and then start practising afterwards. This process might also be recorded and then presented with a visual or audio feedback. Studies indicated that this process could motivate students to practice their pronunciation when producing a speech and then receiving prompt feedback. This could not only motive students to work harder but could also develop their way of learning how to listen and speak English language properly (Chen, 2001).

A large range of computer-based applications has been produced to enhance the language learning and teaching. One of these programs is the Automatic Speech Recognition Technology (ASRT), which is considered effective particularly amongst students who are shy or rarely have a chance to speak with native speakers (Chiu, 2007).

ICT application for English language skills

ICT can be effectively used in teaching the four language skills: listening, speaking, reading and writing. For example, to support reading skills, electronic dictionaries are very helpful along with web-based activities. According to Levy (2013) electronic dictionaries can used to assist the English language reader to obtain further information and practice with real exposure to the target text. Studies have shown a considerable use of these technology and EFL teachers were in favour of it use for its ease of use and quick access (Issa, 2012). In a study to investigate the usefulness of electronic dictionaries, Koyama (2007) argued that the use of these technologies decrease the reading comprehension time. The interaction between the reader and the text through the electronic dictionaries or the web-based activities are valued for their usefulness. The use of such technologies by EFL learners could lead to the ability to control and monitor their reading progress (Ercetin, 2003).

For writing skills, the most well known ICT application is the word-processor, Levy (2009) stated that the use of word-processor with its central function to facilitate the flexible manipulation of the text enables drafting and redrafting to occur easily. Word-processors contain functions that are very helpful in the development of writing skills. For example, the track changes tool allows the provision of a prompt feedback, which could lead to revisions of that text and ultimately a more effective piece of writing.

In relation to speaking and listening skills, another well-known application is the PowerPoint presentation. These presentations can be embedded with audio or video clips to enhance the learner's input (Alkash, 2013). PowerPoint presentations are considered easier for EFL teachers to deliver their language instruction in an interesting manner and for the learners to present their work as well. As presentation software such as PowerPoint, motivates the learners to present their work, it also engages them in an interactive language context (Dinh, 2015). Such technologies are also valuable for their ease of access and quick installation. Additionally, audio and video conferencing often associated with these presentations might be of a great use to enhance speaking skills. Another technology that can be of use to enhancing the

speaking skills is voice chatting tools. In these tools, learners can record their voices and check prior submission for more effective feedback. This might further be enhanced with some form of evaluation from teachers or peers (Murray, 2008). PowerPoint presentations and voice chatting tools are considered valuable as both focuses on very important aspect of language learning - form and meaning (Murray, 2008). Stockwell (2007) claimed that the use of audio and video conferencing tools enhance the learner's fluency particularly speaking and listening skills.

As for cultural understating, the exposure to authentic materials either on the Internet or via any other ICT tools is also considered an effective approach to English language learning (Dinh, 2015). The effective use of the Internet materials including social media tools was recommended by Helm (2009) to encourage learners to exchange intercultural ideas about the language assuming that there is often a close association between language and culture.

A number of research studies have investigated the effectiveness of using ICT facilities to enhance the EFL teaching and learning process. Most of these reviewed studies have reported positive results on the learners' outcome. A number of these research studies are presented next.

2.2.4 Factors affecting ICT application in EFL contexts

Studies investigating the factors influencing the use of ICT when teaching EFL have identified two broad factors, teacher-related and student-related factors. These are explored next.

Teacher-related factors

The literature has shown that teachers' gender, age, years of experience and highest qualification have a significant role in their application of ICT in their classrooms. As for the gender, Topkaya (2010) investigated pre-service Turkish English language teachers' perceptions of their own computer self-efficacy. Findings indicated the males tended to have higher computer self-efficacy than females. Similarly, Mahdi (2013) investigated the impact of gender, age and teaching experience on the language teachers' use of ICT facilities in Saudi Arabia. The mixed-method study surveyed and interviewed 46 in-service EFL university teachers. The analysis of the interviews showed high level of agreement among teachers that the proper integration of any technology aid is enhanced by experience. Findings of this study also indicated that there were no significant differences in ICT use and teaching experience.

Another teacher-related factor concerns with the use of ICT in teaching is their perceptions and beliefs of ICT application. Kim (2008) pointed out that teachers perceived ICT facilities as a motivator. Additionally, teachers believed that ICT applications enhance the ability to expose to authentic materials including the engagement with native speakers of English language and associated activities. In his study seeking EFL teachers' attitudes towards the use of ICT tools in teaching in Syrian context, Albirini (2006) found that EFL teachers' perspectives of ICT are considered as indicators for their positive attitudes towards the application of ICT in their EFL teaching context.

Teachers' knowledge of ICT and skill are also considered as a factor influencing their effective ICT application in EFL teaching context. This has been justified as the knowledge and skills of ICT are essential perquisite in order for anyone to use it particularly in an effective way. Conversely, a lack of skills and knowledge of using ICT could lead to a different attitude towards it and hence make the process of integration difficult (Almalki, 2012).

Student-related factors

There are other related factors that influence the effective ICT integration in classroom rather than those of teacher-related factors. One of these factors is the students' knowledge and skills of ICT. Research studies have found that that students' knowledge and skills of ICT are considered as motivators for teachers to adopt more ICT based class instructions (Dinh, 2015). Celik (2013) argued that there should be a shared understanding of the benefits of ICT tools in classroom among students to enhance their motivation for learning through it. The shared application of ICT from teachers and students in different forms within a learning context is an essential goal for successful integration.

Another factor influencing the effective ICT application in an EFL classroom is the students' confidence in providing technical support to their teacher. This is under the assumption that they have obtained the required knowledge and skills of using ICT in different forms. Additionally, students' prior experience of using ICT tools is very important in determining their attitudes towards the ICT application.

2.2.5 Contextually-related studies

Weller (2013) defined the use of technology in teaching and learning as the use of any given software program that is designed to teach a particular context through user

interaction. The use of technology in teaching and learning has been demonstrated to increase teachers' productivity in certain classrooms, including the EFL context (Levy, 2013). ICT can deliver information to learners in a competitive and accessible way where all students have an equal intake.

ICT has shown considerable capacity for facilitating the process of EFL teaching and learning. For example, a mixed-method study conducted by Kilickaya (2007) on the use of ICT in order to improve the scores of Turkish students at the Test of English as a Foreign Language (TOEFL). The study focused on adult EFL learners and found that the students who used ICT scored significantly higher than the other control group, specifically in the reading and listening skills of the test. The later interviews with the group who used ICT showed that they had a very strong positive opinion in relation to the value of ICT (Kilickaya, 2007). The study reported that those students who used ICT strongly believed that the use of ICT had significantly improved their performance at the test.

In another study conducted on young EFL learners in Asia, Lan and Chang (2009) applied a technology-enhanced system for developing reading skills in the English language. A comparative analysis of the students' proficiencies before and after the system implementation was employed in order to investigate the influence of the ICT. Findings indicated that the system was a great help to students in managing their learning during the completion of the reading task. Lan and Chang concluded that the use of ICT in EFL is an excellent facilitator (Lan & Chang, 2009).

Similarly, Hui et al. (2008) studied the progress of ICT in education systems across the world. Their findings indicated increasing effectiveness in the implementation of ICT for English and non-English speaking countries (Hui, 2008).

In their attempt to investigate the word-level pronunciation of young EFL learners, Neri (2008) used a Computer-Assisted Pronunciation Training (CAPT) system. The investigation was conducted to understand whether the CAPT system could help EFL learners with word-level pronunciation. This technology-supported learning environment produced English pronunciation, which was not effective. However, Neri (2008) stated that their system was very simple to the extent of being run by a facilitator not even an EFL teacher. Subsequently, this solved a significant problem in terms of staffing issues, particularly in non-English speaking countries where this system can be used instead of a native English speaker (Neri, 2008).

An experimental study conducted by Hew (2001) attempted to investigate whether the Japanese Computer Assisted Language Learning (CALL) with Animated Graphical Annotation (AGA) was more effective and useful in terms of acquiring the skills of EFL. The experiment was conducted in Malaysia and applied a pre- and post-test approach. The findings showed AGA's effectiveness in assisting the language learners to improve their listening performance. However, the experimental findings indicated that AGA was less effective in assisting the language learners to develop pronunciation performance (Hew, 2001).

Similarly, Neri (2008) examined the pedagogical effectiveness of automatic speech recognition (ASR)- based CAPT. Three groups of participants tested their pronunciation using ASR-based CAPT either with or without feedback. Assessment of their pronunciation quality was conducted before and after the use of the system to measure the differences. Findings indicated that the participants who received ASR-based CAPT with feedback showed significantly more improvement than the no feedback group (Neri, 2008).

In the Saudi Arabian context, a study by Alshumaimeri (2008) explored the perceptions and attitudes of school teachers towards the use of CALL in the EFL classroom. Two hundred and fifty male and female EFL teachers in the capital city of Riyadh were surveyed and data was quantitatively analysed. Findings revealed a significant positive correlation between the participants' attendance during the CALL training and the use of ICT in the EFL classroom. The study recommended more specialised ICT training for EFL teachers to successfully integrate CALL into their EFL teaching (Alshumaimeri, 2008).

Another study conducted in Saudi Arabia by Alshumaim (2010) examined the availability and use of ICT among EFL teachers. A questionnaire was administered to determine differences in EFL teachers reporting of available ICT facilities and their use of such facilities. Findings showed that use of the Internet was dominant amongst the EFL teachers in their report of the ICT facilities. The reason for this was to search for updates in EFL teaching and learning. Furthermore, the findings also revealed that EFL teachers had insufficient experience in using ICT facilities. Additionally, the lack of sufficient ICT facilities and support from the education directorate were significantly reported in the findings. Despite all these obstacles, the considerably positive attitudes towards the use of ICT in EFL were highly valued findings in this study (Alshumaim, 2010).

From a student's point of view, a study by Alshmrany (2014) was conducted to evaluate the current ICT status amongst both public and private schools in Saudi Arabia. The cross-sectional study employed a survey to collect data from fifty 50 students in the city of Jeddah. The main findings showed that private schools enjoyed better ICT infrastructure than the public ones. Therefore, students at the private schools were well informed about the ICT facilities to be used at the school. Students at the private schools were also taught using ICT equipment and were fully encouraged to use ICT tools in their learning. While this study has drawn the ICT picture in two contexts, it failed to provide a reference to the valuable use of ICT (Alshmrany, 2014). Additionally, the study only viewed ICT from a specific context, which could not present a dynamic picture.

Most of the studies conducted around the integration of ICT in EFL, particularly in the Saudi Arabian context, have viewed it from a very broad perspective. These investigations, although valuable, have presented the most frequently encountered obstacles with no reference to the technological, pedagogical and content aspects of both the English language and the ICT facilities. Therefore, this study will take these aspects into consideration and carry out an in-depth analysis of the current state of the integration of ICT into the process of EFL teaching and learning, specifically in public secondary boys' schools in Saudi Arabia.

2.3 COMPUTER ASSISTED LANGUAGE LEARNING (CALL)

It is important for the current study to investigate the previous trends in integrating ICT into the language teaching and learning. Therefore, CALL has been brought into attention in order to help successfully build an understanding of ICT integration into EFL teaching, which was the focus of the current study. This section defines CALL and present historical aspects related to EFL teaching and learning. It also introduces some contextually related studies conducted in the CALL context.

2.3.1 Introduction

Most researchers describe CALL as a relatively new field in language teaching and learning (Granger, 2002; Hanson-Smith, 2000; Hubbard, 2006; Levy, 2013). The use of the term CALL is to some extent a controversial issue particularly when the discussion is aligned with languages. There are many different terms in today's ICT era that describe the use of technology in teaching and learning. However, the major contributions of this notion are attributed to CALL as one of the earliest initiatives (Al

Shammari, 2007). For instance, alternative terms include Computer Assisted Language Instruction (CALI); Computer-Mediated Communication (CMC); Computer-Adaptive Testing (CAT); Technology Enhanced Language Learning (TELL); Web Enhanced Language Learning (WELL); Computer-application in Second Language Acquisition (CASLA); Computer-Enhanced Language Learning (CELL); Intelligent Computer-Assisted Language Learning (ICALL) and Computer-based Language Testing (CBLT) (Chapelle, 2005; Chapelle, 2001; Levy, 2013). Despite this array of different terms, and the similarities of their components, Harrington (2001) suggested there needed to be a more general term that incorporates most of the ICT use in language teaching and learning. Furthermore, Egbert (2005) put forth a general definition of CALL to minimise the spread of terminologies associated with the use of technology in language teaching and learning. He defined CALL as the use of technology to support language learning and this definition applies to all four-language skills. Beatty (2013) stated that the notion of CALL has rapidly changed, and suggested another definition of CALL as any process in which a student uses a computer technology and as a result improves their language skills.

2.3.2 History of CALL

Along with the growing influence of technology in language teaching and learning, there has been parallel growth in the development of coursework to prepare language teachers to use ICT (Hubbard, 2006). Fotos (2004) indicated that CALL has been influenced firstly by mechanical translation, which was used during the 1940s. This has led to the existence of the new perspective of CALL. Additionally, Warschauer (1998) stated that computers applied to language learning and teaching were very limited and a challenging procedure during the 1950s. Moreover, Chapelle (2001) asserted that computers were efficiently used in language learning and teaching during the 1960s and access to computers was very intermittent and limited to those who demonstrated a high computer literacy at that time.

The development of CALL is considered a significant aspect in the integration of technology into language learning and teaching (Warschauer, 1998). The first stage of the development of CALL during the 1950s – identified as the behaviouristic CALL – was implemented in 1960s–1970s. Warschauer (1998) indicated that this stage featured repetitive language learning drills. Computers were used in this approach for the purpose of repetition as they never got tired and because they enabled students to work at their own individual pace. This behaviouristic approach to language teaching

received extensive criticism and was later rejected at both theoretical and pedagogical levels (Warschauer, 1998).

The second stage emerged around the late 1970s and was named communicative CALL. This stage emphasised the use of the language in a communicative context rather than learning it as a prefabricated language. According to Warschauer (1998) computer-based activities in this stage focused on the use of the forms rather than the forms themselves. The focus was also to teach grammar implicitly rather than explicitly and encourage learners to produce utterances while not being dependent solely on the repetitive manipulation using mainframe computers. The communicative CALL applied cognitive theory, which emphasised that the learner should discover and develop what has been learned (Warschauer, 1998). However, communicative CALL was also criticised because the focus was only on what the learners did with each other and not with the machine (Warschauer, 1998).

The third stage of the development of CALL was called integrative CALL, which emerged in the late 1980s. Sociocultural theory was the focus in this stage, and the integration of all language skills with technology was clearly involved. Authentic approaches such as task-based, project-based and content-based were heavily adopted in order to utilise the sociocultural environment for learners (Warschauer, 1998; Chapelle, 2005). Learning was seen as an ongoing process during this stage – not only learning the language but also learning to use the new technological tools, particularly with the emergence of multimedia.

ICT tools are now at the fingertips of every EFL learner who can learn to read, write, listen and communicate via computers and the Internet. ICT has become an essential feature of the modern lifestyle and in particular modern education (Wong, 2006). Computer technology used in an EFL context has added a significant value for the teaching approaches. This can be seen by the development of English fluency, producing acceptable syntactic language and providing opportunities for self-feedback learning (Al-Maini, 2011).

2.3.3 CALL contextually related studies

Several studies have been conducted to investigate students' attitudes and perceptions about the use of technology, particularly CALL, in teaching and learning. One of these seminal studies in this context is the work done by Levy (1997) who believed that the CALL framework is either utilizing a single theory or a mix of theoretical points. Chen

(2005) investigated the role of the computer in EFL instruction. His quasi-experimental research design employed a post writing assessment administered to EFL students in Taiwan. Data analysis was conducted using the categorised data of the error rate for each participant. The findings revealed that the computer-assisted instruction had a significant influence in reducing students' error rate. Chen (2005) stated that no evidence was found of negative effect on the participants' learning while using computer-assisted instruction.

In the Arab world, Almekhlafi (2006) investigated the effect of CALL on students' EFL improvement at elementary preparatory schools in the United Arab Emirates. Participants were eighty-three divided respectively into two groups; experimental and control. His findings indicated a significant difference between the two groups. A questionnaire was later administered to CALL users investigating their attitudes towards CALL, their perceptions and the intention to use it in the future. Results showed positive attitudes and perceptions towards CALL with a strong intention to use it in the future. Almekhlafi (2006) claimed that the results of his study provided evidence of the influence of CALL on EFL learning and teaching.

In the Saudi Arabian context, CALL has been investigated in different forms. In an EFL context, CALL has been investigated amongst industrial college EFL students. A study by Arishi (2012) identified attitudes of EFL students towards CALL in an industrial college. Seventy EFL students were surveyed and interviewed to collect views and attitudes towards CALL. The study revealed that EFL students generally had positive attitudes toward CALL. A slight correlation was found between the daily hours students used CALL and their attitudes towards CALL. Arishi (2012) claimed that CALL helps EFL students to learn better and more independently, which gives them the ability to control their learning process.

Al Shammari (2007) investigated the attitudes towards CALL of Saudi EFL learners who were studying at the Saudi Public Administration Institute. A survey was employed to collect the data from 578 participants from different EFL levels of study. Findings revealed major positive attitudes towards CALL.

The next section discusses the conceptual framework used in the current study - TPACK followed by discussion of a number of contextually related studies on TPACK.

2.4 TPACK AS A CONCEPTUAL FRAMEWORK

This section defines TPACK from a variety of perspectives and illustrates the historical aspects of it as a framework. It also introduces the seven components of the TPACK construct aligned with the case of the study in hand. This is followed by contextually related studies on the use of TPACK on education, mainly in EFL teaching and learning.

2.4.1 Definition of TPACK

TPACK is a framework that presents the relationships and complexities between all three basic components of knowledge: technology, pedagogy and content (Schmidt, 2009). Mishra and Koehler (2006) suggested that teachers need three separate and distinct knowledge elements for the integration of technology into their teaching: technological, pedagogical and content knowledge. TPACK has been characterised as the multiple intersections of teachers' knowledge of the curriculum content, general pedagogy and technologies (Mishra & Koehler, 2008).

The framework explains that the three main elements of knowledge, technology, pedagogy and content should be integrated into teachers' professional knowledge in order to successfully integrate the technology in the teaching and learning process. Therefore, knowledge in this framework refers to the knowledge which a particular person has in order to be able to perform a certain task (Peels, 2010). Technology refers to the use of any devices, which may not be made for use in a pedagogical context but can be integrated into it. Pedagogy refers to the application of instructional approaches while teaching in order to facilitate the process of learning. Finally, Content refers to the actual subject material that the students are learning (Mishra & Koehler, 2006).

2.4.2 Historical aspects of TPACK

TPACK framework was first introduced in 2006 through an article titled Technological Pedagogical Content knowledge" A framework for teacher knowledge" by Mishra and Koehler (2006). The concept has gained considerable attention since then. TPACK was built on Shulman's (1986) ideas that teachers require a specific type of knowledge in order for them to effectively produce their lessons and was referred to as Pedagogical Content Knowledge.

Shulman (1986) stated that Pedagogical Content Knowledge represent the blending of content and pedagogy into an understanding of how particular topics, problems or

issues are organised, represented and adapted to the diverse interest and ability of the learners, and presented for instruction. Pedagogical content knowledge is the category most likely to distinguish the understanding of content specialist from that of pedagogue

TPACK has gone through three main phases before reaching the current final version. The first phase was the idea of pedagogical content knowledge where Shulman (1986) was the first known researcher to use the concept of knowledge associated with content and pedagogy. His approach did not mention the technology and nor did the associated acronym use it. This is simply because Shulman (1986) ideas were prior to the spread of the technology (Dinh, 2015). The second phase of the development of the TPACK framework was conducted by Pierson (2001), who added the concept of technology to Shulman's ideas, named later as PCK. Pierson (2001) emphasised that the technology is an essential element of teachers' knowledge. Pierson (2001) claimed that a teacher who effectively integrates technology would be able to draw on extensive content knowledge and pedagogical knowledge in combination with technological knowledge.

The third phase of the development of TPACK is the current notion, which was developed by Mishra and Koehler (2006) adding the technological element to the full construct. TPACK gained a widespread reputation after Mishra and Koehler's ideas, which outlined each of the seven complexities with knowledge being the unifying element (Thompson, 2007). The framework was called TPCK until some researchers proposed to simplify the spoken acronym to TPACK (Thompson, 2007).

Mishra and Koehler (2006) stated that the, "TPACK framework emphasised the connections, interactions, affordance and constraints between and among content, pedagogy and technology".

Mishra and Koehler (2006) developed a conceptualisation framework concentrated on the implementation of technology into the process of teaching and learning. TPACK stresses the idea that teachers integrate technology into their pedagogy and content of any subject matter (Mishra & Koehler, 2006). TPACK sought to develop explicit conceptualisation of technology that was considered missing element in Shulman (1986) PCK. Mishra (2006) in their series of published papers on TPACK argued that knowledge must be attached as a distinct domain to the content and pedagogical knowledge. TPACK framework is similar to the constructivist approach in which the students actively build their knowledge by doing (Dinh, 2015). Currently, TPACK is

known as the knowledge teachers need to successfully and effectively integrate the technology into their pedagogy of the content of any subject matter.

2.4.3 TPACK construct: The seven components

Mishra (2006) introduced the TPACK framework shown in Figure 2.1 with its seven components. Three areas of knowledge are found at intersection of this framework. As shown in Figure 1, Content (C) is the subject matter, Technology (T) is the integration of any modern technology used in to teaching and Pedagogy (P) is the collected practices, procedures, methods and approaches used while teaching that content through technology (Mishra & Koehler, 2006).

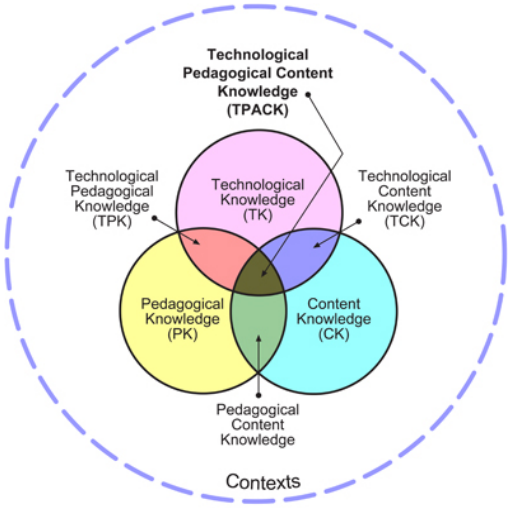


Figure 2.1 – Technological Pedagogical and Content Knowledge

Source: https://upload.wikimedia.org/wikipedia/commons/5/5f/Tpack.jpg

At the intersection of the three knowledge types is an understanding of teaching content with the appropriate pedagogical methods and technology (Mishra & Koehler, 2006). Description of these the seven components of the TPACK model are presented next.

Technology Knowledge (TK)

TK refers to the knowledge of different types of technology devices that can or cannot be integrated into the process of teaching and learning. These technology devices may include but are not limited to, for example, the following: mobiles, iPads, Internet including blogs and wikis; electronic whiteboard and data show projectors.

Content Knowledge (CK)

CK concept refers to the knowledge about a particular subject matter that is to be learnt and taught. For the study at hand, CK refers to the subject matter of English Language that is being taught and learnt. It also refers to the knowledge of a teacher on how to facilitate the subject matter (Cox, 2009). Therefore, the subject matter representation is the essential element of content knowledge.

Pedagogical Knowledge (PK)

PK refers to the knowledge about various types of teaching methods and processes. It also includes the knowledge of teaching policies, procedures and strategies followed to teach a particular content (Mishra & Koehler, 2006). Cox (2009) indicated that the pedagogical knowledge is the way used by a teacher in order to facilitate a particular content. Thus, PK is mostly referred as the approaches and methods used in teaching (Mishra & Koehler, 2008).

Pedagogical Content Knowledge (PCK)

PCK refers to the content knowledge that deals with the teaching process. The concept of knowledge in this section includes the knowledge of a specific subject matter. This includes, for example, the knowledge of the working curriculum of a certain subject matter to be taught to students. In the case of the current study in hand, pedagogical content knowledge refers to the knowledge of how to teach EFL content.

Technological Content Knowledge (TCK)

TCK in TPACK framework refers to the knowledge of how technology can create a new representation for a specific content. In the case of the current study TCK might be best addressed when using electronic dictionaries, blogs and the online or machine translators.

Technological Pedagogical Knowledge (TPK)

TPK refers to the knowledge of how different technologies can be used in teaching. It includes the knowledge of different ways that these technologies are being used to deliver certain content. A precise definition of this concept was proposed by Koehler and Mishra (2009) as: "TPK is the understanding of how teaching and learning can change when a particular technology is used in particular ways). Thus, knowledge of this concept refers to the ability of a teacher to determine the appropriateness of certain technology to be used for a particular teaching method or approach (Koehler & Mishra,

2009). TPK is presented as the most significant element of the TPACK construct since most of the existing technology devices are not built specifically for educational purposes. Therefore, TPK refers to understanding existing technologies and how they can be used in teaching aligned with the particular teaching approach and strategies. The most experienced teacher is considerably different from a novice teacher, as the former seems to understand more about the diversity of teaching approaches and strategies. Therefore, TPK mostly refers to the teachers' understanding and knowledge of how to use different tools in teaching a particular task (Koehler & Mishra, 2009).

In the case of the current study, TPK has not yet been investigated from EFL teachers' perspectives, particularly in public secondary schools. This study intends to address this gap in the literature with the investigation of the effectiveness of TPK in secondary school EFL teachers in Saudi Arabia.

Technological Pedagogical Content Knowledge (TPACK)

TPACK refers to the knowledge required by teachers for integration of technology into their teaching of any particular content area. This construct is an outcome of the combination of the three main elements of knowledge stated earlier based on TK, TCK and TPK. In the case of the study at hand, TPACK refers to the knowledge of technology that is being used with the appropriate teaching approaches and strategy to teach the content of EFL. TPACK is considered an important aspect of EFL teaching and learning as communicative language learning becomes a more effective approach (Bygate, 2001). In order to have an effective communicative classroom in language teaching and learning, there should be strong support from technology associated with the teaching strategies and aligned with its content (Liu, 2014).

TPACK in general is considered a useful framework to identify what knowledge teachers must obtain in order to integrate technology into their teaching (Schmidt, 2009). Chai (2013) stated that "TPACK is a powerful framework that contains a number of potential generative uses in the research and development related to the application of technology in an educational context".

Mishra and Koehler (2006) emphasised that using TPACK, as a framework to investigate teachers' knowledge of ICT technologies would potentially have an impact on the type of training and professional development experiences that are designed for them. Therefore, there is a need for ongoing research on teachers' perceptions about ICT practices and knowledge of ICT in order to present new strategies that better

prepare teachers to effectively integrate technology into the process of teaching and learning (Mishra & Koehler, 2006). The focus of the proposed study will be on the four technological domains of TK, TCK, TPK and TPACK.

2.4.4 Contextually related studies and the application of TPACK

The TPACK framework offers many possibilities to researchers to investigate technology integration into teaching, professional development and teacher education (Koehler & Mishra, 2009). The section below presents studies conducted using TPACK framework in the field of education.

Koehler and Mishra (2005) reported data from a faculty development design seminar where staff and students worked together to develop the online course. They administered a survey to assess the evaluation of both types of participants in relation to their learning and perceptions about learning context, theoretical and practical knowledge of technology, group dynamics and the development of their TPACK. The analysis depended mainly on the development and the changes between the beginning and the end of the semester. Findings revealed that participants perceived the idea of working within design groups as a useful task that was fun but more challenging. Findings also indicated that participants showed significant development in their knowledge of technology and their TPACK. This study asserted that learning by design is considered an effective approach to understand the interaction relationship between the three essential elements of knowledge in this framework; content, pedagogy and technology (Koehler & Mishra, 2005).

Brupbacher (2009) applied practical and field-tested approaches in order to develop TPACK in a teacher preparation program. The study revealed that innovative teachers used technology as part of their pedagogy to assist students in obtaining particular content. In an EFL context, Kurt (2013) examined the TPACK of Turkish pre-service teachers of English language. Participants were 22 pre-service English teachers enrolled in an English Language Program (ELT) in Istanbul. A survey of TPACK was circulated after two weeks of observation during which they had encountered many courses dealing with the integration of technology into actual ELT classrooms. Findings indicated a statistically significant increase of participants' TCK, TK, TPK and TPACK scores from the start of the study to the end (Kurt, 2013).

Jamieson-Proctor (2010) studied Australian pre-service teachers in order to determine their knowledge and confidence regarding using TK in their teaching. The finding

indicated a high number of participants perceived themselves to have no competence with applications such as multimedia development, digital video and video editing. The study concluded that the current teacher education programs were designed using the PCK, which is considered insufficient in today's education where TPACK is essential (Jamieson-Proctor, 2010).

Lee and Kim (2017) investigated the incorporation of TPACK framework into the real-life learning experiences applied into teachers' education on technology integration. This inquiry employed case studies to collect data through discussion worksheets, lesson designs and the researchers' field observation. The researchers recruited 17 males and females' in teacher education undergraduate course on technology. Findings indicated that strategies integrated into the model assisted participants in deepening their understanding of students–centred technology application and practice of TPACK (Lee & Kim, 2017). This study is of an importance for language teachers applying ICT into their language teaching since it considered the influence of prior knowledge, life experience and cognitive learning processes.

Another mixed method study was conducted in a regional Australian university integrating ICT into teacher education program from TPACK perspective (Reyes, Reading, Doyle, & Gregory, 2017). The study sought to answer the question of how do university lectures use ICT in a context where the interaction of technology and pedagogy serves as a fundamental component of educational delivery? The key insight derived from the analysis of this study was the existence of different levels of disconnect between the knowledge and practice of combining ICT, content and teaching. Therefore, there is the need to bridge the disconnect and to achieve better integration of the TPACK components.

Alqurashi, Gokbel, & Carbonara (2017), investigated the TPACK constructs of teachers in Saudi Arabia and the USA. The purpose of the study was to evaluate teachers' level of TPACK and describe the factors affecting TPACK levels. The study found that teachers from USA and Saudi Arabia differed in their perceived levels of TPACK, which were affected by factors including years of teaching experience, age and educational level. Findings also indicated that teachers in both Saudi Arabia and the USA showed higher ratings in their level of TCK, TPK than TK. However, teachers in Saudi Arabia indicated a higher TK, TCK, TPK than teachers in USA. When controlling for demographics variables such as age, teaching experience and education level, teachers in the US and Saudi Arabia did not show any significant differences in terms

of TPACK in general. While this study identified the similarities and differences in the perceived TPACK constructs for both teachers in US and Saudi Arabia it lacked a specific focus on language teachers.

Cheng (2017) conducted a study on Taiwanese language learners examining their perceptions of TPACK. The mixed method study applied a survey and interviews to collect data from 172 in-services language teachers with respect to their perception towards TPACK in Taiwan. The survey included the seven constructs of TPACK: CK, PK, TK, PCK, TPK, TCK and TPACK. Demographics were also investigated in relation to the teachers' perceptions of TPACK including: gender, age and teaching experience.

Findings indicated that younger teachers had low confidence in CK, TK and TPK. However, older teachers tended to be more confident in their CK but less in their TK (Chen, 2017). This suggest that older teachers are more familiar with the content being taught than using technology in teaching this content. Results also indicated that teachers with more teaching experience were inclined to be more confident in their knowledge regarding CK, PK and PCK. This suggests that teachers with more teaching experience were able to make better use of ICT in their language teaching (Chen, 2017)

Karatas (2017) examined the TPACK related self-confidence and perceptions of pre-service mathematic teachers in terms of instructional technologies in Turkey. Findings of the study indicated that there was a significant relationship between the use of technology and self-confidence towards the use of technology. This suggested that self-confidence of pre-service teachers towards the use of technology increases with the use of instructional tools.

The following section situates the TPACK framework on the focus of the study in hand, which is EFL teaching and learning. This includes studies conducted in an EFL context using TPACK as a model for their research framework.

2.4.5 TPACK in the EFL Context

In a pilot case study, Madyarov (2009) investigated the CK and TK knowledge of 43 EFL Iranian college level and Farsi-speaking students. This was an attempt to design a workable framework for evaluating distance language instruction. The case study employed a mixed-methods approach where an online survey was used for data collection. The main purpose was to find out the student level of engagement and attitudes towards technology. The overall result showed that students had positive perceptions towards the types of technologies used for learning (Madyarov, 2009).

In another study, Arslan (2010) examined the level of TK and CK amongst 23 EFL Turkish teachers in an attempt to determine the effect of Internet blogs on writing performance. The study findings indicated that blog-integrated writing instruction might have resulted in a greater improvement in students' writing performance than merely in-class writing instruction (Arslan, 2010).

Muhamad (2014) investigated the role of motivation and TPACK in Computer Mediated Communication (CMC) speaking skills instruction. This mixed-methods study was limited to ESL learners and teachers in a Malaysian higher education institution. A total of 154 students and 4 English as a second language (ESL) teachers were involved in the data collection via survey and in-depth interviews. Findings indicated that significant differences existed amongst those ESL teachers in terms of the adequacy of their TPACK in facilitating the online content of the course. Interviews with ESL students clarified the disparity and showed dissatisfaction regarding their online learning (Muhamad, 2014).

Baser (2016), developed an assessment of TPACK for pre-service EFL teachers. The mixed method approach was conducted in order to collect data from range of pre-service EFL teachers. The survey items were generated first using qualitative methods including documents analyses and expert interviews. The researcher developed an assessment tool called TPACK-EFL survey to evaluate the TPACK constructs of EFL teachers. This study is significant because it provides insights for survey developers and teacher educators for establishing clear boundaries between TPACK constructs. Furthermore, while most studies have failed to confirm the seven factors structure of TPACK, this study was able to demonstrate that TPACK was valid in an EFL context. Baser (2016) concluded that TPACK was ideally suited to the EFL context.

In a Saudi EFL context, a doctoral thesis conducted by Alahmari (2013) investigated the level of TPACK among EFL teachers in technical and vocational colleges. The mixed-methods study employed a survey and interviews to collect data from 34 technical and vocational colleges. Participants were 467 male EFL teachers in these technical and vocational colleges with the response rate of 20% (n=93). The study found that EFL teachers' use of technology was positively associated with their perceptions of willingness to use that technology and with the perception of TPACK they employed as a way of understanding its pedagogical use (Alahmari, 2013). The study also found that EFL teachers with more EFL teaching experience had significantly higher

perceptions of TPACK than EFL teachers with less EFL teaching experience (Alahmari, 2013).

2.4.6 Issues with the TPACK framework

Despite the large body of research addressing the TPACK model there remains a number of theoretical concerns identified in the literature. These are explored next.

Lack of clarity of TPACK construct definitions

Chai (2013) and Graham (2011) argued that there is a lack of clarity around definitions of the TPACK seven elements. Earlier research studies have revealed significant findings in relation to the lack of clarity of each of the seven TPACK elements. For example, Priest (2007) defined the Pedagogical Content Knowledge (PCK) in two different ways. The first definition proposed by Priest (2007) was from a linguistics perspective where P was referred to as an objective and Content Knowledge (CK) was referred to as a compound noun. Priest (2007) proposed another important definition for PCK from an educational perspective. According to Priest (2007), PCK is defined as the teacher's decision making during any educational context that is influenced by any particular content and pedagogical elements.

Continuing with the lack of clarity surrounding definitions of TPACK, Cox (2008) identified approximately 90 definitions of TPACK and its seven elements from the literature. The lack of clarity around the seven elements of TPACK was demonstrated in studies that focussed on the confusion around each definition. These studies were based on the participants' responses for the TPACK survey items as researchers noticed a confusion regarding the definitions of each item. For instance, Archambault (2009) identified the inconsistency of response of the participants as they attempted to interpret some of the survey items associated with each particular TPACK construct. This led to confusion as each participant could interpret the survey items in their own way as belonging to any particular TPACK construct. For example, the survey items - "My ability to use ICT to create materials to teach specific language skills" - this item could either be interpreted as being associated with PCK or it may be suggestive of a more content knowledge rather than a pedagogical aspect of teaching. This confusion around the TPACK construct and their associates definitions has been identified in a number different research studies (Archambault, 2009).

Lack of clarity in terms of TPACK operation

Archambault (2009) identified a further issue with the TPACK framework regarding its operation of the seven constructs. The issue raised is that that the seven elements of the TPACK framework appear to be confounded and are thus difficult be separated from each other. However, Cox (2008) pointed out that the TPACK elements are independent from each other in and she proposed that TPACK and TCK are totally independent from CK and PK. In her view, TPK must be independent from the content of a particular topic material. Additionally, TCK must be independent from the content knowledge.

The lack of operation of the TPACK construct involves issues reported by a number of researchers regarding the boundaries between each of the seven elements (Dinh, 2015). Hughes (2008) claimed that TPACK framework might be a temporary concept however, a recent study conducted by Brantley-Dias (2013) suggested that TPACK should be rooted within other teachers' knowledge such as the pedagogical knowledge and the content knowledge. The issue around defining the TPACK boundaries was also identified by Jordan (2014) who argued that many researchers attempting to measure TPACK were facing challenges in distinguishing the boundaries around the TPACK constructs. This was considered a major obstacle facing researchers applying TPACK in an educational field and was as well as a threat to valid and reliable findings.

2.5 CONCLUSION

The focus of the previous reviewed studies was on the integration of ICT facilities within EFL context. Very few studies have examined the relationships between ICT implementation into EFL context and the TPACK construct. Additionally, most of the reviewed studies were conducted in countries where ICT use is considered in its high position (Mahdi, 2013). Therefore, the case might be different in developing countries where technology is considered in its early stages. The integration of ICT into the process of EFL context in these developing countries faces different difficulties that may hinder the successful ICT integration in teaching.

Although the literature review identified studies that have examined TPACK constructs in many different contexts with different participants, very few studies were identified for countries like Saudi Arabia where ICT use in schools might be considered in its early stages. In particular, no existing research could be identified that

applied the TPACK framework in an EFL context in Saudi Arabian male public secondary schools. The integration of ICT into EFL contexts such as Saudi Arabia faces different difficulties that may hinder the successful integration of ICT into teaching. Additionally, the target population of this study - in a city located at the southern region of Saudi Arabia - made it very distinctive and worthy of investigation. Based upon these factors, the following five research questions were identified and designed to address the mention gap in the literature.

RQ1: What is the level of EFL teachers' ICT competency?

RQ2: What are EFL teachers' attitudes towards ICT integration into the process of teaching EFL?

RQ3: What is the level of EFL teachers' TPACK in Saudi male public secondary schools?

RQ4: What is the relationship between EFL teachers' attitudes towards ICT and their level of TPACK?

RQ5: What are the factors that influence the use of ICT in EFL in male public secondary schools in Saudi Arabia?

2.6 CHAPTER SUMMARY

The literature review highlighted a number of key points that were considered of significance to the study. An overview of teaching EFL in Saudi Arabia was provided along with the challenges encountered during the process of teaching and learning. There are a number of significant challenges in EFL teaching and learning, particularly in Saudi Arabian context. These include, a lack of motivation, reliance on rote education, and out-dated curricula.

The process of ICT integration in an EFL context was examined and shown to be a complex process. This is due to the number of key factors that influence successful integration of ICT into EFL classrooms. These key factors include, the characteristics of the users; the ICT setting and infrastructure; TPACK of EFL teachers; and government education ICT policies in general (Albirini, 2006; Rahimi, 2011).

In this chapter, the theoretical framework used in the study - TPACK - was introduced. TPACK is a framework that describes the relationships and complexities between three main components of knowledge: technology, pedagogy and content (Schmidt, 2009).

Mishra and Koehler (2006) suggested that teachers require three separate and distinct knowledge elements for the successful integration of technology into their teaching.

Importantly, despite a range of studies being examined in this literature review, including the various aspects of EFL concerns in Saudi Arabian contexts, no existing research could be identified that explored TPACK in an EFL secondary school context. Based upon this, five research questions were identified designed to address this gap in the literature.

The next chapter, Methodology, describes the methodology used in the study including the identification of an appropriate methodology, the design of the data collection instruments, data collection and data analyses processes.

CHAPTER THREE

METHODOLOGY

This chapter describes the research design, methods and the processes of data collection and analysis used in this study of Saudi Arabian EFL teachers' TPACK. It contains information about participants, their demographics, and the research instruments that were applied to collect data. Details are provided about the two main research instruments – an online survey and semi-structured interviews. The design of the study and the selection of methodology are justified with reference to the literature. The TPACK framework developed by Mishra and Koehler (2006) was used as the theoretical framework for the study.

3.1 STUDY CONTEXT

The research was conducted in 30 male public secondary schools in the region of Albaha, which is located in the southwest of Saudi Arabia between Mecca and Aseer. Albaha contains nine provinces and occupies an area of 11,000 square kilometres, with a population of 533,001 in 2012 (Ministry of Economy and Planning, 2014). The region is similar in its allocation of schools, hospitals, government institutions and tertiary education providers to other regions in the kingdom (Elyas, 2010).

The medium of instruction in Saudi Arabian schools is Arabic, but English is used in English language classes. Some schools located in Albaha have similar ICT infrastructure, normally containing computer laboratories with multimedia capabilities and data projectors. All staff members working in these schools were Saudi males and their native language was Arabic. The EFL syllabus used in these schools was the syllabus mandated by the Saudi Arabian MOE.

3.1.1 Participants

The study population was full-time male EFL teachers working in 30 secondary schools in Albaha. The current study focused only on male participants for two main reasons. First, as is the practice, males and females are segregated throughout the education system in Saudi Arabia. As a result, obtaining the necessary ethics approval required to work with female participants would have been a complicated process and

most likely would have required the assistance of a female research assistant. This was not practical for the current research. Second, as the researcher works in the male secondary school system he had more convenient access to male participants.

Accordingly, approximately 200 male EFL teachers were invited to participate in the study. Some of these teachers were working in schools located in the city centre and others in schools in rural parts of the region. All potential participants had the minimum qualification of a Bachelor's degree from a recognised national or international institution before being appointed as an EFL teacher. Sampling process

A sample should be representative, contains members with an equal probability of being selected, in order for the researcher to make accurate inferences (Banerjee, 2010). In this study, convenience sampling was applied to the study population. Convenience sampling means the participants are easy to reach and available to take part in the study (Patton, 1990). The population for the current study was all EFL teachers teaching in male public secondary schools in Albaha.

3.2 ETHICS

For this study two ethics approvals had to be sought before the researcher was able to begin the data collection. Approval was obtained from the University of New England Ethics Committee, because the research involved postgraduate study at that university. Approval was also obtained from the Ministry of Education (MOE), as the study participants comprised EFL teachers under their jurisdiction. See Appendix 3.1 and 3.2 for the details of the UNE Ethics and the Ministry of Education approvals.

3.3 RESEARCH METHODOLOGY

In this section, the three major research methodologies typical of research – quantitative, qualitative and mixed methods – are described. The strengths and weaknesses of each type of methodology are outlined in order to justify the selection of study methodology.

3.3.1 Quantitative research

Quantitative research methods most often involve numerical data and emphasise objective measurement. Quantitative data are collected through polls, surveys, experiments, or from pre-existing statistical information (Creswell, 2013). The overall aim of this method is to classify features and associations; reveal variable frequencies;

and compare and contrast statistical models in order to explain interesting and notable observations (Punch, 2009).

Characteristics of the quantitative method

Quantitative methods are either descriptive or experimental in design. In the descriptive design, the topic is usually measured once, while more measurements might be made in the experimental design (Creswell, 2013). A descriptive design can only establish associations between variables; causality is established in the experimental and/or longitudinal quantitative designs. Since the quantitative method deals with numerical data and convergent reasoning, it uses a structured research instrument for the process of data collection (Punch, 2009). Quantitative studies often involve a larger sample size than qualitative studies, and aim to be representative of the target population (Clark, 2008).

In a quantitative study, the numeric data are often arranged in non-textual forms including tables, charts and figures. Quantitative researchers use computer software and other tools to analyse the data. The validity and reliability of scores for the research instrument are measured statistically so that the dataset can be interpreted meaningfully (Punch, 2009). The survey is a popular research approach for generating numeric data about human attitudes and behaviour. The analysis of appropriately collected survey data permits the researcher to draw inferences or generalise to the population as a whole (Creswell, 2007).

Strengths of using the quantitative method

According to Creswell (2013), the quantitative method allows the testing and validating of theories of how and why a particular incident has occurred, including hypotheses constructed before the data collection process began. Findings can be generalised if the data are based on a randomly selected sample of sufficient size. Quantitative data collection is generally quicker than qualitative data collection (Creswell, 2013). A further strength of the quantitative method is the provision of precise numerical data that minimises (to some extent) subjective judgment (Punch, 2009).

Limitations of the quantitative method

Data produced through the quantitative method can be abstract and might only serve a specific situation or context. Quantitative research is rarely able to control the environment of the participants, and is not well suited to the continuous investigation of a particular phenomenon (Punch, 2009). The quantitative method is assumed to

include an objective approach, but results in narrow and limited data. Although the quantitative method is efficient in terms of testing research hypotheses, it may neglect significant contextual data that could be valuable (Creswell, 2013).

TPACK and quantitative research design

Numerous authors have employed quantitative research designs in TPACK studies. For example, Schmidt (2009) developed and validated a questionnaire designed to investigate pre-service teachers' self-assessment of TPACK using the seven elements of the TPACK framework. It involved 75 items answered using the five-level Likert scale. The results indicated that the questionnaire was effective in measuring the pre-service teachers' self-assessment of TPACK. Schmidt (2009) concluded that the use of quantitative instruments such as questionnaires is a reliable way to measure TPACK and its related knowledge domains.

3.3.2 Qualitative research

A simplified definition of the quantitative method is that the data collected and analysed are in the form of text and not numbers (Punch, 2009). Qualitative research involves the production of descriptive data, such as people's own words, phrases or their spoken language (Berg, 2004). The qualitative method is concerned with meaningful answers produced by participants through their involvement in the research (Berg, 2004). Therefore, researchers should set their own ideas and views aside when collecting and analysing qualitative data. The qualitative method is often referred to as an inductive way to approach particular phenomena (Berg, 2004). This means that the researcher should develop themes, patterns, concepts, ideas and insights from the collected data rather than analysing the data to assess preconceived models or hypotheses (Berg, 2004). The term itself emphasises the quality of particular entities of phenomena (Punch, 2009). Berg (2004) pointed out that qualitative research focuses on the socially constructed nature of reality and the contextual context that shaped the phenomena.

Characteristics of the qualitative method

Many scientists view qualitative research as the naturalistic method to approach any particular inquiry (Creswell, 2013). It involves the study of the world, as it is without manipulating or controlling, meaning the researcher should be willing to accept any emerging data. The data collected through this method requires detailed descriptive analysis in order to maintain an in-depth understanding of the inquiry (Punch, 2009).

The qualitative researcher will probably have direct contact with the participants, situation or the case under investigation; therefore, the views and experience of researchers are of importance to the qualitative method (Creswell, 2013). Qualitative data collection methods include interviews, case studies, observation of focus groups, and action research (Creswell, 2013).

Strengths of using the qualitative method

The qualitative method is useful for the in-depth investigation of a small number of cases, as the data is based on the participants' own meaningful answers. It is also useful in describing multifaceted and complex phenomena (Creswell, 2013). Additionally, it provides in-depth details of people's experiences and views (Creswell, 2013). The inquiry is considered a dynamic process in which documentation of sequential progress and updates often occur (Berg, 2004).

Limitations of the qualitative method

Most of the limitations of the qualitative method are the reverse of its strengths. As stated earlier, the qualitative method is limited to small sample sizes; it allows in-depth analyses of phenomena, but the findings are rarely generalisable (Berg, 2004), remaining relatively unique to the study participants (Punch, 2009). The participants' cultural aspects might influence the primary data collection instrument. The researcher is often embedded in the culture and experiences of the participants, which increases the chances of biased interpretation at the analysis stage. The researcher's own views and experiences can also bias the results (Berg, 2004). Qualitative methods do not allow hypotheses and theories to be tested with large samples (Berg, 2004), and the qualitative method requires more time to collect and analyse data than the quantitative method.

Establishing the trustworthiness of qualitative data

The findings of any study should obviously be as trustworthy as possible. Positivists often question the trustworthiness of a qualitative inquiry, since the validity and reliability of such inquiry cannot be determined as the same process in naturalistic inquiry (Shenton, 2004). Lincoln and Guba (1986) indicated that establishing the trustworthiness of any research study, particularly a qualitative inquiry, is vital to assess its worth. Lincoln and Guba (1986) provide the following four steps to evaluate the trustworthiness of qualitative inquiry: credibility, transformability, dependability and confirmability. These items are discussed next.

Credibility

Credibility is the confidence in the truth of the findings (Lincoln & Guba, 1986). In other words, credibility is associated with the focus of the research and how the collected and analysed data address the intended focus (Graneheim, 2004). Therefore, it is very important to carefully selecting the research context, participants and the research instrument.

Transformability

Transformability refers to the ability to show that the findings are applicable in other contexts. In order to maintain transformability in a particular research inquiry, the researcher should apply a method called thick description (Lincoln & Guba, 1986) meaning providing sufficient details – such as times, settings, situations and population – to allow assessment of the extent to which the findings are transferable to another context. An explicit, detailed account of the field experience for a particular inquiry is necessary for a researcher to apply thick description within their research.

Dependability

The concept of dependability is closely related to consistency or reliability in qualitative research. Consistency of data is obtained through the verification of the steps followed through examination of raw data, data reduction products and process notes (Golafshani, 2003). A measure that reveals the dependability of a particular research inquiry is called an inquiry audit (Golafshani, 2003; Lincoln & Guba, 1986).

The inquiry audit technique, also called an external audit, involves distancing the researcher from the process of data analysis and the product of the research inquiry. The purpose is to assess the accuracy of the findings. It also aims to evaluate whether the findings, conclusions and recommendations are supported by the data. This technique is concerned with the accuracy of the findings, but it may lead to confusion rather than confirmation (Lincoln & Guba, 1986) because an external auditor may not be fully expert in the research area and may carry points of view that differ from those of the researcher. Additionally, the external auditor may disagree with the researcher's interpretation of the findings and lead to the main question of whose interpretation should stands out (Lincoln & Guba, 1986).

Confirmability

Lincoln (1986) stated that confirmability refers to the study's neutrality, meaning that the findings of the study are shaped by the respondents and not affected by the

researchers' bias, motivation or interest. Confirmability of a particular research inquiry can be achieved through four different techniques. The other techniques used to achieve confirmability are audit trails and reflexivity.

An audit trail is an account of the research process from early stages until reporting the findings. It is a transparent description of the research process. Lincoln & Guba (1986) stated that an audit trial should include keeping records of raw data from early stages, data reduction and analysis, process notes, materials relating to intentions and dispositions, and finally keeping records of the development of the research instrument.

Lincoln & Guba (1986) defined reflexivity as attending systematically to the context of knowledge construction, particularly to the effect of the researcher. In a particular investigation, reflexivity is mostly concerned with the researcher's background, position and perspectives that shape all areas of that investigation (Creswell, 2007). Lincoln (1986) listed three basic steps to foster reflexivity. The first step is designing research that includes multiple investigators who can foster the research interactions and dialogue and develop mutual understanding. The second step is to maintain a reflexive journal, in which the researcher records processes regularly. This journal should include records about the research methodology, justification of methodological decisions, and reflection upon events during the course of the research. The third step is to report all research-related aspects in manuscripts or other publications. This includes publicising the valuable beliefs and perspectives to the wider research communities in order to maintain a preferred feedback.

TPACK and qualitative research design

Qualitative research is seen as a way to build patterns of meaning from data (Jang, 2010). However, qualitative research instruments may be difficult to apply on a large scale. Therefore, quantitative research, using tools such as questionnaires, can cover the limitations of the qualitative research design. Jang (2010) stated that applying qualitative research instruments such as interviews to TPACK knowledge domains could provide rich information.

Qualitative research is rigorous in some aspects, as it involves prolonged contact with the field and the data, increasing its validity. Qualitative research designs, particularly in TPACK studies, may have greater issues concerning reliability than quantitative designs. However, qualitative research inquiries in TPACK studies involve fewer

threats to external validity, since the investigation is conducted in its natural setting (Carr, 1994).

3.3.3 Mixed methods research

Mixed methods research involves the application of more than one research method (usually quantitative and qualitative) in a single study. Bryman (2015) referred to mixed methods research as a multi-strategies research design, since it may involve different research teams, paradigms and processes, methods and data.

Mixed methods research has four aspects: timing, weighting, mixing and theorising. Researchers applying mixed methods should consider the timing of quantitative and qualitative methods in the data collection process. If the data are collected in quantitative and qualitative phases, regardless of which comes first, this should be called a sequential mixed methods research design, and a concurrent mixed methods research design if data are collected simultaneously.

Weighting determines if the priority is given to quantitative or qualitative data. However, some studies may give them equal priority. Weighting one research design more heavily depends on the interests of the researcher, the participants and what the investigator seeks to emphasise in the study (Creswell, 2013).

Mixed methods research can involve mixing quantitative and qualitative research questions, philosophical underpinnings and interpretations of data. It suggests that quantitative or qualitative data are merged on one end of the continuum, kept separate on the other end or combined between these two designs (Creswell, 2013).

The final factor that should be taken into account when applying mixed methods is theorising. A coherent theoretical perspective should be applied in order to guide the design.

Characteristics of mixed methods research

Mixed methods research involves combining quantitative and qualitative methods either sequentially or simultaneously (Tashakkori, 2003). The mixed method research adopts one or more specific designs, including triangulation, embedded, explanatory and exploratory designs (Punch, 2009).

Triangulation designs involve obtaining quantitative and qualitative data simultaneously. For example, qualitative data might be collected through focus groups,

and quantitative data from a survey, and the two brought together for overall interpretation (Creswell, 2013).

The embedded design features one data collection stage during which qualitative and quantitative data are collected simultaneously (Creswell, 2013). In this design a primary method guides the project and a secondary method plays a supporting role (Creswell, 2013). For example, Creswell (2007) embedded interviews with their participants within a quantitative experimental study.

An explanatory design has two phases, in which the researcher has to apply qualitative data to build on the initial quantitative results. The goal of this design is to use the qualitative data to explain significant or non-significant results, outliers and surprising results (Creswell, 2007). For example, the use of a survey to investigate participants' perceptions and attitudes towards a particular phenomenon could be followed by an in-depth interview to consolidate the results. As previously noted, the use of qualitative interviews provides an in-depth understanding of the issue under investigation (Punch, 2009).

In contrast to the explanatory design, in the exploratory design the qualitative data are collected and analysed before the quantitative data. The logic is that some inquiries cannot be quantitatively investigated prior to the application of qualitative design. An example of this design is the use of in-depth observation and interviews to collect initial data on a phenomenon prior to exploring it though empirical measurement.

Strengths of using mixed methods

The use of different methods to investigate a research question provides a broader understanding of the phenomenon under investigation. It also provides comprehensive details for the researcher in order to carry out further analysis. This will enhance the results interpretation and conclude with preferable recommendations for that particular phenomenon. The combination of quantitative and qualitative methods provides the researcher with a solid background and both numerical and textual data.

Limitations of mixed methods

The idea of combining quantitative and qualitative research methods is yet to be clear, as it needs further research in order to explicate these processes (Johnson, 2007). Johnson (2007) argued that mixed methods research should come from a single

dominant paradigm, either quantitative or qualitative. Research is required to fully address the credibility and trustworthiness of mixed methods (Clark, 2008).

3.3.4 Methodology chosen for the study

From the review of research methods just presented, the researcher concluded that a mixed methods explanatory research design would be utilised in the study. This was because this design was able to answer the research questions from different perspectives, and the variation in data collection could give greater opportunities for the triangulation of results. Furthermore, mixed method research offsets the weaknesses of both quantitative and qualitative research (Clark, 2011).

A *sequential* explanatory mixed method design was applied in the data collection process (Figure 3.1). The quantitative data were collected first through the web-based survey. This was followed by preliminary data analysis and a brief presentation of the primary results, which provided some insights for the second data collection stage – semi-structured interviews with EFL teachers. The data collected through both instruments were then brought together for analysis.

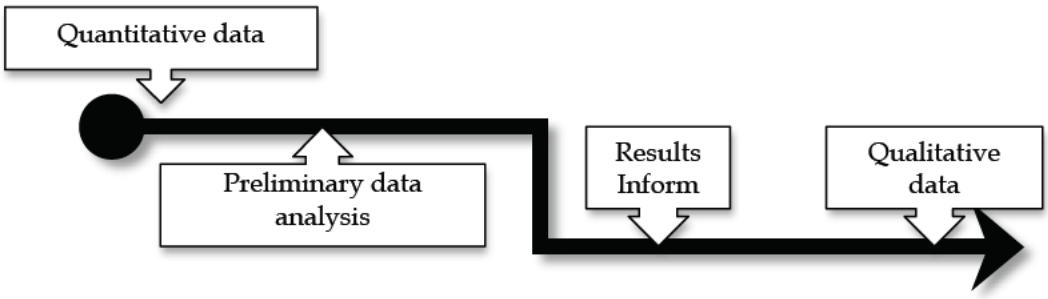


Figure 3.1 – Explanatory data collection design

3.4 DATA COLLECTION INSTRUMENTS

Two instruments were used to collect data for the research, a web-based survey and semi-structured interviews. Both instruments are described in detail below.

3.4.1 Surveys

Questionnaire-based surveys are popular research instruments for collecting quantitative data. There are mail surveys, telephone surveys and web-based surveys.

Surveys are useful for measuring perceptions, opinions, knowledge, attitudes, beliefs and behaviours (Creswell, 2013).

Strengths of surveys

Like any other research instrument, surveys have strengths and limitations. Surveys can be completed anonymously, which is important for obtaining sensitive data from participants. Also, surveys can be administered inexpensively, particularly web-based surveys, and can target large samples quickly. The web-based survey has the added advantage that the process of extracting the data for analysis can be completed digitally and automatically, saving further time and expense (Creswell, 2013).

Web-based surveys are known to save time and effort for both the researcher and participants (Punch, 2009). Follow-up reminders are easily delivered in the form of e-mails (Creswell, 2013). The participants in the web-based survey can freely and anonymously participate anywhere and anytime, which gives the researcher an opportunity to target the specific population required for the particular inquiry (Punch, 2009).

Drnyei (2001) indicated that a survey is the most appropriate research tool for addressing the participants' knowledge of and attitudes towards a particular subject. The main purpose of using a survey is to collect data from sample participants about their characteristics, experiences and opinions in order to generalise the findings to the population that the sample is intended to represent (Gall, 1996).

Limitations of surveys

Surveys have some limitations, such as the inability to ensure that participants provide high-quality data (Creswell, 2013). For example, if the questionnaire is too long and wordy, the participants may get bored and try to finish it without reading and answering carefully, or fail to complete it (Creswell, 2013). Additionally, because the number of possible questions is highly constrained, surveys may not provide a full and clear picture of the phenomenon under investigation.

Web-based surveys have limitations. For example, some potential participants might not have reliable connections to the Internet; this may cause the withdrawal of participants from the survey or loss of data (Punch, 2009). The researcher adopting a web-based survey should make sure that most the targeted participants have a sound knowledge of using computers and Internet.

Web-based surveys and TPACK research

The web-based survey is a valuable research instrument for measuring the level of TPACK (Koehler, 2005). Schmidt (2009) used a web-based survey to develop a 44-item survey to measure TPACK, which was later tested and approved by nationally recognised researchers in the United States. Archambault (2009) investigated TPACK by studying the perceptions of 596 teachers about the three TPACK components (TK, PK and CK) using a web-based survey. Additionally, Schmidt (2009) designed a survey instrument to assess the level of TPACK of pre-service teachers, based on an online pilot study of 124 pre-service teachers.

3.4.2 Interviews

Interviews are frequently used to collect in-depth data in qualitative research (Punch, 2009). Frey (1995) identified three types of interviews: structured interviews, semi-structured interviews and unstructured interviews.

Structured interviews

The structured interview involves a pre-established set of interview questions to be discussed during the interview. It also involves the planned set of response categories (Punch, 2009). Open-ended questions can be used in the structured interviews but with limited variation permitted in response. Participants in this type of interviews receive the same set of questions in the same order. Frey (1995) indicated that the stimulus-response nature of the structured interview focuses on the rational instead of the emotional response of the participants. The strength of this interview type is that the researcher has control over the topic; its weakness is its rigidity (Corbetta, 2003).

Unstructured interviews

Unstructured interviews involve unstandardised conversations between the researcher and the participants. They are often used in complex behavioural research to produce an in-depth understanding of the topic under investigation (Corbetta, 2003). Unlike structured interviews, these types of interviews apply unstructured research questions, in no particular sequence and allowing room for variations in response. Frey (1995) listed seven aspects of unstructured interviews: accessing the setting, understanding the language and culture of participants, deciding on how to present oneself, locating an informant gaining trust, establishing rapport and collecting the empirical materials. In this type of interview, interviewees are encouraged to participate and speak freely and frankly (Kajornboon, 2005).

Semi-structured interviews

Semi-structured interviews involve questions that not have to be in a strict sequence. Question order can be changed according to the direction of the interview. Additional questions might be asked to enhance understanding of particular phenomena (Kajornboon, 2005). Recordings might be used, as well as note taking, to facilitate thematic analysis (Kajornboon, 2005). Semi-structured interviews allow the researcher to probe the respondent's attitudes and values. Gray (2013) described probing as the way a researcher explores new ideas in depth. Semi-structured interviews allow room to build a conversation with the respondents and seek in-depth understanding of particular phenomena (Kajornboon, 2005). Furthermore, the researcher using semi-structured interviews can alter or rephrase the interview questions according to the direction of each interview. This gives the flexibility to have a deep conversation about the research topic (Punch, 2009).

Selection of interview type for the current study

Semi-structured interviews were applied in the current study to explore EFL teachers' knowledge of and attitudes towards integrating ICT into EFL learning and teaching. This was to provide the researcher with the opportunity to explore the issues at hand with the interviewees in some depth while avoiding the rigidity common to structured interviews.

3.5 WEB-BASED SURVEY

3.5.1 Web-based questionnaire components

The web-based questionnaire consisted of three parts containing 50 items in total. Part A contained items requesting demographic information about participants. Part B contained 20 items measuring teachers' knowledge of ICT and 10 items to measure teachers' attitudes towards ICT. Part C contained 15 items to measure the following TPACK dimensions: TPACK, TK, TPK and TCK. Measurement was restricted to the technology dimensions of TPACK (i.e., TPACK, TK, TPK and TCK) as these were considered the most relevant to collect information of most relevance to the research questions. Responses to parts B and C were in the form of a five-point Likert scale. A copy of the web-based survey is provided in Appendix One.

Part A: Demographics of the study

The demographic characteristics assessed were age (25-30, 31-35, 36-40 and over 40); years of EFL experience (less than 1 year, 1-5 years, 5-10 years and over 10 years of experience); location (urban, nonurban); highest qualification (Bachelor's degree, Master of Arts, Master of Education, PhD); and location of highest qualification (Saudi Arabia, overseas). These demographics permitted statistical comparisons of various groups of participants with respect to the other survey items.

Part B-1: EFL teachers' ICT competencies

The first section of Part B of the questionnaire had 20 items to measure the EFL teachers' knowledge of ICT (Table 3.1). Participants had to respond to each item using a 5-point Likert scale (Strongly agree, Agree, Neutral, Disagree and Strongly disagree). In the web-based survey each statement each statement began with the stem - *In my classroom, I use ICT to:*

Table 3.1 – EFL teachers' ICT competencies

Item	Statement
6	Create and edit texts (e.g. Word, Excel)
7	Create presentations (e.g. PowerPoint)
8	Create graphics (e.g. Paint)
9	Access internet to collect information
10	Communicate using chatting tools (e.g. email, forums, WhatsApp)
11	Access online dictionaries, translator and thesaurus
12	Communicate via online visuals (e.g. Skype)
13	Develop web pages (e.g. FrontPage)
14	Demonstrate educational software (e.g. learning objects)
15	Present instructional film (e.g. video, CD, DVD etc.)
16	Show presentations through multimedia computers (e.g. data show)
17	Engage in virtual worlds (e.g. Second Life)
18	Teach through a smartboard
19	Access online encyclopaedias
20	Develop multimedia (e.g. Hyperstudio)

Part B-2: EFL teachers' attitudes towards ICT

The second section of Part B contained another 15 items designed to measure EFL teachers' attitudes towards ICT. Table 3.2 shows this section, in which participants had

to respond using a 5-point Likert scale (Strongly agree, Agree, Neutral, Disagree and Strongly disagree).

Table 3.2 – EFL teachers' attitudes towards ICT

Item	Statement
21	I think that using ICT to teach EFL will make teaching simple
22	I think that using ICT will improve EFL teaching
23	I think that using ICT offers real advantages over the traditional method of EFL instruction
24	I think that using ICT in EFL teaching will be boring for EFL students
25	I believe that EFL students should have access to ICT facilities in each classroom
26	I believe that EFL students enjoy using ICT in the classroom
27	I believe that using ICT will interfere with my EFL teaching
28	I feel confident to use ICT in EFL teaching
29	I feel nervous when using ICT in EFL teaching
30	I believe that using ICT will make EFL teaching more interesting
31	I want to use ICT in an EFL classroom because it will develop student competences
32	I want to use new ICT technology to enhance my EFL teaching
33	I am interested to find new ways to integrate ICT in EFL teaching
34	I think using ICT will waste time and limit student outcomes
35	I think that ICT facilities complicate EFL tasks when teaching

Part C: EFL teachers' level of TPACK

EFL teachers' level of TPACK was the main focus of the study. In Chapter Two TPACK was defined as the state in which teachers possess the knowledge of how to integrate technology into their pedagogy while teaching a particular content (Mishra & Koehler, 2006). The focus in the current study was on the knowledge domains of TPACK associated with technology: TK, TPK, TCK and TPACK. Accordingly, PK and PCK and CK were not considered due to the parameters of the study. Discussion of the four types of knowledges and the assorted survey items proceeds next.

Technological Knowledge

The TK in the TPACK framework refers to a particular user's knowledge of how to use technology devices to enhance teaching and learning (Mishra & Koehler, 2006). Three items (Table 3.3) were designed to address this constituent and were mostly adopted

from (Schmidt, 2009). It was essential to determine EFL teachers' TK in order to support their attitudes towards ICT in general.

Table 3.3 – Technological Knowledge

Item	Statement
36	I know how to solve my own technical problems
37	I know many different types of ICT
50	I can learn about ICT integration in EFL easily

Technological Pedagogical Knowledge

Mishra and Koehler (2006) explained TPK as the knowledge of using different technological devices interchangeably according to the teaching pedagogy being applied while teaching. Five items (Table 3.4) were designed to address this construct, mostly adopted from (Schmidt, 2009).

Table 3.4 – Technological Pedagogical Knowledge

Item	Statement
39	I know how to integrate ICT to facilitate a communicative EFL approach
43	I know how to use different ICT tools for EFL teaching
44	I know how to adopt ICT in my EFL teaching style effectively
47	I implement ICT in my EFL teaching to help slow learners
48	I can select effective teaching strategies that integrate ICT in EFL teaching

Technological Content Knowledge

Mishra and Koehler (2006) defined TCK as the knowledge of using technology to teach a particular subject matter. Four items (Table 3.5), adopted from Schmidt (2009) were designed to address this construct.

Table 3.5 – Technological Content Knowledge

Item	Statement
Item 38	I can choose the right ICT to enhance the content of my EFL lesson
Item 40	I have the necessary knowledge about ICT applications for EFL skills teaching
Item 41	I know how to use ICT to evaluate EFL students' skills
Item 42	I know how to design software to enhance EFL communicative competency

Technological Pedagogical Content Knowledge

Mishra and Koehler (2006) defined TPACK as the knowledge of using technology-enhancing pedagogical approaches to teach a particular content. TPACK is the most important element of the present study and it was essential to address this constituent. Three items (Table 3.6) were designed to address this construct; they were mostly adopted from (Schmidt, 2009).

Table 3.6 – Technological Pedagogical Content Knowledge

Item	Statement
Item 45	I use ICT in diverse EFL teaching strategies to facilitate the instruction of EFL
Item 46	I can use ICT in giving EFL students tests that address both lower and higher-order thinking skills
Item 49	I have the technical ICT ability that I need to use technology to teach EFL speaking skills

3.5.2 Justification for inclusion of web-based survey items

This section provides justification for the inclusion of the questionnaire items. It has been stated earlier that some of these items were adopted or adapted from different sources. The justification of the items elaborates what has already been stated in the literature review chapter. This section also aligns the study with other research that has been done using similar research instruments.

Part B-1: EFL teachers' ICT competencies

The notion of EFL teachers' ICT competencies was discussed in Chapter Two. This element was addressed in 15 items (Items 6–20) and citations supporting their inclusion are presented in Table 3.7 below.

Table 3.7 – Justification of items for inclusion Part B-1

Item	Justification for inclusion
6	Creating or editing text is a useful way to facilitate the EFL teaching process (Collins, 2004).
7	Presentations are helpful tools in encouraging effective language teaching and learning (Beauchamp, 2004).
8	Graphic designing facilitates the process of learning and teaching English (Collins, 2004).
9 and 10	Accessing the internet using English research tools may improve the learning of English (Al-Asmari, 2005; Al-Maini, 2011)
11	Using online English tools improves the learning of English (Al-Asmari,

	2005 ;Al-Maini, 2011)
12	Accessing the internet using English communication tools improves the learning of English (Al-Asmari, 2005; Al-Maini, 2011)
13	The ability to create a web-page to teach English can improve a particular language skill in a cooperative learning situation (Shih, 2011)
14	Using ICT software in an EFL context enables teachers to construct concepts maps that represent knowledge of the English language (Alahmari, 2013)
15	Obtaining free and open ICT resources may help EFL teachers to produce suitable materials in the classroom (Alahmari, 2013)
16	The ability to integrate multimedia through presentation enhances the content being taught, particularly EFL teaching (Wang, 2010).
17	Engaging in a virtual world EFL classroom offers a variety of opportunities for second language learners to produce the language (Warschauer, 2011).
18	Whiteboards are helpful tools in encouraging effective language teaching and learning (Beauchamp, 2004).
19	Accessing the Internet using English communication tools would improve the learning of English (Al-Asmari, 2005; Al-Maini, 2011)
20	The ability to integrate multimedia through presentation enhances the content being taught particularly EFL teaching (Wang, 2010)

Part B-2: EFL teachers' attitudes towards ICT

EFL teachers' attitudes towards ICT were addressed in 15 items and citations that support their inclusion are presented in Table 3.8 below.

Table 3.8 – Justifications of items for inclusion Part B- 2

Item	Justification for inclusion
21 22 23 24	Facilitating the process of EFL teaching through ICT. Teachers who think that ICT would possess conveniences to the classroom are more willing to use it (Ploog, 2013)
25 26 27	Teachers' belief in the value of integrating ICT tools in the classroom increases the likelihood of use (Becker, 2006)
28 29	Confidence in using ICT tools at a personal level is a crucial part of self-efficacy (Khorrami-Arani, 2001). Confidence in assisting learners through ICT tools can be considered an indicator of positive attitudes towards ICT
30 31	Teachers' desire to implement ICT into their teaching could develop an interactive learning environment (Sasaki, 2011)

32	
33	Teachers who feel confident in learning about ICT are more willing to implement it in the classroom (Khorrami-Arani, 2001)
34 35	Teachers' attitudes towards ICT affect their use of it in an EFL classroom (Albirini, 2006)

Part C: EFL teachers' level of TPACK

The majority of the TPACK items were adopted from the study by Schmidt et al (2009), in which the authors developed and validated a set of TPACK survey items. A pool of 44 survey items was developed and sent to an expert for further content validity analysis, and later sent to three nationally known researchers with expertise in TPACK for further testing and validation. These tested, content validated and evaluated, survey items were approved by nationally recognised researchers in the United States (Schmidt et al., 2009). Therefore, the present study adopted many of these items and the justifications for inclusion of these items are presented in Table 3.9 below.

Table 3.9 – Justification of items for inclusion Part C

Items	Justification for inclusion
36-50	Most of these items were adapted from Mishra and Koehler (2006) and Schmidt et al (2009) studies, in which they presented valid items measuring all seven components of TPACK. The focus in the current study is only on the following knowledge domains of TPACK: TK, TPK, TCK and TPACK. As indicated, PK and PCK and CK were ignored due to the constraints of the study and items were adapted to suit the unique EFL context. Mishra and Koehler a (2006) stated that their questionnaire items focus on the construct of technology skills and proficiency, teachers' beliefs and attitudes, technology support given, and barriers encountered. When developing a TPACK questionnaire, the purpose should remain that the items measure teachers' self-assessments of TPACK domains, not their attitudes towards TPACK itself (Mishra & Koehler, 2006).

3.5.3 Web-based survey implementation

A copy of the web-based survey can be found in Appendix 3.3. The web-based survey was administered in English. Its content was translated into Arabic for approval purposes, as all correspondence regarding research involving the MOE in Saudi Arabia must be conducted in Arabic. In addition, translating the questionnaire into Arabic made it possible to receive approval from the General Directorate of Education in Albaha to distribute the survey.

The web-based survey was piloted prior to initial implementation. The survey pilot involved the researcher and four other colleagues. Feedback was given on technical issues, the questionnaire content, the time spent to complete it and other suggestions towards a successful survey implementation. Those involved in the pilot were PhD students and academics at the University of New England, Australia. The process of piloting the web-based allowed the researcher to amend various aspects and attend to all feedback provided.

After obtaining all necessary approvals from the University of New England and the MOE, the web-based survey was launched on Qualtrics.com. The researcher tested the questionnaire to find and correct any technical issues. Once finalised, the researcher sent out a link to the survey to the Head of the English Department at the GED in Albaha, Saudi Arabia for distribution to all EFL teachers in Albaha. The survey remained open for a period of two months.

3.6 SEMI-STRUCTURED INTERVIEWS

The quantitative survey was supplemented with semi-structured interviews in order to clarify any disparities between EFL teachers' responses to the web-based survey items. There were four objectives in conducting the interviews for the current study. First, was to provide more information about the research topic under investigation. Second, was to confirm the EFL teachers' permission to being recorded during the interview. Third, was to seek further clarification, examples, views and experiences of the participants about their knowledge of ICT integration into their EFL teaching. Fourth, was to expand the discussion in order to extract more information that was not covered through the web-based survey.

3.6.1 Interview seed questions

The interview seed questions were designed to enable the EFL teachers to elaborate on their responses to the quantitative questionnaire items with respect to their attitudes and perceptions but also on how they were using ICT in their EFL teaching. The interview seed questions were developed from the main research questions.

Table 3.10 – Interview seed questions

What do you think is the value of using ICT in EFL teaching?
What kind of ICT skills do you have to enable EFL teaching?
What impact do you think ICT will have on EFL teaching?
How do you use ICT in your EFL teaching?

Can you identify ICT barriers and enablers in teaching EFL in secondary schools in Saudi Arabia?

3.6.2 Semi-structured interview implementation

At the completion of the online survey, EFL teachers were invited to provide their contact details if they wished to participate in a semi-structured face-to-face interview. Open-ended questions were used in the interview; the interviews were audio-recorded and the data were transcribed as described below in preparation for analysis.

3.6.3 Transcription

Transcription involves the change of the recorded data to the written form of the data. Interviews were transcribed to ease the process of analysis instead of analysing the data from the recorded data. Transcription involved a careful listening to the recorded interviews in order not to miss out any important data. The transcription of the semi-structured interviews was conducted in three phases:

Listening to the recoded data

This phase involved note taking in formatted tables and producing the recoded data in written form. These notes included important, repeated, usual and unusual response produced by interviewees.

Production of the first draft of the first transcript.

This phase involved the production of the initial transcript, which involved the notes of the first impression, labelling the relevant pieces such as words and phrase. This phase had to be repeated in order not to miss out any relevant information. The repeated form of this phase produced the final full transcripts, which is discussed next.

The production of the full and accurate transcription of the interviews.

In this phase, very accurate and complete transcripts were produced after being reviewed and approved by the researcher. This process involved the internal reliability of having another researcher on board to have their say on the final version of the transcript. Eight transcripts were presented for coding and thematic analysis.

3.7 DATA ANALYSIS

This section outlines the data analysis process. Both quantitative (web-based survey) and qualitative (semi-structured interview) data analysis techniques are presented and discussed. Table 3.11 aligns each research question along with the data collection

instrument and the specific analytical procedures that were applied. The results of the quantitative and qualitative analyses are presented in Chapters Four and Five, respectively.

Table 3.11 – Data collection and analysis summary

Research question	Data collection instrument	Data analysis
What are EFL teachers' levels of ICT competency?	Web-based survey	Descriptive statistics, and inferential statistics
What are the EFL teachers' attitudes towards ICT integration into the process of teaching EFL?	Web-based survey Semi-structured interviews	Descriptive statistics, and inferential statistics Thematic analysis
What is the EFL teacher's level of TPACK in Saudi public secondary boys' schools?	Web-based survey	Descriptive statistics, and inferential statistics
What is the relationship between EFL teachers' attitudes towards ICT and their level of TPACK?	Web-based survey	Descriptive statistics, and inferential statistics
What are the factors that influence the use of ICT in EFL in public secondary boys' schools in Saudi Arabia?	Web-based survey Semi-structured interviews	Descriptive statistics, and inferential statistics Thematic analysis

3.7.1 Quantitative data analysis

Quantitative data were analysed using SPSS software. Numerical values were given to the 5-point Likert scale of the survey items to enable analysis. These values were: 5 = Strongly agree, 4 = Agree, 3 = Neutral, 2 = Disagree and 1 = Strongly disagree.

The following section describes the statistical procedures applied in this research, followed by reliability and validity measurements.

Frequency analysis

Frequency analysis was applied to summarise the data obtained from the participants' responses to questionnaire items and identify any trends or effects that may influence the data.

Independent t-tests

The purpose of this statistical procedure is to measure the significance of differences between the means of two independent variables (Cardinal, 2013). Independent t-tests

were applied to items addressing the EFL teachers' ICT competencies, attitudes towards ICT and level of TPACK for the two independent variables, school location and highest qualification - location achieved. A p value of less than .05 was regarded as evidence of a statistically significant difference between the means of any two groups. Effect size was reported, as it is considered the main finding of a quantitative enquiry (Cohen, 1988)

Analysis of Variance (ANOVA)

Analysis of Variance (ANOVA) is used to determine if there are significant differences among two or more means of independent groups (Cardinal, 2013). For the current study, ANOVA was applied to the EFL teachers' ICT competencies, attitudes towards ICT and level of TPACK for the independent variables, age range, years of EFL teaching experience, and highest qualification achieved.

3.7.2 Qualitative data analysis

Qualitative data were examined using thematic analysis to identify themes in the EFL teachers' attitudes and use of ICT in EFL teaching. The process of thematic analysis is discussed in the following subsections.

The use of thematic analysis

Braun and Clarke (2006) defined thematic analysis as a method for identifying, analysing and reporting patterns (or themes) within data, enabling rich detail to emerge. A theme captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the dataset.

Thematic analysis emphasises pinpointing, examining and recording themes within data. These themes are the essential categories for further analysis (Vaismoradi, 2013). Thematic analysis was conducted in six main phases in order to extract meaningful themes. These six phases were: data familiarisation, generating the initial codes, searching for themes, reviewing the themes, defining the themes and producing the final report (Braun & Clarke, 2006).

Data familiarisation

This process involved thorough reading and re-reading of the data. It also included writing down initial impressions of the data.

Generating the initial codes

This process involved assigning codes to repeated and/or important responses in the dataset.

Searching for themes

Generating themes involved the collating of codes into potential themes and then collecting all the data relevant to each theme. Coherent, consistent and distinctive themes emerged out of a careful reading of the generated codes. Themes should be explicitly analysed and not just described; the final themes should reflect the purpose of the study, be exhaustive and sensitive to what is in the data (Braun & Clarke, 2006).

Reviewing the themes

In this process, the researcher made sure that the emergent themes were aligned with the extracted codes and the entire dataset (Vaismoradi, 2013).

Defining the themes

This phase involved naming the 'story' of each theme. These definitions needed to be clear and reflect the essence of the (Braun & Clarke, 2006).

Producing the final report

This final phase of thematic analysis involved the selection of example extracts and examples; with the final analysis of these extracts being aligned with the research questions (Vaismoradi, 2013).

3.8 RELIABILITY AND VALIDITY

The reliability of a research instrument refers to the accuracy of the measurement of that instrument. It also refers to the degree in which the instrument produces similar results in different trials. Reliability involves consistency over time, which means stability of the results generated in different trials (Drost, 2011).

It was essential to ensure that the instruments employed were both reliable and valid. Through the piloting process, the researcher found that all of the items in the survey questionnaire were understood and regarded as meaningful by the participants of the pilot. The interview questions were explained and presented in a meaningful and understandable way. The two research instruments employed in the current study covered all of the relevant areas related to the topic under investigation.

The reliability of the current study was measured using internal consistency that concerns the reliability of the test components. In order to maintain internal

consistency, coefficient alpha – known as Cronbach's Alpha- was applied. Cronbach's Alpha is useful to estimate reliability for items-specific variance in unidimensional tests (Drost, 2011).

Validity means the extent to which the instrument is measuring what it is meant to measure (Drost, 2011). External validity was obtained for the current study in order to generalise the relationship between variables across population and contexts.

3.9 CHAPTER SUMMARY

The purpose of the present study was to investigate the level of TPACK of EFL teachers in Saudi Arabian male public secondary schools, and in particular teachers' knowledge of and attitudes towards implementing ICT into EFL classrooms. This chapter described the methodology applied in the research. The quantitative and qualitative results are presented in Chapters Four and Five respectively.

CHAPTER FOUR

WEB-BASED SURVEY RESULTS

This chapter presents the results of the web-based survey completed by EFL teachers and is divided into seven sections. The first section provides the demographic details of the study's participants. The second section presents the survey results for EFL teachers' competencies. The third section presents the survey results for EFL teachers' attitudes towards ICT. The fourth section provides the survey results for the EFL teachers' level of TPACK. The fifth section discusses the internal reliability of the web-based survey. The sixth section, presents the chapter summary. The seventh section provides a conclusion to the chapter.

4.1 TEACHER DEMOGRAPHICS

This section provides the demographic details of the study participants. It includes survey response rates, age of respondents, years of EFL teaching experience, highest qualification achieved and the location of the highest qualification. It concludes with a summary of the demographic details.

4.1.1 Survey response rates

The data cleaning process involved amending and removing the incorrect, incomplete, improperly formatted and duplicated data from the dataset of surveyed EFL teachers. After data cleaning, 72 valid responses were collected out of a potential sample of 200 EFL Teachers. The response rate presented as a percentage of the potential sample of EFL teachers was 36%. This response rate was considered sufficient (Cooksey, 2007).

4.1.2 Age of respondents

The age range of the respondents is presented in Table 4.1. Just over half of the respondents were in the 30-34 years of age range (n=37, 51.4%). The 25-29 years was the next most common age range (n=17, 23.6%). There was only one respondent in the 50-54 age range.

Table 4.1 – Age of respondents

Age Range	Frequency	Percent	Cumulative Percent
25-29	17	23.6	23.6
30-34	37	51.4	75.0
35-39	9	12.5	87.5
40-44	6	8.3	95.8
45-49	2	2.8	98.6
50-54	1	1.4	100.0
Total	72	100.0	

4.1.3 Years of EFL teaching experience

The distribution of respondents' years of EFL teaching experience is presented in Table 4.2. More than one quarter of respondents (n=20, 27.8%) had less than four years teaching experience. The most common teaching experience range was 5-9 years (n=25, 34.7%). Just over one-third of respondents (n=27, 37.5%) had 10 or more years EFL teaching experience.

Table 4.2 – Years of EFL teaching experience

Years Teaching	Frequency	Percent	Cumulative Percent
0-4	20	27.8	27.8
5-9	25	34.7	62.5
10-14	19	26.4	88.9
15-19	4	5.6	94.4
20-24	1	1.4	95.8
25-29	2	2.8	98.6
30-34	1	1.4	100.0
Total	72	100.0	

4.1.4 School location

The School location frequencies are presented in Table 4.3. The majority of respondents (n=50, 69.4%) were teaching in schools located in urban areas. The remaining respondents (n=22, 30.6%) were teaching in schools located in non-urban areas.

Table 4.3 – School location

Location	Frequency	Valid Percent	Cumulative Percent
Urban	50	69.4	69.4
Non-urban	22	30.6	100.0
Total	72	100.0	

4.1.5 Highest qualification achieved

The frequencies of highest qualification achieved by EFL teachers are presented in Table 4.4. It is worth noting that the majority of the respondents (n=40, 55.6%) held Bachelor of Education degrees as their highest qualification. This is in accordance with the Saudi Arabian Ministry of Education policy that the minimum qualification required to be an EFL teacher is a Bachelor degree majoring in English language. Just over one quarter of the respondents (n=20, 27.8%) held Master's degrees as their highest qualification. None of the respondents had a PhD as their highest qualification.

Table 4.4 – Highest qualification achieved

Qualification	Frequency	Percent	Cumulative Percent
Bachelor of Arts	12	16.7	16.7
Bachelor of Education	40	55.6	72.2
Master	20	27.8	100.0
PhD	0	0	100.0
Total	72	100.0	

4.1.6 Highest qualification - location achieved

The location of the respondents' highest qualification is presented in Table 4.5. More than three-quarters of the respondents (n=57, 79.2%) had obtained their highest qualification in Saudi Arabia. Less than one-quarter (n=15, 20.8%) of respondents had achieved their highest degree from overseas.

Table 4.5 – Highest qualification - locations

Location	Frequency	Percent	Cumulative Percent
Saudi Arabia	57	79.2	79.2
Overseas	15	20.8	100.0
Total	72	100.0	

4.1.7 Summary of Demographics

Five items were designed in the web-based survey to collect information about the EFL teachers' characteristics. These were EFL teachers' age, years of EFL teaching experience, school location, highest qualification and the location of the highest qualification. The response rate for the web-based survey of 36% was considered to be sufficient. As for the age, the most common age found for the EFL teachers ranged between 30-34 years old while 5-9 years range found to be the most common EFL teaching experience among EFL teachers.

The school location category was defined as the employment location, which was either *Urban* or *Non-urban* location. *Urban* location was defined as schools located within the city surroundings while *Non-urban* location was defined as the school located in the outskirts of the city borders, which can also be called rural schools. Results indicated that majority of the EFL teachers surveyed were teaching in urban school locations while almost one-third of teachers were teaching in non-urban school locations.

As for the EFL teachers' highest qualification, results showed that the majority (72.2%) of EFL teachers held Bachelor's degrees while just over one quarter (27.8%) of the EFL teachers held Master's degrees while, none had a PhD as their highest qualification. It should be noted that the minimum qualification to be appointed as an EFL teacher in Saudi Arabia is a Bachelor of Education in English language, some teachers are encouraged to study Master's degrees in order to develop their skills of teaching and most importantly, to have opportunities for promotion.

Having considered the demographic details of the study participants, the conclusion was drawn that the study sample was sufficiently representative of EFL teachers at Saudi Arabian male public secondary schools.

4.2 EFL TEACHERS' ICT COMPETENCIES

Fifteen survey items assessed EFL teachers' level of skill in using computers and the Internet to support their EFL teaching. Skill levels were assessed using a 5 point Likert scale: 1. Strongly disagree, 2. Disagree, 3. Neutral, 4. Agree, 5. Strongly agree. Frequency analysis, Independent t-tests and ANOVA results for these survey items are presented next.

4.2.1 ICT competencies - Frequency Analysis

Table 4.6 presents a summary of EFL teachers' self-assessment of their skill using computers and the Internet to support their EFL teaching. The complete survey results can be found in Appendix 4.1

Table 4.6 – EFL teachers' skill using computers

Item	S.D.	D	N	A	S.A.	Mean	SD
Create and edit texts	2 (2.8%)	6 (8.5%)	17 (23.9%)	29 (40.8%)	17 (23.9%)	3.75	1.01
Create presentations	3 (4.2%)	5 (7.0%)	10 (14.1%)	31 (43.7%)	22 (31.0%)	3.90	1.05
Create graphics	3 (4.2%)	10 (14.1%)	15 (22.1%)	37 (52.1%)	6 (8.5%)	3.46	.983
Access Internet to collect information	6 (8.5%)	1 (1.4%)	10 (14.1%)	32 (45.1%)	22 (31.0%)	3.89	1.12
Communicate using chatting tools	5 (7.0%)	11 (15.5%)	18 (25.4%)	31 (43.7%)	6 (8.5%)	3.31	1.06
Access online dictionaries, translator and thesaurus	5 (7.0%)	5 (7.0%)	12 (16.9%)	31 (43.7%)	18 (25.4%)	3.73	1.13
Communicate via videoconferencing	10 (14.1%)	14 (19.7%)	26 (36.6%)	18 (25.4%)	3 (4.2%)	2.86	1.09
Develop web pages	12 (16.9%)	10 (14.1%)	30 (42.3%)	15 (21.1%)	4 (5.6%)	2.85	1.12
Demonstrate educational software	4 (5.6%)	6 (8.5%)	23 (32.4%)	27 (38.0%)	11 (15.5%)	3.49	1.04
Present instructional films	7 (9.9%)	13 (18.3%)	9 (12.7%)	27 (38.0%)	15 (21.1%)	3.42	1.28
Show presentations through multimedia computers	4 (5.6%)	2 (2.8%)	9 (12.7%)	29 (40.8%)	27 (38.0%)	4.03	1.07
Engage in virtual worlds	8 (11.3%)	9 (12.7%)	20 (28.2%)	27 (38.0%)	7 (9.9%)	3.23	1.15
Teach using Smart Boards	5 (7.0%)	3 (4.2%)	13 (18.3%)	25 (35.2)	25 (35.2%)	3.87	1.16
Access online encyclopedias	8 (11.3%)	4 (5.6%)	22 (31.0%)	24 (33.8%)	13 (18.3%)	3.42	1.19
Develop multimedia	4 (5.6%)	11 (15.5%)	20 (28.2%)	28 (11.3%)	8 (11.3%)	3.35	1.06

Key S D - Strongly disagree; D - Disagree; N - Neutral; A - Agree; S A - Strongly agree

The majority of EFL teachers (64.7% agreed or strongly agreed) were confident in being able to create and edit texts while (74.7% agreed or strongly agreed) indicated the ability to create presentations. Additionally, more than half of the respondents (60.6% agreed or strongly agreed) were confident in being able to create graphics. The

majority of the respondents (76.1% agreed or strongly agreed) indicated their ability to access the Internet in order to collect information. Furthermore, 69.1% (agreed or strongly agreed) of the respondents were confident in being able to access online dictionaries, translators and thesauruses. More than half of the respondents (59.1% agreed or strongly agreed) indicated that they have the ability to present instructional films. The majority of respondents (78.8% agreed or strongly agreed) were confident in being able to show presentations though multimedia. The majority (70.4% agreed or strongly agreed) of the respondents indicated that they were able to teach using smart boards while more than half of respondents (52.1% agreed or strongly agreed) were confident in being able to access online encyclopedias and (50.7% agreed or strongly agreed) of respondents indicated that they were able to develop multimedia.

While the majority of respondents indicated a high confidence in a range of ICT skills, there were a number of areas respondents felt less confident. Only 29.6%(agreed or strongly agreed) of respondents expressed confidence in communicating via video conferencing tools. Also, 26.7% (agreed or strongly agreed) of respondents indicated that they were able to develop web pages and 24% (agreed or strongly agreed) of respondents were able to demonstrate educational software.

4.2.2 ICT competencies – Independent T-tests

Independent t-tests are used to determine whether any significant differences exist between two means of two independents groups (Green, 2010). Independent t-tests were performed to determine if there were any statistically significant differences in EFL teachers' ICT competencies for the independent variables, school location and highest qualification - location achieved.

ICT competencies and school location

An independent t-test was conducted to determine if any statistically significant differences existed between urban and non-urban EFL teachers' self-reported level of ICT skills. The full results of this analysis are presented in Appendix 4.4. A statistically significant difference ($p < .05$) was identified between Urban and Non-urban EFL teachers' responses for one item: *Create and edit text;* $t(69)=2.19$, $p=.031$. The effect size for this analysis ($d = .56$) was found to exceed Cohen's (1988) convention for a medium effect ($d = .50$). These results indicate that respondents who identified themselves as urban teachers ($M=3.92$, $SD=.954$) rated themselves more highly in this skill than non-urban teachers ($M=3.36$, $SD=1.05$).

ICT competencies and location of highest qualification achieved

An independent t-test was conducted to determine if any statistically significant differences existed between qualifications obtained from Saudi Arabia and qualifications obtained from overseas for EFL teachers' self-reported level of ICT competencies. The full results of this analysis are presented in Appendix 4.7. A statistically significant difference ($p < .05$) was identified between qualifications obtained from Saudi Arabia and qualifications obtained from overseas for EFL teachers' responses for three items:

Create and edit text; $t(69)=-2.44$, $p=.021$. The effect size for this analysis ($d = .65$) was found to exceed Cohen's (1988) convention for a medium effect ($d = .50$). These results indicate that EFL teachers who obtained their highest qualifications from overseas ($M=3.93$, $SD=.730$) rated themselves more highly in this item than those who obtained their highest qualifications from Saudi Arabia ($M=3.61$, $SD=.975$).

Develop web pages; $t(69)=-2.24$, $p=.028$. The effect size for this analysis ($d = 1.21$) was found to exceed Cohen's (1988) convention for a medium effect ($d = .50$). These results indicate that EFL teachers who obtained their highest qualifications from overseas ($M=3.43$, $SD=.938$) rated themselves more highly in this item than did those who obtained their highest qualifications from Saudi Arabia ($M=2.70$, $SD=1.12$).

Demonstrate educational software; $t(69)=-2.18$, $p=.034$. The effect size for this analysis ($d = .67$) was found to exceed Cohen's (1988) convention for a medium effect ($d = .50$). These results indicate that EFL teachers who obtained their highest qualifications from overseas ($M=4.07$, $SD=1.14$) rated themselves more highly in this item than those who obtained their highest qualifications from Saudi Arabia ($M=3.35$, $SD=.973$).

4.2.3 ICT competencies - Analysis of Variance (ANOVA)

ANOVA is performed to determine the existence of significant differences between two or more means from independent groups (Heck, 2015). In the current study, ANOVA was performed to determine if any statistically significant differences existed between EFL teachers' ICT competencies and the independent variables, age range of the participants and years of EFL teaching experience.

ICT competencies and age range

ANOVA was performed to determine if any statistically significant differences existed between EFL teachers' ICT competencies and the age range of EFL teachers. (see,

Appendix 4.10). Results showed a statistically significant difference ($p<.05$) for one item, *the use of ICT to create presentations* $F(2, 68) = 3.75$, $p=.029$. However, the Bonferroni post hoc test that could determine between which groups the significant results occurred were unable to be conducted due to the 50 - 54 years of age group having less than two cases. The age range variable was then re-coded into three groups: 25 - 29 years of age, 30 - 34 years of age, and 35 and over years of age.

The repeated Bonferroni post hoc test revealed that EFL teachers in the 35 and over age range had a statistically significant higher mean (M=4.39, SD=) than teachers in the 25-29 years of age range (M=3.44, SD=) for this item. This suggests that teachers in the 35 and over age range rated themselves more highly in the skill to use ICT to create presentations than EFL teachers in the 25-29 age range.

ICT competencies and teaching experience

The ANOVA procedure was performed to determine if any statistically significant differences existed between EFL teachers' ICT competencies and the teaching experience of EFL teachers. (see, Appendix 4.13). Results showed no statistically significant differences for teaching experience. This result suggests that teaching experience did not influence EFL teachers' attitudes towards the use of ICT in their EFL teaching.

ICT competencies and type of qualification

ANOVA was performed to determine if any statistically significant differences existed between EFL teachers' ICT competencies and the highest qualifications held by EFL teachers. (see, Appendix 4.16). Results showed a statistically significant difference ($p<.05$) for the three survey items:

Use of ICT to access Internet to collect information $F(2, 68) = 4.52$, $p=.014$. The Bonferroni post hoc test revealed that EFL teachers with a Master's degree had a statistically significant higher mean (M=4.50, SD=.607) than EFL teachers with a Bachelor of Education degree (M=3.64, SD=1.246) for the use of ICT to access Internet to collect information. This suggests that EFL teachers with a Master's degree rated themselves more highly for this item than EFL teachers with a Bachelor of Education degree.

Use of ICT to access online dictionaries, translation and thesauruses $F(2, 68) = 6.47$, $p=.003$. The Bonferroni post hoc test revealed that EFL teachers with a Master's degree had a statistically significant higher mean (M=4.35, SD=0.587) than EFL teachers with a Bachelor of Education degree (M=3.64, SD= 1.112) for the use of ICT to access online

dictionaries, translation and thesaurus. This suggests that EFL teachers with a Master's degree rated themselves more highly for this item than EFL teachers with a Bachelor of Education degree.

Use ICT to communicate via video conferencing $F(2, 67) = 4.38$, $p=.016$. The Bonferroni post hoc test revealed that EFL teachers with a Master's degree had a statistically significant higher mean ($M=3.35$, $SD= 1.040$) than EFL teachers with a Bachelor of Education degree ($M=2.79$, $SD= 0.951$) for the use of ICT to communicate via video conferencing. This suggests that EFL teachers with Master's degree rated themselves more highly for this item than EFL teachers with a Bachelor of Education degree.

4.2.4 Summary of EFL teachers' ICT competencies

The results of the surveyed EFL teachers indicated a high level of competence for a majority of ICT skills. EFL teachers expressed less confidence however, in using video conferencing, developing web pages and demonstrating educational software. These items could be considered as higher level ICT skills and a lack of confidence might suggest a lack of experience in using these three applications of ICT. Based on school location, only one skill - *create and edit text* - had a statistically significant difference between urban and non-urban teachers - with urban teachers rating themselves more highly in this skill. This skill and two others - *develop web pages* and *demonstrate educational software* were also statistically significantly different for the independent variable, location of highest qualification achieved. EFL teachers who had achieved their highest qualifications outside of Saudi Arabia rated themselves more highly in these three skills. Again, this might suggest a lack of experience in using these applications with EFL teachers having achieved their qualification outside of Saudi Arabia possibly having had better access to these applications of ICT. The age of EFL teachers did not have any influence on their level of ICT competence, except for one item - *the use of ICT to create presentations*. For this skill, EFL teachers in the 35 years and over age range rated themselves more highly than EFL teachers in the 25-29 years of age range. The teaching experience of EFL teachers did not influence ICT competencies with no statistically significant differences identified for any of the survey items for this independent variable.

4.3 EFL TEACHERS' ATTITUDES TOWARDS ICT

EFL teachers were asked 15 questions designed to assess their attitudes towards the use of ICT in their EFL teaching. Attitude levels were assessed using a 5 point Likert

scale: 1. Strongly disagree, 2. Disagree, 3. Neutral, 4. Agree, 5. Strongly agree. The results for these survey items are presented next.

4.3.1 ICT attitudes - Frequency Analysis

Table 4.7 presents a summary of EFL teachers' attitudes towards ICT particularly means and standard deviation. The complete survey results can be found in Appendix 4.2.

Table 4.7 – EFL teachers' attitudes towards ICT

Item	S.D.	D	N	A	S.A.	Mean	SD
I think that using ICT to EFL will make teaching simple.	2 (2.8%)	2 (2.8%)	8 (11.3%)	27 (38.0%)	32 (45.1%)	4.20	.950
I think that using ICT will improve EFL teaching	1 (1.4%)	6 (8.5%)	32 (45.1%)	32 (45.1%)	32 (45.1%)	4.32	.752
I think that using ICT offers real advantages over the traditional method of EFL instruction	1 (1.4%)	0 (0.0%)	9 (12.7%)	33 (46.5%)	28 (39.4%)	4.23	.778
I think that using ICT in EFL teaching will be boring for EFL students*	26 (36.6%)	25 (35.2%)	7 (9.9%)	10 (14.1%)	3 (4.2%)	2.14	1.19
I believe that EFL students should have access to ICT facilities in each classroom	1 (1.4%)	1 (1.4%)	10 (14.1%)	30 (40.8%)	29 (40.8%)	4.20	.839
I believe that EFL students enjoy using ICT in the classroom	0 (0.0%)	2 (2.8%)	6 (8.5%)	36 (50.7%)	27 (38.0%)	4.24	.726
I believe that using ICT will interfere with my EFL teaching*	12 (16.9%)	11 (15.5%)	12 (16.9%)	30 (42.3%)	6 (8.5%)	3.10	1.27
I feel confident to use ICT in EFL teaching	0 (0.0%)	0 (0.0%)	9 (12.7%)	37 (52.1%)	25 (35.2%)	4.23	.659
I feel nervous when using ICT in EFL teaching*	18 (25.4%)	36 (50.7%)	8 (11.3%)	8 (11.3%)	1 (1.4%)	2.13	.970
I believe that using ICT will make EFL teaching more interesting	0 (0.0%)	0 (0.0%)	7 (9.9%)	30 (42.3%)	34 (47.9%)	4.38	.663
I want to use ICT in an EFL classroom because it will develop student competences	0 (0.0%)	0 (0.0%)	7 (9.9%)	45 (63.4%	19 (26.8%)	4.17	.585
I want to use new ICT technology to enhance my EFL teaching	0 (0.0%)	1 (1.4%)	8 (11.3%)	45 (63.4%)	17 (23.9%)	4.10	.636
I am interested to find new approaches integrating ICT in EFL teaching	1 (1.4%)	0 (0.0%)	12 (16.9%)	33 (46.5%)	25 (35.2%)	4.14	.798
I think using ICT will waste my students' time*	27 (38.0%)	30 (42.3%)	7 (9.9%)	5 (7.0%)	2 (2.8%)	1.94	1.01
I think that using ICT complicate EFL teaching*	13 (18.3%)	24 (33.8%)	11 (15.5%)	17 (23.9%)	6 (8.5%)	2.70	1.26

* Reverse coded item Key S D - Strongly disagree; D - Disagree; N - Neutral; A - Agree; S A - Strongly agree

Overall, the majority of respondents held positive attitudes towards the use of ICT in their EFL teaching. The majority of the participants (83.1%) either strongly agreed or agreed that the use of ICT makes EFL teaching simple. Also, the majority of EFL teachers (85.9% either strongly agreed or agreed) believed that using ICT offered real advantages over traditional methods of EFL instruction. Similarly, a large majority of the EFL teachers (88.7%) either agreed or strongly agreed that EFL students enjoy using ICT in the classroom. EFL teachers on the whole felt confident in the use of ICT in their EFL classrooms with 87.3% either agreeing or strongly agreeing with this statement. Additionally, the majority of participants (90.2%) either agreed or strongly agreed that using ICT will make their EFL teaching more interesting.

With regard to future intentions to use ICT, the majority of respondents (90.2%) either agreed or strongly agreed that they wanted to use ICT in their EFL classrooms, to develop student competences. In a similar vein, 87.3% (either agreed or strongly agreed) of EFL teachers expressed the desire to use new technologies to enhance their EFL teaching.

Considering the potential impacts of ICT on students, 71.8% of the EFL teachers either disagreed or strongly disagreed that using ICT would be boring for their students. Moreover, 80.3% of the EFL teachers either disagreed or strongly disagreed that using ICT would waste their students' time

Despite positive attitudes towards the use of ICT in EFL teaching in general, evidence suggests that there were some reservations held towards use of ICT by the EFL teachers. Nearly one-third of the EFL teachers (32.4%) either agreed or strongly agreed that ICT would complicate the process of EFL teaching. Also, half of the EFL teachers (50.8% agreed or strongly agreed) believed that using ICT would interfere with their EFL teaching.

4.3.2 ICT attitudes - Independent T-tests

As for ICT competencies (see Section 4.2.2), independent t-tests were performed to determine if there were any statistically significant differences in EFL teachers' ICT attitudes for the independent variables, school location and highest qualification - location achieved.

ICT attitudes and school location

Results showed no significant differences for ICT attitudes based on school location. This suggests that urban and non-urban EFL teachers held similar attitudes towards ICT in EFL teaching. The full results of this analysis are presented in Appendix 4.5.

ICT attitudes and location of the highest qualification achieved

Results showed no significant differences for ICT attitudes based on the location of highest qualification. This suggests that EFL teachers who achieved their highest qualifications inside and outside of Saudi Arabia held similar attitudes towards ICT in EFL teaching. The full results of this analysis are presented in Appendix 4.8.

4.3.3 ICT attitudes - Analysis of Variance (ANOVA)

ANOVA was preformed to determine if any statistically significant differences existed between EFL teachers' attitudes towards ICT and the independent variables, age range of the participants and years of EFL teaching experience.

ICT attitudes and age range

ANOVA was performed to determine if any statistically significant differences existed between EFL teachers' attitudes towards ICT and the age range of EFL teachers. (see, Appendix 4.11). Results showed a statistically significant difference ($p<.05$) for one survey item; *I feel nervous when using ICT in my teaching* $F(2, 68) = 4.01$, $p=.023$. The Bonferroni post hoc test revealed that EFL teachers between 25-29 age range had a statistically significant higher mean ($M=2.69$, $SD=1.250$) than teachers in the 30-34 years of age range ($M=2.03$, $SD=0.897$) and teachers in the 35 and over age range ($M=1.83$, $SD=0.618$) for this item. The effect size for this analysis ($d = .60$) was found to exceed Cohen's (1988) convention for a medium effect ($d = .50$). This suggests that EFL teachers in the 25-29 years of age range were more nervous about using ICT in their teaching than EFL teachers in the 30-34 and 35 and over years of age ranges.

ICT attitudes and teaching experience

ANOVA was performed to determine if any statistically significant differences existed between EFL teachers' attitudes towards ICT and the teaching experience of EFL teachers. (see, Appendix 4.14). Results showed a statistically significant difference at the $p<.05$ level for the three survey items:

I think that using ICT in EFL will make teaching simple $F(2, 67) = 3.25$, $p=.045$. The Bonferroni post hoc test revealed that EFL teachers in the 10 years and over teaching

experience range had a statistically significant higher mean (M=4.44, SD= 0.961) than EFL teachers in the 5-10 teaching experience range (M=3.84, SD= 1.028) and the 0-4 years of teaching experience (M= 4.40, SD= 0.681) for this survey item. The effect size (d = .60) was found to exceed Cohen's (1988) convention for a medium effect (d = .50). This suggests that EFL teachers in the 10 years and over teaching experience held a more positive attitude towards ICT in EFL making teaching simple than EFL teachers in the 0-4 years and 5-10 years of teaching experience range.

I believe that students should have access to ICT facilities in each classroom $F(2, 67) = 6.19$, p=.003. The Bonferroni post hoc test revealed that EFL teachers in the 10 years and over teaching experience range had a statistically significant higher mean (M=4.52, SD= 0.653) than EFL teachers in the 5-10 teaching experience range (M=3.76, SD= 0.926) and the 0-4 years of teaching experience range (M= 4.30, SD= 0.733). The effect size for this analysis (d = .64) was found to exceed Cohen's (1988) convention for a medium effect (d = .50). This suggests that EFL teachers in the 10 years and over teaching experience range held a more positive attitude towards students having access to ICT facilities in each classroom than EFL teachers in the 0-4 and 5-10 years of teaching experience range.

I think that using ICT will waste my students' time $F(2, 67) = 5.33$, p=.007. The Bonferroni post hoc test revealed that EFL teachers in the 5-10 years teaching experience range had a statistically significant higher mean (M=2.44, SD= 1.261) than EFL teachers in 0-4 years teaching experience range (M=1.75, SD= 0.786) and the 10 years and over of teaching experience (M=1.60, SD= 0.707) for this survey item. The effect size for this analysis (d = .65) was found to exceed Cohen's (1988) convention for a medium effect (d = .50). This suggests that EFL teachers in the 5-10 teaching experience range believed more strongly that using ICT will waste their students' time than EFL teachers in the 0-4 years and 10 years and over of teaching experience range.

ICT attitudes and highest of qualification

ANOVA was performed to determine if any statistically significant differences existed between EFL teachers' attitudes towards ICT and the highest qualifications held by EFL teachers (see, Appendix 4.17). Results showed no statistically significant differences based upon level of qualification. Thus, the highest qualification of EFL teachers had no influence over their attitudes towards ICT.

Summary of EFL teachers' attitudes towards ICT

The majority of the surveyed EFL teachers expressed positive attitudes towards ICT indicating that on the whole, EFL teachers believed ICT makes EFL teaching simpler and can offer more advantages over the traditional teaching methods. Additionally, a high proportion of the EFL teachers surveyed expressed positive attitudes indicating that EFL students enjoy using ICT in the classrooms and believed that ICT makes EFL teaching more interesting. Despite the majority of EFL teachers expressing positive attitudes, towards ICT, one-third of the surveyed EFL teachers indicated that using ICT would complicate the process of EFL teaching. Also, nearly half of the surveyed EFL teachers believed that using ICT would interfere with their EFL teaching. T-test results indicated no statistically significant differences for ICT attitudes based on the school location or EFL teachers' highest qualification.

As for the EFL teachers' age range, ANOVA results indicated statistically significant differences for only one item – *I feel nervous when using ICT in my teaching*. For this item EFL teachers in the 20-29 years age range were more nervous when using ICT in their teaching than EFL teachers in the 30-34 and 35 and over years of age ranges. This result suggests that as EFL teachers grow older, their confidence in using ICT in their classrooms grows.

ANOVA results indicated that statistically significant differences existed between EFL teachers' attitudes towards ICT and the teaching experience of EFL teachers for three items – *I think that using ICT in EFL will make teaching simple*; *I believe that students should have access to ICT facilities in each classroom*; and *I think that using ICT will waste my students' time*. EFL teachers with 10 years and over teaching experience held a more positive attitude than EFL teachers with less teaching experience that using ICT in EFL will make teaching simple and believed that students should have access to ICT facilities in each classroom. This suggests that attitudes towards ICT may become more positive as teaching experience increases. However, EFL teachers in the 5-10 teaching experience range were stronger in their opinion than EFL teachers in the 0-4 years and 10 years and over of teaching experience range that using ICT will waste their students' time. As for the surveyed EFL teachers' highest qualification, there were no statistically significant differences in their attitudes towards the use of ICT in EFL teaching for any of the survey items. Thus, EFL teachers' level of qualification does not influence their attitudes towards ICT in their teaching.

4.4 EFL TEACHERS' LEVEL OF TPACK

EFL teachers were asked 15 questions designed to assess their level of TPACK across four dimensions, *Technological Knowledge* (TK); *Technological Pedagogical Knowledge* (TPK); *Technological Content Knowledge* (TCK); and *Technological Pedagogical Content Knowledge* (TPACK). Attitude levels were assessed using a 5 point Likert scale: 1. Strongly disagree, 2. Disagree, 3. Neutral, 4. Agree, 5. Strongly agree. The results for these survey items are presented next.

4.4.1 EFL teachers' TPACK - Frequency Analysis

This section provides the frequencies for each of the TPACK domains. The complete survey results can be found in Appendix 4.3. For clarity, the data tables have been organised according to the dimensions of TPACK assessed in the study - TK, TPK, TCK and TPACK.

Technological Knowledge (TK)

Three items assessed EFL teachers' Technological Knowledge (TK). The results of these three items are presented in Table 4.8.

Table 4.8 – EFL teachers' level of TK

Item	S.D.	D	N	A	S.A.	Mean	SD
I know how to solve my own technical problems	0 (0.0%)	0 (0.0%)	18 (25.4%)	40 (56.3%)	13 (18.3%)	3.93	.662
I know many different types of ICT technologies	1 (1.4%)	2 (2.8%)	15 (21.1%)	44 (62.0%)	9 (12.7%)	3.82	.743
I can learn about ICT integration in EFL easily	1 (1.4%)	2 (2.8%)	8 (11.3%)	45 (63.4%)	15 (21.1%)	4.00	.756

Key S D - Strongly disagree; D - Disagree; N - Neutral; A - Agree; S A - Strongly agree

Nearly three-quarters of respondents (74.6%) agreed or strongly agreed that they knew how to solve their own technical problems. Similarly, (74.7%) of respondents (agreed or strongly agreed) expressed that they have the knowledge of using many different types of ICT. Additionally, the majority of participants (84.5% agreed or strongly agreed) indicated that they could learn about ICT integration in EFL easily.

Technological Pedagogical Knowledge (TPK)

Five items assessed EFL teachers' Technological Pedagogical Knowledge (TPK). The results of these five items are presented in Table 4.9.

Table 4.9 – EFL teachers' level of TPK

Item	S.D.	D	N	A	S.A.	Mean	SD
I know how to integrate ICT to facilitate communicative EFL approach	1 (1.4%)	4 (5.6%)	18 (25.4%)	40 (56.3%)	9 (12.7%)	3.70	.800
I know how to use different ICT tools for EFL teaching	2 (2.8%)	4 (5.6%)	16 (22.5%)	35 (49.3%)	14 (19.7%)	3.21	1.094
I know how to adopt ICT in my EFL teaching style effectively	1 (1.4%)	3 (4.2%)	21 (29.6%)	36 (50.7%)	10 (14.1%)	3.77	.929
I implement ICT in my EFL teaching to help slow learners	2 (2.8%)	3 (4.2%)	16 (22.5%)	43 (60.6%)	7 (9.9%)	3.76	.836
I can select effective teaching strategies that integrate ICT in an EFL teaching	1 (1.4%)	2 (2.8%)	15 (21.2%)	40 (56.3%)	13 (18.3%)	3.87	.792

Key S D - Strongly disagree; D - Disagree; N - Neutral; A - Agree; S A - Strongly agree

More than two-thirds of the EFL teachers (69%) agreed or strongly agreed that they have the knowledge of integrating ICT to facilitate the communicative EFL approach. The majority of EFL teachers (69%) agreed or strongly agreed that they have the knowledge of using different ICT tools for EFL teaching. Additionally, the majority of EFL teachers (64.8% agreed or strongly agreed) believed that they have knowledge of adopting ICT in their EFL teaching styles effectively. Furthermore, 70.5% of the EFL teachers either agreed or strongly agreed that they have knowledge implementing ICT in their EFL teaching to help slow learners. The final item in this domain indicated a large majority of the EFL teachers (74.6% agreed or strongly agreed) that they can select effective strategies that integrate ICT in an EFL teaching.

Technological Content Knowledge (TCK)

Four items assessed EFL teachers' Technological Content Knowledge (TCK). The results of these four items are presented in Table 4.10.

Table 4.10 – EFL teachers' level of TCK

Item	S.D.	D	N	A	S.A.	Mean	SD
I can choose the right ICT to enhance the content of my EFL lesson	0 (0.0%)	2 (2.8%)	12 (16.9%)	48 (67.6%)	9 (12.7%)	3.90	.636
I have the knowledge about ICT applications for EFL skills teaching	1 (1.4%)	0 (0.0%)	21 (29.6%)	37 (52.1%)	12 (16.9%)	3.83	.756
I know how to use ICT to evaluate EFL students' skills	0 (0.0%)	4 (5.6%)	16 (22.5%)	40 (56.3%)	11 (15.5%)	3.82	.762
I know how to design a	4	16	20	23	8	3.77	.82

software to enhance EFL communicative competency	(5.6%)	(22.5%)	(28.2%)	(23.4%)	(11.3%)

Key S D - Strongly disagree; D - Disagree; N - Neutral; A - Agree; S A - Strongly agree

More than three-quarters of respondents (80.3% agreed or strongly agreed) believed that they can choose the right ICT to enhance the content of their EFL lessons. Also, the majority of the EFL teachers (69% agreed or strongly agreed) that they have the knowledge about ICT applications for EFL skills teaching. Furthermore, the majority of the EFL teachers (71.8% agreed or strongly agreed) that they knew how to use ICT to evaluate EFL students' skills. However, only one third of the EFL teachers (34.7% agreed or strongly agreed) indicated that they have the knowledge of designing a software to enhance EFL communicative competency.

Technological Pedagogical and Content Knowledge (TPACK)

Three items assessed EFL teachers' Technological Pedagogical Content Knowledge (TCK). The results of these three items are presented in Table 4.11.

Table 4.11 – EFL teachers' level of TPACK

Item	S.D.	D	N	A	S.A.	Mean	SD
I use ICT in diverse EFL teaching strategies to facilitate the instruction of EFL	1 (1.4%)	5 (7.0%)	17 (23.9%)	41 (57.7%)	10 (14.1%)	3.72	.814
I can use ICT in giving EFL students test that address both lower and higher order thinking skills	2 (2.8%)	3 (4.2%)	14 (19.7%)	43 (60.6%)	9 (12.7%)	3.68	.807
I have the technical ICT ability that I need to use technology in an EFL speaking skill	1 (1.4%)	0 (0.0%)	15 (21.2%)	44 (62.0%)	11 (15.5%)	3.90	.700

Key S D - Strongly disagree; D - Disagree; N - Neutral; A - Agree; S A - Strongly agree

Overall, the EFL teachers self-reported a consistent level of TPACK. The majority of the participants (71.8% agreed or strongly agreed) believed that they use ICT in divers EFL teaching strategies to facilitate the instruction of EFL. Furthermore, the majority of the EFL teachers (73.3% agreed or strongly agreed) that they can use ICT in giving EFL students test that address both lower and higher order thinking skills. Additionally, the majority of EFL teachers (73.3% agreed or strongly agreed) that they have the technical ICT ability that they need to use technology in an EFL speaking skills.

4.4.2 EFL teachers' TPACK according to school location

Independent t-tests were conducted to determine if any statistically significant differences existed between urban and non-urban EFL teachers' self-reported level of TPACK. The full results of this analysis are presented in Appendix 4.6. A breakdown of results follows.

Technological Knowledge

No statistically significant differences ($p < .05$) were identified between urban and non-urban EFL teachers' responses for these items. This indicates that urban and non-urban EFL teachers possessed similar Technological Knowledge.

Technological Pedagogical Knowledge

A statistically significant difference ($p < 0.027$) was identified between urban and non-urban EFL teachers' responses for one item: *I know how to use ICT tools for EFL teaching* $t(69)=2.19$, $p=.05$. The effect size ($d = .62$) was found to exceed Cohen's (1988) convention for a medium effect ($d = .50$). These results indicated that EFL teachers who identified themselves as non-urban teachers ($M=4.14$, $SD=.710$) rated themselves more highly in this item than urban EFL teachers ($M=3.61$, $SD=.975$). This suggests that non-urban EFL teachers believed more strongly than urban teachers that they know how to use ICT tools for EFL teaching.

Technological Content Knowledge

No statistically significant differences ($p < .05$) were identified between urban and non-urban EFL teachers' responses for these items. This indicates that urban and non-urban lecturers possessed similar Technological Content Knowledge.

Technological Pedagogical Content Knowledge

No statistically significant differences ($p < .05$) were identified between urban and non-urban EFL teachers' responses for these items. This indicates that urban and non-urban lecturers possessed similar Technological Pedagogical Content Knowledge.

4.4.3 EFL teachers' TPACK according to qualification location

An independent t-test was conducted to determine if any statistically significant differences existed for EFL teachers' self-reported level of TPACK based upon whether they obtained their highest qualification Saudi Arabia or overseas. The full results of this analysis are presented in Appendix 4.9. A breakdown of the results follows.

Technological Knowledge

No statistically significant differences (p <.05) were identified between EFL teachers who obtained their highest qualification from Saudi Arabia and those whose qualifications were obtained from overseas for these items. This indicates that the location where EFL teachers obtained their highest qualification did not influence Technological Knowledge.

Technological Pedagogical Knowledge

No statistically significant differences (p <.05) were identified between EFL teachers who obtained their highest qualification from Saudi Arabia and those whose qualifications were obtained from overseas for these items. This indicates that the location where EFL teachers obtained their highest qualification did not influence Technological Pedagogical Knowledge.

Technological Content Knowledge

No statistically significant differences (p <.05) were identified between EFL teachers who obtained their highest qualification from Saudi Arabia and those whose qualifications were obtained from overseas for these items. This indicates that the location where EFL teachers obtained their highest qualification did not influence Technological Content Knowledge.

Technological Pedagogical Content Knowledge

No statistically significant differences (p <.05) were identified between EFL teachers who obtained their highest qualification from Saudi Arabia and those whose qualifications were obtained from overseas for these items. This indicates that the location where EFL teachers obtained their highest qualification did not influence Technological Pedagogical Content Knowledge.

4.4.4 EFL teachers' TPACK and age range

ANOVA was conducted to determine whether any statistically significant differences existed for all TPACK items based on age. The full results of this analysis are presented in Appendix 4.12. A breakdown of the results follows.

Technological Knowledge

No statistically significant differences (p <.05) were identified between EFL teachers of different age ranges for these items. This indicates that age did not influence Technological Knowledge.

Technological Pedagogical Knowledge

No statistically significant differences (p <.05) were identified between EFL teachers of different age ranges for these items. This indicates that age did not influence Technological Pedagogical Knowledge.

Technological Content Knowledge

No statistically significant differences (p <.05) were identified between EFL teachers of different age ranges for these items. This indicates that age did not influence Technological Content Knowledge.

Technological Pedagogical Content Knowledge

No statistically significant differences (p <.05) were identified between EFL teachers of different age ranges for these items. This indicates that age did not influence Technological Pedagogical Content Knowledge.

4.4.5 EFL teachers' TPACK and teaching experience

ANOVA was conducted to determine if any statistically significant differences existed for all TPACK items based upon lecturer teaching experience. The full results of this analysis are presented in Appendix 4.15. A breakdown of the results follows.

Technological Knowledge

No statistically significant differences (p <.05) were identified indicating that teaching experience did not influence Technological Knowledge.

Technological Pedagogical Knowledge

No statistically significant differences (p <.05) were identified indicating that teaching experience did not influence Technological Pedagogical Knowledge.

Technological Content Knowledge

No statistically significant differences (p <.05) were identified indicating that teaching experience did not influence Technological Content Knowledge.

Technological Pedagogical Content Knowledge

No statistically significant differences (p <.05) were identified indicating that teaching experience did not influence Technological Pedagogical Knowledge.

4.4.6 EFL teachers' TPACK and highest of qualification achieved

ANOVA was performed to determine if any statistically significant differences existed between EFL teachers' level of TPACK and the highest qualification achieved. The full results of this analysis are presented in Appendix 4.18. A breakdown of the results follows.

Technological Knowledge

No statistically significant differences (p <.05) were identified indicating that teaching qualification did not influence Technological Knowledge.

Technological Pedagogical Knowledge

No statistically significant differences (p <.05) were identified indicating that teaching qualification did not influence Technological Pedagogical Knowledge.

Technological Content Knowledge

No statistically significant differences (p <.05) were identified indicating that teaching qualification did not influence Technological Content Knowledge.

Technological Pedagogical Content Knowledge

No statistically significant differences (p <.05) were identified indicating that teaching qualification did not influence Technological Pedagogical Knowledge.

4.4.7 Summary of EFL teachers' TPACK

For Technological Knowledge (TK), analysis of the results showed high level of agreement with these items was shared by most of the EFL teachers. The high overall mean for each item suggests a reasonably high level of TK. Inferential statistical analysis indicated that the EFL teachers' school location, location of the highest qualification achieved, age range, the teaching experience and highest qualifications achieved did not influence their Technological Knowledge (TK). This suggests that for EFL teachers, TK is a stable construct.

For Technological Pedagogical Knowledge (TPK) analysis of the result showed high level of agreement with TPK items was shared by most of the EFL teachers. The high

overall mean for each item suggests a reasonably high level of TPK. Inferential statistical analysis indicated that the EFL teachers' school location has influenced their Pedagogical Knowledge. Analysis of the result suggests that non-urban EFL teachers believed more strongly than urban teachers that they know how to use ICT tools for EFL teaching. However, location of the highest qualification achieved, age range, the teaching experience and highest qualifications achieved did not influence their Technological Pedagogical Knowledge (TPK).

For Technological Content Knowledge (TCK) analysis of the results showed high level of agreement with TCK items was shared by most of the EFL teachers. The high overall mean for each item suggests a reasonably high level of TCK. Inferential statistical analysis indicated that the EFL teachers' school location, location of the highest qualification achieved, age range, the teaching experience and highest qualifications achieved did not influence their Technological Content Knowledge (TCK). This suggests that for EFL teachers, TCK is also a stable construct.

Finally, three items were included in the survey to measure overall TPACK. The analysis of these items showed high level of agreement was shared by the surveyed EFL teachers. The age range, highest qualifications, highest qualifications location and years of EFL experience had no influence on EFL teachers' level TPACK for any of the survey items. This suggests that for EFL teachers, TPACK is a stable construct.

4.5 INTERNAL RELIABILITY

Reliability is a central element in measurement that is concerned with consistency and stability (Punch, 2009). The internal reliability of the survey instrument was measured using Cronbach's Alpha. The purpose of Cronbach's Alpha is to correlate each item against all other items in order to assess the relative reliability of each item (Tavakol, 2011). Cronbach's Alpha is also a measure of scale reliability and it is considered as an estimate of consistency. Values of the Cronbach's Alpha coefficient range between 0 and 1. Cooksey (2007) indicated that an acceptable level of Cronbach's Alpha is 0.6 or greater. Table 4.9 provides the values of Cronbach's Alpha for the three scales used in the web-based study.

Table 4.11 – Values of Cronbach's Alpha

Scale	Cronbach's Alpha
ICT Competencies	0.90
Attitudes towards ICT	0.76
Level of TPACK	0.93

All scale items had a Cronbach's Alpha value of greater than 0.6 suggesting an acceptable level of internal reliability of the three scales used in the web-based survey.

4.6 CHAPTER SUMMARY

This chapter presented the results and analysis of the web-based survey. The demographics of the study indicated a sufficient response rate (See, Section 4.1.1) and examination of the respondents' age, years of experience, school location whether urban or non-urban, highest qualification and the location of the highest qualification achieved, suggested that the study sample was sufficiently representative of the study population.

Frequencies were presented which showed the most common age group of the study participants was 30-34 years of age and the most common teaching experience range was 5-9 years. For the school location, the majority of EFL teachers were from urban areas where less than quarter of them were teaching at non-urban areas.

The majority of EFL teachers held Bachelor of Education degrees while just over one quarter of them held Master's degrees as their highest qualification. None of the EFL teachers had a PhD as their highest qualification. More than three-quarters of EFL teachers had obtained their highest qualification in Saudi Arabia. Less than one-quarter of EFL teachers achieved their highest degree from overseas.

EFL teachers' ICT competencies indicated a high level of ICT skills ranging from basic to advance skills. EFL teachers expressed less confidence however, in using video conferencing, developing web pages and demonstrating educational software. Based on the demographics of the study, school location had a statistically significant difference for one skill – *create and edit texts* - where EFL teachers teaching in urban schools rated themselves higher in this skill than teachers located in non-urban schools. As for the location of the EFL teachers' highest qualification, the previously mentioned skill along with two other skills – *develop web pages* and *demonstrate educational software* had statistically significant differences. Results indicated that EFL teachers who had

achieved their highest qualification from overseas rated themselves more highly in these three skills.

It is worth noting that the age of the EFL teachers did not have any significant influence on their ICT competencies except for one item - *the use of ICT to create presentations.* For this item, EFL teachers in the 35 years old and over age range had a stronger level of agreement than any other age group. Additionally, years of teaching experience did not have any influence on the EFL teachers' ICT competencies.

From the presentation of the ICT competencies of the surveyed EFL teachers, it can be concluded that the majority of EFL teachers surveyed have reasonably high levels of ICT competence. This would allow EFL teachers to use technology in their classes in many different forms.

Results of the surveyed EFL teachers indicated positive attitudes towards the use of ICT in an EFL teaching context. The majority of EFL teachers showed positive attitudes and high level of agreement towards most of the survey items. However, almost one-third of the surveyed EFL teachers indicated that using ICT would complicate the process of EFL teaching and learning. Additionally, half of them believed that the use of ICT would interfere with their EFL teaching. An initial interpretation of these results revealed some important findings that will be taken into further consideration in Chapter Six.

The EFL teachers' level of TPACK indicated a sound knowledge of ICT in relation to the four dimensions of TPACK; Technological Knowledge (TK), Technological Pedagogical Knowledge (TPK), Technological Content Knowledge (TCK) and TPACK. The other three TPACK constructs – Content Knowledge (CK), Pedagogical Knowledge (PK) and Pedagogical Content Knowledge (PCK) were not of a focus to the current study. It should be noted that teachers' TPACK was not influenced by any of the demographics of the study.

The results of the semi-structured interviews will be discussed next in Chapter Five.

CHAPTER FIVE

SEMI-STRUCTURED INTERVIEW RESULTS

This chapter presents the results of the semi-structured interviews and is divided into six sections. The first section presents the interview sample recruitment process followed by interviewees' characteristics and the interview protocols presented in the second and third sections, respectively. In the fourth section, summaries of the ten interviews are presented followed by details of the implementation of the research plan. This is followed by the transcription and coding of the interview analysis phases. This is followed by reporting of the key themes that emerged from the analysis of the interviews. In this section, eight main themes emerged from the analysis and are discussed in further detail.

5.1 SEMI-STRUCTURED INTERVIEWS OVERVIEW

The semi-structured interviews provided an opportunity for in-depth exploration of the issues under investigation. There were no specific criteria for the selection of participants, except those of being an EFL teacher in Saudi Arabia in the region of Albaha and having completed the web-based survey. Thus recruitment involved making use of a convenience sample, making it simple, fast and cheap (Robinson, 2014).

5.1.1 Semi-structured interviews – participant profiles and teaching context

To review; at the end of the web-based survey, EFL teachers were invited to provide their contact details if they were willing to participate in a semi-structured interview. Twenty-six EFL teachers provided their contact details. Arrangements were successfully made with ten participants willing to take part in a semi-structured interview. Although the remainder of the EFL teachers who were willing were contacted, arrangements to take part in a semi-structured interview were unsuccessful for two main reasons. First, many of those teachers had a full teaching workload and were unable to give up their time in order to be interviewed. Second, the majority of EFL teachers were located within the city and so it was difficult for them to be contacted for the following reason. Participants located in the city centre were hard to reach as the researcher confronted difficulties travelling to the interview sites because of city traffic.

Participant profiles

The ten participants interviewed were all full time EFL teachers, teaching in male public secondary schools. Profiles of the semi-structured interview participants (all names have been changed to protect anonymity) are presented in Table 5.1.

Table 5.1 – Profiles of interview participants

	Pseudonym	Age Range	School Location	Highest Qualifications	Teaching Experience
1	Saleh	25-29	Urban	Bachelor	Less than 5 years
2	Khalid			Master	5-10 years
3	Mohammed			Bachelor	
4	Omar	30-34			
5	Abdullah				
6	* Saeed		Non-urban		
7	*Majed		Urban	Master	
8	Adel				
9	Abdulaziz		Non-urban		
10	Ahmad	35-39	Urban	Bachelor	10 and over

* Did not give consent to be recorded.

As shown in Table 5.1, six interviewees were in the 30-34 age range, three interviewees were in the 25-29 age range and one interviewee was in the 35-39 age range. Eight of the interviewees were teaching in urban areas while two interviewees were in non-urban areas. Seven of the interviewees held Bachelor degrees as their highest qualification, while three held Master's degrees in Applied Linguistics and English language teaching. It should be noted that no interviewees held a PhD degree. For teaching experience, one interviewee had over 10 years of EFL teaching experience, eight interviewees had 5-10 years of EFL teaching experience, and one interviewee had less than five years of EFL experience.

As Saudi citizens, the cultural background of all the interviewees was influenced by Islamic teaching and traditions. All interviewees had similar job commitments and work

environments, which included using similar teaching textbooks, classroom activities, daily duties of EFL teachers and similar procedures in regard to administration at their schools. However, the teaching workload varied from one school to another according to the location of the school and student numbers.

Teaching context

The eight EFL teachers from urban schools reported class sizes exceeding 33 students. This is higher than the usual standard of the Ministry of Education (MOE), of 20-25 students in each classroom (Baki, 2004). Urban schools usually have larger classroom sizes than non-urban schools mainly because urban areas have better access to essential services such as reliable electric power, telephone and mobile signals and the Internet, and so are more densely populated. The EFL teachers in the urban schools also reported having larger than usual workloads expected of EFL teachers of 24 lessons per week. The urban EFL teachers indicated that they had between 26-28 EFL lessons per week.

For non-urban schools, the two EFL teachers reported normal classroom sizes as per the MOE standards of between 20-25 students. Non-urban EFL teachers also reported the usual workload of 24 or fewer lessons per week.

In addition to their teaching workload, non-urban EFL teachers reported that they were required to do other administrative jobs including attendance. They also reported that they were engaged in supervisory roles in the morning, breakfast time and school finishing time.

EFL teachers indicated that they also had to work as supervisors and mentors for newly appointed teachers. This supervisory role included the provision of authentic teaching materials, presentations for new teachers and modelling of lessons. The policy of MOE is to assign new teachers firstly in non-urban school locations where they spend a minimum of 3-5 years before being eligible to enter the transfer program. The transfer program is conducted for those teachers seeking to transfer from non-urban to urban schools. It is a highly competitive program and teachers are required to meet a strict set of criteria in order for them to become eligible to be successfully transferred to requested school locations.

The comparison between urban and non-urban schools is important in understanding the institutional factors influencing EFL teachers' use of ICT in teaching and learning. It was noticeable to the researcher that EFL teachers in urban schools generally had better access to ICT than their colleagues in non-urban schools. In general, urban schools tend

to enjoy better access to ICT tools than non-urban schools. Therefore, computers and computer labs are more likely to be found in urban schools than non-urban schools. In addition, typically, there is some form of technical support. Similarly, smart boards and data projectors are more likely to be found in urban schools than non-urban schools. As for Internet connectivity, urban schools, in general, have more reliable access to wireless connections than non-urban schools.

5.2 INTERVIEW PROTOCOLS

To review, five open-ended seed questions were used as the basis for discussion throughout the interviews. These seed questions are reproduced in Table 5.2.

Table 5.2 – Semi-structured interview seed questions

Open-ended seed questions
What do you think is the value of using ICT in EFL teaching?
What kind of ICT skills do you have to enable EFL teaching?
What impact do you think ICT has on EFL teaching?
How do you use ICT in your EFL teaching?
Can you identify ICT barriers and enablers in teaching EFL in secondary schools in Saudi Arabia?

5.2.1 Semi-structured interviews – implementation

At the start of each semi-structured interview, a participant information sheet and consent form was given to each interviewee that informed him of his right to withdraw at any time during the interview without any responsibility on his career prospects. Participants were informed that the data collected in the interview would only be used for research purposes, and that the results will be included in a PhD thesis and other publications but the participants' identities would be protected. Additionally, participants were informed of the confidentiality of their personal information and the data collected during the interview. The consent form allowed participants to specify whether they were willing to have the interviews audio-recorded, and required participants' signatures.

The interviews were conducted individually in English (but clarification in Arabic was provided where necessary) and were digitally recorded. Eight of the ten interviewees gave their consent to be recorded. The researcher took notes for the two EFL teachers who requested not to be recorded.

Interviewees were asked the five open-ended seed questions (see Table 5.2) and were given time to respond without interruption. When necessary, the researcher sought clarification, provided examples, repeated questions or provided more information in order to get a complete picture of the issue under investigation. Some interviewees were reluctant and hesitated and were unable to answer questions freely and to provide criticism. They preferred to say how ICT should be integrated into teaching or tried to broaden the answer. This was quite common, as only a few interviewees seemed able to express their feelings and attitudes in a critical and explicit manner. The notion of critique is not very common amongst the teaching communities in Saudi Arabia. The fear of expressing a frank opinion on any issue, particularly one related to any governmental sector was noted during the interviews. The researcher understood this and interpreted it as fear of public criticism, which is common amongst Saudis (Prokop, 2003). This was an issue known beforehand and strategies were developed and undertaken in order to reduce its potential impact. The five seed questions were all based upon reasonably non-contentious items and based upon the interviewee's own teaching experience. The researcher had to start with the first four seed questions in order to build rapport and trust with the interviewees prior to proceeding to the questions concerning barriers and enablers. However, despite such hesitancy, the data collected through these interviews was considered a sufficient reflection of the interviewees' thoughts and opinions. Each interview took about 20 minutes and was conducted in each teacher's school.

5.3 SUMMARY OF SEMI-STRUCTURED INTERVIEWS

To review, eight participants gave their consent to be recorded during the interview process while two participants asked not to be recorded. The researcher had to take notes for the latter two participants. Although summaries of all 10 interview participants are provided in this section, the decision was made not to include the two participants, who did not wish to be recorded, in the thematic analysis. This was in order to maintain the accuracy of the analysis.

5.3.1 First interviewee: Saleh

Saleh is in the 25-29 year age range and is an EFL teacher in an urban area. Saleh has a Bachelor degree and is a relatively new EFL teacher with less than 5 years of experience.

Interview summary

Saleh was asked to express his attitudes towards the use of ICT in EFL teaching: specifically, the value of using ICT in EFL teaching. Saleh thinks that the use of ICT in EFL teaching is very important. Saleh addressed the need for the use of ICT in EFL to support teaching and learning environments inside and outside the classroom. According to Saleh, there are several reasons why the use of ICT in the EFL classroom is very important. The main reason is that EFL teachers can use ICT to improve their teaching. It can also assist with student learning, and can be more effective than traditional teaching approaches. Saleh also indicated that the use of ICT tools within the EFL classroom could lead to greater student autonomy.

When asked about his skills with using ICT in EFL teaching, Saleh answered that he is capable of using data show projectors and the preparation of PowerPoint presentations through laptops. Saleh also mentioned his ability to run applications on mobile devices such as iPads and smart phones. He provided some examples of his skills in using ICT devices with reference to EFL teaching, in particular, the use of the online dictionaries. Additionally, Saleh indicated the he can use the built-in dictionaries of smart phones. He also mentioned his ability to use the Internet to search for EFL materials including sourcing, listening and speaking activities for use in the classroom.

According to Saleh, ICT can impact positively on student learning and he emphasised the importance of having an entertaining and enjoyable environment for both teachers and students. Saleh also mentioned the impact of ICT on EFL teaching and learning due to the availability of many EFL-related teaching materials on the Internet and in smart phone applications. Saleh did however say that there are some negative impacts to the use of ICT in EFL classrooms. In particular, he mentioned that there is a loss of student focus during EFL classes while using ICT in teaching.

When asked how he uses ICT in his EFL teaching, Saleh indicated that he encourages his students to use ICT on a regular basis like, for example, using the WhatsApp application in chatting. Also, he mentioned that he uses social media tools such as Facebook and Twitter to provide his students with information in English. Saleh also indicated that sharing EFL content through ICT tools with his students is another benefit of applying ICT in EFL teaching.

When asked about his perception of students' access to ICT in the classroom, Saleh believed that student accessibility to ICT in the classroom should be monitored as

students might engage with ICT in ways that may distract them from their lessons. He mentioned that students might also be distracted when engaging in chat tools on the Internet.

When asked about ICT barriers and enablers in EFL teaching, Saleh mentioned the importance of the schools' ICT infrastructure. Saleh elaborated that some schools do not have enough ICT facilities for language teaching. Also, the existence of a good Internet connection inside the classroom is also important.

The high cost of ICT tools was one of the barriers mentioned by Saleh. Additionally, he indicated the need to alter existing ICT policy to match the needs of using ICT in modern classrooms. Saleh believed that a lack of teacher training in the use of ICT in EFL was another barrier to the implementation of ICT in EFL classrooms. Saleh identified the lack of ICT knowledge and skills for both students and teachers as a further barrier. Saleh believed that, if all teachers were provided with a consistent level of training in the use of ICT; if ICT tools were supplied to schools; and if policy could be altered, then the integration of ICT in EFL teaching and learning could be successfully implemented.

5.3.2 Second interviewee: Khalid

Khalid is in the 25-29 year age range and is an EFL teacher in an urban area. He has a Master's degree in teaching English as a Foreign Language from the United States. Khalid is an EFL teacher with 5-10 years of teaching experience.

Interview summary

Khalid was asked to express his attitudes towards the use of ICT in EFL teaching: specifically, the value of using ICT in EFL teaching. Khalid believed that ICT facilities are a valuable tool in enhancing the process of teaching; particularly in an EFL context. Khalid indicated that ICT was prevalent in society, particularly in schools and among teachers. He provided reasons as to why the use of ICT is very important. For example, rather than being dependent on traditional ways of teaching, teachers can use ICT to improve their teaching and to improve the way students are learning. Khalid added that using ICT in an EFL classroom can simplify lesson production and make lessons more interesting to both the students and the teacher.

Khalid, when asked about his skills of using ICT in EFL teaching, answered that he has the ability to work on presentation tools such as PowerPoint. Khalid can also display lesson content on the Interactive WhiteBoard (IWB), which can be of a great use while

teaching. Additionally, Khalid said he could work on the Internet effectively and access a range of ICT tools and EFL websites. He added that these ICT tools can get students engaged in the lessons and promote a more interactive classroom teaching style for the teacher.

Khalid addressed the need to have knowledge of social media tools, such as Twitter, YouTube and Facebook saying that they are great tools for student interaction as the students can use English to communicate with their peers and others outside their immediate circle. He added that EFL teachers have to make use of such ICT tools, which are readily available, as his school enjoyed a reliable Internet connection and teachers are encouraged to bring their own devices to schools for teaching purposes. Additionally, Khalid indicated that there is a data show projector available for teaching purposes in each classroom in his school. Khalid indicated that he uses the Learning Management System, Blackboard, and the students' portal that has been developed for his students to share contents online, like assignment submissions.

When asked to comment on whether or not ICT had any impact on EFL teaching and learning, Khalid affirmed that there are both good and bad sides to ICT and how it influences the process of EFL teaching and learning. However, in general, Khalid believed the impact of ICT on EFL teaching is positive. He believed that ICT has impacted EFL teaching in a range of ways. For instance, Khalid thinks that ICT is helpful in developing students' English language skills: reading, writing, listening, and speaking. For example, to gain practice in these skills, students can use data projectors for their presentations. Khalid also added that ICT makes lessons much easier than using the traditional methods of teaching. To demonstrate, Khalid explained that using the blackboard to write something is a very traditional method and teachers do not use blackboards much these days. Therefore, Khalid believed that the use of ICT is a very important consideration in the EFL classroom.

Khalid, when asked how he uses the ICT in his EFL teaching, replied that he uses PowerPoint presentations on a regular basis. He also added that he employs the Internet since students are asked to send in their assignment and activities by electronic means. Khalid said that EFL teachers are much happier and more comfortable using ICT tools in EFL teaching than using traditional tools. Khalid pointed out that if students lacked knowledge of ICT tools then it would have a negative impact on their future work prospects. He stressed the importance of ICT training for both teachers and students in order to have an optimal pedagogical outcome.

When asked about ICT barriers and enablers in teaching EFL, Khalid, similar to most of the other interviewees, mentioned the availability of sufficient ICT facilities in schools. Similar to what Saleh said, Khalid also stressed the need for a good Internet connection inside the classroom. He also mentioned the need for good ICT infrastructure in schools. The lack of teacher training in the use of ICT in EFL was another of the barriers to implementing ICT in an EFL classroom as was the poor knowledge and skills of both teachers and students. He also indicated that ICT tools should be supplied to schools together with regular ICT support and maintenance. Khalid was then asked whether he recommended using ICT or not. He recommended the use of ICT for EFL teachers.

5.3.3 Third interviewee: Mohammed

Mohammed is in the 25-29 year age range and is an EFL teacher in an urban area. Mohammed has a Bachelor degree and is an EFL teacher with 5-10 years of teaching experience.

Interview summary

According to Mohammed, ICT in EFL is very important and he believed that traditional ways of teaching should be used sparingly in today's technological world. Mohammed added that ICT makes the teaching process much easier. Mohammed addressed the need for ICT in EFL to enhance teaching and learning in a technological environment and provided a number of reasons as to why the use of ICT is very important. One main reason is that teachers can use ICT to encourage a collaborative learning style amongst their students.

Mohammed, when asked about his skills using ICT in EFL teaching, like most of the other interviewees, described how he has the ability to work on presentations such as PowerPoint. Mohammed added that sometimes he creates Facebook accounts and Facebook pages on which he will often post questions to initiate interaction between his students.

Mohammed stated that he had access to advanced ICT tools within his school. According to Mohammed, technologies like iPads are considered a new trend in schools. However, such initiatives were not supported at a ministerial level and the technologies were often just the personal effects of both teachers and students. Mohammed also indicated that he uses games that can be played on iPads to support his English language instruction. He added that he can post content online to share knowledge and initiate discussions to build and support an EFL communicative teaching style. Mohammed indicated that

there are plenty of EFL websites that students can access to share content among each other in classroom.

Mohammed, when asked to indicate if ICT had any impact on EFL teaching and learning, indicated that in general the impact is positive. He believed that ICT has impacted EFL teaching in many ways. For example, students' performance can be increased and their achievement levels enhanced. Mohammed also added that ICT makes lessons easier than traditional ways of teaching. Mohammed reported that ICT is very important to the classroom.

With regard to how Mohammed uses ICT in EFL teaching, he indicated that he uses presentations to teach language skills: such as demonstrating vocabulary and he also uses them for reading and writing skills. Mohammed believed that there is a need to make use of social media tools such as Facebook and Twitter. Mohammed also indicated the use of YouTube in his teaching.

Similarly, to the other interviewees, when asked about ICT barriers and enablers in an EFL teaching, Mohammed mentioned the availability of enough ICT facilities in schools. He also mentioned the need for accessibility to good Internet connections inside classrooms and good ICT infrastructure in schools. Mohammed also believed a lack of teacher training in the use of ICT in EFL was one of the barriers to the implementation of ICT in EFL classrooms. Mohammed mentioned that a school's location often determines the availability of most ICT tools. This also includes the provision of a good Internet connection. He added that non-urban schools might not enjoy the same quality of ICT facilities as provided in urban schools. Mohammed also identified a lack of ICT knowledge and skills among both students and teachers as barriers to the implementation of ICT. Mohammed indicated that the desire and interest of teachers to use ICT in their EFL teaching should be considered as a vital enabler in this process. Mohammed was then asked whether he recommended using ICT or not. He recommended the use of ICT for EFL teachers. Mohammed indicated that some teachers are afraid of using ICT in the classroom. This is because they might not have enough knowledge to deal with a technical issue if one is encountered. Also, the use of ICT could be disturbing to students in a classroom and consume much of teachers' time in the preparation of classes.

5.3.4 Fourth interviewee: Omar

Omar is in the 30-34 year age range and is an EFL teacher in an urban area. Omar has a Bachelor degree and is an EFL teacher with 5-10 years of experience.

Interview summary

Omar was asked to express his attitudes towards the use of ICT in EFL teaching: specifically, the value of using ICT in EFL teaching. Omar believed that the use of ICT in EFL is very handy and significant. Omar addressed the question of the need for ICT in EFL teaching and said that it would contribute to an effective teaching approach. When asked why the use of ICT is very important, Omar provided a number of reasons. One main reason is that teachers can use ICT to improve their teaching and the way students are learning. Omar stated that using ICT in an EFL teaching can motivate students to be engaged with the lesson. Omar added that the use of ICT can promote a communicative language teaching and learning approach.

Omar was then asked to describe his skills in using ICT in EFL teaching. He indicated that he has ICT skills ranging from basic to advanced skills like working with sophisticated software. For example, he can do PowerPoint presentations and display these presentations on data show projectors in the classroom. Omar is capable of including sound effects and photos in these presentations in order to teach certain pronunciation or vocabulary. Omar explained how his students can also engage with other students through chatting by Skype with native English language speakers, and also communicating by Facebook and Twitter. Omar has stressed the use of social media in EFL teaching and stated that these valuable tools should not be neglected in language learning and teaching.

Omar was then asked to indicate if ICT has any impact on EFL teaching and learning. He emphasised that ICT has a positive impact for EFL learners. However, Omar indicated that ICT might also lead to negative outcomes since not everyone can use it properly. Thus, training is essential. Omar also mentioned that the use of ICT should be minimised as it can negatively impact students. One example mentioned by Omar was that students could get distracted or engage in things other than EFL activities while using ICT tools that might lead to them losing focus.

Omar was asked how he uses the ICT in EFL teaching. Similar to other interviewees, Omar indicated the use of PowerPoint presentations with teaching more advanced skills and the use of blogs in teaching.

Omar was next asked about ICT barriers and enablers in EFL teaching. He mentioned the availability of enough ICT facilities in schools and access to a good Internet connection inside the classroom. He also mentioned the existence of a good ICT infrastructure in schools. According to Omar the lack of teacher training (ICT Professional development) in the use of ICT in EFL was one of the barriers to implementing ICT in EFL classrooms. Omar stated that the location of the school determines the availability of most ICT tools. The school's location also determines the availability of a good Internet connection. He added that schools outside the cities might not enjoy enough ICT facilities unlike those provided to schools located inside cities. Omar also indicated the lack of ICT knowledge and skills among both students and teachers. Similar to most interviewees, Omar believed that teachers should be provided with adequate ICT facilities in order for them to successfully integrate ICT into their EFL teaching. Omar also mentioned the importance of having a very clear ICT policy within schools. Omar was then asked whether he recommended using ICT or not. He recommended the use of ICT amongst EFL teachers adding that he is glad and willing to apply new ICT tools while teaching and has no concern about ICT whatsoever.

5.3.5 Fifth interviewee: Abdullah

Abdullah is in the 30-34 year age range and is an EFL teacher in an urban area. He has a Bachelor degree and is an EFL teacher with 5-10 years of teaching experience.

Interview summary

Abdullah was asked to express his attitudes towards the use of ICT in EFL teaching: specifically the value of using ICT in EFL teaching. Abdullah answered that the use of ICT improves the process of teaching in general: specifically in an EFL setting. He believed that ICT is, nowadays, a common tool available to anyone and anywhere and EFL teachers should not be resistant to changing their teaching styles. Abdullah indicated that ICT tools should be embedded within modern innovative language teaching and learning approaches.

When asked about his skills of using ICT in EFL teaching, Abdullah expressed that his usage of ICT requires advanced technological knowledge: for example, advanced ICT competencies ranging from technical skills to game development. As for other interviewees, Abdullah had some reservations in the actual use of available ICT facilities in his school. In particular, he mentioned the lack of availability of some ICT tools saying the limited access impacts on their effective application. Abdullah also indicated some

concern in being responsible for ICT facilities within the school. He mentioned that when using the ICT facilities in his school he is required to sign an approval form in which he states that he is responsible for these facilities during that class. Abdullah was then asked to indicate whether or not ICT impacted on EFL. Abdulla stated that some students are not used to this form of education where ICT tools are used and that this impacts their willingness to interact in class.

Abdullah was asked to mention how he uses ICT in EFL teaching. He reported that he provides access to daily international online newspapers in his reading classes in order to let students read articles in English, translate them into Arabic and then speak about them in order to demonstrate their understanding of the content.

When asked about ICT barriers and enablers in EFL teaching Abdullah similarly mentioned the availability of enough ICT facilities in schools. Also, he added the necessity for access to a good Internet connection inside the classroom. He also mentioned the need for good ICT infrastructure in schools. The lack of teacher training in the use of ICT in EFL was another one of the barriers to implementing ICT in EFL classrooms. Abdullah mentioned the location of the school can either act as a barrier or act as an enabler for the availability of ICT tools. Abdullah was then asked whether he recommended using ICT or not. He recommended the use of ICT among EFL teachers adding that he is capable and willing to integrate ICT tools into an EFL teaching context.

5.3.6 Sixth interviewee: Saeed

Saeed is in the 30-34 year age range and is an EFL teacher in an urban area. He has a Bachelor degree and is an EFL teacher with 5-10 years of experience. Saeed preferred not to be recorded during the interview. Instead, notes were taken and the following is a summary of this interview.

Interview summary

Saeed was asked to express his attitudes towards the use of ICT in EFL teaching: specifically the value of using ICT in EFL teaching.

Saeed indicated his desire to use ICT in EFL teaching and demonstrated positive attitudes towards the technology. He mentioned that ICT is a valuable addition to the one's teaching style that can positively enhance student learning. Saeed provided reasons as to why the use of ICT is very important and valuable. He indicated that teachers can use ICT to change their teaching approaches in today's technological world.

Saeed also believed that the use of ICT tools in EFL classrooms could make the process of teaching and learning easier compared to traditional approaches.

When asked about his skills in using ICT in EFL teaching, Saeed stated that he is able to apply basic ICT skills like using a data show projector, and in the preparation of PowerPoint presentations. Additionally, Saeed indicated that he can use Interactive Whiteboards to integrate sounds and pictures in order to demonstrate language features such as vocabulary. Saeed also indicated that he is able to access the Internet and to find resources for specific EFL teaching contexts. However, he mentioned that the Internet connection is very limited in his school and is only accessible for administrative purposes.

Saeed was then asked to indicate whether or not ICT impacted on EFL teaching and learning. In general, he believed that the use of ICT has a positive impact. However, Saeed stated that ICT still needed to be well under the control of teachers and school administrators in order to minimise the negative influence of these tools upon students.

Saeed was later asked to mention how he uses ICT in EFL teaching. He indicated that he uses PowerPoint presentations in delivering the lessons. These presentations are associated with sounds and pictures in order to foster listening skills and pronunciation. He also indicated that he uses emails for student homework submissions.

Saeed was asked about his attitudes towards student access to ICT in the classroom. He agreed that students should have adequate access to ICT tools. He said that proper provision would result in trust and confidence in such tools.

Saeed was asked about ICT barriers and enablers in EFL teaching. For this, he mentioned the availability of sufficient ICT facilities in schools and the accessibility of a reliable Internet connection, particularly inside the classroom. He also mentioned the need for adequate ICT infrastructure in schools. The cost of ICT tools was one of the barriers that Saeed mentioned as also was the lack of teacher training in the use of ICT in EFL. Saeed also indicated that there was a lack of ICT knowledge and skills for both students and teachers. Saeed strongly recommended the use of ICT amongst EFL teachers in all schools and, similarly to most interviewees, he insisted on having a specific ICT policy within a school's jurisdiction.

5.3.7 Seventh interviewee: Majed

Majed is in the 30-34 year age range and is an EFL teacher in non-urban area. He has a Bachelor degree and is an EFL teacher with 5-10 years of experience. Majed also

preferred not to be recorded during the interview: instead, notes were taken. The following is a summary of the interview notes.

Interview summary

Majed was asked to express his attitudes towards the use of ICT in EFL teaching: specifically, the value of using ICT in EFL teaching. Majed displayed a positive attitude stating that the use of ICT in EFL teaching is a very valuable way of learning as it enhances student language performance. Majed provided reasons to why the use of ICT is very valuable. He answered ICT is used nowadays in every walk of life and no one can deny its positive contribution to the teaching context. Also, he added that the use of ICT in EFL teaching should be obligatory for any language teacher. This is because ICT can be a great facilitator in language acquisition.

When asked about his skills in using ICT in EFL teaching, Majed, similarly to others, indicated that he can apply basic ICT skills like using a data show projector and in the preparation of PowerPoint presentations. Additionally, Majed knew how to apply multimedia in order to teach new vocabulary. Majed indicated that he could access the Internet and search for the right materials that would enhance EFL teaching and learning.

Majed was then asked to indicate if ICT had any impact on EFL teaching and learning. He answered that the use of ICT, in general, has a positive impact but it needs some form of control. He emphasised that each school has to apply an ICT policy that matches their existing ICT tools. In general, Majed believed that ICT has a great and positive impact on both students and teachers.

Majed was asked how he uses the ICT in EFL teaching. He indicated that he uses PowerPoint presentations in delivering lessons. These presentations integrate multimedia in order to foster listening skills and the exact pronunciation of vocabulary. He also indicated that he uses emails for homework submissions and Google Translate to support language learning.

Majed was asked about students' access to ICT in the classroom. He agreed that students should have adequate access to ICT but focused on the necessity for an appropriate ICT policy within the school administration.

When asked about ICT barriers and enablers in EFL teaching, Majed mentioned the availability and accessibility of sufficient ICT facilities in schools. Similar to other interviewees, Majed indicated the importance of a reliable ICT infrastructure in the

school environment. Echoing a similar theme to other interviewees, Majed mentioned that the cost of ICT tools is another barrier for successful ICT integration into EFL teaching. Majed also believed that the lack of teacher training in the use of ICT in EFL is a major barrier to implementing ICT in EFL classrooms. According to Majed, most teachers and students lack basic ICT knowledge and skills. While Majed appeared to be willing to apply ICT in his EFL classroom, he emphasised the importance of having school ICT guidelines that dictate policy for all teachers. This is in order to have optimal ICT use supported by the administration and not to leave it to individual, random use.

5.3.8 Eighth interviewee: Adel

Adel is in the 30-34 year age range and is an EFL teacher in an urban area. He has a Master's degree in Applied Linguistics from a Saudi Arabian university. Adel is an EFL teacher with 5-10 years of teaching experience.

Interview summary

Similar to previous interviewees, Adel was asked to express his attitudes towards the use of ICT in EFL teaching: specifically the value of using ICT in EFL teaching.

Adel answered that the use of ICT in EFL is considered very important for both students and teachers. Adel also reported that the use of ICT could improve EFL teaching in many different ways and make the process of learning easier.

Adel was then asked to provide a report on his skills of using ICT in EFL teaching. Adel reported that he uses ICT facilities in an EFL context in his school on a weekly basis. He described that during this time, which is the only time available, he uses the PowerPoint presentations, YouTube videos and online dictionaries to enable students to learn quicker. However, he expressed some reservations on the over-use of ICT in large classes.

Adel was then asked to indicate whether or not ICT impacted on EFL teaching and learning. He stated that ICT can sometimes have a negative impact on student behaviour and learning outcomes. He believed that the extensive use of technological facilities could devalue the use of books in the EFL classroom. Adel, also indicated that there might be a negative impact on students accessing certain Internet websites as they might cause distraction and influence their behaviour.

When asked about ICT barriers and enablers in an EFL teaching, Adel, similarly to most interviewees, mentioned the availability of enough ICT facilities in classrooms and the

accessibility of reliable school Internet connections. Adel also reported that prior ICT knowledge of teachers is vital in the process of ICT integration into EFL teaching. Additionally, and similarly to most interviewees, Adel believed that the Ministry of Education should provide more in-service ICT training for language teachers as this is one of the main barriers encountered by EFL teachers to the integration of ICT.

Adel also mentioned the need for the existence of a good ICT infrastructure in schools. The lack of teacher training (ICT Professional Development) in the use of ICT in EFL was also one of the barriers to implementing ICT in EFL classrooms. Adel also mentioned that the location of the school determines the availability of most ICT tools and also a good Internet connection. Adel further mentioned that class size is another barrier to implementing ICT in EFL teaching. In larger classes, it becomes harder to monitor and teach using ICT tools. When asked whether he recommended using ICT or not, Adel was highly supportive of applying ICT tools in EFL teaching.

5.3.9 Ninth interviewee: Abdulaziz

Abdulaziz is in the 30-34 year age range and is an EFL teacher in non-urban area. He has a Master's degree in English language teaching, which was obtained from the United States of America. Abdulaziz is an EFL teacher with 5-10 years of teaching experience.

Interview summary

Abdulaziz was asked to express his attitudes towards the use of ICT in EFL teaching: specifically the value of using ICT in EFL teaching. He explained that his positive attitude towards ICT comes from his experience studying for his Master's degree in English Language in the United States. He also believed that ICT motivates students to be more engaged with their lessons.

Abdulaziz was then asked to talk about his skills of using ICT in EFL teaching. Similar to most of the interviewees, Abdulaziz answered that he has the ability to work on applications such as PowerPoint presentations. Additionally, he can easily work on the Internet and access many ICT tools and websites. Abdulaziz spoke about the need to have knowledge of new ICT devices. He added that EFL teachers have to make use of such available ICT tools. However, this requires access to Internet, which may not always be available at schools.

When asked to indicate whether or not ICT impacted on EFL teaching and learning, Abdulaziz indicated that ICT has had a generally positive impact. However, he held

reservations in terms of the process of ICT integration, which requires prior knowledge and a firm policy dictated specifically for language teaching. Additionally, Abdulaziz stated that sometimes the use of ICT could result in a negative impact on students. When asked to clarify this point, Abdulaziz indicated that ICT could cause less interaction among students in particular classrooms.

Abdulaziz was asked to mention how he uses the ICT in EFL teaching. Similarly, to most of the interviewees, he indicated that he uses presentations in order to teach language skills. Similar to Mohammed, Abdulaziz indicated the importance of applying social media tools such as Facebook and Twitter in language teaching.

When asked about ICT barriers and enablers in EFL teaching, Abdulaziz, as for the previous interviewees, mentioned the availability and accessibility of sufficient ICT tools in schools. The school location and ICT infrastructure was another barrier mentioned by Abdulaziz – similar to most interviewees. Abdulaziz believed that there is lack of ICT skills among EFL teachers. Abdulaziz indicated that EFL teachers should seek to obtain more ICT training in order to be able to use ICT in their EFL teaching. The notion of having a school specific ICT policy was also mentioned by Abdulaziz. He also indicated that the number of students in each classroom should be taken into account with any use of ICT tools.

5.3.10 Tenth interviewee: Ahmad

Ahmad is in the 35-39 year age range and is an EFL teacher in an urban area. He has a Bachelor degree in English language teaching and is the most experienced EFL teacher interviewed, with over 10 years of EFL teaching experience.

Interview summary

Ahmad was asked to express his attitudes towards the use of ICT in EFL teaching specifically the value of using ICT in EFL teaching. He had a very positive attitude, which was indicated by his willingness to use ICT facilities in an EFL teaching context. He added that ICT tools and applications are invaluable, especially in today's world where ICT tools are available to anyone. He also mentioned that the government encourages the use of ICT facilities across all forms of management to ease the process of communication amongst its citizens. Ahmad believed EFL teachers should take this opportunity to use ICT in their EFL teaching to achieve good outcomes and maintain high overall teaching quality.

Ahmad was then asked to talk about his skills in using ICT in EFL teaching. He indicated that he could confidently demonstrate ICT use in the large classes common to urban areas. Ahmad also has experience in using the multimedia room in his school. He also indicated competence in the use of PowerPoint presentations.

Ahmad was then asked to indicate any impact of ICT on EFL teaching and learning. Ahmad stated that the use of ICT in teaching English language in Saudi Arabia is an important step in preserving a positive impact on student language skills and knowledge. He added that the use of ICT builds students' knowledge not only with language skills in general, but also through providing cultural aspects to the language learning.

Ahmad, when asked how he uses the ICT in EFL teaching indicated that he uses PowerPoint presentations to teach language skills. Ahmad also mentioned his use of social media tools such as YouTube and Facebook.

When asked about ICT barriers and enablers in an EFL teaching, Ahmad emphasised the importance of teachers' knowledge and skills in using ICT. Similar to previous interviewees, Ahmad mentioned that the school's location, either urban or non-urban, plays a significant role in the availability and accessibility of most ICT tools in schools. Urban schools are believed to have better ICT infrastructure due to their location.

Ahmad was then asked whether he recommended using ICT or not. He recommended the implementation of ICT into EFL teaching, and if his school was provided with adequate ICT tools, he believed he would be competent to apply them.

5.4 TRANSCRIPTION AND CODING OF THE INTERVIEWS

Eight interviews were electronically recorded for further analysis, which were later transcribed and coded. Additionally, notes were taken for the other two interviewees. However, those two interviewees were not included in the interview analysis in order to maintain the accuracy of the analysis. Transcription and coding are considered two important phases of interview analysis and are discussed next.

5.4.1 Transcription

Rather than analysing data from the recoded data, interviews were transcribed to make the analyses easier. Transcription involved changing the recorded data to the written form of the data. A full transcript of one of the interviews is attached in Appendix 5.1. The transcription of the interviews was conducted in three phases:

5.4.2 Listening to the recoded data

This phase involved notes taking in formatted tables and producing the recoded data in a written form. These notes included important, repeated, usual and unusual responses produced by interviewees.

5.4.3 Production of the first draft of the first transcript

This phase involved the production of the initial transcript, which involved reviewing the notes of the first impression and labelling the relevant pieces, such as words and phrases. This phase has to be repeated in order not to miss any relevant information. The repeated form of this phase produced the final full transcript, which is discussed next.

The production of the full and accurate transcription of the interviews

In this phase, a very accurate and complete transcript was produced after being reviewed and approved by the researcher. This process involved the internal reliability of having another researcher on board to have their say on the final version of the transcript. Eight transcripts were presented for the following coding and thematic analysis.

5.4.4 Overall summary of transcripts

The transcription process lasted two months and involved extensive reading and careful revisions. The process produced transcripts, which were approved in order to proceed to the next coding step of the thematic analysis.

5.5 THEMATIC ANALYSIS CODE FREQUENCIES AND CODES

5.5.1 Code frequencies

Thematic analysis undertaken on 389 text fragments identified from the eight transcribed interviews yielded 115 codes. The complete table of codes and frequencies can be found in Appendix 5.1. Table 5.3 presents the 10 most frequently reported codes.

Table 5.3 – Ten most frequently reported codes

Code	Frequency
Improvement over traditional methods	14
ICT Tool – PowerPoint	12
Requires facilities of good quality	11
Device – data show	10

Anywhere anytime learning	9
Students engaged using ICT	9
Access to a wider range of English resources	8
Social media – Twitter	8
Teachers lack ICT skills	8
Easier to teach using ICT	7

Almost all of the eight interviewed EFL teachers reported the above-mentioned codes frequently. Codes like – improvement over traditional methods, ICT tools, PowerPoint – were reported frequently indicating the prevalence among the interviewees for using ICT in EFL teaching and learning.

A number of ICT devices, ICT tools and social media tools also emerged in the coding. The most frequently reported ICT devices are presented in Tables 5.4.

Table 5.4 – Ten most frequently reported codes

Code	Frequency
Device – data show	10
Device – mobile devices	4
Device – desktop or laptop computer	2
Device – tablet	2
Device – memory devices	1
Device – mobile phone	1

For devices, data shows, which were available at most schools, were the most frequent devices reported by the interviewed EFL teachers. This indicates that EFL teachers have good access to such devices and have prior knowledge of using it in their EFL teaching. Additionally, mobile devices were frequently reported by the EFL teachers who were interviewed. This indicates that some EFL teachers possess some form of mobile device for EFL teaching in schools.

The next table, Table 5.5, presents the most frequent ICT tools reported by the EFL teachers interviewed.

Table 5.5 – Most frequently reported ICT tools

Code	Frequency
ICT Tool – PowerPoint	12
ICT Tool – email	7

ICT Tool – online dictionary	5
ICT Tool – blogs	1
ICT Tool – Google Docs	1
ICT Tool – Google Maps	1
ICT Tool – Instagram	1
ICT Tool – IWB	1
ICT Tool – Wikipedia	1
ICT Tool – WordCast	1

PowerPoint presentations were the most frequent ICT tools reported. They were reported by almost all of the interviewed EFL teachers. This indicates that EFL teachers have a sound knowledge of PowerPoint applications in EFL teaching. This might be as a result of the availability of data projectors in most schools. The second most frequent ICT tool reported by the interviewed EFL teachers is the use of emails. Other ICT tools including online dictionaries, blogs, Google Maps, Google Docs, Instagrams, interactive Whiteboards, Wikipedia and Wordcast were only mentioned once. This indicates that only some EFL teachers are exposed to the new trends of using ICT tools in education, most particularly in EFL teaching.

The following table, Table 5.6, presents the most frequent social media tools reported by the interviewed EFL teachers.

Table 5.6 – Most frequently reported social media tools

Code	Frequency
Social media – Twitter	8
Social media – Instagram	7
Social media – Facebook	5
Social media – WhatsApp	3
Social media – YouTube	3
Social media – chat	2
Social media – Snapchat	1

Social media tools were frequently reported by almost all of the interviewed EFL teachers. Twitter was the most frequent social media tool; that was reported eight times. This was followed by Instagram, then Facebook, WhatsApp, YouTube, chatting tools and Snapchat. This indicates that EFL teachers are exposed to social media and suggests they possess knowledge in applying these tools to their EFL teaching.

5.6 REPORTING OF THEMES AND CATEGORIES

Seven key themes emerged from the analysis of the semi-structured interviews: *ICT usage, infrastructure, learning and teaching, ICT policy management, affordances of ICT, teacher outcomes* and *student outcomes*. Each of these seven themes are presented and discussed next.

5.6.1 ICT usage

This theme is made up of six categories, *Devices, ICT Tools, Social Media, Skill Development, Teaching Strategies,* and *Preparation and Administration* (Table 5.7). These six categories represent how the EFL teachers used ICT to support English language instruction.

Table 5.7 – ICT Usage – Themes and Categories

Theme	Categories
ICT Usage	Devices
	ICT Tools
	Social Media
	Skills development
	Teaching strategies
	Preparation and administration

Table 5.8 presents the codes for each of the six identified categories in the ICT Usage theme. The devices category comprises six codes; the ICT tools category comprises nine codes; the social media category comprises seven codes; the skills development category comprised four codes; the teaching strategies category comprises four codes; and the preparation and administration category comprises three codes. A discussion of each of the six categories proceeds next.

Table 5.8 – ICT Usage – Categories and Codes

Category	Codes
Devices	Data shows
	Desktops, laptop computers
	Memory devices
	Mobile devices
	Tablets
ICT Tools	PowerPoint
	Blogs
	Emails

	Google documents Google maps IWB Online dictionaries Wikipedia Wordcast
Social Media	Twitter Facebook YouTube Instagram Snapchat Chat WhatsApp
Skill development	Support listening skills Support pronunciation skills Support writing skills Support reading skills
Teaching Strategies	Games to support learning Collaborative learning ICT embedded in curriculum Use of mobile devices in class
Preparation and administration	Lesson preparation Lesson preparation is easier with ICT Administrative uses of ICT

Category – devices

The *devices* category represents the range of ICT devices used by EFL teachers and is grouped under six codes. The majority of the EFL teachers reported using a range of ICT devices including data shows, desktops and computers, mobile devices and tablets.

> like using computers and then iPads, using iPads and the mobile phone as well (Abdullah).

Category – ICT tools

The *ICT tools* category represents the range of ICT devices used by EFL teachers and is grouped under nine codes. The majority of the EFL teachers reported using a range of ICT tools including emails, Microsoft Office applications such as PowerPoint presentations in their EFL teaching, blogs, Google maps, Google documents, Interactive Whiteboards, online dictionaries, Wikipedia and Wordcast.

> I am definitely able to use ICT facilities in my teaching like for example the use of PowerPoint (Saleh).

The use of the Interactive Whiteboard (IWB) was also reported by EFL teachers while some of the EFL teachers reported the use of language games on iPads:

> I also apply some games built in the iPad made for the language learners'(Mohammed).

Category – social media

The *social media* category represents the types of social media used by EFL teachers and comprises seven codes; Twitter, Facebook, YouTube, Instagram, chatting tools, Snapchat and WhatsApp.

Social needs as well, Facebook, Twitter, Instagram, Snapchat, yeah, for example, I might create a Facebook account, Facebook page (Mohammed).

Omar extensively reported his knowledge of using ICT in an EFL context, which indicated that he is following the modern trends of technology including the use of chatting as a social media tool.

> Also, sometimes my students can join the chatting tools (Omar).

Saleh indicated that he is always encouraging his students to join Twitter accounts that are specialised in teaching English language content.

> I encourage them to subscribe to some account on Twitter that they can account especially specifying the teaching and learning English they can learn from that content on the Twitter (Saleh).

Khalid indicated his ability to apply social media tools to interact with his students to support EFL teaching and learning.

> I interact with my students through emails and communicate using social media like Facebook and Twitter (Khalid).

Mohamed stated that he has knowledge of using many social media tools in language teaching.

> For personal skills, I know how to use the smart phones, computers, e-mails, and social media as well, Facebook, Twitter, Instagram, Snapchat (Mohammed).

Category – skill development

The *skills development* category captures how EFL teachers use ICT to help develop the English language skills of their learners. It is made up of four codes: support listening skills, support pronunciation skills, support writing skills and support reading skills. Significantly, for pronunciation practice, the EFL teachers reported that ICT can help develop their own pronunciation skills:

> This is how it should be pronounced, I've been pronouncing it right whole my life and now I've been wrong all the way so these are some of the examples I can think of (Omar).

The majority of the EFL teachers reported that ICT was able to support, reading, writing, speaking and listening skills for their students:

> I think using the facilities in the schools is very important to help students and help teacher as well, to teach English language. Exactly English language or to teach the skills of English language, reading, listening, writing (Khalid).

Four EFL teachers indicated advanced ICT skills in an EFL context. For instance, an interviewee has showed a high confidence response in relation to his advanced ICT skills in EFL teaching.

> we can demonstrate some part of pronunciations for instance in much better way and enjoyable for learners, and maybe some readings, writings, the skills that we are meant to teach, for the students in early stages, so it's really valuable in early stages using ICT tools (Abdullah).

Category – teaching strategies

The category teaching strategies describes the ways ICT is being used to support EFL instruction. This category comprises four codes; games to support learning, collaborative learning, ICT embedded in curriculum, and use of mobile devices in class. The majority of EFL teachers indicated that the use of ICT promotes interaction between their students while others indicated that the use of ICT allows greater exposure to language and culture through online repositories such as YouTube. Additionally, ICT supports a collaborative learning approach.

> I might create a Facebook account and post some questions to initiate interactions between students and I can post on learning videos, photos or

> information and ask students to post what they have so we could communicate. By doing this collaborative learning method is stressed which by the end let most of the students involved and positively learned (Mohammed).

Six of the interviewed EFL teachers, comprising the majority, indicated the use of ICT in a pedagogical context. This was mainly focused in teaching approaches such as interactive, collaborative and communicative teaching styles. Additionally, most of the interviewees mentioned the impact of the use of ICT on teaching, which was put into the teaching impact category. The following are presentations of the actual words of the interviewees.

Saleh emphasised the use of ICT, particularly mobile learning tools in EFL teaching, instead of a traditional teaching approach.

> [The] teacher can use many different devices or tools to support learning English rather than just use the traditional way to teaching English' (Saleh).

Khalid reported that the use of such ICT web-based tools could promote an interactive teaching style, which he showed a considerable ability for using.

> I interact with my students through emails and communicate using social media like Facebook and Twitter (Khalid).

Additionally, Omar indicated that the EFL tasks done through ICT tools could promote a communicative language teaching and learning approach.

> In the secondary school, most of them if not all have Facebook accounts so I tend to interact with them in English (Adel).

Abdullah indicated that these new emerging ICT tools should be embedded within modern innovative language teaching and learning approaches.

> I think ICT technologies should be embedded within the language curriculum to make use of these innovative teaching approaches (Abdullah).

Category – preparation and administration

The category, preparation and administration, describes the use of ICT tools in lesson preparation and teaching or for school demonstration purposes. This category is made up of three codes; lesson preparation, lesson preparation is easier with ICT and administrative uses of ICT. EFL teachers consistently reported that using ICT helps them to prepare their lessons better. Some added that the preparation of EFL lessons using

ICT make the process of preparing lessons easier and more enjoyable. Additionally, EFL teachers reported that using ICT during lesson preparation was giving them access to a wider range of resources, particularly featuring native language speakers:

> Also, they may not have enough technology and if there is computer it might be used for school administration by principal (Abdulaziz).

5.6.2 Infrastructure

This theme *infrastructure* describes the status of ICT accessibility and availability in schools and is made up of four categories, access to ICT, technical support, Internet access and costs. These are presented in Table 5.9.

Table 5.9 – Infrastructure – Themes and Categories

Theme	Categories
Infrastructure	Access to ICT Technical support Internet Access Costs

Table 5.10 presents the codes for each of the four identified categories in the Infrastructure theme. The Access to ICT category comprised five codes; the Technical Support category comprised one code; the Internet Access category comprised four codes; the Skills Development category comprised four codes; the Teaching Strategies category comprised four codes; and the Costs category comprised three codes. A discussion of each of the four categories proceeds next.

Table 5.10 – Infrastructure – Categories and Codes

Category	Codes
Access to ICT	Improve access to ICT Requires facilities of good quality Computer laboratories Facilities location dependent ICT facilities lacking
Technical Support	ICT support
Internet Access	Good Internet connection required Internet location dependent Reliable Internet connection Unreliable Internet connection

Costs	Impact on school budget Cost of ICT Cost of ICT to students

Category – Access to ICT

The category *access to ICT* describes the ability to access ICT tools in schools and comprises five codes. The majority of the EFL teachers reported that access to ICT facilities is influenced by issues such as equity provision – availability to all school, location of the school either urban or non-urban, lack of enough ICT facilities, and differential access to ICT facilities amongst schools.

> 'I think that it does make lot of differences, this really effect the status of ICT. School located within the city are much more lucky because they exactly have more access to all sorts of hardware and software and easily available and in the rural and area where everything seems to have less of access, and the transportation is not good so it can be noticed that clearly' (Omar).

As mentioned earlier, Abdualaziz is the only interviewee teaching in a non-urban school. Although he stated positive attitudes and obtained competent ICT skills he had some reservations in the actual use of ICT in the school due to the limited availability and accessibility of ICT in his school.

> 'In my school, which is located in Alaqiq as you know this place out of the city, there is only one computer in the head of school office. This computer used for administrative issue like issuing letters and typing the exams papers and other administrative issue for the school. It cannot be used for you know the lesson preparation, or any other teaching related subject' (Abdulaziz).

Almost all of the EFL teachers indicated the availability of most basic ICT tools among all the eight interviewees. However, three EFL teachers reported more advances ICT tools within their working place, including the access to an Internet and wireless connection. In contrast, one interviewee reported the very limited availability of ICT facilities in his school and explained that the lack of ICT tools was due to the non-urban location of the school.

In regard to the accessibility of ICT tools in schools, half of the interviewed EFL teachers (n=5) reported average access. This includes the ability to access ICT venues, computers and Internet in the school in a reasonable and average time during their teaching

periods. Two of the interviewees reported excellent access to computer labs and Internet connection in their schools, as they are located within the urban areas of the city. Two EFL teachers reported that the access to ICT tools in their school is very poor, as limited basic ICT tools existed for administrative purposes only. Further discussion with them revealed that their schools were located in non-urban areas. Saleh indicated the existence of an interactive whiteboard and computer lab in his school but had some reservations on its actual use.

> In school, I can use the white interactive board, which has sounds and pictures to demonstrate certain vocabulary in reading classes (Adel).

Khalid described more advanced skills in his use of ICT tools as he communicates with his students through emails and social media tools. He indicated the existence of advanced ICT facilities in his school and it appeared that he had a very good access to these facilities.

> I interact with my students through emails and communicate using social media like Facebook and Twitter (Khalid).

Similarly, Mohammed expressed that he had more advanced ICT tools within easy access in his school. The existence of new technologies like iPads in schools is considered a new trend that some school have. However, the use of these technologies was not supported by ministerial level being just the personal effects of both teachers and students.

> I also apply some games built in the iPad made for the language learners (Mohammed).

Omar who was teaching in a school in an urban location stated that reliable ICT tools existed in his school including a computer lab, a data show and a good Internet connection.

> Alright so I can be able to work on PowerPoint presentations and run it in classroom using data shows. I also can apply the social media tools like Facebook and Twitter or even arrange for Skype calling with a native speaker to join the class online (Omar).

EFL teachers indicated that some schools enjoy full ICT access and enough ICT facilities as they are located within the city boundaries. However, most schools that are located on the outskirts of the city lack most of the ICT facilities mentioned. This has formed one of the codes in this category, which is facilities location dependent.

School located within the city are much more lucky because they exactly have more access to all sorts of hardware and software and easily available and in the rural and area where everything seems to have less of access, and the transportation is not good so it can be noticed that clearly (Omar).

Category – Technical support

The category *technical support*, describes the existence of technical support for the ICT facilities available in each school and is made up of one code, ICT support. The majority of EFL teachers reported that most schools lack ICT technical support for the existing ICT facilities.

> However, one should have higher technical knowledge to apply some of these technologies (Abdullah).

Category – Internet access

The category *Internet access*, describes the ability of EFL teachers to access an Internet connection within their schools and is made up of four codes; good connection required, Internet location dependent, reliable Internet connection and unreliable internet connection. The majority of EFL teachers indicated that a good Internet connection is required to integrate ICT facilities within the EFL teaching context. This includes the use of YouTube videos inside classrooms to enhance speaking skills. Hence, the location of the school is found to be one of barriers hindering the availability of a reliable Internet connection.

> If it's in the remote area definitely you're going to have really big barriers because you need to have the networking and everything including all technologies equipment to be provided which is not the case (Abdullah).

Category – Costs

The category *costs*, describes the status of ICT costs for teachers and students. The school budget is made up of three codes; impact on school budget, cost of ICT and cost of ICT to students. The majority of the EFL teachers indicated that the school budget should be increased in order for them to be able to purchase ICT facilities.

> The school budget also I think is another issue some schools have a limit budget so they have to increase its budget of these school so they can go shopping for technology (Abdulaziz).

Additionally, costs could be borne by students as they were asked to bring their own devices to schools. Not all students might possess ICT devices so this raises issues of equity as well.

> Also, the school should change their policy to allow student to bring their mobile devices inside school (Saleh).

Some EFL teachers expressed the fear of damaging the ICT for which they might be liable, referring to its high cost that might exceed ones' salary.

> The cost to repair or replace might exceed half of one's salary (Abdullah).

5.6.3 Learning and teaching needs

This theme describes the influence of ICT on learning and teaching and was made up of three categories, teacher professional learning, teacher professional development and students' personal learning. These are presented in Table 5.11 and Table 5.12, and discussed next.

Table 5.11 – Learning and teaching needs – Themes and Categories

Theme	Categories
Learning and teaching	Teacher professional learning Teacher professional development Students' personal learning

Table 5.12 presents the codes for each of the three identified categories in the learning and teaching needs theme. The teacher professional learning category comprised one code; the staff professional development category comprised six codes; and the students' personal learning category comprised three codes. A discussion of each of the three categories is next.

Table 5.12 – Learning and teaching needs – Categories and Codes

Category	Codes
Teacher professional learning	Teachers' self-teaching
Staff professional development Professional Development	Teachers' ICT skills Teacher training – ICT skills Teacher training – learn how to teach with ICT Teacher lacks ICT skills Teacher requires professional development (PD) PD needs to be regular

Students' personal learning	Students lack ICT skills Students need knowledge of how ICT supports their learning Students' self-directed knowledge

Category – Teacher professional learning

The category *teacher professional learning*, describes the process of self-learning done by EFL teachers to maintain ICT skills and comprises one code; self-teaching. The majority of EFL teachers reported that they learned about ICT usage by themselves in order to apply it within their teaching.

> Sometimes I'm open to know more so I download materials from the Internet and use it in my lesson (Omar).

Category – Teacher Professional Development

The category *teacher professional development*, describes the process of obtaining ICT skills by teachers that is provided by institutions or the Ministry of Education. This category comprises six codes: teachers' ICT skills, Teacher training – ICT skills, Teacher training – learn how to teach with ICT, Teacher lacks ICT skills, Teacher requires professional development (PD) and PD needs to be regular. The majority of EFL teachers reported that they lack professional development in using ICT in their teaching. Learning how to use ICT in EFL teaching is an essential aspect that is reported by the majority of the EFL teachers.

> If the students haven't or any of the teachers haven't had any training, to teach student, or using Internet to teach student, that's mean, the way to teach students will be boring and belated for something (Khalid).

The majority of the EFL teachers indicated that ICT skills are needed in order to successfully integrate ICT into their EFL teaching.

> I think some of the barriers of the knowledge of the future, so maybe all of teachers can use technology to teach students and knowledge of the students also' (Abdulaziz).

Category – Students' personal learning

The category *students' personal learning*, describes the process of self-learning as it applies to students and it comprises three codes; students lack ICT skills, students need knowledge of how ICT supports their learning and students' self-directed knowledge.

The majority of EFL teachers indicated that students need to be aware of how to use ICT facilities in order to support their learning process.

> Knowledge of the students is also a barrier in using ICT (Abdulaziz).

5.6.4 ICT management and policy

This theme describes the importance of ICT policy and other related management issues in the implementation of ICT into EFL teaching and learning. It is made up of three categories; institution level, teachers and students. These are presented in Table 5.13.

Table 5.13 – ICT policy and management – Themes and Categories

Theme	Categories
ICT management and policy	Institution level Teachers Students

Table 5.14 presents the codes for each of the three identified categories in the ICT management and policy theme. The institution category comprised seven codes; the teachers' category comprised two codes; and the students' category comprised one code. A discussion of each of the three categories is next.

Table 5.14 – ICT management and policy – Categories and Codes

Category	Codes
Institution Level	Fear of damage large class impact use ICT policy Providing access to better use Better support of teacher Encourage teachers to use ICT Access to ICT for all students
Teachers	Require professional development Teaching skills
Students	Require supervision when using ICT

The category *institution level*, describes the role of the institution in supporting the use of ICT in education in general, and in EFL in particular. It comprises seven codes; fear of damage, large classes' impact, ICT policy, providing access to better use, better support of teacher, encourage teachers to use ICT and access to ICT for all students. The majority

of the EFL teachers indicated that there should be a policy specifically for ICT application dictated by the Ministry of Education to encourage and control the use of ICT EFL learning and teaching.

> The policy of using the ICT in schools we need to change that policy to make it easy to teacher to have access to that facility in school (Saleh).

The fear of damaging ICT facilities in schools was reported more than once and put as a separate code under the category of institution level. The majority of EFL teachers indicated that the use of existing ICT in schools is limited as it can lead to high risk of damage. Therefore, EFL teachers reported they preferred not to be responsible in case some ICT tools are damaged while teaching.

> Some of the school or the manager of the resource they don't allow for teacher to access easily to that facility because they worried about they will lose that facility or damage it, they just try to keep it away from the teacher (Saleh).

The majority of the EFL teachers indicated that class size – the number of students in each class – plays an important role in the process of ICT implementation in their teaching.

> Sometimes can put and also a number of students in each classroom because some classes have up to forty or thirty students per class, this I think is a big issue for teachers to use ICT, also student in the class can't focus (Abdulaziz).

Category – Teachers

The category *teachers*, describes the administrative issue in using ICT within schools and it comprises one code; require professional development. The majority of EFL teachers indicated that ICT professional development should be provided to all EFL teachers so that they can implement ICT in their teaching.

> we need also training, them how to use it that specially to learn English (Saleh).

Category – Students

The category *students*, describes the role of students in the process of ICT implementation in the EFL classroom and it comprises one code: require supervision when using ICT. The majority of EFL teachers indicated that the use of ICT in EFL class

requires a high level of control and supervision as students might get engaged in looking at different information and lose focus.

> It depends on how the teachers which you know, guide them. So, teachers should have control on how and when to use these (Adel).

5.6.5 Affordances of ICT

This theme describes the affordances of ICT for the use of EFL teaching and learning and is made up of three categories; exposure to English language, interaction and ubiquitous. These are presented in Table 5.15.

Table 5.15 – Affordance of ICT – Themes and Categories

Theme	Categories
Affordance of ICT	Exposure to English language Interaction Ubiquitous

Table 5.16 presents the codes for each of the three identified categories in the affordance of ICT theme. The exposure to English language category comprised three codes; interaction category comprised five codes; and the ubiquitous category comprised five codes. A discussion of each of the three categories proceeds next.

Table 5.16 – Affordances of ICT – Categories and Codes

Category	Codes
Exposure to English language	Access to a wide range of English language resources Exposure to native language speakers Promotes conversation in target language
Interaction	Interaction between teachers and students Interaction among students Interaction with others Facilitates communication Reduces interaction
Ubiquitous	Anywhere anytime learning Students' familiarity and enjoyment of ICT Prevalence of ICT in society Used outside classroom Devaluation of traditional resources

Category – Exposure to English language

The category *exposure to English language* describes the teachers' and students' direct exposure to any means of learning the English language. This category comprises three codes: access to a wide range of English language resources, exposure to native language speakers and promotes conversation in target language. The majority of teachers indicated that the use of social media in an EFL context is a great facilitator for the English language exposure.

> I also can apply the social media tools like Facebook and Twitter or even arrange for Skype calling with a native speaker to join the class online. This is really a valuable thing that should not be neglected for the use of ICT in teaching English language (Omar).

Also, EFL teachers reported that interacting with their students using social media tools improved their knowledge of the cultural aspects of the English language.

> I interact with my students through emails and communicate using social media like Facebook and Twitter (Khalid).

Ahmad stated that the use of ICT in teaching English language in Saudi Arabia is an important step in preserving the positive impact on student language skills and knowledge. He added that the use of ICT builds students' knowledge not only in language skills but also in the cultural aspects of the language and he provided an example of this assertion.

> I assume that giving student instructions should be taught through ICT facilities particularly teaching them language. Because this is a very important step to preserve positive outcome (Ahmad).

Category – Interaction

The category *interaction* describes the way student interact with their EFL teachers using ICT tools and comprises five codes; interaction between teachers and students, interaction amongst students, interaction with others, facilitates communication, reduces interaction. The majority of EFL teachers indicate that the use of chatting tools and social media promote better interaction in English language amongst students.

> But you have many friends in the world, and you can access them with using Facebook, and you can make friends, with the many friends from other countries, and that's a good way to learn (Adel).

Additionally, the majority of EFL teachers reported that the use of ICT tools facilitates the process of language communication among their students. Using ICT tools outside the classroom to interact with other people was emphasised by EFL teachers as well.

> I might create a Facebook account, Facebook page, yeah and I can post some questions to initiate interaction between the students (Mohammed).

Category – Ubiquitous

The category ubiquitous describes the widespread acceptance and use of ICT in the wider community and comprises four codes: prevalence in society, learning anywhere and anytime, ICT used outside classroom and students' familiarity with ICT. The majority of EFL teachers indicated that the use of ICT in EFL is influenced by the fact of it being used anywhere and anytime.

I think it is very important, in teaching, as you know, that's today and every day and every, everywhere you can find the technology in our daily life (Khalid).

The emphasis on using ICT tools inside and outside the classroom was also reported by the EFL teachers as a great enhancement for the process of EFL teaching and learning.

> Use of ICT was support teaching of English and that was support learning of English so that student and teacher they can use the ICT in with more ICT devices that can be used inside or outside classroom (Saleh).

The majority of EFL teachers indicated that the process of EFL teaching is easier when using ICT tools in classroom. It was reported that mobile devices used by students and teachers facilitate communicative language learning.

> We should use ICT, so it makes students easy and happy to learn (Adel).

5.6.6 Teachers' outcomes

This theme captures how ICT influences EFL teacher teaching and is made up of two categories; impact on practice and impact on attitudes. These are presented in Table 5.17.

Table 5.17 – Teachers' outcomes – Themes and Categories

Theme	Categories
Teachers' outcomes	Impact on practice Impact on attitudes

Table 5.18 presents the codes for each of the two identified categories in the teachers' outcomes theme. The impact on practice category comprised ten codes; impact on attitudes category comprised three codes. A discussion of each of the two categories proceeds next.

Table 5.18 – Teachers' outcomes – Categories and Codes

Category	Codes
Impact on practice	Easier to teach using ICT Improve teaching using ICT Enjoyable way to teach ICT time consuming to use Lack of interest in using ICT Access to a range of teaching tools Sharing of content Ideas and resources Teacher driven or directed More efficient using ICT and multimedia capabilities of ICT
Impact on attitudes	Teacher confidence using ICT Teacher anxiety over responsibilities Fear of damage

Category – Impact on practice

The category *impact on practice*, describes the impact of using ICT tools on EFL teaching and comprises ten codes; easier to teach using ICT, improve teaching using ICT, enjoyable way to teach, ICT time consuming to use, lack of interest in using ICT, access to a range of teaching tools, sharing of content, ideas and resources, teacher driven or directed, more efficient using ICT and multimedia capabilities of ICT. The majority of EFL teachers indicate that the use of ICT simplifies their teaching and support their learning style as well.

> it's very important and significant way to make the lesson easy, in both teaching and learning (Khalid).

However, some EFL teachers reported that the use of ICT can consume time in lesson preparation, for instance. Others reported that the use of ICT in EFL classroom puts great pressure on teachers to manage.

> Teachers will waste their time by using ICT and maybe can't control all of these large classes sometimes (Abdulaziz).

Another EFL teacher indicated that the use of ICT could make the process of teaching and learning easier than using traditional approaches. While an EFL teacher described how to use ICT effectively within the EFL teaching context. Additionally, other EFL teachers emphasised that the application of ICT in an EFL classroom is considered a motivated and attractive teaching approach.

Abdullah mentioned that the cultural background of ICT tools plays an important role in this regard.

> I also can develop these games to match the local taste and culture but sometimes I prefer to have the target culture being taught to students (Abdullah).

Category – Impact on attitudes

The *category impact on attitudes,* describes the impact of using ICT in EFL teaching on teachers' attitudes and comprises three codes; teacher confidence using ICT, teacher anxiety over responsibilities, fear of damage. The majority of EFL teachers indicated that the use of ICT in their EFL teaching increased their desire to teach and produced a very enjoyable lesson.

I think that's more entertain, and you know, this way, teach students to, you know, have fun in, in fun environment instead of using only whiteboard (Adel).

Almost all of the eight interviewees reported positive responses. Statements such as 'very important', 'very valuable' and 'enhance teaching and learning' were typically reported frequently by almost all of the participants.

> I think the using of ICT in EFL teaching is very important, especially in, nowadays (Saleh).

EFL teachers consistently reported that ICT facilities are a valuable tool for enhancing the process of teaching particularly in an EFL context.

> It's very important and significant way to make the lesson easy, in both teaching and learning (Khalid).

Abdullah reported his attitudes towards ICT in EFL teaching and learning in a different way comparing traditional teaching styles of teaching with technological styles.

> I think like a, really valuable means like if it is in the early stages of teaching English maybe it's really valuable as students are to learn much better with using technology rather than just with using pen and papers (Abdullah).

Omar pointed out the benefits of using ICT in teaching particularly in an EFL context, which indicated his positive attitude.

> Usually technology can actually motivate to learn (Omar).

Abdulaziz explained his positive attitude from his experience while studying for his Master's in English language in the United States.

> I think the ICT will have positive impact in EFL teaching because like what I said we are in 2015 and to make the work and communicate between teachers and students more easily (Abdulaziz).

Ahmad indicated his willingness to use ICT facilities in an EFL teaching context.

> I think that it's got lot of benefit, it has lot of great values, these new modern technologies are invaluable in today's time as it can be used within anywhere and everywhere any time (Ahmad).

However, some EFL teachers reported that the use of ICT in EFL leads to anxiety over responsibility. Among EFL teachers, this is seen as a negative impact of using ICT.

> On the classroom, some teachers are afraid (Mohammed).

Additionally, some EFL teachers reported that the use of ICT is affected by teachers' confidence. Lack of confidence might have been the result of lack of knowledge, resources, or ICT tools in schools.

> Even teachers should be well confident to take part in this stage using ICT tools (Abdullah).

Adel, who was teaching in an urban school and held a Master in Applied Linguistics from a Saudi Arabian university reported having a different attitude, which indicated the factors affecting the use of ICT in large classrooms.

> The classroom size is one problem also you know big class can't control teaching with technology sometimes (Adel).

Adel also reported that the use of ICT could improve EFL teaching in many different ways.

> 'ICT is very important to improve teaching English in many different ways, I mean, in teaching students in classroom' (Adel).

5.6.7 Student outcomes

This theme captures how ICT influences EFL students' learning and is made up of two categories; impact on learning and impact on attitudes. These are presented in Table 5.19.

Table 5.19 – Students' outcomes – Themes and Categories

Theme	Categories
Student outcomes	Impact on learning Impact on attitudes

Table 5.20 presents the codes for each of the two identified categories in the students' outcomes theme. The impact on learning category comprised seven codes; impact on attitudes category comprised four codes. A discussion of each of the two categories proceeds next.

Table 5.20 – Students' outcomes – Categories and Codes

Category	Codes
Impact on learning	ICT makes learning more efficient Supports students learning Improved student performance Increase student engagement Distraction in the classroom Poor results if used incorrectly Inappropriate use of ICT
Impact on attitudes	Increase enjoyment Increased interest of student Increased motivation to learn Student anxiety

Category – Impact on learning

The category *impact on learning,* describes the impact of using ICT tools in EFL learning and comprises eight codes; ICT makes learning more efficient, supports students'

learning, increases student engagement, enhances students' learning, distraction in the classroom, poor results if used incorrectly and inappropriate use of ICT. The majority of EFL teachers reported that using ICT in different ways within their EFL teaching increases the acquisition of language skills; speaking, reading, writing and listening.

> Using, for example, some kind of ICT tools in teaching listening for example is another great media that will improve students' learning of English (Omar).

However, some EFL teachers reported that the use of ICT in classroom would impact negatively on students' learning outcomes. Distraction in the classroom was reported to be a very negative student outcome along with poor results if ICT is being used incorrectly.

> Using for learning, can end up very importantly being used to distract the classroom, this is how it is in the classroom (Omar).

Additionally, some teachers reported that the use of ICT would devalue the textbooks that they have.

> But you know the extensive use of technology will devalue the use of books in classroom (Adel).

Saleh believed that ICT can impact positively on students' learning style and he emphasised the importance of having an entertaining and enjoyable environment for both teachers and students.

> I think ICT has a very positive impact on students as it enhances their way of learning since interaction in an entertainment style is applied I also think ICT will impact on teaching by many ways (Saleh).

However, despite the extensive explanation of the positive impact of ICT in EFL teaching and learning given by Abdulaziz, he had a concern that the use of ICT within a particular classroom could have a negative aspect. Abdulaziz indicated the loss of students' focus during a lesson in a classroom that is run through an ICT instrument.

> I think a big issue for teachers to use ICT, also student in the class they can't focus. Yeah, very large and the students can't focus on the lesson and lose a lot from it (Abdulaziz).

Category – Impact on attitudes

The category *impact on attitudes,* describes the impact of using ICT in EFL learning on students' attitudes, and comprises four codes; increase enjoyment, increased interest of student, increase motivation to learn and student anxiety. The majority of EFL teachers indicated that the use of ICT in EFL teaching increased their students' motivation to learn and acquire the language skills easily.

> ICT motivates students, and practicing motivates them very good because they can learn at their own rule, anytime anywhere (Ahmad).

Additionally, Mohammed expressed how ICT can impact on student's performance and achievement.

> First of all, I think the most important thing is to increase the performance of the students, their achievement (Mohammed).

Two interviewees were hesitant about adding that ICT has a very limited negative impact when compared to the positive impact. It is noted that there were factors affecting EFL teachers' responses to the impact of ICT in an EFL context. These factors were mentioned in a previous quantitative findings chapter and it also emphasised by these results.

5.7 CHAPTER SUMMARY

This chapter presented the key themes that emerged from the qualitative analysis of the interviews along with their codes and categories. Seven themes were developed through the analysis. These seven themes were; ICT usage, ICT infrastructure, learning and teaching needs, ICT management and policy, affordance of ICT, teacher outcomes and student outcomes. When the EFL teachers were asked to report their attitudes towards ICT, mixed responses were collected. These responses ranged from highly positive to an average level but the majority expressed highly positive views. The EFL teachers' responses to their knowledge and skill of using ICT were enormous as they had a very sound knowledge of ICT use in EFL teaching and learning.

EFL teachers reported that on the whole, ICT tools were available and easy to access at schools in urban locations while schools located in non-urban areas lacked provision of these faculties. Interviewees' responses showed different ICT applications in an EFL context. This indicated their knowledge and skills in applying ICT tools in EFL teaching. The responses also indicate the belief of EFL teachers that professional training and ICT

technical support should be provided to them in order to enable the effective use of ICT in EFL classroom. Additionally, the lack of adequate infrastructure was another major barrier mentioned by most of the EFL teachers along with a written ICT policy and provision of adequate ICT tools to all schools.

CHAPTER SIX

DISCUSSION

The aim of the current study was to investigate the level of Technological Pedagogical Content Knowledge (TPACK) of EFL teachers in Saudi Arabian male public secondary schools. To be precise, the research investigated teachers' knowledge of and attitudes towards implementing ICT into EFL classrooms. It also identified potential barriers and enablers of ICT implementation amongst EFL secondary school teachers. In this chapter, both the quantitative and the qualitative results presented in Chapters Four and Five respectively are brought together to present the findings of the study.

6.1 EFL TEACHERS' ICT COMPETENCIES

The researcher investigated the EFL teachers' ICT competencies in an EFL teaching context. This included the dissemination of knowledge and skills of EFL teachers in regard to the use of ICT in an EFL context. These skills varied from a basic to advanced knowledge of ICT.

The findings of the frequency analysis – the quantitative part – for the EFL teachers' ICT competencies showed reasonable and compelling conclusions. The results suggested that the majority of the EFL teachers were able to use ICT in many different forms in an EFL teaching context. In particular, the majority of EFL teachers indicated a sound knowledge and skills of ICT including, creating and editing text, creating presentations, creating graphics, accessing the Internet to collect information, communicating using chatting tools, accessing online dictionaries, translations and thesauruses, presenting instructional films, showing presentations using multimedia, engaging in the virtual world, using smart boards and accessing online encyclopaedias.

6.1.1 Using ICT to create and edit texts

The majority of the participants (64.7%) were in favour of using ICT to create and edit texts. As almost all of the participants held a Bachelor degree, they might have been exposed to some kind of ICT knowledge. The use of ICT to create and edit texts is very common amongst EFL teachers in teaching English. This is also very helpful as creating

and editing a particular text using ICT facilities in an English classroom may increase students' desires to learn better (Roe, 2011).

6.1.2 Using ICT to create presentations

A large majority of the participants of the current study (74.7%) indicated a sound knowledge in using ICT to *create presentations*. This supports the previous claim since most of the participants' minimum qualification is a Bachelor degree. In a Bachelor course at any particular university in Saudi Arabia, there has to be a course about ICT but there are variations as to whether it is a general or more specialised course (Bingimlas, 2009). The trend for using PowerPoint presentations is increasing amongst teachers, including EFL teachers in Saudi Arabia (Meo, 2013).

6.1.3 Using ICT to create graphics

More than half of the participants (60.6%) indicated that they have knowledge of using ICT to *create graphics*. Furthermore, EFL teachers in Saudi Arabia are exposed, to some extent, to ICT training courses during their professional training. Creating graphics to teach EFL content is very useful in order to demonstrate the meaning of a particular vocabulary, for example. It also can be used to teach reading comprehension skills and enhance writing skills as well.

6.1.4 Accessing the Internet to collect information

A large majority of the participants (76.1%) indicated the ability to *access the Internet in order to collect information*. This showed the depth of the ICT skills amongst EFL teachers in which they could browse websites, search for specific information and use the Internet in an EFL context. There are many valuable aspects for integrating the Internet in the EFL context. Al-Asmari (2005) found that EFL teachers maintained a very positive perception towards the use of the Internet in an EFL context. However, he recommended that more training should be offered, along with the ICT provision and the development of the school's ICT infrastructure.

6.1.5 Communicating using chatting tools

Just over half of the participants (52.2%) were able to *communicate using chatting tools.* It was assumed that some EFL teachers indicate the use of chatting tools for communication. This is assumed since just over half of the participants (52.2%) were able to *communicate using chatting tools.*

6.1.6 Accessing online dictionaries, translations and thesauruses

More than half of the participants (69.1%) had the skills and knowledge to *access online dictionaries, translations and thesauruses*. This is supported by the previous item as the majority of the participants (76.1%) were able to access the Internet to collect data. Online dictionaries and translations are considered invaluable resources for EFL teachers. The integration of such resources within the EFL context will enhance the learners' outcomes and increases the desire to learn English.

6.1.7 Communicating via video conferencing tools

Despite the large majority of high ICT skills amongst EFL teachers, only (29.6%) were in favour of *communicating via video conferencing tools*. This can be justified due to the lack of such ICT tools in schools and lack of professional training. The idea of communicating via video conferencing is not common in regional cities like Albaha, while it can be found in bigger cities, including the capital city. The Tatweer project – mentioned in the literature review – has provided its related schools with such facilities but this only for some 50 schools around the whole country and it includes boys' and girls' schools (Al-Sulaimani, 2010; Oyaid, 2010).

6.1.8 Developing web pages

Only 26.7% of the participants were able to develop web pages. This might be justified as these two ICT skills require a much more advanced level of knowledge and skills. Further, EFL teachers lack professional training in the necessary ICT skills. Also, developing a web page might not be of a great use in an EFL context. Therefore, EFL teachers appear to have rejected this skill, as there is no actual need for use in an EFL context.

6.1.9 Demonstrating educational software

Only 24% of the participants indicated their ability to demonstrate educational software. Similarly, the ninth item, *demonstrating educational software* also requires a high level of ICT skills: some sort of programming is needed to produce such tools. These low scores reflect a lack of familiarity with these types of ICT tools. Therefore, many of the EFL teachers surveyed rejected this proposal also as there is no actual need in the EFL context.

6.1.10 Presenting instructional films

Just over half of the participants (59.1%) indicated that they were able to *present instructional films* in an EFL context. This is also supported by the second item where a large majority of EFL teachers (74.7%) had the ability to create presentations in an EFL context. The mean scores and standard deviations of both items provided an account as to the EFL teachers' level of ICT knowledge and skills.

6.1.11 Showing presentations through multimedia

A large majority of the EFL teachers (78.8%) displayed confidence in being able to show *presentations through multimedia*. Using multimedia includes the use of an overhead projector or data show. Since the majority of EFL teachers were able to create presentations, then the use of multimedia to present their presentations might have been easier.

6.1.12 Engage in a virtual world

Only 47.9% of the participants indicated their ability to *engage in a virtual world*. This might be justified as a cultural aspect, as the average age of the participants indicated that just over half of them (51.4%) were between 31-34 years old. It seems common in the Saudi context to have younger people engaged more in the virtual world and online games than older people. It also could refer to the respondents' beliefs and perceptions about online games, which were not popular amongst older people. Engagement with the virtual world such as online games is popular amongst students. This can be a source for integration in an EFL context to enhance the process of EFL learning and teaching. These sources are mostly English-based games, so the incorporation of such tools will add great value to the process of EFL teaching. Additionally, involvement with students in classroom using online games through the virtual world can help both teachers and students to build up their knowledge of the English language. However, it seems that EFL teachers lack the skills and knowledge of such types of Internet-based ICT tools.

6.1.13 Teaching using smart boards

A majority (70.4%) of the participants indicated that they teach using smart boards. These smart boards have been recently provided to some urban schools but not to non-urban schools. Training and instructional manuals to use these smart boards have been provided as well. The use of a smart board to teach EFL content is considered a great tool particularly for writing and reading skills (Elazdz, 2008).

6.1.14 Accessing online encyclopaedias

More than half of the EFL teachers (52.1%) indicated their ability to *access online encyclopaedias*. This is supported by the fourth item since the majority of participants (76.1%) were able to access the Internet and collect data and is also supported by the sixth item where the majority (69.1%) were able to access online dictionaries and translations. Accessing the Internet seems to be common amongst EFL teachers.

6.1.15 Developing multimedia

Only 41.7% of the participants were able to *develop multimedia*. Similar to items 8 and 9, this item requires a higher level of ICT skills and knowledge so EFL teachers were not in favour of this kind of ICT tool. Thus, EFL teachers need to be provided with proper professional training and the required ICT provision at schools.

6.1.16 ICT competencies and the demographics of the study

School location

The location of the school (urban or non-urban) did not appear to influence EFL teachers' ICT skills. Only one item was found to provide significant differences in relation to the school's location: *Creating and editing texts*. Results indicated that urban EFL teachers rated themselves more highly in *Creating and editing texts* than did non-urban teachers. The reason might be due to ICT provision, as there appears to be more in urban schools, as mentioned in the literature review chapter earlier. It is also possible that professional training might be more readily available to those EFL teachers teaching in urban areas than non-urban areas.

Evidence suggests that urban areas enjoy the provision of better educational facilities, including ICT. This was evidenced from the interview analysis (See Chapter Five) with four of the interviewees confirming the existence of ICT tools in their urban schools: while two of the interviewees, teaching in non-urban areas, indicated the lack of such ICT facilities. The four EFL teachers from urban schools described a range of facilities including, the existence of a computer lab, overhead projectors, smart boards and reliable Internet connections. In contrast, two of the EFL teachers, teaching in non-urban schools, indicated the lack of an Internet connection at their schools.

Albaha city is similar to most of the metropolitan cities in Saudi Arabia, which are provided with the required infrastructure including the provision of ICT. However, this is not the case for the non-urban and regional areas (Al-Alwani, 2005). Additionally, the

General Directorate of Education (GED) is located in the city and controls all the public schools, including schools located in the non-urban areas (see Chapter One, Section 1.1.1). This is significant as urban areas get more attention than non-urban areas.

ICT competencies and location where participants obtained their highest qualification

Findings identified statistically significant differences between the EFL teachers' ICT competencies and the location of their highest qualification for three items; *creating and editing texts*, *developing web pages* and *demonstrating educational software*. For these three items, those EFL teachers who obtained their highest qualifications from an overseas provider had higher skills than those who obtained their qualifications from Saudi Arabian institutions. These findings provide further confirmation to a study by Dinh (2015) and investigated the exposure to authentic ICT materials while teaching a language.

The results suggest that EFL teachers who spent some time overseas have been exposed to some form of using ICT on a regular basis. It is also possible that those EFL teachers with qualifications from overseas have studied or came across topics of integrating ICT into the process of EFL teaching and learning much more so than EFL teachers whose highest qualifications were from Saudi Arabia. The analysis showed that there were four dominant overseas countries where the EFL teachers had obtained their highest qualifications: United States, Britain, Australia and Canada. These countries commonly apply ICT tools in their teaching approaches, which in some part may have influenced those EFL teachers who have studied in these countries.

Similarly, for the other item: using ICT to develop web pages, EFL teachers whose qualifications were obtained from overseas providers were more proficient in developing web pages than other EFL teachers whose highest qualifications were from Saudi Arabia. This is supported by the aforementioned claim that EFL teachers who obtained their highest qualifications from overseas have been exposed to more advanced levels of ICT competencies. To develop a web page, higher levels of knowledge, including programming skills and practice are needed.

In the review of the Saudi Education policies, teachers are given opportunities to pursue their studies abroad. However, there are some strict requirements and very competitive criteria for teachers in Saudi Arabia for obtaining these scholarships. A number of these scholarships are distributed amongst cities around Saudi Arabia, of which Albaha is one. The review indicated that, for each city, no more than three teachers a year, including

EFL teachers, had successfully obtained this scholarship. The Ministry of Education (MOE) in Saudi Arabia justified the limited number of scholarships given to teachers due to the limited budget spent on these programs. Therefore, it has to be stressed that EFL teachers ought to have these opportunities to improve the process of EFL teaching and learning in general, and the integration of ICT in EFL contexts in particular.

ICT competencies and age range of the participants

Apart from one item – *creating presentations* – the age of EFL teachers did not influence their ICT competencies. Results in Chapter Four, Section 4.2.3 showed that teachers aged 35 and over, rated higher means and standard deviations than any other age groups in using ICT to create presentations than EFL teachers in the 25-29 age range. These findings provide further confirmation to a study by Mahdi (2013) who also found that age was not of a significant impact on the use of ICT among language teachers.

ICT competencies and teaching experience

Findings indicated that EFL teaching experiences did not influence ICT competency. This suggests EFL teachers do not improve in ICT competency the longer they teach. It also suggests that EFL teachers have arrived at a certain level of ICT competency and are no longer able to improve that level. Similarly, Mahdi (2013) investigated the impact of teaching experience on the language teachers' use of ICT tools. Mahdi (2013) found that teaching experience was not of a significant impact on the use of ICT among language teachers.

ICT competencies and type of qualification

The mean scores of the EFL teachers with Masters' degrees rated higher than those with Bachelor degrees for three items: using ICT to access the Internet to collect information, accessing online dictionaries, translations and thesauruses and communicating via video conferencing. Significantly, most of the EFL teachers with Master's degrees obtained this qualification from an overseas educational provider. This helps triangulate the influence on EFL teachers of obtaining a qualification from an overseas provider in relation to their ICT use in an EFL context.

6.2 EFL TEACHERS' ATTITUDES TOWARDS ICT

The analysis of EFL teachers' attitudes towards the use of ICT in an EFL context (see Chapter Four, Section 4.3) indicated some significant findings. Generally, very positive views were noted amongst EFL teachers in different aspects of using ICT in an EFL

context. A large majority of the EFL teachers (83.1%) confirmed that the use of ICT makes EFL teaching simple. Additionally, EFL teaching experience supported this claim. EFL teachers with 5-9 years of experience stated that ICT makes EFL teaching simple. Moreover, EFL teachers with Master's degrees have rated higher mean scores and standard deviations: indicating very positive attitudes in regard to the proposal that ICT makes EFL teaching simple. The locations of the universities where EFL teachers obtained their highest qualification played an important role in their attitudes towards the use of ICT in an EFL context. EFL teachers with Master's degrees from overseas educational providers indicated higher mean scores and standard deviations than any other group. The mean scores and standard deviations indicated a high level of agreement particularly for the item; *using ICT makes EFL teaching simple*.

Furthermore, a large majority of the EFL teachers held very positive attitudes towards ICT where they believed that using ICT offered real advantages over traditional methods of EFL instruction. Since the majority of EFL teachers' years of experience ranged between 5-9 years, this allowed them to apply different types of teaching styles. This also indicated that EFL teachers have reached a level where they can replace different teaching approaches using ICT as an alternative. Albirini (2006) investigated EFL teachers' attitudes towards the use of ICT tools in a Syrian context. This study also found that EFL teachers' perspectives of ICT are considered as indicators for their positive attitudes towards its applications in EFL context.

Additionally, the majority (88.7%) of EFL teachers concurred with the proposal that EFL students enjoy using ICT in the classroom. The classroom environment in Saudi Arabia is totally different from any other contexts. The teacher is considered the centre of the process of learning and teaching. Therefore, the use of ICT to break the power of the authority of teachers amongst students is commonly practised, which supports the very positive views of teachers for the aforementioned item. It is speculated that students enjoy the change in teaching approaches. This includes the integration of ICT into the EFL teaching approach, which is considered of great benefit for both the EFL teachers and students. Another supportive finding is that the majority (90.2%) of the EFL teachers felt confident reporting that ICT should make their EFL teaching more interesting.

As technology is rapidly changing over time, EFL teachers felt the need to integrate ICT into their teaching. The majority (90.2%) of EFL teachers have reported their intentions to adopt more ICT application in EFL teaching in the future. Similarly, (87.3%) of the EFL teachers were happy to use new technologies to enhance their EFL teaching. This

indicated that the ICT knowledge and attitudes of EFL teachers in secondary schools have significantly increased.

EFL teachers interviewed in this study indicated a majority of positive attitudes towards the use of ICT in EFL teaching (see Chapter Five, Section 5.6). EFL teachers were asked to elaborate on their response on the use of ICT in an EFL context. More than half of the interviewees indicated that the use of ICT enabled them to deliver an interesting lesson within a motivated environment. Additionally, the majority of the EFL teachers concurred that the use of ICT in today's era will enhance the process of EFL learning and teaching.

The following section outlines the EFL teachers' attitudes towards the use of ICT in an EFL context in relation to the demographics of the study.

ICT attitudes and school location

The findings of both the survey and the interviews indicated that there was no significant difference for the EFL teachers' attitudes toward the use of ICT and the location of their schools. It might be worth noting that the ICT tools can be seen everywhere in today's world. Therefore, it is perhaps not surprising that the location of a school appeared to have no actual influence on the EFL teachers' attitudes toward their use of ICT in an EFL context.

ICT attitudes and location of the highest qualification achieved

The findings of the survey in relation to the location where they obtained their highest qualification indicated no actual significant differences. However, from the analysis of the interviews, an interviewee whose highest qualification was obtained from overseas stated that ICT integration into the process of EFL might be a waste of time for both the students and the teacher. The interviewee was asked to elaborate more on this negative point of view. He claimed that being dependent on the use of ICT, and ICT being the dominant approach to teaching EFL, might lead students to lose focus in a particular classroom. He added that a moderated approach of integrating ICT should be applied specifically for secondary school students. Therefore, while the location where qualifications were obtained may have an influence on ICT skills, it does not have an influence on ICT attitudes.

ICT attitudes and age range of the participants

The survey analysis revealed a statistically significant finding for the item: I feel nervous when using ICT in my teaching. Teachers aged from 25-29 years old scored the highest means and standard deviation in this item. However, teachers aged from 30-34 years old scored less means and standard deviation. This is an indication that experienced teachers are less nervous in using ICT in their EFL teaching than those aged from 25-29 years old. To interpret these findings; younger teachers may be more nervous in using ICT for a number of reasons. Firstly, they have had less professional training than the older teachers with more years of EFL experience. Often the MOE assigns new teachers to the city outskirts and non-urban areas. Thus, younger EFL teachers in this situation may have had less exposure to ICT tools. This should be taken into consideration as some of these results came from younger EFL teachers teaching in non-urban areas of the city (see Chapter One, Section 1.1.1). Additionally, the interview responses supported these findings. Three EFL teachers out of the ten were aged between 25-29 years of age and while they reported positive views of ICT in EFL teaching, nevertheless, they had reservations on the daily use of ICT for teaching EFL. However, the seven remaining interviewees reported very positive attitudes.

ICT attitudes and teaching experience

One factor that influences the level of professional achievement is the amount of teaching experience (Ericsson, 2006). Extensive experience in a particular subject matter is considered essential for attaining a high level of professional performance. Similarly, the integration of ICT into the process of teaching is influenced by the teacher's experience.

The ANOVA findings indicated three particular survey items that rated significantly higher than the rest. EFL teachers in the 10 and over teaching experience range, were more highly in favour of using ICT in their EFL teaching than those in the 5-10 teaching experience range. To be precise, EFL teachers with 10 years and over experience believed that EFL students should have an access to ICT facilities in each classroom. This supports the claim stated earlier that experience influences the level of professional achievement amongst teachers. It can be noted that teachers with 10 years and over experience, have been exposed to different types of professional training, including the use of ICT tools. Additionally, in another item, EFL teachers with less than 10 years of experience stated that the use of ICT would waste their students' time.

The ANOVA findings also indicated another survey item that rated significantly higher than the rest. EFL teachers in the 10 years and over teaching experience range had a statistically significant higher mean than EFL teachers in the 5-10 teaching experience range and the 0-4 years of teaching experience for the survey item; I think that using ICT in EFL will make teaching simple. Similar to the previous result, EFL teachers with 10 years or more EFL teaching experience were more confident that using ICT would make their teaching simpler. Again, this suggests that those more experienced teachers might have been exposed to more ICT training courses, professional development opportunities or simply more exposure to ICT than their younger colleagues.

The ANOVA findings also indicated a third survey item that rated significantly higher than the rest. EFL teachers in the 5-10 years teaching experience range had a statistically significant higher mean than EFL teachers in 0-4 years teaching experience range and the 10 years and over of teaching experience for the survey item; I think that using ICT will waste my students' time.

Similarly, the findings of the interviews revealed that EFL teachers with more teaching experience were in favour of using ICT in their EFL teaching more than those of less experience. For example, one of the interviewees with less than two years teaching experience believed that the use of ICT would complicate his lessons. Elaborating further, he said to maintain class control and teach using ICT was very difficult for him. He concluded that the use of ICT should be limited for specific EFL skills such as listening or speaking. In contrast, another interviewee with 5-10 years' teaching experience indicated that he uses ICT in his EFL classroom on a daily basis. He reported that the way ICT is to be used in a classroom should be described to students first, in order to ensure its effective and efficient use. An interviewee with over ten years' teaching experience indicated the need to have an ICT policy written specifically for the use of ICT in schools. He justified this by saying that the ICT policy should indicate to what extent any particular ICT tool should be used; how to use it; and where to implement it, either in the classroom or in another setting. Thus, EFL teachers with more teaching experience are able to think about the use of ICT beyond their classrooms and consider the policy implications of its implementation as well.

ICT attitudes and type of qualification

The findings of the survey revealed no statistically significant differences in relation to the EFL teachers' ICT attitudes and their highest qualifications. This suggests that EFL teachers' attitudes towards ICT remain relatively stable despite the qualifications they

might possess. This is in contrast to ICT competencies, where the highest qualification achieved did have an influence for a number of ICT competencies (see Section 6.1.3).

6.3 EFL TEACHERS' LEVEL OF TPACK

One of the study objectives was to investigate the EFL teachers' level of Technological Pedagogical Content Knowledge (TPACK). It also was advisable to base the findings of the EFL teachers' competences and their attitudes towards the use of ICT with their level of TPACK in order to have a clear understanding of the actual use of ICT in an EFL context in secondary schools in Saudi Arabia. The current study focused on the four technological dimensions of the TPACK framework; TK, TPK, TCK and TPACK while CK, PC and PCK were not considered of importance to this study. Three research questions guided the investigation for each of the TPACK dimensions.

6.3.1 TPACK and the demographics of the study

Analysis of the web-based survey revealed statistical significant differences in relation to some of the study demographics. These are discussed next.

TPACK dimensions

The following is a presentation of the findings of the study in relation to the TPACK dimensions; TK, TPK, TCK and TPACK.

Technology Knowledge (TK)

TK refers to the knowledge of different types of technology devices that can or cannot be integrated into the process of teaching and learning (See Chapter Two, Section 2.1.7). This includes the knowledge of different ICT tools and devices such as iPads, Internet, blogs, smart boards and Overhead Projector. It was essential for TK to be investigated in the current study in order to base the final findings of PACK and it was done under analysis of the ICT competencies. The analyses of the web-based survey revealed significant differences amongst EFL teachers in light of the TK aspects (See Chapter Four, Section 4.2). The mean scores and the standard deviations indicated high level of agreement amongst EFL teacher reporting their knowledge on their ICT competencies: referred to as TK.

The majority of EFL teachers reported their knowledge in using different types of ICT tools such as smart boards. In the analyses of the web-based survey the majority of the EFL teachers reported high knowledge in different ICT skills including: creating and

editing texts, creating presentations, creating graphics, accessing the Internet to collect information, communicating using chatting tools, accessing online dictionaries, accessing translations and thesauruses, showing presentations through multimedia computers, engaging in virtual worlds, teaching using smart boards, and accessing online encyclopaedias. Four items were focused on to investigate the level of TPK amongst EFL teachers in the web-based survey:

- Item 36: I know how to solve my technical problems *(M=3.93, SD= .662)*
- Item 37: I know many different types of ICT technologies *(M=3.82, SD= .743)*
- Item 47: I implement ICT in my EFL teaching to help slow learners *(M=3.76, SD= .836)*
- Item 50: I can learn about ICT integration in EFL easily *(M=4, SD= .756)*

The mean scores and standard deviations indicated a high level of agreement amongst EFL teachers for the above items. In relation to the interviews, TK was investigated in depth. EFL teachers were asked to report their ICT skills and knowledge of ICT integration into the process of EFL teaching and learning. In general, the majority of the EFL teachers expressed sound knowledge of using ICT. Their responses were classified into basic and advanced ICT skills. The basic ICT skills included the knowledge of working with ICT such as creating and editing texts, using Microsoft programs such as Word and PowerPoint. The advanced ICT skills included the knowledge of using advanced technologies in a complex context such as using the Internet in teaching speaking activities, the use of online dictionaries, the use of emails or the Blackboard to submit assignments. It also included the use of smart boards connected to the Internet in order to teach writing activities. The advanced ICT skills classification included some high technical skills needed to operate a particular ICT tool. Five interviewees were categorised as having basic ICT skills while three obtained advanced ICT skills. Therefore, the majority indicated sound knowledge of ICT.

Technological Pedagogical Knowledge (TPK)

The TPK refers to the knowledge of how different technologies can be used in teaching. It includes knowledge of different ways that these technologies are being used to deliver certain content (see Chapter Two, Section 2.1.7). It involves the knowledge of how the process of teaching and learning can be changed when applying a particular ICT tool. TPK was also essential to for further investigation in the current study. Four items were focused to investigate the level of TPK amongst EFL teachers in the web-based survey:

- Item 39: I know how to integrate ICT to facilitate a communicative EFL approach *(M=3.70, SD= .800)*
- Item 43: I know how to use different ICT tools for EFL teaching *(M=3.21, SD= 1.094)*
- Item 44: I know how to adopt ICT in my EFL teaching style efficiently *(M=3.77, SD= .929)*
- Item 48: I can select effective teaching strategies that integrate ICT in EFL teaching *(M=3.87, SD= .792)*

The mean scores and standard deviations indicated a high level of agreement amongst EFL teachers for the above items. The interviews reported similar findings as the majority indicated a high level of TPK. Almost all of the interviewee expressed sound knowledge of using ICT within a specific teaching approach in their teaching context. Six of the interviewed EFL teachers reported that the communicative teaching approach should be emphasised when teaching EFL using ICT tools. Almost all of the interviewed EFL teachers agreed that the use of ICT made their EFL teaching approach easier and more interesting for both teachers and students. Three of the EFL teachers indicated they had knowledge of using ICT in their EFL teaching, particularly to evaluate students' performance. This included the use of specific software recording the students' achievements in the class in a daily basis. Diverse teaching strategies that applied ICT were mentioned in Chapter Five.

Technological Content Knowledge (TCK)

TCK concept in TPACK framework refers to the knowledge of how technology can create a new representation for a specific content (Mishra & Koehler, 2008) (see Chapter 2, Section 2.1.7). It also refers to the use of specific ICT tools to teach specific EFL content. The best example to illustrate TCK for the current study is the use of electronic dictionaries in an EFL context. Four items were focused on, to investigate the level of TPK amongst EFL teachers in the web-based survey:

- Item 38: I can choose the right ICT to enhance the content of my EFL lesson *(M=3.82, SD= .636)*
- Item 40: I have knowledge of ICT applications for EFL skills teaching *(M=3.83, SD= .756)*
- Item 41: I know how to use ICT to evaluate EFL students' skills *(M=3.82, SD= .762)*

- Item 42: I know how to design software to enhance EFL communicative competencies *(M=3.77, SD= .82)*

The mean scores and standard deviations indicated a high level of agreement amongst EFL teachers for the above items, except for item 42 – I know how to design software to enhance EFL communicative competencies – this required high ICT skills. This indicated that the knowledge level of EFL teachers in using ICT in this item is very limited. The interviews reported similar findings as the majority indicated a high level of TCK. The majority of the interviewed EFL teachers reported sound knowledge of using ICT to teach a specific content of EFL. Four of the interviewed EFL teachers concurred that YouTube videos are considered to be great tools for teaching speaking skills in an EFL context. Further elaboration indicated that the students are only using English in the classroom and are not able to use it in the wider community out of the school. Therefore, using materials available in the Internet is essential but only if schools are provided with ICT facilities. One interviewee indicated the use of online dictionaries to help in teaching vocabulary in EFL lessons. Nonetheless, some interviewees have contended that a specific content may notably limit the use of ICT tools. In this respect, EFL teachers in Saudi Arabia are asking to be provided with professional training in the use of ICT to teach specific content materials of EFL.

Technological Pedagogical and Content Knowledge (TPACK)

The TPACK refers to the knowledge required by teachers for integration of technology into their teaching of any particular content area (see Chapter 2, Section 2.1.7). It is a combination of the three main components of the knowledge stated earlier, TK, TCK and TPK. In particular, it refers to the specific use of technology applied within a particular teaching approach in order to teach a specific content. It is essential to investigate the TPACK perceptions of the teachers in order to identify what knowledge teachers must obtain to integrate technology into their teaching process (Schmidt, 2009).

In the current study, three items were included in the web-based survey in order to investigate TPACK:

- Item 45: I use ICT in diverse EFL teaching strategies to facilitate the instruction of EFL *(M=3.72, SD= .814)*
- Item 46: I can use ICT in giving EFL students tests that address both lower and higher order thinking *(M=3.68, SD= .807)*

- Item 49: I have the technical ICT ability that I need to use technology in teaching EFL speaking skills *(M=3.90, SD= .700)*

EFL teachers were asked to report their knowledge on how they used ICT within their teaching approaches to teach a particular EFL content. The mean scores and standard deviations were very high indicating a high level of agreement amongst EFL teachers for the above items. The interviewees reported similar findings as the majority indicated high level of TPACK. The majority of the interviewed EFL teachers reported a sound knowledge of using ICT within a suitable teaching approach to teach a specific content of EFL.

School location

In the web-based survey, one item was found to have a statistically significant relationship between the location of the school and the EFL teachers' level of EFL. Teachers were asked to report their knowledge of how to use ICT in EFL teaching. The mean scores and of urban school locations rated higher than the non-urban locations (see Chapter 4, Section 4.4.2). This indicated that the urban teachers were influenced by the availability and acceptability of the ICT tools in their schools more than teachers in non-urban locations.

The interview analysis reported similar findings. EFL teachers in urban areas indicated that they have greater access to professional training than EFL teachers in the non-urban areas. Evidence suggests that urban schools are provided with more ICT facilities than schools in non-urban areas. Usually, non-urban schools have a smaller number of students and teachers compared to urban schools. The MOE, in their teaching and learning materials provision, distributes its budget in accordance with these numbers. Therefore, a very low budget is provided to non-urban schools, which results in limited outcomes in most of the schools, including a lack of ICT professional training.

TPACK and location of the highest qualification achieved

Although the findings of the web-based survey did not identify any statistically significant differences in this regard, analysis of the interviews reported different findings. In general, EFL teachers who obtained their highest qualifications from an overseas educational provider tended to express their knowledge of ICT more confidently than those who had obtained their highest qualifications in Saudi Arabia. Since EFL teachers were exposed to different ICT tools while studying abroad, their knowledge, attitudes towards ICT, and skills, appear to have been more positively

influenced. In terms of qualitative results, two of the interviewees had their highest qualification from an overseas educational provider. Both interviewees expressed their skills in using ICT in an EFL context believing that ICT facilities are a valuable tool in enhancing the process of teaching; particularly in an EFL context.

TPACK and type of qualification

The TPACK mean and standard deviations reported a high level of agreement with the TPACK dimensions. The analyses conducted for the web-based survey have not reached significant differences in this regard. However, the thematic analyses of the interviews have reported different views. It was found that the EFL teachers with Master's degrees rated higher levels of agreement with TPACK dimensions than those with Bachelor degrees.

TPACK relationship with age range and EFL years of experience

Findings indicated that the TPACK application and the EFL teacher's age range have no significant differences between EFL teachers. The analysis of interviews reported different findings, as the interviewed EFL teachers aged between 30-34 years of age were more confident in expressing their knowledge in TPACK dimensions than the teacher in the other age ranges. This can be justified as their years of ICT experience in an EFL context have positively influenced their knowledge. Additionally, the analyses conducted on both the qualitative and quantitative data did not point to any significant differences between the TPACK and the EFL teachers' years of experience. These findings provide confirmation of a study by Alqurashi, Gokbel, & Carbonara (2017), who investigated the TPACK constructs of teachers in Saudi Arabia and the USA. This study also found that the level of TPACK was affected by factors including years of teaching experience, age and educational level. Results also indicated that teachers in both Saudi Arabia and the USA showed higher ratings in their level of TCK, TPK than TK.

Similarly, Chen (2017) studied Taiwanese language learners examining their perceptions of TPACK. Findings indicated that younger teachers had low confidence in CK, TK and TPK. However, older teachers tended to be more confident in their CK but less in their TK. Alahmari (2013) investigated the level of TPACK among EFL teachers in technical and vocational colleges. The study also found that EFL teachers with more EFL teaching experience had significantly higher perceptions of TPACK than EFL teachers with less EFL teaching experience.

6.4 ICT ENABLERS

ICT enablers are defined as the factors that enhance the EFL teachers' willingness to integrate ICT into their EFL teaching. It also refers to the materials that will make the use of ICT possible for the language teachers inside and outside the school environment. A number of ICT enablers were reported by EFL teachers, which will be discussed next.

Findings of the web-based survey indicated that the most significant ICT enablers are the EFL teachers' attitudes and knowledge of ICT. The majority of the EFL teachers had positive attitudes and sound knowledge of ICT. This would enhance the process of ICT integration into the EFL teaching when it is supplemented with the required materials and ICT tools. EFL teachers' ICT beliefs are taken into consideration along with their ICT attitudes in this respect. The majority of EFL teachers' in the study believed that the use of ICT in teaching English language improves learning outcomes and enhances the EFL teaching process.

The thematic analysis of the interviews revealed a number of ICT enablers including; improving access to ICT, requiring facilities of good quality, computer laboratories, ICT support, teachers' ICT skills, teachers' ICT training, teachers requiring professional development, encouraging teachers to use ICT, access to ICT for all schools, preference for ICT in society, ease of teaching with ICT, improved teaching using ICT, enjoyable way of teaching and teacher confidence while using ICT.

ICT availability and accessibility were two major enablers found to be affecting ICT use in EFL teaching in Saudi Arabia. Availability refers to the existence of ICT tools and materials whether within personal possession or inside the schools. These ICT tools might include but are not limited to hardware and software materials. High quality ICT resources are required but findings indicated the existence of out-dated ICT resources. Findings also varied in this respect as urban schools enjoyed some form of ICT tools, Internet connections and ICT teaching materials while non-urban areas lack most of these.

Accessibility refers to the ability to use ICT tools at anytime and anywhere within the school environment. This includes access to ICT laboratories, Internet connections and the use of mobile devices. EFL teachers' incentives are considered enablers to motivate the use of ICT in an EFL context regularly. These incentives might include providing bonuses to wages. Findings indicated that if there were any form of incentives for using ICT, EFL teachers would be willing to use it.

6.5 ICT BARRIERS

ICT barriers are defined as the factors that prevent or restrict the application of any ICT tools in schools, particularly in the classroom. Findings of the current study indicated a number of ICT barriers in Saudi Arabian secondary schools. A number of barriers were identified through analysis of the qualitative data. These barriers are: facilities and Internet location dependent, impact on school budget, cost of ICT for both school and students, ICT facilities lacking, students' and teachers' ICT skills and knowledge, fear of damage, large classroom impact, ICT policy, requires supervision when using ICT, ICT time consuming, teacher anxiety over responsibilities, students' anxiety, inappropriate use of ICT, and poor result if ICT used incorrectly.

The school location was considered as one of the main barriers that enhances or prevents the use of ICT. For example, urban schools enjoy the availability of some form of ICT tools while non-urban schools lack these ICT facilities. Evidence from this study suggests that the inequity of ICT provision amongst all schools is seen as major obstacle for language teachers to integrate ICT into their EFL teaching. Findings indicated that urban schools enjoy some ICT tools but not enough to be used on a regular basis. This is because of the large number of students in urban schools, which require large numbers of teachers and results in an ICT tools waiting list. Therefore, ICT provision to schools should be taken into consideration by the MOE in order to preserve a regular and equal use of these tools.

Adel reported that the location of the school is an essential barrier to the integration of the ICT into the process of EFL teaching and learning.

> If you teach in the remote place, hard yeah because many facilities in this schools didn't have like, electricity or didn't have like you know, computers, Internet access (Adel).

Abduallah also emphasised this point as remote schools lack most ICT facilities.

> If it's in the remote area definitely you are going to have really big barriers because you need to have the networking and everything including all technologies equipment to be provided, which is not the case (Abdullah).

EFL teachers should be provided with the required professional ICT training, which seems to be limited as findings indicated. ICT professional training for language teachers would enable them to have the knowledge of using ICT facilities in order to properly use it in the classroom. Pedagogical knowledge should be taken into consideration, in

this respect. The majority of EFL teachers who participated in this study indicated a sound knowledge of applying ICT into their EFL context. However, major findings of the interviewed EFL teachers indicated limited knowledge of the pedagogical use of ICT in an EFL context. It is believed that the basic factor influencing the learning process is not the ICT tools but the pedagogy behind using it properly (Mandell, 2002). Therefore, the use of the appropriate pedagogical approach supported with ICT-enhanced materials is considered essential in terms of ICT integration into EFL teaching.

EFL teachers' perception of the impact of ICT in the process of EFL teaching is the third barrier to ICT integration. Findings indicated that the majority of EFL teachers had positive attitudes towards the use of ICT in EFL teaching. However, the analyses of the interviews reported different findings. The majority of the interviewed EFL teachers agreed that ICT use increases the burden on their shoulders. Elaboration indicated that their workload would be increased mostly for lesson preparation. More than half of the interviewed EFL teachers indicated that the one-hour ICT-enhanced lesson required three to four hours of preparation. Therefore, there was a high level of agreement amongst EFL teachers that the use of ICT is time-consuming for lesson preparation. Furthermore, the lack of ICT tools in schools requires EFL teachers to purchase them, which creates another financial burden. Hence, EFL teachers believed that teaching with ICT would place burdens on them in relation to money, workload and time.

The lack of ICT technical support in urban schools was another major barrier in terms of ICT integration. Although the majority of EFL teachers' technical knowledge of ICT indicated a sound level there are cases in which technical support is required in schools during operation times. Findings indicated that ICT technical issues in schools disrupt EFL lessons. EFL teachers are forced to use traditional teaching styles once a major technical issue occurs. The disruption of power happens quite a lot in urban areas due to the hot weather and the overload on the use of electricity. In case of power disruption, teachers have to find alternatives such as going back to the blackboard and the use of textbooks.

Another factor that can restrict the use of ICT in EFL teaching is the lack of vision. The analyses of the interviews reported that there was no fixed ICT plan or written ICT policy which teachers have to follow. The general Education Policy in Saudi Arabia recommends using teaching aids including ICT tools. However, the policy lacks specific details, particularly in how, where, what and where to use ICT tools. The findings of the current study also indicated that the required ICT policy should be disseminated to

language teachers in schools. The lack of a specific ICT policy has led to individual efforts and attempts to use ICT in classroom. These attempts are generally considered valuable but lack consistency, vision and supervision. The major findings of the analyses of the interviews indicated that the majority of EFL teachers have never read the ICT policy while more than half of the respondents claimed that no specific ICT policy for language teachers existed within the MOE regulations.

6.6 POTENTIAL SOLUTIONS

Throughout the interviews, the EFL teachers identified a number of potential solutions for optimal ICT integration into EFL teaching. These potential solutions are: improve access to ICT at schools; schools are required to have ICT facilities of good quality; teachers require professional development; encourage teachers to use ICT; and access to ICT to all schools.

Mohammed indicated that teachers lack the professional development in using ICT in EFL teaching.

> Because the limited teacher training in ICT, like how to use the computer, how to start it, how to switch it, switch it on and how to go to the, how to search for the English learning websites for example (Mohammed).

Saleh reported that schools should be provided with enough ICT facilities of good quality.

> The main barriers is the infrastructure of the school, if we have the good infrastructure for example, that school is supplied by Internet access, supplied by yeah, that will encourage teacher to use the ICT but we have problem by so some school doesn't have that facility so we need to yeah, improve enough facilities (Saleh).

Omar also emphasised the importance of adequate and sufficient ICT facilities of good quality.

> In terms of infrastructure, where they have availability of very beauty of ICT infrastructure, how strong they are, how open they are, how adequate they are, where is it in all the students then for instance whether it has whether the infrastructure is good and connected to facilities (Omar).

Ahamd, similar to Omar, indicated that sufficient ICT facilities of good quality should be provided to all schools.

> Well I think that school should maintain a good infrastructure including ICT tools. This is vital in using because you know if there is no computers or tools how can the teacher implement it within his lesson (Ahmad).

Additionally, Omar indicated that teachers' ICT skills are considered essential factors in the process of integrating ICT into EFL teaching. So, he suggested an adequate provision of ICT training and teachers professional training.

> Teacher and if they don't have the technical skill, it can still be a problem, can still be a barrier (Omar).

6.7 CHAPTER SUMMARY

This chapter has presented the findings of the study conducted to investigate the effect of TPACK on EFL teaching in Saudi Arabian schools. The findings of the quantitative and the qualitative parts were merged in order to present an explanation of the case under investigation. The findings of EFL teachers' ICT competencies, attitudes towards ICT and their level of TPACK were presented. Enablers and barriers that influenced the integration of ICT in an EFL context in Saudi Arabia were presented and explained. Potential solutions for optimal ICT integration into EFL teaching were also provided as per responses from the interviewed EFL teachers. The chapter concluded by addressing each of the five research questions.

CHAPTER SEVEN

CONCLUSION

The main objective of the current study was to investigate EFL teachers' knowledge of and attitudes towards ICT in an EFL context. Subsequently, an investigation of the EFL teachers' knowledge of and attitudes towards ICT was conducted. This was supplemented with an investigation of EFL teachers' level of TPACK. The current chapter presents the implications and limitations of the study and ends with the final conclusions of the thesis.

7.1 ADDRESSING THE RESEARCH QUESTIONS

Having discussed the three main dimensions of the study: EFL teachers' ICT competencies, EFL teachers' attitudes towards ICT in an EFL context and EFL teachers' levels of TPACK, the research questions for the study are now addressed. To review, the current study was guided by the following five research questions:

RQ1: What is the level of EFL teachers' ICT competency?

RQ2: What are EFL teachers' attitudes towards ICT integration into the process of teaching EFL?

RQ3: What is the level of EFL teachers' TPACK in Saudi male public secondary schools?

RQ4: What is the relationship between EFL teachers' attitudes towards ICT and their level of TPACK?

RQ5: What are the factors that influence the use of ICT in EFL in male public secondary schools in Saudi Arabia?

Each question will now be explored in turn.

7.1.1 What is the level of EFL teachers' ICT competency?

The aforementioned analysis of the findings indicated that EFL teachers maintain sound knowledge and competencies in using basic ICT tools in an EFL context. However, EFL teachers maintain less knowledge in more advanced uses of ICT such virtual world and video conferencing tools.

There were a number of factors that influenced the ICT competencies of EFL teachers. The first factor was the location of the school that may have affected their response in relation to their ICT competencies in an EFL context. EFL teachers in urban schools have enjoyed the application and use of the existing ICT tools and built up their knowledge and skills in this regard. While EFL teachers teaching in non-urban school have indicated a very limited use of ICT tools along with low level of ICT competencies.

The second factor that influenced the EFL teachers' response was the location where they obtained their highest qualifications. The majority held a Bachelor degree and maintained a sound knowledge and skills of ICT competencies. However, EFL teachers with Master's degrees were rated higher in a number of ICT competences, which was justified by their exposure to different ICT applications overseas. Similarly, for the location where the EFL teachers obtained their highest qualification they rated higher levels in a number of ICT competencies.

The creation and editing of text, as examples of ICT competencies, were highly rated amongst most of the EFL teachers who participated in this study. This indicated the willingness and readiness of EFL teachers to integrate ICT into the process of EFL teaching and learning in a Saudi Arabian secondary school context. Considering the universality of ICT in all aspects of life nowadays, EFL teachers have realised the importance of applying these tools into their EFL teaching.

The study confirms that the EFL teachers teaching in secondary schools in Saudi Arabia have sound knowledge and competencies in using basic ICT tools in EFL teaching. A large majority of the participants surveyed and interviewed in this study concurred with the use of ICT to create presentations. It has been noted that the use of PowerPoint in presentations was commonly mentioned amongst EFL teachers to support the process of EFL teaching.

In general, it can be concluded that nearly the entire majority of the EFL teachers teaching in secondary schools in Saudi Arabia has sound knowledge of basic ICT competencies. Despite the many factors that influenced their responses, the EFL teachers are mostly willing and ready to integrate ICT into the process of EFL teaching and learning.

7.1.2 What are EFL teachers' attitudes towards ICT integration into the process of teaching EFL?

The aforementioned analysis of the findings indicated that EFL teachers generally have a positive attitude to using ICT to teach EFL in secondary schools in Saudi Arabia. Although the majority of the EFL teachers utilised sound knowledge and competencies in using ICT in their EFL teaching, their attitudes varied according to many factors. It has been found that the school location, the location of where the highest qualification was obtained, the EFL teaching experience and the EFL teacher age were the factors influencing EFL teachers' ICT attitudes towards the use of ICT. The study confirmed that the EFL teachers maintained positive attitudes towards the use of ICT in EFL teaching in secondary schools in Saudi Arabia.

7.1.3 What is the level of EFL teachers' TPACK in Saudi male public secondary schools?

The majority of the EFL teachers who participated in the current study had essential beliefs and attitudes that ICT is very important in the EFL teaching process. Additionally, the majority had a sound knowledge of the ICT skills that would enable them to integrate it into the process of EFL teaching and learning. The investigations of TK, TPK, TCK and TPACK have revealed significant findings. In order to answer the third research question,' it can be concluded that the EFL teachers in secondary schools in the Saudi Arabian context maintained a high level of perception towards the components of TPACK and TPACK in general. It also can be said that most of the EFL teachers in Saudi Arabia have improved their ICT knowledge and thus developed their perception of TPACK.

7.1.4 What is the relationship between EFL teachers' attitudes towards ICT and their level of TPACK?

TK, TCK, TPK and TPACK were the major elements that were significantly associated with the EFL teachers' attitudes towards the ICT. Most of the EFL teachers who participated in the current study had positive attitudes towards ICT in EFL teaching. The analyses of both the web-based survey and the interviews indicated different views and perspectives associated with the use of ICT in EFL and thus towards TPACK. While some EFL teachers are still in need of professional training due to a lack of ICT competencies, the majority indicated high confidence in using ICT in an EFL context.

The relationship between EFL teachers' attitudes towards ICT and their level of TPACK is interrelated and significantly varied.

The findings presented in this study indicate that there are many factors affecting the EFL teachers' attitudes towards ICT and their level of TPACK. The location of the school was one of the study demographics that was a factor influencing EFL teachers' attitudes towards ICT and hence their level of TPACK. Additionally, years of EFL experience and the location of where the highest qualifications of EFL teachers were obtained, significantly influenced their attitudes towards ICT and hence their level of TPACK.

7.1.5 What are the factors that influence the use of ICT in EFL in male public secondary schools in Saudi Arabia?

The aforementioned analysis of the findings indicated that the implementation of ICT into EFL teaching is influenced by a number of factors. These were grouped under ICT enablers and barriers. Among the most indicated factors – grouped under enablers- were, improving access to ICT, requiring facilities of good quality, computer laboratories, ICT support, teachers' ICT skills, teachers' ICT training, teachers requiring professional development, encouraging teachers to use ICT, access to ICT for all schools, preference for ICT in society, ease of teaching with ICT, improved teaching using ICT, enjoyable way of teaching and teacher confidence while using ICT.

Additionally, ICT barriers were considered factors influencing the successful implementation of ICT into the process of EFL teaching. These barriers were facilities and Internet location dependent, impact on school budget, cost of ICT for both school and students, ICT facilities lacking, students' and teachers' ICT skills and knowledge, fear of damage, large classroom impact, ICT policy, requires supervision when using ICT, ICT time consuming, teacher anxiety over responsibilities, students' anxiety, inappropriate use of ICT, and poor results if ICT used incorrectly.

7.2 IMPLICATIONS

The current study examined the level of EFL teachers' TPACK and use of ICT tools in an EFL context. The main focus was to investigate the EFL teachers' knowledge of and attitudes towards the use of ICT in EFL teaching and learning. Three major dimensions were examined throughout this study: EFL teachers' knowledge of ICT known as ICT competencies, EFL teachers' attitudes towards the use of ICT, and also their level of

TPACK. This was supplemented by an investigation of the ICT barriers and enablers in a Saudi Arabian secondary school context.

The process of EFL teaching and learning in Saudi Arabia is considered complex and it becomes more complicated when ICT tools are integrated. This study has demonstrated these complexities and shown the significant differences amongst the findings. Findings indicated that these complexities pertained to the EFL teachers' background and knowledge of ICT. Additionally, their attitudes played important roles in the process of ICT integration. Cultural aspects were involved in this respect, in which EFL teachers' fears of the responsibilities of using the equipment of the schools that they were working in, which included ICT.

Another implication that should be mentioned concerns the EFL teachers' choices of the appropriate pedagogical approach that is applicable with the application of ICT. The selection of the appropriate teaching approach should also be aligned with the students' cultural and religious beliefs (Alahmari, 2013). Hence, EFL teachers should take into account cultural norms and traditions in order to achieve positive educational and learning outcomes.

The current study presented the education reform that took place in order to implement ICT into teaching in general, and in public administration. EFL teachers seem to be more in favour of using the traditional ways of teaching. These have been discussed in a previous chapter where ICT barriers and enablers were extensively presented. It is notable that some EFL teachers are able to use and have knowledge ICT yet fear the responsibilities of using it. The existing ICT tools in schools are made available for teachers to use at their own risk. Therefore, teachers are distancing themselves from the complicated issue of using ICT in their teaching. The responsibilities of such ICT tools force teachers to repair or replace any faults with the technology at their own cost. Most school equipment is provided by the Ministry of Education (MOE) and is expensive, and if needing to be replaced can sometimes exceed half of teacher's monthly wages. The MOE should emphasise the importance of using ICT in all educational settings particularly in an EFL context. This will enhance the EFL teachers' willingness to adopt ICT in a formal approach and not by choice.

Another implication is that the data collected for the current study was in June 2015. Therefore, readings of the EFL context might have changed since then. However, the review of the literature in terms of the reform actions, study conducted and other ICT initiatives within the MOE showed a very deliberate progression.

7.3 LIMITATIONS OF THE STUDY

The current study has presented significant findings in relation to the use of ICT in an EFL context in a Saudi Arabian educational setting. It has also explored the current use of ICT in EFL public secondary schools. However, there were a number of limitations that should be taken into consideration for further research in the future.

7.3.1 Study population limitations

The most important limitation of the study is that the participants were exclusively male EFL teachers. This was justified in the methodology chapter for two major reasons. Firstly, the cultural norms and traditions of the country are such that males and females are segregated in schools. This segregation involves a single-gender environment occurring at all educational levels. The segregation also involves the assigning of single gender teachers and staff at each public school (Baki, 2004). Therefore, there is no mix of genders amongst the educational settings at all levels of school management in Saudi Arabia (Oyaid, 2009). Secondly, male participants were easier to access than female participants. Conducting ~~a~~ research in Saudi Arabia involving female participants requires a complicated process including observing the strict rules of ethical norms and applications. This demonstrates the influence~~s~~ of Islamic regulations in all contexts of education (Doumato, 2003). Consequently, female researchers best apply the processes of conducting research involving female participants. Hence, the decision was made to conduct the current research solely with male EFL participants. Therefore, the results generated from this study can only be generalised for EFL male teachers in public secondary schools in Saudi Arabia. In order to gain a more complete picture of the use of ICT in EFL teaching, this research should be repeated using female EFL teachers.

Another limitation of the current study is that the participants were selected from public secondary schools. Therefore, the results cannot be generalised to university or technical college settings. Hence, the results obtained can only be generalised to public secondary and intermediate educational settings in Saudi Arabia. Thus, it would be beneficial to conduct similar research in technical college and university settings.

Finally, the results of the study can only be generalised to EFL teachers and not English as a Second Language teachers (ESL). ESL teachers use English as the primary language in their teaching settings and environment. However, this is not the case of EFL in a Saudi Arabian context where English is used as a foreign language. The implication of this is that ESL teachers might have different ICT perspectives and levels of TPACK.

They also could maintain different ICT factors that would enable or restrict the use of it in their ESL settings. Exploration of ESL teachers' perspectives of ICT and their levels of TPACK and the comparison of these with EFL teachers could be a useful area of further research.

7.3.2 Limitations of the research instruments

There are limitations in relation to the use of the two main research instruments: web-based surveys and semi-structured interviews. The main limitation of the web-based survey is the limited sampling and the respondents' availability. The ability to reach the specific participants is limited using web-based surveys. Additionally, survey fraud might need to be taken into consideration, as answers to the web-based survey may not represent EFL teachers' actual perspectives. Being a web-based survey the sample may actually have been biased to those with access to completing the survey on line. Also, EFL teachers who do not use ICT might not want to complete the survey online. One solution might have been to give the EFL teachers the choice of completing the survey online or on paper. Although the web-based survey has the aforementioned limitations, it was nevertheless considered to have provided valid and reliable results for the current study.

The other main research instrument used in the current study was the semi-structured interview. One main limitation of the interviews was the validity. EFL teachers were interviewed and a recorder was used in order to record their responses for later analysis. This may have caused some EFL teachers to be careful about their responses and so they may not have responded to the interview questions frankly and freely. A criticism of any governmental sector in Saudi Arabia is not a common act. Therefore, participants' responses to the interview questions may have included some reservations.

7.4 RECOMMENDATIONS

The current study resulted in a number of recommendations that should be taken into account for the development of ICT practice in an EFL context and within MOE jurisdictions. The following recommendations are grouped into three main categories. First, recommendations are presented for the administration of the MOE and policy makers. Second, recommendations are provided for EFL teachers willing to apply ICT into their EFL teaching contexts. Third, recommendations are given for future research in the field of ICT and EFL teaching.

7.4.1 Recommendations for administration at the MOE

The practice of ICT in teaching and learning within MOE jurisdictions should be improved to encourage better educational outcomes, particularly in an EFL context. The findings of the current study have revealed that there are a range of administrative issues that should be taken into consideration when applying ICT in teaching and learning.

First, a specific ICT policy should be written for both the MOE level and the school level. Findings indicated that teachers are using ICT tools with little guidance as no specific ICT policy exists in schools. The provision of an ICT policy should help improve ICT practice amongst teachers and encourage its regular use. Any ICT policy should state how and when teachers should use ICT equipment to maximise their efforts for better educational results. Additionally, the existence of an ICT policy indicates the intention to give priority to the information and knowledge that can be obtained through the use of ICT. Also, ICT policy should be aligned with ICT practice in order to allow positive feedback leading to better educational outcomes.

Second, the inequity issue of ICT provision should be resolved in order to have schools in all locations provided with the necessary ICT facilities. Findings of the current study identified inconsistencies in the availability and accessibility of ICT facilities amongst urban and non-urban schools. Additionally, the provision of sufficient ICT facilities and ICT support for schools is an essential part for successful ICT implementation - particularly in an EFL context. Findings indicated that EFL teachers were being placed on waiting lists at their schools even for the use of ICT facilities such as computer laboratories and data projectors.

Third, Internet connectivity was identified as a particular problem, especially for non-urban schools. As the MOE is currently applying Internet-based software to manage its administration (Hamdan, 2015), the time has come all for all schools to provided with adequate Internet connections in order for EFL teachers to make full use of the resources provided through the Internet while teaching.

Fourth, professional training in the use of ICT in teaching should be made available to all EFL teachers on a regular basis. In order to have better educational outcomes, EFL teachers should be equipped with the required knowledge of using ICT facilities within their teaching area. The findings of the current study indicated a lack of ICT professional training therefore, the need to have professional training is highly desirable for EFL teachers.

7.4.2 Recommendations for EFL teachers

The current study focused on an EFL teaching context in Saudi Arabia. Therefore, there are a number of specific recommendations for EFL teachers to be taken into account when applying ICT into their EFL teaching.

First, EFL teachers have been exposed to English language culture throughout their study. The change to an ICT-based classroom should be encouraged in order to achieve favourable educational goals in an EFL context. The implementation of ICT in an EFL classroom does not simply involve the use of YouTube or PowerPoint in classrooms but goes far beyond this. EFL teachers have to build their knowledge on the usage of ICT in an EFL context.

Second, EFL teachers should prepare themselves with the knowledge about using the appropriate pedagogical approach applied within ICT facilities. The pedagogical approach differs according to the context and the available teaching aids. Therefore, the selection of the appropriate pedagogical approach, which matches the content and is applied through ICT facilities, should lead to better educational outcomes.

7.4.3 Recommendations for future research in similar fields

A number of recommendations to address the limitations of the study have already been discussed. Further recommendations are provided in this section. Studies on ICT are always in high demand to assess, evaluate or measure the effectiveness of its implementation in a particular setting. The need for further study in the context of using ICT in EFL within Saudi Arabian educational sectors is recommended.

The in-depth study of the phenomena requires the application of case studies. Therefore, it is recommended that web-based surveys and interviews should be supplemented with actual case studies. This will allow extensive bodies of data to be collected for further analysis. A larger pool of study participants might be considered important in future research in order to cover the wide range of locations across Saudi Arabia. Additionally, policy makers, administrators, and heads of schools might add a further dimension to analysis if they were included in the study. Observation of EFL teachers in authentic settings would assist future researchers to assess EFL teachers' levels of TPACK.

Additionally, TPACK was an appropriate and useful theoretical framework underpinning the current study. The TPACK framework should be applied in further studies involving ICT in EFL contexts in Saudi Arabia. It provided a valuable implication

for the phenomena investigated in this study. The application of the TPACK framework enables the researcher to explore specific aspects of data pertaining to technological, content or pedagogical knowledge.

7.5 CONCLUSION

The study investigated the effect of TPACK on EFL teachers in male public secondary schools in Saudi Arabia. To be precise, the study examined teachers' knowledge of, and attitudes towards, the use of ICT in an EFL context. Results present common favourable attitudes towards the use of ICT in an EFL teaching context in secondary school classrooms. It is also noted that the study found that teachers maintained sound knowledge and competencies of ICT implementation in an EFL setting. The majority of the participants in this study indicated positive attitudes towards using different ICT tools in EFL teaching. Additionally, the majority of the EFL teachers participated in the current study had beliefs and attitudes that ICT is very important in the EFL teaching process. Furthermore, the majority of the participants reported that ICT facilities should be provided for students in each classroom for optimal use and better educational outcomes.

In contrast, despite the majority of positive attitudes and favourable use of ICT, analysis of the interviews reported some different findings. It was found that some EFL teachers did not enjoy positive attitudes towards the use of ICT in EFL teaching context. Further analysis indicated the barriers and enablers behind these different attitudes. Despite EFL teachers having a sound knowledge of using ICT a number had negative attitudes in using it, particularly in non-urban schools.

The study also reported that the majority of the participants were among the younger-aged EFL teachers in Saudi Arabia. In general, it is the younger generations that tend to enjoy the use of ICT more than the older generations. It was significant that it was the younger EFL teachers who were characterised by having a good level of TPACK and the use of ICT. On the other hand, older participants were involved in this study but they presented rather conservative and very restrained responses.

The study presented analysis of the barriers and enablers encountered when using ICT in an EFL teaching context. Amongst the~~se~~ factors enabling the application of ICT were the availability and accessibility of ICT in schools. Factors reported were at the administrative and schools level. These included the provision of ICT facilities and ICT support to all schools regardless of their location. On the other hand, factors enabling

the use of ICT in EFL, at the teachers' level included professional training and willingness to use technology.

The use of the TPACK framework in the study presented information in terms of the knowledge dimension being investigated throughout the study. The study demonstrated how EFL teachers in Saudi Arabia could apply the TPACK framework for an optimal integration of ICT facilities. The results of the study emphasise the specific types of knowledge that EFL teachers require in order to integrate ICT into their EFL teaching.

REFERENCES

Abbitt, J. T., & Klett, M. D. (2007). Identifying influences on attitudes and self-efficacy beliefs towards technology integration among pre-service educators. *Electronic Journal for The Integration of Technology in Education, 6*(1), 28-42.

Abu-Rabia, S. (2004). Teachers' role, learners' gender differences, and FL anxiety among seventh-grade students studying English as a FL. *Educational Psychology, 24*(5), 711-721.

Al Shammari, M. H. (2007). *Saudi English as a foreign language learners' attitudes toward computer-assisted language learning*: Unpublished doctoral Dissertation, West Virginia University, WV: USA.

Al-Alwani, A. E. S. (2005). *Barriers to integrating information technology in Saudi Arabia science education*. Unpublished doctoral dissertation, University of Kansas, USA.

Al-Asmari, A. (2005). *The use of the Internet among EFL teachers at the colleges of technology in Saudi Arabia.* The Ohio State University.

Al-Jarf, R. (2008). The impact of English as an international language (EIL) upon Arabic in Saudi Arabia. *Asian EFL Journal, 10*(4), 193-210.

Al-Kahtani, S. (2001). *Computer-assisted language learning in EFL instruction at selected Saudi Arabian universities: Profiles of faculty.* (PhD), Indiana University, Pennsylvania.

Al-Maini, Y. (2011). Using technology in EFL in Saudi Arabia. *Literacy Information and Computer Education Journal (LICEJ), 2*(3).

Al-Sulaimani, A. A. (2010). *The importance of teachers in integrating ICT into science teaching in intermediate schools in Saudi Arabia: A mixed methods study.* Unpublished doctoral dissertation, RMIT University, Melbourne, Australia.

Alahmari, A. (2013). *An investigation of Saudi Arabian EFL teachers' engagement with technology.* (Doctoral degree), Monash University, Australia. Retrieved from http://arrow.monash.edu.au/hdl/1959.1/924777

Albirini, A. (2006). Teachers' attitudes toward information and communication technologies: The case of Syrian EFL teachers. *Computers & Education, 47*(4), 373-398.

Alenezi, A. (2014). Influences of the Mandated Presence of ICT in Saudi Arabia Secondary Schools. *International Journal of Information and Education Technology, 5*(8), 638-644.

AlKahtani, S. (2007). CALL integration: A proposal for in-service CALL training program for EFL faculty at Saudi Arabian Universities. College of Language & Translation Research Centre, 42, 1-16.

Alkash, K. A. M., & Al-Dersi, Z. E. M. (2013). Advantages of using PowerPoint presentation in EFL classroom & the status of its use in Sebha University. *Journal of English Language & Translation Studies, 1(1), 3-15.*

Almalki, J., & Williams, N. (2012). A Strategy to Improve the usage of ICT in the Kingdom of Saudi Arabia primary school. *International Journal of Advanced Computer Science and Applications, 3*(10), 42-49.

Almekhlafi, A. G. (2006). The effect of computer assisted language learning (CALL) on United Arab Emirates English as a foreign language (EFL) school students' achievement and attitude. *Journal of Interactive Learning Research, 17*(2), 121-142.

Alqurashi, E., Gokbel, E. N., & Carbonara, D. (2017). Teachers' knowledge in content, pedagogy and technology integration: A comparative analysis between teachers in Saudi Arabia and United States. British Journal of Educational Technology, 48(6), 1414-1426. doi:10.1111/bjet.12514 .

Alshmrany, S., & Wilkinson, B. (2014). *Evaluating ICT use in Saudi Arabian secondary schools.* Paper presented at the 2014 International Conference on Advanced ICT (ICAICTE-2014).

Alshumaim, Y., & Alhassan, R. (2010). Current availability and use of ICT among secondary EFL teachers in Saudi Arabia: possibilities and reality. *Proceedings of Global Learn Asia Pacific 2010*, 523-532.

Alshumaimeri, Y. (2008). Perceptions and attitudes toward using CALL in English classrooms among Saudi secondary EFL teachers. *The JALT CALL Journal, 44*(2), 29-66.

Andrews, R. (2004). *The impact of ICT on literacy education*. New York: Routledge.

Archambault, L., & Crippen, K. (2009). Examining TPACK among K-12 online distance educators in the United States. *Contemporary issues in technology and teacher education, 9*(1), 71-88.

Archambault, L., & Oh-Young, C. (2009). *Putting the T in PCK: Exploring the nature of the TPACK framework among K-12 online educators using a web-based survey.* Paper presented at the Society for Information Technology & Teacher Education International Conference.

Arishi, S. A. (2012). Attitudes of students at Saudi Arabia's industrial colleges toward Computer-Assisted Language Learning. *Teaching English with Technology* (1), 38-52.

Arslan, R., & Sahin-Kızıl, A. (2010). How can the use of blog software facilitate the writing process of English language learners? *Computer Assisted Language Learning, 23*(3), 183-197.

Azizinezhad, M., Hashemi, M., & Darvishi, S. (2013). Application of cooperative learning in EFL classes to enhance the students' language learning. *Procedia-Social and Behavioral Sciences, 93*, 138-141.

Baki, R. (2004). Gender-segregated education in Saudi Arabia: Its impact on social norms and the Saudi Labor Market. *Education Policy Analysis Archives, 12*(28).

Banerjee, A., & Chaudhury, S. (2010). Statistics without tears: Populations and samples. *Industrial psychiatry journal, 19*(1), 60.

Baser, D., Kopcha, T. J., & Ozden, M. Y. (2016). Developing a technological pedagogical content knowledge (TPACK) assessment for preservice teachers learning to teach English as a foreign language. Computer Assisted Language Learning, 29(4), 749- 764. doi:10.1080/09588221.2015.1047456.

Beatty, K. (2013). *Teaching & researching: Computer-assisted language learning*: Routledge.

Beauchamp, G. (2004). Teacher use of the interactive whiteboard in primary schools: towards an effective transition framework. *Technology, pedagogy and education, 13*(3), 327-348.

Becker, J. D. (2006). Digital equity in education: A Multilevel examination of differences in and relationships between computer access, computer use and state-level technology policies. *education policy analysis archives, 15*(3), 1-38.

Berg, B. L., Lune, H., & Lune, H. (2004). *Qualitative research methods for the social sciences* (Vol. 5): Pearson Boston, MA.

Bingimlas. K (2009). Barriers to the Successful Integration of ICT in Teaching and Learning Environments: A Review of the Literature. *Eurasia Journal of Mathematics, Science & Technology Education, 5*(3), 235-245.

Brantley-Dias, L., & Ertmer, P. A. (2013). Goldilocks and TPACK: Is the construct 'just right?'. *Journal of Research on Technology in Education, 46*(2), 103-128.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology, 3*(2), 77-101.

Brown, H. D. (2007). *Teaching by principles, an interactive approach to language pedagogy*. The United States of America: Pearson Education.

Brupbacher, L., & Wilson, D. (2009). *Developing TPCK (Technological Pedagogical Content Knowledge) in teacher preparation programs.* Paper presented at the Society for Information Technology & Teacher Education International Conference.

Bryman, A. (2015). *Social research methods*: Oxford university press.

Bygate, M. (2001). Speaking in Carter, R. and Nunan, D.(Eds.). *The Cambridge Guide to Teaching English to Speakers of Other Languages*. Cambridge: Cambridge University.

Cardinal, R. N., & Aitken, M. R. (2013). *ANOVA for the behavioral sciences researcher*: Psychology Press.

Carr, L. T. (1994). The strengths and weaknesses of quantitative and qualitative research: what method for nursing? *Journal of advanced nursing, 20*(4), 716-721.

Celik, S. (2013). Internet-assisted technologies for English language teaching in Turkish universities. *Computer Assisted Language Learning, 26*(5), 468-483.

Chai, C. S., Koh, J. H. L., & Tsai, C.-C. (2013). A Review of Technological Pedagogical Content Knowledge. *Educational Technology & Society, 16*(2), 31-51.

Chang, C., & Shu, M. (2000). *The experiment research for English teaching with small class of junior high school. The Ministry of Education.* Paper presented at the 2000 Academic Year Research Project of Taiwan High School Technician Conference.

Chapelle, C. (2001). *Computer applications in second language acquisition*: Cambridge University Press.

Cheng, K. (2017). A survey of native language teachers' technological pedagogical and content knowledge (TPACK) in Taiwan. Computer Assisted Language Learning, 30(7), 692-708. doi:10.1080/09588221.2017.1349805 .

Chapelle, C. A. (2005). 41 Computer Assisted Language Learning. *The handbook of educational linguistics*, 585-595. Black Publishing Ltd.

Chen, H. (2001). *Evaluating five speech recognition programs for ESL learners.* Paper presented at the ITMELT (Information Technology and Multimedia in English Language Teaching) 2001 Conference.

Chen, L. (2005). Examining the role of the computer in EFL instruction. *Electronic Journal for the Integration of Technology in Education, 4*(1), 30-63.

Chiu, T.-L., Liou, H.-C., & Yeh, Y. (2007). A study of web-based oral activities enhanced by automatic speech recognition for EFL college learning. *Computer Assisted Language Learning, 20*(3), 209-233.

Clark, V. L. P., & Creswell, J. W. (2008). *The mixed methods reader*: Sage.

Clark, V. L. P., & Creswell, J. W. (2011). Designing and conducting mixed methods research: Thousand Oaks, CA: Sage.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences Lawrence Earlbaum Associates. *Hillsdale, NJ*, 20-26.

Collins, J. (2004). Education Techniques for Lifelong Learning: Giving a PowerPoint Presentation: The Art of Communicating Effectively 1. *Radiographic, 24*(4), 1185-1192.

Cooksey, R. W. (2007). *Illustrating Statistical Procedures: For Business, Behavioural and Social Science Research*: Tilde University Press.

Corbetta, P. (2003). *Social Research: Theory, Methods and Techniques*: Sage.

Cox, S. (2008). A conceptual analysis of technological pedagogical content knowledge. (Unpublished doctoral dissertation), Brigham Young University Provo, USA.

Cox, S., & Graham, C. R. (2009). Using an elaborated model of the TPACK framework to analyze and depict teacher knowledge. *TechTrends*, 53(5), 60-71.

Crandall, J. (2012). Content-based instruction and content and language integrated learning. *The Cambridge Guide to Pedagogy and Practice in Second Language Teaching*, 149-160.

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*: Sage publications.

Creswell, J. W., & Clark, V. L. P. (2007). Designing and conducting mixed methods research.

Crystal, D. (2012). *English as a global language*: Cambridge University Press.

Dawes, L., & Wegerif, R. (2004). *Thinking and learning with ICT: Raising achievement in primary classrooms*. New York: Routledge.

Dinh, H. T. B. (2015). *Factors influencing English as a Foreign Language (EFL) teachers' use of Information and Communication Technology (ICT) in classroom practice: A mixed methods study at Hanoi University, Vietnam.* RMIT University.

Doumato, E. A. (2003). Education in Saudi Arabia: Gender, jobs, and the price of religion. In *Women and Globalization in the Arab Middle East*, 239-258.

Drnyei, Z., & Ushioda, E. (2001). Teaching and researching motivation. Harlow. *Longman. Gorham, J. and Christophel, D.(1992). Students perception of teacher behaviors as motivating and demotivating factors in college classes. Communication Quarterly, 40*, 23952.

Drost, E. A. (2011). Validity and reliability in social science research. *Education Research and Perspectives, 38*(1), 105.

Egbert, J. (2005). *CALL essentials: Principles and practice in CALL classrooms*: Teachers of English to Speakers of Other Languages.

Elazdz, M. F. (2008). *Attitudes of students and teachers towards the use of interactive whiteboards in EFL classrooms.* Bilkent University, Ankara, Turkey.

Elyas, T. (2010). Saudi Arabian educational history: Impacts on English language teaching. *Education Business and Society: Contemporary Middle Eastern Issues, 3*(2), 136-145.

Ercetin, G. (2003). Exploring ESL learners' use of hypermedia reading glosses. *CALICO journal*, 261-283.

Ericsson, K. A. (2006). The influence of experience and deliberate practice on the development of superior expert performance. In *The Cambridge Handbook of Expertise and Expert Performance*, 683-703.

Fotos, S., & Brown, C. (2004). *New Perspective on CALL for Teachers*. New York: Prentice Hall.

Frey, J. H., & Oishi, S. M. (1995). *How to conduct interviews by telephone and in person. The Survey Kit, Volume 4*: ERIC.

Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Educational research: An introduction*: Longman Publishing.

Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The qualitative report, 8*(4), 597-606.

Graham, C. R. (2011). Theoretical considerations for understanding technological pedagogical content knowledge (TPACK). *Computers & Education, 57*(3), 1953-1960.

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse education today, 24*(2), 105-112.

Granger, C., Morbey, M., Lotherington, H., Owston, R., & Wideman, H. (2002). Factors contributing to teachers' successful implementation of IT. *Journal of Computer Assisted Learning, 18*(4), 480-488.

Gray, D. E. (2013). *Doing research in the real world*. London: Sage Publications.

Green, S. B., & Salkind, N. J. (2010). *Using SPSS for Windows and Macintosh: Analyzing and understanding data*: Prentice Hall Press.

Hamdan, A. K. (2015). *Teaching and Learning in Saudi Arabia: Perspectives from Higher Education*: Springer.

Hanson-Smith, E. (2000). Technology-Enhanced Learning Environments. Case Studies in TESOL Practice Series.

Harrington, M., & Levy, M. (2001). CALL begins with a "C": interaction in computer-mediated language learning. *System, 29*(1), 15-26.

Harris, J., Mishra, P., & Koehler, M. (2009). Teachers' technological pedagogical content knowledge and learning activity types: Curriculum-based technology integration reframed. *Journal of Research on Technology in Education, 41*(4), 393-416.

Harvey, D., & Caro, R. (2017). Herring, M.C., Koehler, M.J., & Mishra, P. (Eds.) (2016). *Handbook of Technological Pedagogical Content Knowledge (TPACK) for Educators.* (2nd edition). New York: Routledge. .

Heck, R. H., & Thomas, S. L. (2015). *An Introduction to Multilevel Modeling Techniques: MLM and SEM Approaches Using Mplus*: Routledge.

Helm, F. (2009). Language and culture in an online context: what can learner diaries tell us about intercultural competence? *Language and Intercultural Communication, 9*(2), 91-104.

Hew, S.-H., & Ohki, M. (2001). A study on the effectiveness and usefulness of animated graphical annotation in Japanese CALL. *ReCALL, 13*(2), 245-260.

Hubbard, P., & Levy, M. (2006). The scope of CALL education. *Teacher education in CALL*, 3-20.

Hughes, J. E., & Scharber, C. M. (2008). Leveraging the development of English TPCK within the deictic nature of literacy. *Handbook of technological pedagogical content knowledge (TPCK) for educators*, 87-106.

Hui, W., Hu, P. H., Clark, T. H., Tam, K. Y., & Milton, J. (2008). Technology-assisted learning: a longitudinal field study of knowledge category, learning effectiveness and satisfaction in language learning. *Journal of Computer Assisted Learning, 24*(3), 245-259.

Issa, J. H., & Jamil, H. (2012). Criteria affecting pre-service TESOL teachers' attitudes towards using CD-ROM dictionaries. *English Language Teaching, 5*(5), 118.

Jamieson-Proctor, R., Finger, G., & Albion, P. (2010). Auditing the TK and TPACK confidence of pre-service teachers: are they ready for the profession? *Australian Educational Computing, 25*(1), 8-17.

Jang, S.-J. (2010). Integrating the interactive whiteboard and peer coaching to develop the TPACK of secondary science teachers. *Computers & Education, 55*(4), 1744-1751.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of mixed methods research, 1*(2), 112-133.

Jordan, K. (2014). *Adapting an instrument to measure teacher TPACK*. Paper presented at the Now It's Personal-ACEC2014, Adelaide, Australia.

Jr.Reyes, V. C., Reading, C., Doyle, H., & Gregory, S. (2017). Integrating ICT into teacher education programs from a TPACK perspective: Exploring perceptions of university lecturers. *Computers & Education*, 1151-19 . doi:10.1016/j.compedu.2017.07.009 .

Kajornboon, A. B. (2005). Using interviews as research instruments. *E-journal for Research Teachers, 2*(1).

Karatas, I., Tunc, M. P., Yilmaz, N., & Karaci, G. (2017). An Investigation of Technological Pedagogical Content Knowledge, Self-Confidence, and Perception of Pre- Service Middle School Mathematics Teachers towards Instructional Technologies. *Journal Of Educational Technology & Society, 20*(3), 122-132. .

Khan, I. A. (2011). Learning difficulties in English: Diagnosis and pedagogy in Saudi Arabia. *Educational Research, 2*(7), 1248-1257.

Khorrami-Arani, O. (2001). Researching computer self-efficacy. *International Education Journal, 2*(4), 17-25.

Kilickaya, F. (2007). The Effect of Computer Assisted Language Learning on Turkish Learners' Achievement on the TOEFL Exam. *Teaching English with Technology A Journal for Teachers of English, 7*(1), 1642-1027.

Kim, H. K. (2008). Beyond motivation: ESL/EFL teachers' perceptions of the role of computers. *CALICO journal, 25*(2), 241-259.

Koehler, M., & Mishra, P. (2005). What happens when teachers design educational technology? The development of technological pedagogical content knowledge. *Journal of educational computing research, 32*(2), 131-152.

Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)? *Contemporary issues in technology and teacher education, 9*(1), 60-70.

Koyama, T., & Takeuchi, O. (2007). Does look-up frequency help reading comprehension of EFL learners? Two empirical studies of electronic dictionaries. *CALICO journal, 25*(1), 110-125.

Kurt, G., Mishra, P., & Kocoglu, Z. (2013). *Technological pedagogical content knowledge development of Turkish pre-service teachers of English.* Paper presented at the Society for Information Technology & Teacher Education International Conference.

Lan, Y.-J., Sung, Y.-T., & Chang, K.-E. (2009). Let us read together: Development and evaluation of a computer-assisted reciprocal early English reading system. *Computers & Education, 53*(4), 1188-1198.

Lee, C., & Kim, C. (2017). A technological pedagogical content knowledge based instructional design model: a third version implementation study in a technology integration course. *Educational Technology Research & Development, 65*(6), 1627-1654. doi:10.1007/s11423-017-9544-z .

Levy, M. (1997). *Computer-assisted language learning: Context and conceptualization*: Oxford University Press.

Levy, M. (2009). Technologies in use for second language learning. *The Modern Language Journal, 93*(s1), 769-782.

Levy, M., & Stockwell, G. (2013). *CALL dimensions: Options and issues in computer-assisted language learning*: Routledge.

Lincoln, Y. S., & Guba, E. G. (1986). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New directions for program evaluation, 1986*(30), 73-84.

Liu, S., Liu, H., Yu, Y., Li, Y., & Wen, T. (2014). TPACK: A New Dimension to EFL Teachers' PCK. *Journal of Education and Human Development, 3*(2), 681-693.

Madyarov, I. (2009). Designing a workable framework for evaluating distance language instruction. *CALICO journal, 26*(2), 290-308.

Mahdi, H. S., & Al-Dera, A. S. a. (2013). The Impact of Teachers' Age, Gender and Experience on the Use of Information and Communication Technology in EFL Teaching. *English Language Teaching, 6*(6), 57.

Mandell, S., Sorge, D. H., & Russell, J. D. (2002). Tips for technology integration. *TechTrends, 46*(5), 39-43.

Marshall, S. (2007). *Strategic Leadership of Change in Higher Education: What's New?* : Routledge.

Meo, S. A., Shahabuddin, S., Al Masri, A. A., Ahmed, S. M., Aqil, M., Anwer, M. A., & Al-Drees, A. M. (2013). Comparison of the impact of PowerPoint and chalkboard

in undergraduate medical teaching: an evidence based study. *J Coll Physicians Surg Pak, 23*(1), 47-50.

Ministry of Economy and Planning. (2014). About Saudi Arabia. Retrieved from http://www.mep.gov.sa/themes/GoldenCarpet/index.jsp - 1415053822389

Mishra, P., & Koehler, M. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *The Teachers College Record, 108*(6), 1017-1054.

Mishra, P., & Koehler, M. J. (2008). *Introducing technological pedagogical content knowledge.* Paper presented at the annual meeting of the American Educational Research Association.

Mishra, P., & Koehler, M. J. (2008). *Introducing technological pedagogical content knowledge.* Paper presented at the annual meeting of the American Educational Research Association.

Muhamad, N. A. B. (2014). Investigating the Roles of Motivation and Technological Pedagogical Content Knowledge (TPACK) in Computer-Mediated-Communication (CMC) Speaking Skills Instruction. *International Journal of Applied Linguistics and English Literature, 3*(2), 112-130.

Murray, D. E. (2008). From marginalisation to transformation: How ICT is being used in ESL learning today. *International Journal of Pedagogies and Learning, 4*(5), 20-35.

Neri, A., Cucchiarini, C., & Strik, H. (2008). The effectiveness of computer-based speech corrective feedback for improving segmental quality in L2 Dutch. *ReCALL, 20*(2), 225-243.

Neri, A., Mich, O., Gerosa, M., & Giuliani, D. (2008). The effectiveness of computer assisted pronunciation training for foreign language learning by children. *Computer Assisted Language Learning, 21*(5), 393-408.

Nicholl, B., Flutter, J. A., Hosking, I. M., & Clarkson, P. (2013). Transforming practice in Design and Technology: evidence from a classroom-based research study of students' responses to an intervention on inclusive design. *Curriculum Journal, 24*(1), 86-102.

Oyaid, A. (2009). *Education Policy in Saudi Arabia and its Relation to Secondary School Teachers' ICT Use, Perceptions, and Views of the Future of ICT in Education.* (Unpublished Doctoral dissertation), University of Exeter, London. Retrieved from http://hdl.handle.net/10036/69537

Oyaid, A. (2010). Secondary student's perceptions of information and communication technology and their usage of it inside and outside of school in Riyadh City, Saudi Arabia. *International Journal of Applied Educational Studies, 7*(1), 27-33.

Ozsevik, Z. (2010). *The use of Communicative Language Teaching (CLT): Turkish EFL Teachers' perceived difficulies in implmenting CLT in Turky.* University of Illinois at Urbana-Champaign.

Pan, C.-Y., & Wu, H.-Y. (2013). The cooperative learning effects on English reading comprehension and learning motivation of EFL freshmen. *English Language Teaching, 6*(5), p13.

Patton, M. Q. (1990). *Qualitative evaluation and research methods*: SAGE Publications.

Peels, R. (2010). What is ignorance? *Philosophia, 38*(1), 57-67.

Pierson, M. E. (2001). Technology integration practice as a function of pedagogical expertise. *Journal of Research on Computing in Education, 33*(4), 413-430.

Ploog, B. O., Scharf, A., Nelson, D., & Brooks, P. J. (2013). Use of computer-assisted technologies (CAT) to enhance social, communicative, and language development in children with autism spectrum disorders. *Journal of autism and developmental disorders, 43*(2), 301-322.

Priest, W. C. (2007). What is the Common Ground between TCPK (Technological Pedagogical Content Knowledge) and Learning Objects? *Technology and Teachers Education Annual, 18*(4), 2258.

Punch, K. F. (2009). *Introduction to research methods in education*: Sage.

Rahimi, M., & Yadollahi, S. (2011). ICT use in EFL classes: A focus on EFL teachers' characteristics. *World Journal of English Language, 1*(2), p17.

Rahman, M. M., & Alhaisoni, E. (2013). Teaching English in Saudi Arabia: Prospects and challenges.

Richards, J. C., & Rodgers, T. S. (2014). *Approaches and methods in language teaching*: Cambridge University Press.

Roe, B., Smith, S., & Burns, P. C. (2011). *Teaching Reading in Today's Elementary Schools*: Cengage Learning.

Sasaki, M. (2011). Effects of Varying Lengths of Study-Abroad Experiences on Japanese EFL Students' L2 Writing Ability and Motivation: A Longitudinal Study. *TESOL Quarterly, 45*(1), 81-105.

Schmidt, D. A., Baran, E., Thompson, A. D., Mishra, P., Koehler, M. J., & Shin, T. S. (2009). Technological Pedagogical Content Knowledge (TPACK) The Development and Validation of an Assessment Instrument for Preservice Teachers. *Journal of Research on Technology in Education, 42*(2), 123-149.

Schmidt, D. A., Baran, E., Thompson, A. D., Mishra, P., Koehler, M. J., & Shin, T. S. (2009). Technological Pedagogical Content Knowledge (TPACK) The Development and Validation of an Assessment Instrument for Preservice Teachers. *Journal of Research on Technology in Education, 42*(2), 123-149.

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for information, 22*(2), 63-75.

Shih, R.-C. (2011). Can Web 2.0 technology assist college students in learning English writing? Integrating Facebook and peer assessment with blended learning. *Australasian Journal of Educational Technology, 27*(5), 829-845.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational researcher, 15*, 4-14.

Somekh, B. (2007). *Pedagogy and learning with ICT: Researching the art of innovation*: Routledge.

Stockwell, G. (2007). A review of technology choice for teaching language skills and areas in the CALL literature. *RECALL, 19*(2), 105.

Syed, Z. (2003). The sociocultural context of English language teaching in the Gulf. *TESOL Quarterly*, 337-341.

Tashakkori, A., & Teddlie, C. (2003). Handbook of mixed methods in social & behavioral research: Sage Publications, Thousand Oaks.

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International journal of medical education, 2*, 53-55.

Thompson, A., & Mishra, P. (2007). Breaking news: TPCK becomes TPACK! *Journal of Computing in Teacher Education, 24*(2), 38.

Topkaya, E. Z. (2010). Pre-service English language teachers' perceptions of computer self-efficacy and general self-efficacy. *TOJET: The Turkish Online Journal of Educational Technology, 9*(1), 143-156.

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & health sciences, 15*(3), 398-405.

Wang, T. (2010). Educational benefits of multimedia skills training. *TechTrends, 54*(1), 47-57.

Warschauer, M., & Healey, D. (1998). Computers and language learning: An overview. *Language teaching, 31*(02), 57-71.

Warschauer, M., & Liaw, M. (2011). Emerging technologies for autonomous language learning. *Studies in Self-Access Learning Journal, 2*(3), 107-118.

Weems, G. H., & Onwuegbuzie, A. J. (2001). The impact of midpoint responses and reverse coding on survey data. *Measurement and Evaluation in Counseling and Development, 34*(3), 166.

Weller, M. (2013). *Delivering learning on the Net: The why, what & how of online education*: Routledge.

Wong, A., Quek, C., Divaharan, S., Liu, W., Peer, J., & Williams, M. (2006). Singapore Students' and teachers' perceptions of computer-supported Project Work classroom learning environments. *Journal of Research on Technology in Education, 38*(4), 449-479.

Wu, W.-c. V., & Wu, P.-h. N. (2008). Creating and authentic EFL learning environment to enhance student motivation to study English. *Asian EFL Journal, 10*(4), 211-226.

Yubune, E., Kanda, A., & Tabuchi, R. (2007). Effects of different computer display methods of reading units on learners' reading efficiency. *Language Education & Technology, 44*,

APPENDICES

Appendix 1 – UNE ethics approval

Ethics Office
Research Development & Integrity
Research Division
Armidale NSW 2351
Australia
Phone *02 6773 3449*
Fax *02 6773 3543*
jo-ann.sozou@une.edu.au
www.une.edu.au/research-services

HUMAN RESEARCH ETHICS COMMITTEE

MEMORANDUM TO: Dr Mitchell Parkes Mr Nicolas Gromik & Mr Sami Alghamdi

School of Education

This is to advise you that the Human Research Ethics Committee has approved the following:

PROJECT TITLE:	The effect of EFL teachers' Technological Pedagogical Content Knowledge (TPACK) on EFL teaching in Saudi Arabian male public Secondary schools
APPROVAL No.:	HE15-038
COMMENCEMENT DATE:	01 April 2015
APPROVAL VALID TO:	01 April 2016
COMMENTS:	Nil. Conditions met in full

The Human Research Ethics Committee may grant approval for up to a maximum of three years. For approval periods greater than 12 months researchers are required to submit an application for renewal at each twelve-month period. All researchers are required to submit a Final Report at the completion of their project. The Progress/Final Report Form is available at the following web address:
http //www.une.edu.au/research/research-services/rdi/ethics/hre/hrec-forms

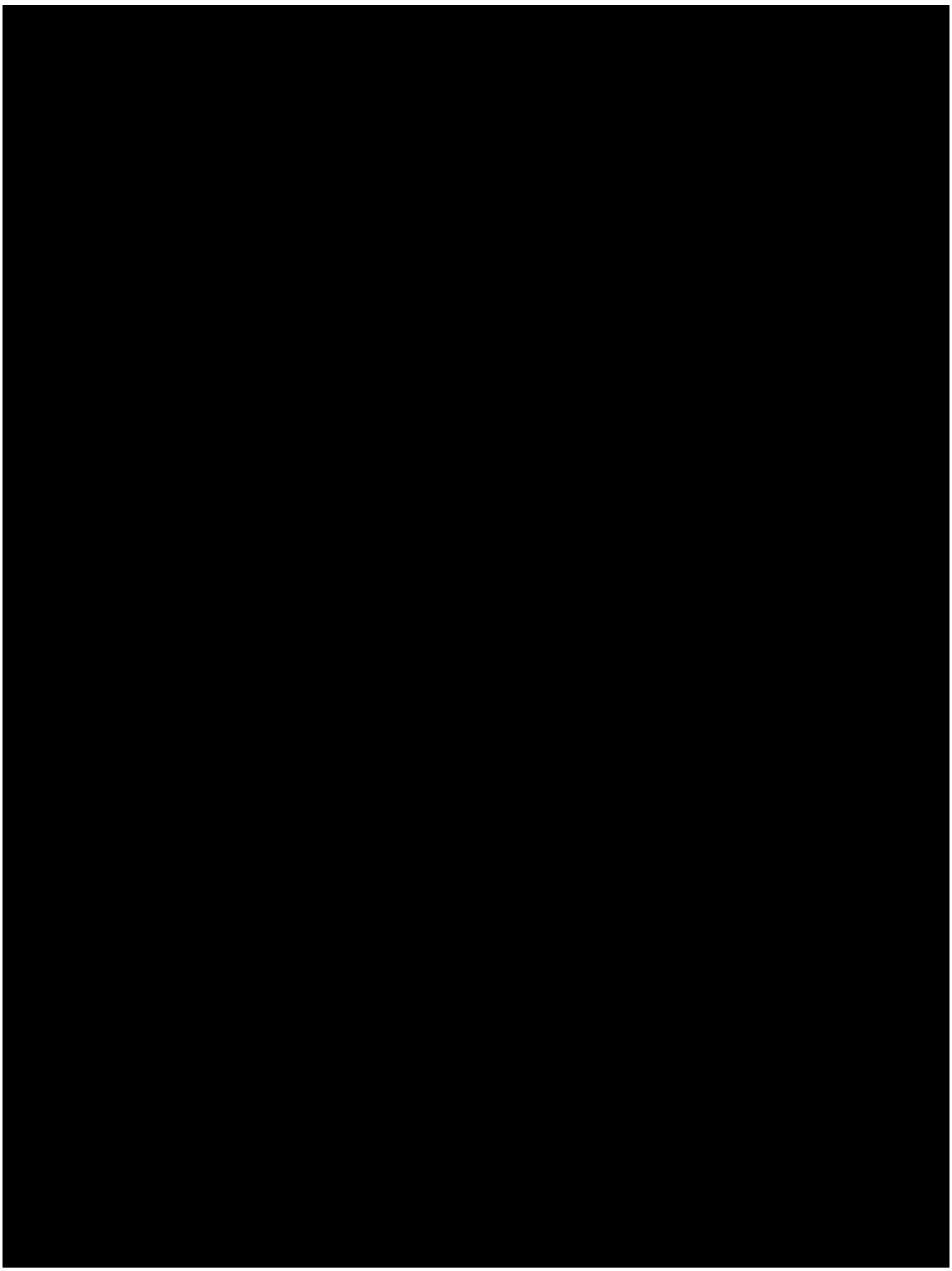
The NHMRC National Statement on Ethical Conduct in Research Involving Humans requires that researchers must report immediately to the Human Research Ethics Committee anything that might affect ethical acceptance of the protocol. This includes adverse reactions of participants proposed changes in the protocol and any other unforeseen events that might affect the continued ethical acceptability of the project.

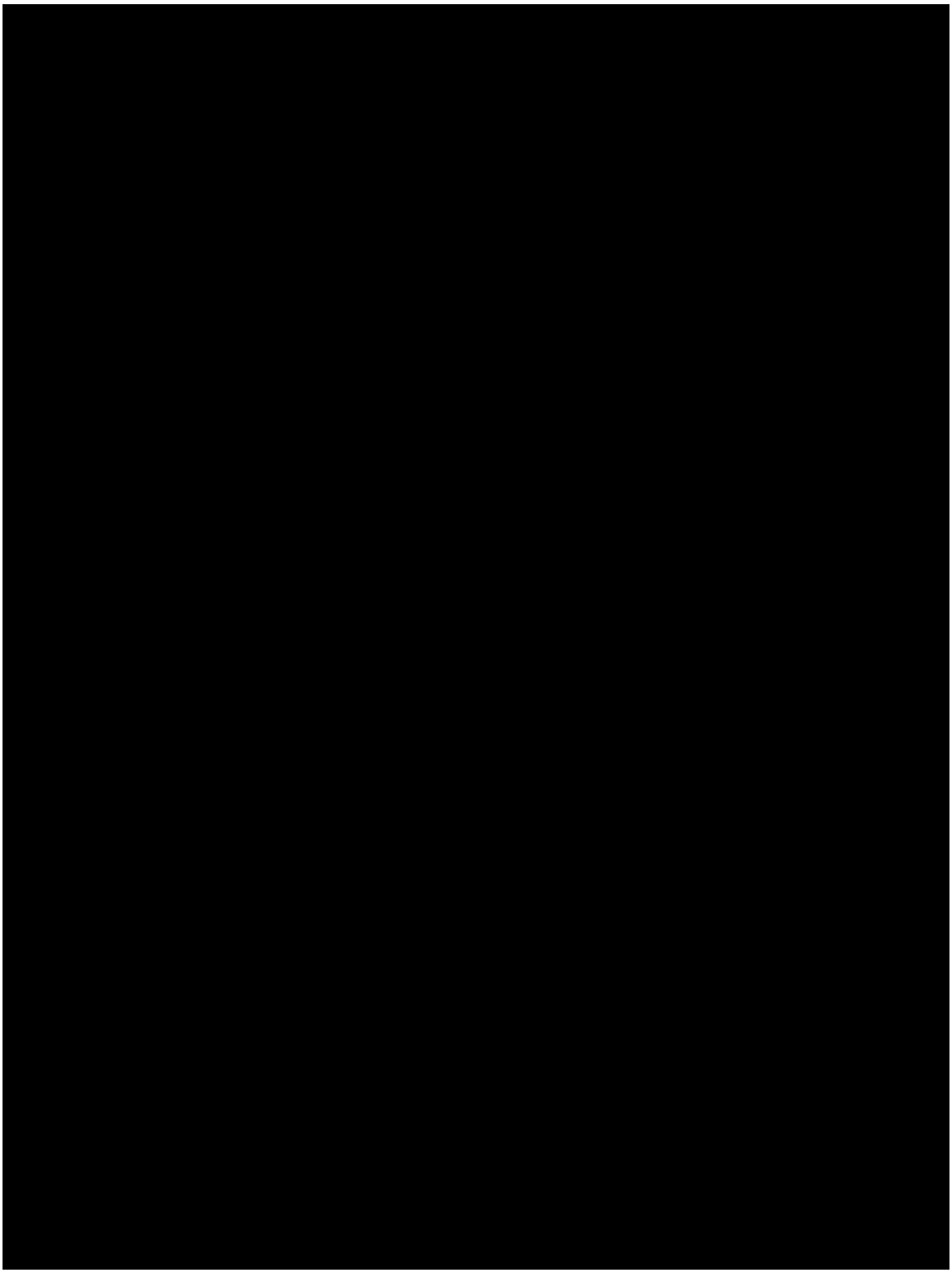
In issuing this approval number it is required that all data and consent forms are stored in a secure location for a minimum period of five years. These documents may be required for compliance audit processes during that time. If the location at which data and documentation are retained is changed within that five year period the Research Ethics Officer should be advised of the new location.

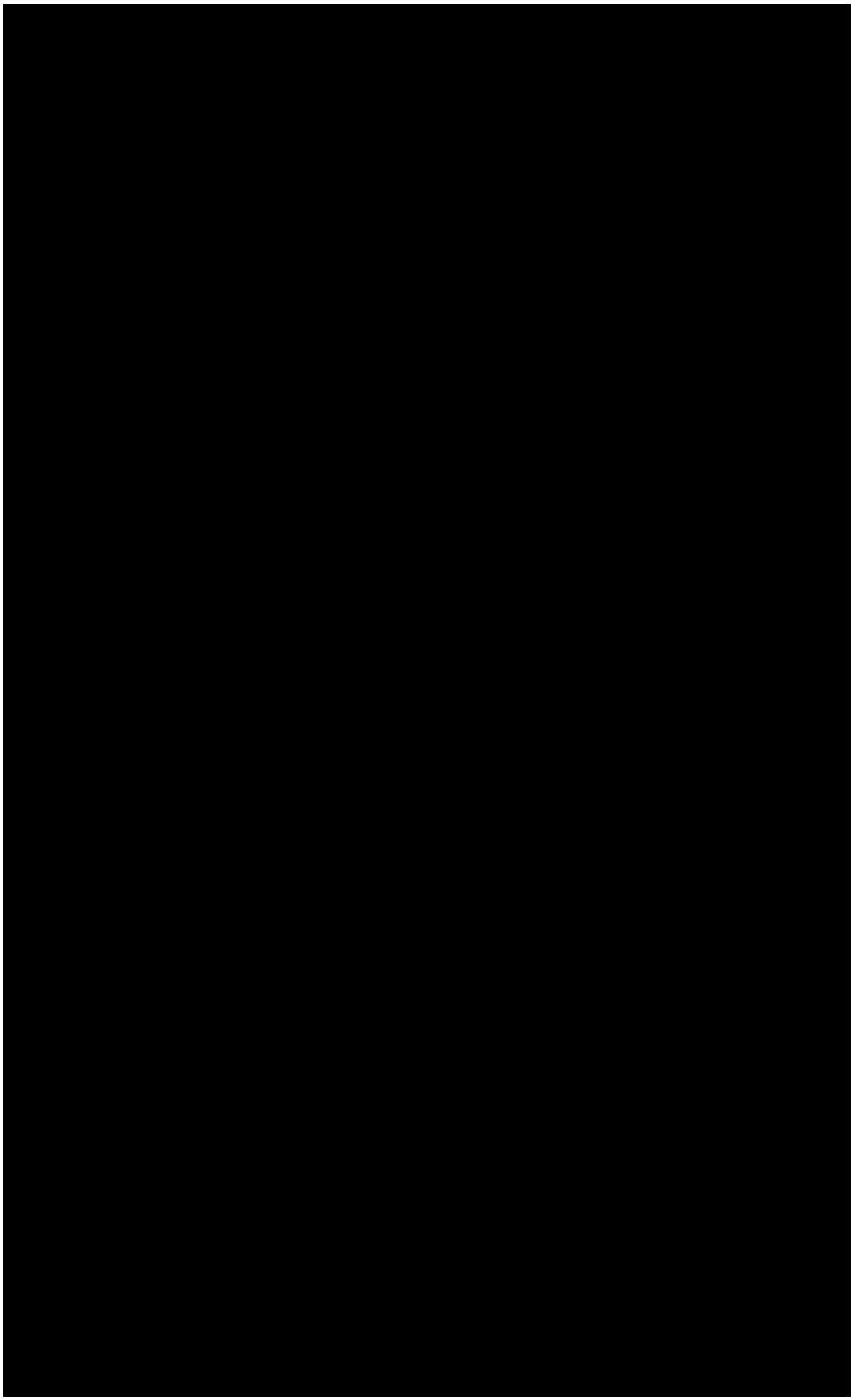
[redacted]
Jo-Ann Sozou
Secretary/Research Ethics Officer

18/03/2015 A15/17

Appendix 2 – MOE ethics approval







Appendix 3 – Web-based survey

The survey should take no more than 10 minutes. Please answer each question to the best of your knowledge. Your thoughtfulness and candid responses will be greatly appreciated. All responses and information provided will be kept completely confidential and will not be disseminated in any form at any time.

If you agree to participate then kindly click start to complete the survey.

Start the Survey

Demographic information Please indicate the right answer:				
1	Age range:			
	25-30	31-35	36-40	Over 40
2	Years of EFL teaching:			
	Less than 1	1-5	5-10	Over 10
3	I teach in a school located in:			
		Urban area	Non-urban area	
4	My highest qualification in teaching EFL is:			
	Bachelor (Art)	Bachelor (Education)	Master	PhD
5	My highest qualification was from a university in:			
	Saudi Arabia		Overseas	

ICT competency

Please indicate to what extent you agree on each of the following statements:

In my classroom I use ICT to:

6	Create and edit texts (e.g. *word, Excel*)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
7	Create presentations (e.g. *PowerPoint*)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
8	Create graphics (e.g. *Paint*)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
9	Access Internet to collect information				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
10	Communicate using chatting tools (e.g. *email, cha, forums.* etc.)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
11	Access online dictionaries, translator and thesaurus				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
12	Communicate via online visuals (e.g. *Skype*)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
13	Develop web page (e.g. FrontPage)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
14	Demonstrate educational software (e.g. *learning objects*)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
15	Present instructional film (e.g. *video, CD, DVD*..etc.)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree

16	Show presentations through multimedia computers (e.g. *Data show, overhead Projector*)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
17	Engage in virtual worlds (e.g. *Secondlife*)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
18	Teach through smart board				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
19	Access online encyclopedias				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
20	Develop multimedia (e.g. *Hyperstudio*)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree

Attitudes towards ICT in EFL teaching

Please indicate to what extent you agree on each of the following statements:

21	I think that using ICT to EFL will make teaching simple.				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
22	I think that using ICT will improve EFL teaching				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
23	I think that using ICT offers real advantages over the traditional method of EFL instruction				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
24	I think that using ICT in EFL teaching will be boring for EFL students				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
25	I believe that EFL students should have access to ICT facilities in each classroom				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
26	I believe that EFL students enjoy using ICT in the classroom				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
27	I believe that using ICT will interfere with my EFL teaching				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
28	I feel confident to use ICT in EFL teaching				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
29	I feel nervous when using ICT in EFL teaching				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
30	I believe that using ICT will make EFL teaching more interesting				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
31	I want to use ICT in an EFL classroom because it will develop student competences				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
32	I want to use new ICT technology to enhance my EFL teaching				

Attitudes towards ICT in EFL teaching

Please indicate to what extent you agree on each of the following statements:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
33	I am interested to find new approaches integrating ICT in EFL teaching				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
34	I think using ICT will waste time and limited student's outcome				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
35	I think that ICT facilities complicate the EFL tasks when teaching				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree

TPACK

Please indicate to what extent you agree on each of the following statements:

36	I know how to solve my own technical problems				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
37	I know many different types of ICT technologies				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
38	I can chose the right ICT to enhance the content of my EFL lesson				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
39	I know how to integrate ICT to facilitate communicative EFL approach				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
40	I have the knowledge about ICT applications for EFL skills teaching				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
41	I know how to use ICT to evaluate EFL students skills				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
42	I know how to design a software to enhance EFL communicative competency				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
43	I know how to use different ICT tools for EFL teaching				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
44	I know how to adopt ICT in my EFL teaching style effectively				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
45	I use ICT in diverse EFL teaching strategies to facilitate the instruction of EFL				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree

46	I can use ICT in giving EFL students test that address both lower and higher order thinking skills				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
47	I implement ICT in my EFL teaching to help slow learners				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
48	I can select effective teaching strategies that integrate ICT in an EFL teaching				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
49	I have the technical ICT ability that I need to use technology in an EFL speaking skill				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
50	I can learn about ICT integration in EFL easily				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree

Thank you for taking time to complete this survey. In order to increase the quality of the current study, you have been invited to take part in an semi-structured interview. If you wish participate please provide your name and an email contact below.

Name:
Email:

Appendix 4.1– Frequency distributions - ICT Attitudes (Questions 1 - 15)

Q1. Create and edit text

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	2.8	2.8	2.8
	Disagree	6	8.5	8.5	11.3
	Neutral	17	23.9	23.9	35.2
	Agree	29	40.8	40.8	76.1
	Strongly agree	17	23.9	23.9	100.0
	Total	71	100.0	100.0	

Q2. Create presentations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	3	4.2	4.2	4.2
	Disagree	5	7.0	7.0	11.3
	Neutral	10	14.1	14.1	25.4
	Agree	31	43.7	43.7	69.0
	Strongly agree	22	31.0	31.0	100.0
	Total	71	100.0	100.0	

Q3. Create graphics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	3	4.2	4.2	4.2
	Disagree	10	14.1	14.1	18.3
	Neutral	15	21.1	21.1	39.4
	Agree	37	52.1	52.1	91.5
	Strongly agree	6	8.5	8.5	100.0
	Total	71	100.0	100.0	

Q4. Access Internet to collect information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	6	8.5	8.5	8.5
	Disagree	1	1.4	1.4	9.9
	Neutral	10	14.1	14.1	23.9
	Agree	32	45.1	45.1	69.0
	Strongly agree	22	31.0	31.0	100.0
	Total	71	100.0	100.0	

Q5. Communicate using chat tools

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	5	7.0	7.0	7.0
	Disagree	11	15.5	15.5	22.5
	Neutral	18	25.4	25.4	47.9
	Agree	31	43.7	43.7	91.5
	Strongly agree	6	8.5	8.5	100.0
	Total	71	100.0	100.0	

Q6. Access online dictionaries, translation and thesaurus

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	5	7.0	7.0	7.0
	Disagree	5	7.0	7.0	14.1
	Neutral	12	16.9	16.9	31.0
	Agree	31	43.7	43.7	74.6
	Strongly agree	18	25.4	25.4	100.0
	Total	71	100.0	100.0	

Q7. Communicate via video conferencing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	10	14.1	14.1	14.1
	Disagree	14	19.7	19.7	33.8
	Neutral	26	36.6	36.6	70.4
	Agree	18	25.4	25.4	95.8
	Strongly agree	3	4.2	4.2	100.0
	Total	71	100.0	100.0	

Q8. Develop web pages

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	12	16.9	16.9	16.9
	Disagree	10	14.1	14.1	31.0
	Neutral	30	42.3	42.3	73.2
	Agree	15	21.1	21.1	94.4
	Strongly agree	4	5.6	5.6	100.0
	Total	71	100.0	100.0	

Q9. Demonstrate educational software

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	4	5.6	5.6	5.6
	Disagree	6	8.5	32.4	14.1
	Neutral	23	32.4	38.0	46.5
	Agree	27	38.0	8.5	84.5
	Strongly agree	11	15.5	15.5	100.0
	Total	71	100.0	100.0	

Q10. Present instructional films

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	7	9.9	9.9	9.9
	Disagree	13	18.3	18.3	28.2
	Neutral	9	12.7	12.7	40.8
	Agree	27	38.0	38.0	78.9
	Strongly agree	15	21.1	21.1	100.0
	Total	71	100.0	100.0	

Q11. Show presentations using multimedia

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	4	5.6	5.6	5.6
	Disagree	2	2.8	2.8	8.5
	Neutral	9	12.7	12.7	21.1
	Agree	29	40.8	40.8	62.0
	Strongly agree	27	38.0	38.0	100.0
	Total	71	100.0	100.0	

Q12. Engage in virtual worlds

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	8	11.3	11.3	11.3
	Disagree	9	12.7	12.7	23.9
	Neutral	20	28.2	28.2	52.1
	Agree	27	38.0	38.0	90.1
	Strongly agree	7	9.9	9.9	100.0
	Total	71	100.0	100.0	

Q13. Teach using Smart Boards

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	5	7.0	7.0	7.0
	Disagree	3	4.2	4.2	11.3
	Neutral	13	18.3	18.3	29.6
	Agree	25	35.2	35.2	64.8
	Strongly agree	25	35.2	35.2	100.0
	Total	71	100.0	100.0	

Q14. Access online encyclopedias

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	8	11.3	11.3	11.3
	Disagree	4	5.6	5.6	16.9
	Neutral	22	31.0	31.0	47.9
	Agree	24	33.8	33.8	81.7
	Strongly agree	13	18.3	18.3	100.0
	Total	71	100.0	100.0	

Q15. Develop multimedia

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	4	5.6	5.6	5.6
	Disagree	11	15.5	15.5	21.1
	Neutral	20	28.2	28.2	49.3
	Agree	28	39.4	39.4	88.7
	Strongly agree	8	11.3	11.3	100.0
	Total	71	100.0	100.0	

Appendix 4.2 – Frequency distributions - ICT Attitudes (Questions 16 - 30)

Q16. I think that using ICT in EFL will make teaching simple

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	2.8	2.8	2.8
	Disagree	2	2.8	2.8	5.6
	Neutral	8	11.3	11.3	16.9
	Agree	27	38.0	38.0	54.9
	Strongly agree	32	45.1	45.1	100.0
	Total	71	100.0	100.0	

Q17. I think that using ICT will improve EFL teaching

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	1.4	1.4	1.4
	Neutral	6	8.5	8.5	9.9
	Agree	32	45.1	45.1	54.9
	Strongly agree	32	45.1	45.1	100.0
	Total	71	100.0	100.0	

Q18. I think that using ICT offers real advantages over the traditional method of EFL instruction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	1.4	1.4	1.4
	Neutral	9	12.7	12.7	14.1
	Agree	33	46.5	46.5	60.6
	Strongly agree	28	39.4	39.4	100.0
	Total	71	100.0	100.0	

Q19. I think that using ICT in EFL teaching will be boring for EFL students

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	26	36.6	36.6	36.6
	Disagree	25	35.2	35.2	71.8
	Neutral	7	9.9	9.9	81.7
	Agree	10	14.1	14.1	95.8
	Strongly agree	3	4.2	4.2	100.0
	Total	71	100.0	100.0	

Q20. I believe that EFL students should have access to ICT facilities in each classroom

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	1.4	1.4	1.4
	Disagree	1	1.4	1.4	2.8
	Neutral	10	14.1	14.1	16.9
	Agree	30	42.3	42.3	59.2
	Strongly agree	29	40.8	40.8	100.0
	Total	71	100.0	100.0	

Q21. I believe that EFL students enjoy using ICT in the classroom

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	2.8	2.8	2.8
	Neutral	6	8.5	8.5	11.3
	Agree	36	50.7	50.7	62.0
	Strongly agree	27	38.0	38.0	100.0
	Total	71	100.0	100.0	

Q22. I believe that using ICT will interfere with my EFL teaching

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	12	16.9	16.9	16.9
	Disagree	11	15.5	15.5	32.4
	Neutral	12	16.9	16.9	49.3
	Agree	30	42.3	42.3	91.5
	Strongly agree	6	8.5	8.5	100.0
	Total	71	100.0	100.0	

Q23. I feel confident to use ICT in my EFL teaching

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	9	12.7	12.7	12.7
	Agree	37	52.1	52.1	64.8
	Strongly agree	25	35.2	35.2	100.0
	Total	71	100.0	100.0	

Q24. I feel nervous when using ICT in my EFL teaching

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	18	25.4	25.4	25.4
	Disagree	36	50.7	50.7	76.1
	Neutral	8	11.3	11.3	87.3
	Agree	8	11.3	11.3	98.6
	Strongly agree	1	1.4	1.4	100.0
	Total	71	100.0	100.0	

Q25. I believe that using ICT will make my EFL teaching more interesting

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	7	9.9	9.9	9.9
	Agree	30	42.3	42.3	52.1
	Strongly agree	34	47.9	47.9	100.0
	Total	71	100.0	100.0	

Q26. I want to use ICT in an EFL classroom because it will develop student competences

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	7	9.9	9.9	9.9
	Agree	45	63.4	63.4	73.2
	Strongly agree	19	26.8	26.8	100.0
	Total	71	100.0	100.0	

Q27. I want to use new ICT technology to enhance my EFL teaching

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	1.4	1.4	1.4
	Neutral	8	11.3	11.3	12.7
	Agree	45	63.4	63.4	76.1
	Strongly agree	17	23.9	23.9	100.0
	Total	71	100.0	100.0	

Q28. I am interested to find new approaches integrating ICT in EFL teaching

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	1.4	1.4	1.4
	Neutral	12	16.9	16.9	18.3
	Agree	33	46.5	46.5	64.8
	Strongly agree	25	35.2	35.2	100.0
	Total	71	100.0	100.0	

Q29. I think using ICT will waste my students' time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	27	38.0	38.0	38.0
	Disagree	30	42.3	42.3	80.3
	Neutral	7	9.9	9.9	90.1
	Agree	5	7.0	7.0	97.2
	Strongly agree	2	2.8	2.8	100.0
	Total	71	100.0	100.0	

Q30. I think using ICT complicates EFL teaching

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	13	18.3	18.3	18.3
	Disagree	24	33.8	33.8	52.1
	Neutral	11	15.5	15.5	67.6
	Agree	17	23.9	23.9	91.5
	Strongly agree	6	8.5	8.5	100.0
	Total	71	100.0	100.0	

Appendix 4.3 – Frequency distributions - Teachers TPACK (Questions 31 - 45)

Q31. I know how to solve my own technical problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	18	25.4	25.4	25.4
	Agree	40	56.3	56.3	81.7
	Strongly agree	13	18.3	18.3	100.0
	Total	71	100.0	100.0	

Q32. I know how to use many different types of ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	1.4	1.4	1.4
	Disagree	2	2.8	2.8	4.2
	Neutral	15	21.1	21.1	25.4
	Agree	44	62.0	62.0	87.3
	Strongly agree	9	12.7	12.7	100.0
	Total	71	100.0	100.0	

Q33. I can choose the right ICT to enhance the content of my EFL lesson

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	2.8	2.8	2.8
	Neutral	12	16.9	16.9	19.7
	Agree	48	67.6	67.6	87.3
	Strongly agree	9	12.7	12.7	100.0
	Total	71	100.0	100.0	

Q34. I know how to integrate ICT to facilitate the communicative EFL approach

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	1.4	1.4	1.4
	Disagree	4	5.6	5.6	7.0
	Neutral	18	25.4	25.4	32.4
	Agree	40	56.3	56.3	88.7
	Strongly agree	8	11.3	11.3	100.0
	Total	71	100.0	100.0	

Q35. I have the knowledge to use ICT applications for EFL skills teaching

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	1.4	1.4	1.4
	Neutral	21	29.6	29.6	31.0
	Agree	37	52.1	52.1	83.1
	Strongly agree	12	16.9	16.9	100.0
	Total	71	100.0	100.0	

Q36. I know how to use ICT to evaluate EFL student skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	5.6	5.6	5.6
	Neutral	16	22.5	22.5	28.2
	Agree	40	56.3	56.3	84.5
	Strongly agree	11	15.5	15.5	100.0
	Total	71	100.0	100.0	

Q37. I know how to design software to enhance EFL communicative competency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	4	5.6	5.6	5.6
	Disagree	16	22.5	22.5	28.2
	Neutral	20	28.2	28.2	56.3
	Agree	23	32.4	32.4	88.7
	Strongly agree	8	11.3	11.3	100.0
	Total	71	100.0	100.0	

Q38. I know how to use different ICT tools for EFL teaching

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	2.8	2.8	2.8
	Disagree	4	5.6	5.6	8.5
	Neutral	16	22.5	22.5	31.0
	Agree	35	49.3	49.3	80.3
	Strongly agree	14	19.7	19.7	100.0
	Total	71	100.0	100.0	

Q39. I know how to adopt ICT in my EFL teaching style effectively

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	1.4	1.4	1.4
	Disagree	3	4.2	4.2	5.6
	Neutral	21	29.6	29.6	35.2
	Agree	36	50.7	50.7	85.9
	Strongly agree	10	14.1	14.1	100.0
	Total	71	100.0	100.0	

Q40. I use ICT in diverse EFL teaching strategies to facilitate the instruction of EFL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	1.4	1.4	1.4
	Disagree	5	7.0	7.0	8.5
	Neutral	17	23.9	23.9	32.4
	Agree	41	57.7	57.7	90.1
	Strongly agree	7	9.9	9.9	100.0
	Total	71	100.0	100.0	

Q41. I can use ICT in giving EFL students tests that address both lower and higher order thinking skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	2.8	2.8	2.8
	Disagree	3	4.2	4.2	7.0
	Neutral	14	19.7	19.7	26.8
	Agree	43	60.6	60.6	87.3
	Strongly agree	9	12.7	12.7	100.0
	Total	71	100.0	100.0	

Q42. I know how to implement ICT in my EFL teaching to help slow learners

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	2.8	2.8	2.8
	Disagree	3	4.2	4.2	7.0
	Neutral	16	22.5	22.5	29.6
	Agree	43	60.6	60.6	90.1
	Strongly agree	7	9.9	9.9	100.0
	Total	71	100.0	100.0	

Q43. I can select effective teaching strategies that integrate ICT in my EFL teaching

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	1.4	1.4	1.4
	Disagree	2	2.8	2.8	4.2
	Neutral	15	21.1	21.1	25.4
	Agree	40	56.3	56.3	81.7
	Strongly agree	13	18.3	18.3	100.0
	Total	71	100.0	100.0	

Q44. I have the technical ICT ability that I need to use technology to teach EFL speaking skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	1.4	1.4	1.4
	Neutral	15	21.1	21.1	22.5
	Agree	44	62.0	62.0	84.5
	Strongly agree	11	15.5	15.5	100.0
	Total	71	100.0	100.0	

Q45. I can learn about ICT integration in EFL classrooms easily

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	1.4	1.4	1.4
	Disagree	2	2.8	2.8	4.2
	Neutral	8	11.3	11.3	15.5
	Agree	45	63.4	63.4	78.9
	Strongly agree	15	21.1	21.1	100.0
	Total	71	100.0	100.0	

Appendix 4.4 – Independent t-tests - ICT competencies - School Location

Item	Urban (N=49)		Non-Urban (N=22)		t	p
	Mean	SD	Mean	SD		
Create and edit text	3.92	.954	3.36	1.05	2.197	.031
Create presentations	4.04	.912	3.59	1.30	1.679	.098
Create graphics	3.45	.959	3.50	1.06	-.201	.841
Access Internet to collect information	4.00	.979	3.64	1.40	1.261	.211
Communicate using chat tools	3.47	.960	2.95	1.21	1.922	.059
Access online dictionaries, translation and thesaurus	3.90	.895	3.36	1.50	1.869	.066
Communicate via video conferencing	2.94	.966	2.68	1.32	.921	.360
Develop web page	3.00	1.04	2.50	1.22	1.771	.081
Demonstrate educational software	3.61	.931	3.23	1.23	1.453	.151
Present instructional films	3.49	1.27	3.27	1.31	.656	.514
Show presentations using multimedia	4.08	1.07	3.91	1.06	.626	.533
Engage in virtual worlds	3.31	1.00	3.05	1.43	.883	.380
Teach using Smart Boards	3.84	1.21	3.95	1.04	-.394	.695
Access online encyclopedias	3.55	1.00	3.14	1.52	1.365	.177
Develop multimedia	3.45	1.00	3.14	1.17	1.155	.252

Significant at .05 level

Appendix 4.5 – Independent t-tests - ICT Attitudes - School Location

Item	Urban (N=49)		Non-Urban (N=22)		t	p
	Mean	SD	Mean	SD		
I think that using ICT in EFL will make teaching simple	4.10	.941	4.41	.959	-1.26	.210
I think that using ICT will improve EFL teaching	4.22	.798	4.55	.596	-1.69	.096
I think that using ICT offers real advantages over the traditional method of EFL instruction	4.20	.841	4.27	.631	-.342	.734
I think that using ICT in EFL teaching will be boring for EFL students	2.27	1.26	1.86	.990	1.326	.189
I believe that EFL students should have access to ICT facilities in each classroom	4.20	.889	4.18	.733	.103	.918
I believe that EFL students enjoy using ICT in the classroom	4.27	.785	4.18	.588	.445	.657
I believe that using ICT will interfere with my EFL teaching	3.27	1.20	2.73	1.35	1.676	.098
I feel confident to use ICT in my EFL teaching	4.20	.645	4.27	.703	-.403	.688
I feel nervous when using ICT in my EFL teaching	2.04	.815	2.32	1.25	-1.12	.268
I believe that using ICT will make my EFL teaching more interesting	4.33	.689	4.50	.598	-1.02	.311
I want to use ICT in an EFL classroom because it will develop student competences	4.18	.565	4.14	.640	.313	.755
I want to use new ICT technology to enhance my EFL teaching	4.08	.640	.640	1.43	-.313	.741
I am interested to find new approaches integrating ICT in EFL teaching	4.06	.801	4.32	.780	-1.26	.212
I think using ICT will waste my students' time	1.92	.997	2.00	1.07	-.312	.756
I think using ICT complicates EFL teaching	2.61	1.255	2.91	1.26	-.918	.366

Appendix 4.6 – Independent t-tests - Teacher TPACK - School Location

Note: TPACK items have been grouped according to their respective dimensions

Item	Urban mean	(N=49) SD	Non-Urban mean	(N=22) SD	t	p
Technological Knowledge						
I know how to solve my own technical problems	3.86	.612	4.09	.750	1.386	.170
I know how to use many different types of ICT	3.71	.736	4.09	.722	1.763	.082
I can learn about ICT integration in EFL classrooms easily	3.96	.763	.750	1.255	-.676	.501
Technological Pedagogical Knowledge						
I know how to integrate ICT to facilitate the communicative EFL approach	3.63	.809	3.86	.774	1.127	.263
I know how to use different ICT tools for EFL teaching	3.61	.975	4.14	.710	2.262	.027
I know how to adopt ICT in my EFL teaching style effectively	3.65	.815	3.86	.710	1.008	.317
I know how to implement ICT in my EFL teaching to help slow learners	3.71	.842	3.68	.780	.154	.878
I can select effective teaching strategies that integrate ICT in my EFL teaching	3.90	.823	3.82	.733	.408	.685
Technological Content Knowledge						
I can choose the right ICT to enhance the content of my EFL lesson	3.90	.653	3.91	.610	-.068	.946
I have the knowledge to use ICT applications for EFL skills teaching	3.73	.785	4.05	.653	1.621	.110
I know how to use ICT to evaluate EFL student skills	3.80	.735	3.86	.834	-.344	.732
I know how to design software to enhance EFL communicative competency	3.12	1.03	3.41	1.22	1.1.02	.311
Technological Pedagogical Content Knowledge						
I use ICT in diverse EFL teaching strategies to facilitate the instruction of EFL	3.63	.834	3.77	.752	-.701	.503
I can use ICT in giving EFL students tests that address both lower and higher order thinking skills	3.91	.847	3.69	.811	1.003	.319
I have the technical ICT ability that I need to use technology to teach EFL speaking skills	3.86	.736	4.00	.617	-.793	,431

Significant at .05 level

Appendix 4.7 – Independent t-tests - ICT competencies - Qualifications location

Item	KSA (N=57)		Overseas (N=14)		t	p
	mean	SD	mean	SD		
Create and edit text	3.72	.921	3.86	1.35	-.455	.651
Create presentations	3.88	1.05	4.00	1.11	-.387	.700
Create graphics	3.35	1.01	3.93	.730	-2.44	.021
Access Internet to collect information	3.81	1.19	4.21	.802	-1.21	.229
Communicate using chat tools	3.26	1.11	3.50	.855	-.744	.459
Access online dictionaries, translation and thesaurus	3.72	1.19	3.79	.893	-.195	.846
Communicate via video conferencing	2.81	1.09	3.07	1.07	-.814	.418
Develop web page	2.70	1.12	3.43	.938	-2.24	.028
Demonstrate educational software	3.35	.973	4.07	1.14	-2.18	.043
Present instructional films	3.35	1.32	3.71	1.14	-.949	.346
Show presentations using multimedia	4.02	1.06	4.07	1.14	-.168	.867
Engage in virtual worlds	3.16	1.15	3.50	1.16	-.998	.322
Teach using Smart Boards	3.93	1.07	3.64	1.50	.675	.509
Access online encyclopedias	3.37	1.18	3.64	1.28	-.770	.444
Develop multimedia	3.30	1.07	3.57	1.02	-.865	.390

Significant at .05 level

Appendix 4.8 – Independent t-tests - ICT Attitudes - Qualifications Location

Item	KSA (N=57)		Overseas (N=14)		t	p
	mean	SD	mean	SD		
I think that using ICT in EFL will make teaching simple	4.25	.872	4.00	1.24	.865	.390
I think that using ICT will improve EFL teaching	4.33	.664	4.29	1.07	.211	.834
I think that using ICT offers real advantages over the traditional method of EFL instruction	4.23	.655	4.21	1.19	.059	.953
I think that using ICT in EFL teaching will be boring for EFL students	2.09	1.01	2.32	1.78	-.545	.594
I believe that EFL students should have access to ICT facilities in each classroom	4.21	.750	4.14	1.17	..269	.789
I believe that EFL students enjoy using ICT in the classroom	4.23	.708	4.29	.825	-.264	.792
I believe that using ICT will interfere with my EFL teaching	3.12	1.21	3.00	1.52	.323	.748
I feel confident to use ICT in my EFL teaching	4.16	.676	4.50	.519	-1.77	.082
I feel nervous when using ICT in my EFL teaching	2.21	1.01	1.79	.699	1.48	.143
I believe that using ICT will make my EFL teaching more interesting	4.35	.694	4.50	.519	-.752	.455
I want to use ICT in an EFL classroom because it will develop student competences	4.14	.581	4.29	.611	-.831	.409
I want to use new ICT technology to enhance my EFL teaching	4.07	.623	4.21	.699	-.757	.451
I am interested to find new approaches integrating ICT in EFL teaching	4.12	.709	4.21	1.12	-.382	.704
I think using ICT will waste my students' time	2.00	1.07	1.71	.726	.945	.348
I think using ICT complicates EFL teaching	2.65	1.17	2.93	1.59	-.742	.366

Appendix 4.9 – Independent t-tests - Teacher TPACK - Qualifications Location

Item	KSA (N=57)		Overseas (N=14)		t	p
	mean	SD	mean	SD		
Technological Knowledge						
I know how to solve my own technical problems	4.00	.655	3.64	.633	1.84	.070
I know how to use many different types of ICT	3.84	.676	3.71	.994	.574	.568
I can learn about ICT integration in EFL classrooms easily	4.02	.612	3.93	1.21	.268	.793
Technological Pedagogical Knowledge						
I know how to integrate ICT to facilitate the communicative EFL approach	3.65	.719	3.93	1.07	-1.17	.244
I know how to use different ICT tools for EFL teaching	.824	.975	3.79	1.31	-.049	.961
I know how to adopt ICT in my EFL teaching style effectively	3.70	.755	3.79	1.05	-.344	.732
I know how to implement ICT in my EFL teaching to help slow learners	.3.67	.740	3.86	1.10	-.779	.439
I can select effective teaching strategies that integrate ICT in my EFL teaching	3.89	.673	3.79	1.19	.331	.746
Technological Content Knowledge						
I can choose the right ICT to enhance the content of my EFL lesson	3.86	.611	4.07	.730	-1.18	.267
I have the knowledge to use ICT applications for EFL skills teaching	3.81	.639	3.93	1.14	-.384	.706
I know how to use ICT to evaluate EFL student skills	3.79	.750	3.93	.829	-.609	.544
I know how to design software to enhance EFL communicative competency	3.26	1.03	3.00	1.36	.804	.424
Technological Pedagogical Content Knowledge						
I use ICT in diverse EFL teaching strategies to facilitate the instruction of EFL	3.61	.750	3.93	.997	1.314	.193
I can use ICT in giving EFL students tests that address both lower and higher order thinking skills	3.79	.750	3.64	1.15	.454	.656
I have the technical ICT ability that I need to use technology to teach EFL speaking skills	3.93	.623	3.79	.975	.687	.494

Appendix 4.10 – ANOVA - ICT competencies - Age Range

Item	25-29 N=16	30-34 N=37	35+ N=18	F	p
Create and edit text	3.31	3.78	4.06	2.44	0.095
Create presentations	**3.44**	3.86	**4.39**	3.75	0.029
Create graphics	3.25	3.43	3.72	1.02	0.366
Access Internet to collect information	3.94	3.73	4.17	0.93	0.401
Communicate using chat tools	3.44	3.22	3.39	0.30	0.740
Access online dictionaries, translation and thesaurus	3.31	3.76	4.06	1.89	0.160
Communicate via video conferencing	2.94	2.78	2.94	0.18	0.834
Develop web page	2.88	2.78	2.94	0.13	0.879
Demonstrate educational software	3.50	3.49	3.50	0.00	0.999
Present instructional films	3.56	3.30	3.56	0.36	0.698
Show presentations using multimedia	3.94	4.00	4.17	0.22	0.806
Engage in virtual worlds	3.62	3.00	3.33	1.80	0.173
Teach using Smart Boards	4.00	3.84	3.83	0.12	0.886
Access online encyclopedias	3.56	3.19	3.78	1.65	0.199
Develop multimedia	3.50	3.32	3.28	0.21	0.812

Significant at .05 level

Appendix 4.11 – ANOVA - ICT Attitudes - Age Range

Item	25-29 N=16	30-34 N=37	35+ N=18	F	p
I think that using ICT in EFL will make teaching simple	3.81	4.27	4.39	1.83	0.169
I think that using ICT will improve EFL teaching	4.19	4.35	4.39	0.35	0.707
I think that using ICT offers real advantages over the traditional method of EFL instruction	3.88	4.32	4.33	2.16	0.123
I think that using ICT in EFL teaching will be boring for EFL students	2.38	2.11	2	0.45	0.643
I believe that EFL students should have access to ICT facilities in each classroom	3.81	4.22	4.5	3.03	0.055
I believe that EFL students enjoy using ICT in the classroom	4.06	4.27	4.33	0.65	0.524
I believe that using ICT will interfere with my EFL teaching	3.38	3.08	2.89	0.62	0.539
I feel confident to use ICT in my EFL teaching	4.19	4.19	4.33	0.32	0.729
I feel nervous when using ICT in my EFL teaching	**2.69**	2.03	**1.83**	4.01	0.023
I believe that using ICT will make my EFL teaching more interesting	4.31	4.32	4.56	0.84	0.435
I want to use ICT in an EFL classroom because it will develop student competences	4.19	4.16	4.17	0.01	0.990
I want to use new ICT technology to enhance my EFL teaching	3.94	4.19	4.06	0.93	0.400
I am interested to find new approaches integrating ICT in EFL teaching	3.94	4.19	4.22	0.67	0.513
I think using ICT will waste my students' time	2.19	1.97	1.67	1.16	0.320
I think using ICT complicates EFL teaching	2.88	2.78	2.39	0.78	0.462

Significant at .05 level

Appendix 4.12 – ANOVA - Teacher TPACK - Age Range

Item	25-29 N=16	30-34 N=37	35+ N=18	F	p
I know how to solve my own technical problems	3.88	3.92	4.00	0.16	0.855
I know how to use many different types of ICT	3.81	3.81	3.83	0.01	0.994
I can choose the right ICT to enhance the content of my EFL lesson	3.69	3.95	4.00	1.22	0.302
I know how to integrate ICT to facilitate the communicative EFL approach	3.50	3.78	3.72	0.70	0.499
I have the knowledge to use ICT applications for EFL skills teaching	3.81	3.84	3.83	0.01	0.994
I know how to use ICT to evaluate EFL student skills	3.81	3.89	3.67	0.52	0.595
I know how to design software to enhance EFL communicative competency	2.75	3.49	3.06	2.93	0.060
I know how to use different ICT tools for EFL teaching	3.44	3.86	3.89	1.38	0.259
I know how to adopt ICT in my EFL teaching style effectively	3.56	3.78	3.72	0.41	0.668
I use ICT in diverse EFL teaching strategies to facilitate the instruction of EFL	3.50	3.78	3.61	0.76	0.470
I can use ICT in giving EFL students tests that address both lower and higher order thinking skills	3.69	3.81	3.72	0.14	0.867
I know how to implement ICT in my EFL teaching to help slow learners	3.50	3.76	3.78	0.64	0.530
I can select effective teaching strategies that integrate ICT in my EFL teaching	3.69	3.86	4.06	0.92	0.404
I have the technical ICT ability that I need to use technology to teach EFL speaking skills	3.50	4.05	3.94	3.83	0.027
I can learn about ICT integration in EFL classrooms easily	3.81	4.03	4.11	0.70	0.498

Appendix 4.13 – ANOVA - ICT competencies - Teaching Experience

Item	0-4 N=20	5-9 N=25	10+ N=25	F	p
Create and edit text	3.40	3.80	3.96	1.79	0.176
Create presentations	3.50	3.96	4.16	2.28	0.111
Create graphics	3.30	3.56	3.48	0.39	0.680
Access Internet to collect information	3.50	4.08	4.04	1.80	0.173
Communicate using chat tools	3.05	3.36	3.48	0.93	0.400
Access online dictionaries, translation and thesaurus	3.20	3.76	4.12	3.94	0.024
Communicate via video conferencing	2.85	2.80	2.96	0.14	0.872
Develop web page	2.75	3.00	2.80	0.32	0.727
Demonstrate educational software	3.25	3.64	3.52	0.79	0.459
Present instructional films	3.35	3.52	3.48	0.11	0.901
Show presentations using multimedia	3.85	4.08	4.24	0.82	0.444
Engage in virtual worlds	3.20	3.20	3.24	0.01	0.991
Teach using Smart Boards	4.05	3.84	3.80	0.28	0.756
Access online encyclopedias	3.20	3.36	3.68	0.95	0.391
Develop multimedia	3.60	3.32	3.20	0.81	0.451

Appendix 4.14 – ANOVA - ICT Attitudes - Teaching Experience

Item	0-4 N=20	5-9 N=25	10+ N=25	F	p
I think that using ICT in EFL will make teaching simple	4.40	3.84	4.44	3.25	0.045
I think that using ICT will improve EFL teaching	4.45	4.12	4.44	1.50	0.230
I think that using ICT offers real advantages over the traditional method of EFL instruction	4.20	4.12	4.36	0.60	0.553
I think that using ICT in EFL teaching will be boring for EFL students	2.05	2.24	2.12	0.14	0.866
I believe that EFL students should have access to ICT facilities in each classroom	4.30	**3.76**	**4.52**	6.20	0.003
I believe that EFL students enjoy using ICT in the classroom	4.05	4.12	4.48	2.49	0.091
I believe that using ICT will interfere with my EFL teaching	2.85	3.28	3.08	0.63	0.536
I feel confident to use ICT in my EFL teaching	4.25	4.08	4.36	1.13	0.328
I feel nervous when using ICT in my EFL teaching	2.10	2.20	2.08	0.10	0.902
I believe that using ICT will make my EFL teaching more interesting	4.45	4.20	4.52	1.60	0.209
I want to use ICT in an EFL classroom because it will develop student competences	4.20	4.08	4.24	0.49	0.617
I want to use new ICT technology to enhance my EFL teaching	4.15	4.04	4.12	0.18	0.837
I am interested to find new approaches integrating ICT in EFL teaching	4.40	3.88	4.20	2.53	0.087
I think using ICT will waste my students' time	1.75	**2.44**	**1.60**	5.34	0.007
I think using ICT complicates EFL teaching	2.40	3.08	2.52	2.02	0.141

Significant at .05 level

Appendix 4.15 – ANOVA - Teacher TPACK - Teaching Experience

Item	0-4 N=20	5-9 N=25	10+ N=25	F	p
I know how to solve my own technical problems	4.00	3.72	3.93	2.05	0.137
I know how to use many different types of ICT	4.05	3.64	3.81	1.71	0.188
I can choose the right ICT to enhance the content of my EFL lesson	3.80	3.84	3.90	0.95	0.392
I know how to integrate ICT to facilitate the communicative EFL approach	3.85	3.48	3.70	1.50	0.232
I have the knowledge to use ICT applications for EFL skills teaching	4.10	3.60	3.83	2.51	0.089
I know how to use ICT to evaluate EFL student skills	4.05	3.80	3.81	1.62	0.205
I know how to design software to enhance EFL communicative competency	3.40	3.12	3.21	0.40	0.673
I know how to use different ICT tools for EFL teaching	3.80	3.56	3.77	1.16	0.319
I know how to adopt ICT in my EFL teaching style effectively	3.85	3.56	3.71	0.75	0.476
I use ICT in diverse EFL teaching strategies to facilitate the instruction of EFL	3.85	3.52	3.67	0.92	0.404
I can use ICT in giving EFL students tests that address both lower and higher order thinking skills	3.95	3.48	3.76	2.22	0.116
I know how to implement ICT in my EFL teaching to help slow learners	3.80	3.52	3.70	0.93	0.400
I can select effective teaching strategies that integrate ICT in my EFL teaching	4.00	3.64	3.87	1.67	0.196
I have the technical ICT ability that I need to use technology to teach EFL speaking skills	3.90	3.92	3.90	0.02	0.981
I can learn about ICT integration in EFL classrooms easily	4.05	4.00	4.00	0.08	0.927

Appendix 4.16 – ANOVA - ICT competencies - Type of Qualification

Item	BA	BED	MASTER	F	p
	N=12	N=39	N=20		
Create and edit text	3.42	3.67	4.10	2.05	0.137
Create presentations	3.83	3.85	4.05	0.27	0.764
Create graphics	2.92	3.56	3.60	2.34	0.104
Access Internet to collect information	3.67	**3.64**	**4.50**	4.52	0.014
Communicate using chat tools	3.08	3.15	3.75	2.51	0.089
Access online dictionaries, translation and thesaurus	**3.00**	3.64	**4.35**	6.48	0.003
Communicate via video conferencing	**2.25**	2.79	**3.35**	4.38	0.016
Develop web page	2.25	2.92	3.05	2.21	0.118
Demonstrate educational software	3.08	3.46	3.80	1.86	0.163
Present instructional films	3.00	3.38	3.75	1.33	0.271
Show presentations using multimedia	3.50	4.13	4.15	1.81	0.172
Engage in virtual worlds	2.83	3.28	3.35	0.86	0.428
Teach using Smart Boards	3.42	4.15	3.60	2.77	0.070
Access online encyclopedias	3.08	3.33	3.80	1.63	0.204
Develop multimedia	2.75	3.54	3.35	2.68	0.076

Significant at .05 level

Appendix 4.17 – ANOVA - ICT Attitudes - Type of Qualification

Item	BA N=12	BED N=39	MASTER N=20	F	p
I think that using ICT in EFL will make teaching simple	3.67	4.33	4.25	2.39	0.099
I think that using ICT will improve EFL teaching	4.17	4.31	4.45	0.55	0.582
I think that using ICT offers real advantages over the traditional method of EFL instruction	3.83	4.28	4.35	1.93	0.153
I think that using ICT in EFL teaching will be boring for EFL students	1.92	2.21	2.15	0.27	0.767
I believe that EFL students should have access to ICT facilities in each classroom	4.17	4.21	4.20	0.01	0.991
I believe that EFL students enjoy using ICT in the classroom	4.50	4.13	4.30	1.31	0.276
I believe that using ICT will interfere with my EFL teaching	3.58	3.13	2.75	1.68	0.194
I feel confident to use ICT in my EFL teaching	4.25	4.26	4.15	0.18	0.837
I feel nervous when using ICT in my EFL teaching	2.17	2.18	2.00	0.23	0.793
I believe that using ICT will make my EFL teaching more interesting	4.50	4.28	4.50	0.95	0.392
I want to use ICT in an EFL classroom because it will develop student competences	4.08	4.15	4.25	0.33	0.722
I want to use new ICT technology to enhance my EFL teaching	4.00	4.05	4.25	0.82	0.447
I am interested to find new approaches integrating ICT in EFL teaching	3.83	4.21	4.20	1.07	0.347
I think using ICT will waste my students' time	2.00	1.95	1.90	0.04	0.964
I think using ICT complicates EFL teaching	3.08	2.72	2.45	0.95	0.390

Appendix 4.18 – ANOVA - Teacher TPACK - Type of Qualification

Item	BA	BED	MASTER	F	p
	N=12	N=39	N=20		
I know how to solve my own technical problems	3.92	3.95	3.90	0.04	0.963
I know how to use many different types of ICT	3.83	3.85	3.75	0.11	0.895
I can choose the right ICT to enhance the content of my EFL lesson	4.00	3.79	4.05	1.25	0.294
I know how to integrate ICT to facilitate the communicative EFL approach	3.50	3.69	3.85	0.72	0.490
I have the knowledge to use ICT applications for EFL skills teaching	3.83	3.82	3.85	0.01	0.990
I know how to use ICT to evaluate EFL student skills	3.83	3.77	3.90	0.19	0.824
I know how to design software to enhance EFL communicative competency	2.83	3.41	3.05	1.61	0.208
I know how to use different ICT tools for EFL teaching	3.58	3.90	3.65	0.77	0.467
I know how to adopt ICT in my EFL teaching style effectively	3.58	3.67	3.90	0.74	0.483
I use ICT in diverse EFL teaching strategies to facilitate the instruction of EFL	3.25	3.77	3.75	2.08	0.133
I can use ICT in giving EFL students tests that address both lower and higher order thinking skills	3.58	3.74	3.90	0.55	0.580
I know how to implement ICT in my EFL teaching to help slow learners	3.50	3.72	3.80	0.51	0.603
I can select effective teaching strategies that integrate ICT in my EFL teaching	3.92	3.82	3.95	0.19	0.824
I have the technical ICT ability that I need to use technology to teach EFL speaking skills	3.75	3.87	4.05	0.76	0.471
I can learn about ICT integration in EFL classrooms easily	3.75	4.03	4.10	0.85	0.432

Appendix 5.1 – Thematic analysis coding – Frequencies

Code	N.
Access to a range of teaching tools	4
Access to a wide range of English resources	8
Access to ICT for all students	1
Administrative uses of ICT	2
Anywhere anytime learning	9
Better support of teaching	1
Collaborative learning	2
Computer laboratory	1
Cost of ICT	1
Cost of ICT to students	3
Devaluation of traditional resources	1
Device – data show	10
Device – desktop or laptop computer	2
Device – memory devices	1
Device – mobile devices	4
Device – mobile phone	1
Device – tablet	2
Distraction in the classroom	2
Easier to teach using ICT	7
Encourage teachers to use ICT – institutional level	1
Enhances student learning	3
Enjoyable way to teach	2
Exposure to native language speakers	3
Facilitates communication	1
Facilities location dependent	6
Facilities of good quality required	4
Fear of damage – teachers	1
Fear of damage – institutional level	1
Games to support learning	4
Good Internet connection required	1
ICT embedded in curriculum	1
ICT Facilities lacking	4

Code	N.
ICT makes learning more efficient	1
ICT Policy – institutional level	4
ICT support	1
ICT time consuming to use	2
ICT Tool – blogs	1
ICT Tool – email	7
ICT Tool – Google Docs	1
ICT Tool – Google Maps	1
ICT Tool – Instagram	1
ICT Tool – IWB	1
ICT Tool – online dictionary	5
ICT Tool – PowerPoint	12
ICT Tool – Wikipedia	1
ICT Tool – WordCast	1
Impact on school budgets	1
Improved access to ICT required	1
Improved student performance	5
Improved teaching using ICT	7
Improvement over traditional methods	14
Inappropriate use of ICT	2
Increased enjoyment	1
Increased interest of students	1
Increased motivation to learn	2
Increased student engagement	1
Interaction amongst students	4
Interaction between teacher and students	5
Interaction with others	5
Internet location dependent	6
Lack of interest in using ICT	4
Large classes impacts on use	1
Lesson preparation	1
Lesson preparation is easier with ICT	3
More efficient using ICT	2
Multimedia capabilities of ICT	6

Code	N.
PD needs to be regular and ongoing	2
Poor results if used incorrectly	1
Prevalence of ICT in society	5
Promotes conversation in target language	1
Providing better access to resources – institutional level	1
Reduces interaction	2
Reliable Internet connection	1
Requires facilities of good quality	11
Self-directed learning	2
Sharing of content, ideas, resources	5
Social media – chat	2
Social media – Facebook	5
Social media – Instagram	7
Social media – Snapchat	1
Social media – Twitter	8
Social media – WhatsApp	3
Social media – YouTube	3
Student anxiety	2
Student familiarly and enjoyment with ICT	1
Student lack of access to ICT	1
Student self-directed learning	6
Students engaged using ICT	9
Students lack ICT skills	3
Students need knowledge of how ICT supports their learning	4
Students require supervision when using ICT	7
Supports listening skills	6
Supports pronunciation skills	5
Supports reading skills	7
Supports student learning of English	4
Supports writing skills	7
Teacher anxiety over responsibilities	5
Teacher confidence using ICT	2
Teacher driven or directed learning	1

Code	N.
Teacher ICT skills	2
Teacher self-teaching	4
Teacher training – ICT skills	6
Teacher training – learning how to teach with ICT	3
Teachers ICT skills	1
Teachers lack ICT skills	8
Teachers require professional development	2
Teachers require professional development	2
Teaching skills	2
Unreliable Internet connection	3
Use of mobile devices in class	1
Used outside classroom	1

Appendix 5.2 – Sample transcript – Interviewee: Saleh

Significant Statements - text fragments should be highlighted	Code	Category	Theme
I k e us g of ICT EFL eac g s ve y po a , espec a y , owadays, ecause, ICT co e as de es ec s of ou fe a d e use of ICT was sup o eac g of E g s a d a was suppo ea g of E g s so a s ude a d eac e ey ca use e ICT w o e ICT dev ces a ca e used s de o ou s de c ass oo , o suppo eac g a d ea g of E g s , fo exa p e s ude ca e use e o e dev ces o suppo ea g E g s y e se ves, e eac e ca e use a y d ffe e dev ces o oo s o suppo ea g E g s a e a us use e ad o a way o eac g E g s .	Prevalence of ICT in society Anywhere anytime learning Self-directed learning Access to a range of teaching tools	Ubiquities Ubiquities teacher professional learning Exposure to English language	Affordance of ICT Affordance of ICT Learning and teaching needs learning and teaching
I k a use of ICT s ve y po a ecause e eac e ca use ICT o p ove e eac g y us g e ICT fo exa p e, aa, e da a s ow o a y dev ces o a y oo s a ca e, ey ca use o dea fo e a d s e fo s ude , uc e e a us use e ad o a way, a so e s ude ca use ICT o p ac ce E g s s de o ou s de e c ass oo , fo exa p e y us g e o e dev ces a w c sp ead e e s ude so we ca ge e e ef f o a dev ces o dea fo a co e of E g s aa e so a d e ca use o suppo e ea g E g s y e se ves, o a y app ca o s.	Improved teaching using ICT Device - data show Improvement over traditional methods Anywhere anytime learning Self-directed learning	Impact on practice Devices impact on practice Ubiquities teacher professional learning	Teacher outcomes ICT usage teacher outcomes Affordance of ICT Learning and teaching needs
I a def e y a e o use ICT fac es y eac g ke fo exa p e e use of Powe Po . I p epa e ese p ese a o s yse f a d I ed y es o ake ook e es g a d easy o e u de s ood y s ude s I ca use co pu e o p epa e y esso fo y s ude a so I ave a sk s o use e o e dev ces a d so e app ca o s a ca e suppo y eac g a d so e app ca o e ca e cou age y s ude s o use o suppo e ea g E g s .	ICT Tool – PowerPoint Increased interest of students Lesson preparation Device – mobile devices Supports student learning of English	Devices impact on attitudes Preparation and administration Skills development	ICT usage student outcomes ICT usage ICT usage
Yea , fo exa p e I ca eac y s ude ow ca ey use e d c o a y a u d e o e dev ces a uc e e a us a aa ad o a d c o a y o e ook d c o a y ecause ey ca ea e p o u ca o ofwo ds a d ey ca	ICT Tool – Online dictionary Improvement over traditional methods	Devices impact on practice	ICT usage teacher outcomes
P ac ce e, p ac ce e p o u ca o , a so, ey ca ge e ea g y so e p o o, y so e, v deo, a d a l k uc e e a us use e ad o a d c o a y, a so e e s a o e app ca o a ca e used o ea E g s , des g ed fo e ea g E g s , so we eed o eac ou s ude ow ca ey use a app ca o o suppo ea g E g s	Supports pronunciation skills Multimedia capabilities of ICT Improvement over traditional methods	Skills development impact on practice impact on practice	ICT usage Teacher outcomes Teacher outcomes
I k e ICT w pac o eac g e EFL y a y ways, fo	Device – mobile	Devices	ICT usage

Significant Statements - text fragments should be highlighted	Code	Category	Theme
exa p e e o e app ca o s a ca suppo ea gE g s , o e of a pac , a d ey ca , e e s a y app ca o a ca suppo eac e E g s sk s, fo exa p e o w e E g s ca use app ca o suc as I s ag a a ey ca use o suppo ey ca use a app ca o o sup o w g	devices Access to a range of teaching tools Supports writing skills	Exposure to English language Skills development	affordance of ICT ICT usage
So I g ICT as a ve y pos ve pac o s ude s as e a ces e way of ea g s ce e ac o a e e a e s y e s app ed I a so g ICT w pac o eac g y a y ways, fo exa p e e o e app ca o s a ca suppo ea g E g s o e of e pac s a e e a e a y app ca o s a ca suppo eac g e E g s a guage sk s fo exa p e o w e E g s I ca use app ca o suc as I s ag a a ey ca use w p o os.	Enhances student learning Student familiarly and enjoyment with ICT Devices – mobile devices Access to a range of teaching tools Supports writing skills ICT Tool - Instragram	impact on learning Ubiquities Devices Exposure to English language Skills development Devices	student outcomes Affordance of ICT ICT usage learning and teaching ICT usage ICT usage
a so, fo eac sk s, e e s so e app ca o I fou d e ve y usefu o suppo a sk s, fo exa p e wo d cas ca e suppo e s e g yea , e pac of ICT s pos ve	ICT Tool - WordCast Supports listening skills	Devices Skills development	ICT usage ICT usage
a d aa a so e e s a o e pac of ICT , s ega ve suc as so e of y co eagues aa fou d e use of ICT des oy y des oy e s ude	Poor results if used incorrectly	impact on learning	student outcomes
Yea , so aa u we ca ask ou s ude o use a app ca o ou s de of e c ass oo f we ca eac e ow ca ey use a d ey ca use as fo a way fo ea g E g s ou s de of e c ass oo a d ay e we ca co o e use of ICT s de e c ass oo y do g, fo exa p e co o a app ca o w c e s ude ca e accessed o, yea , so e os pac s pos ve,	Used outside classroom Students – require supervision at class level	Ubiquities student	Affordance of ICT ICT management and Policy
Yea , fo y s ude I e cou age e o use e o e dev ces a d so e app ca o s ey use o sup o ea g E g s , fo exa p e I e cou age y s ude o use e W a sApp app ca o , o ake o e g oup ey ca s a e so e co e a ou e E g s	Devices – mobile devices ICT Tool - WhatsApp Sharing of content, ideas, resources	Devices Devices impact on practice	ICT usage ICT usage teacher outcomes
a so I e cou age e o su sc e a d so e accou o Tw e ey ca a accou espec a y spec fy g e eac g a d ea g E g s ey ca ea f o a co e o e Tw e o a y app ca o a ca e focused o e ea g of E g s .	Social media - Twitter	Devices	ICT usage
, I k yes, ey ca ave access o e ICT c ass oo u we eed o ave co o ow ey access o e ICT a d w c e ey ca access	Students – require supervision at class	s ude impact on	ICT a age e

Significant Statements - text fragments should be highlighted	Code	Category	Theme
o keep e focus o e s e a e a ey go ou s de w e fo exa p e us g e c a g app ca o a w d s ac e f o e c ass oo , yea s s o e of e ad aspec s of a y eac e wo y a ou a aspec w a s ou d ey d d use e ICT s de c ass oo ecause ey wo ed a ou e e s ude ey w e go ou s de e focus of. e esso , yea	level Distraction in the classroom Teacher anxiety over responsibilities	learning impact on attitudes	a d Po cy student outcomes teacher outcomes
T e a a e s aa s e f as uc u e of e sc oo , f we ave e good f as uc u e fo exa p e, a sc oo s supp ed y e e access, aa supp ed y yea , a w aa e cou age eac e o use e ICT u we ave p o e y so so e sc oo does ave a fac y so we eed o yea , p ove e oug fac es	Requires facilities of good quality Good Internet connection required Requires facilities of good quality	Access to ICT Internet access Access to ICT	ICT infrastructure
, a so e cos of e so e ICT fac es, fo exa p e, e o e dev ces a ay e cos s ude u we ca go fo a cos s y aa p ov de e w aa access o e e e oug e w e ess e e a d e sc oo a w f x a p o e of cou se a d ese days so a y s ude s ave e f o us o e s a dev ces, so e of e ave aa wo o o e dev ces so we eed o ge e e ef f o e dev ces, a d go fo e cos y p ov de e access o e e e	Infrastructure – cost of ICT Cost of ICT to students Improved access to ICT required Cost of ICT to students	Cost Cost Access to ICT Cost	ICT infrastructure
ecause I k a e a p o e w e use of dev ces e cos of e access o e e e o ge o e e ef f o e dev ces.	Cost of ICT to students	cost	ICT infrastructure
a so e, e a o e p ce a e po cy of us g e ICT sc oo s we eed o c a ge a o cy o ake easy o eac e o aa access o a fac y sc oo ecause so e of e sc oo o e a age of e esou ce ey do a ow fo eac e o access eas y o a fac y ecause ey wo ed a ou ey w ose a fac y o da age , ey us y o keep away f o e eac e o	ICT Policy – institutional level Providing better access to resources – institutional level Fear of damage- institutional level	s ude institution level	ICT a age e a d Po cy
So, a a g of eac e a d esou ce a age ow ca ey use a dev ces o fac y a good way a d so ecause e e a e o o e e a g cou ses fo e a ca e a a e o use e o e fo a y k d of ICT dev ces. A o e a e s e, y e s ude does k ow ow ca ey use, fo exa p e, o e dev ces, we eed a so a g, e ow o use a s ec a y o ea E g s , yea .	Teachers require professional development Students need knowledge of how ICT supports their learning	Teacher student	ICT a age e a d Po cy
Fo e a e s I k aa e e a e s e f we ca c a ge a po cy a d ake e use of ICT s de of a sc oo s do e a d e cou age eac e s o use a d w a g of e a w a so e cou age e	ICT Policy – institutional level Encourage teachers	institution level	ICT a age e a d Po cy

Significant Statements - text fragments should be highlighted	Code	Category	Theme
o use ecause so e of e ey do ave e e oug k ow edge a ou o use so ey y o keep e se ves away f o e ICT fac y. A so, e sc oo s ou d c a ge e po cy o a ow s ude o g e o e dev ces s de sc oo , as ay e f ey do a ow fo e a e e, espec a y, aa f ey g ve e so e cou ses ow ca ey use a d ey a w e p e o use ou s de e c ass oo , ou s de e sc oo , a wou d e e a e e use of ICT o suppo ea g E g s . yea s s e a e a e s.	to use ICT – institutional level Teachers require professional development ICT Policy - institutional level Use of mobile devices in class	Teacher devices	ICT usage
Yea , ecause I yes I wou d ke o use e ICT y yse f a d y y a s ude a d I fou d a ve y o a ecause a e p ou s ude o ea E g s espec a y ecause e Saud e v o e s o E g s e v o e , so e s ude ca use e fea u e of e dev ces o e ICT fac y o p ove.	Access to a wider range of English resources Improved student performance	Exposure to English language impact on learning	learning and teaching student outcomes
yea , p ove e E g s e e s a y app ca o e s ude a d a o e dev ces a ca e p e o p ove e E g s o, co ac w o e peop e f o yea a eave e e a ve E g s speake cou y, aa o do e p ac ce w e ,	Device – mobile devices Exposure to native language speakers	devices Exposure to English language	ICT usage Affordance of ICT
I k s ve y aa po a o use e ICT a d we eed o go off of wo ed a ou e s ugg e w of d s ac g of e c ass	Teacher anxiety over responsibilities Distraction in the classroom	impact on attitudes impact on learning	teacher outcomes student outcomes
By, e ake co o a d e cou age ou s ude s o use e g way o suppo ea g E g s .	Students require supervision when using ICT	student	ICT management and policy