Investigating Saudi English Language Teachers' Use and Perceptions of the Interactive Whiteboard for Teaching Vocabulary in English as a Foreign Language in Saudi Primary Schools

Mohammed Alshaikhi

Institute of Education

UNIVERSITY OF READING

Thesis submitted for the degree of
Doctor of Philosophy

April 2019

ACKNOWLEDGEMENTS

ABSTRACT

Teaching vocabulary is a fundamental factor in English language teaching, as breadth of vocabulary is closely related to success in other areas of language learning such as reading, writing, speaking and listening. ICT has a potentially important role in teaching vocabulary within English as a foreign language, including through such media as the Interactive WhiteBoard (IWB), offering as it does a range of presentation formats that may facilitate the deeper and more effective processing of language. Despite this, relatively little is known about how teachers actually use the IWB, or indeed how they perceive it as a teaching tool. Understanding these issues is important in terms of informing the future development of the training offered to teachers in the use of the IWB.

The current study includes the use of mixed methods, including a survey (319 responses). Six teachers participated in the qualitative part of the research, with four classroom observations of six teachers at three private and three state primary schools, followed by interviews with these same teachers. For the quantitative research, frequencies and descriptive statistics were computed to give an overview of teachers' reported use of the IWB and their attitudes towards it. Spearman Rank Order correlations and Mann-Whitney U-tests were employed in order to explore the relationships between key variables and whether different groups of respondents reported different perceptions and uses of the IWB. Teachers' perceptions and uses of the IWB were then further explored through a qualitative analysis of the interviews and classroom observations.

Three complementary theoretical frameworks underpinned the study design and data analysis: Borg's (2003) work exploring language teachers' cognition and mental lives; the "Levels of Processing Hypothesis" (Craik & Lockhart, 1972) that outlines principles for vocabulary acquisition and retention; and Social-Cultural theory (Vygotsky, 1978), which guided the exploration of the classroom environment and how teachers scaffold learning from a low level to a high level through the IWB. The findings of this present study suggest a positive relationship between teachers' levels of skill/training in ICT and the frequency with which they make use of the IWB and the range of strategies for teaching vocabulary. The observations revealed that teachers who were trained in

ICT tended to use more varied teaching methods than those with less developed ICT skills. The interview analysis suggests that the majority of teachers believed that the use of the IWB in lessons assisted them in improving their students' new vocabulary retention. These findings make an important contribution to the field of educational technology for language learning by emphasising the link between training in ICT and the development of language teaching pedagogy.

Keywords: ICT, IWB, teaching, teachers' perceptions, vocabulary strategies,

DECLARATION OF ORIGINAL AUTHORSHIP

I confirm that this is my own work and the use of all materials from other sources has been properly and fully acknowledged.

Signature:

Print name: Mohammed Hassan Alshaikhi

Date: 5 /April /2019

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABRREVIATIONS

CG:	Control Group
CP:	Classroom Practice
EAP:	English for Academic Purposes
EG:	Experimental Group
EFL:	English as a Foreign Language
EL:	English Language
ELT:	English Language Teaching
ELTL:	English Language Teaching and Learning
EVT:	Explicit Teaching Vocabulary
ICT:	Information and Communication Technology
IT:	Information Technology
IVT:	Implicit Teaching Vocabulary
IWB:	Interactive WhiteBoard
KSA:	Kingdom of Saudi Arabia
LPHT:	Levels of Processing Hypothesis Theory
LST:	Learning Style Theory
L1:	First Language as an Arabic
L2/ESL:	English as a Second Language
MoE:	Ministry of Education in Saudi Arabia
NVivo:	Qualitative Data Analysis (QDA) Computer Software Package
SCT:	Socio-Cultural Theory
SPSS:	Statistical Package for the Social Sciences
TCR:	Teacher Cognition Research
TC:	Teacher Cognition
VAK:	Visual, Auditory and Kinaesthetic
ZPD:	Zone of Proximal Development

Chapter 1 : INTRODUCTION

The current study explores Saudi English language (EL) teachers' attitudes towards the use of the IWB when teaching English vocabulary as a Foreign Language (EFL) in Saudi boys' primary school classrooms (aged 11-12). This present study's objectives involve two main aspects. Firstly, from the perspective of teachers' views, it examines what teachers think, believe and understand about the use of the IWB when teaching English vocabulary. Secondly, from the perspective of teachers' practice, it explores which vocabulary teaching strategies, methods and activities the teachers address through the use of the IWB. This chapter consists of several sections that collectively form the background to this study. The introductory chapter will first look at English as EFL teaching and the use of Information and Communication Technology (ICT) in general, and teaching English vocabulary through the Interactive WhiteBoard (IWB) in particular, including the current trends and challenges of EL education in the Kingdom of Saudi Arabia (KSA). Secondly, the research problem will be identified, and the research aims and their associated questions will be briefly discussed. The conceptual and theoretical frameworks of the study and the methodology will be then briefly discussed. Thirdly, the significance of the study and a brief overview of the structure of the thesis will be given. Finally, a brief summary of the chapter will be given.

1.1 Saudi Context: EFL Teaching in Saudi Arabia

The English language is considered an EFL in Saudi Arabia and is used only in specific scopes such as schools, universities and colleges where English is intended to act as a medium of instruction (Alshahrani, 2016). Elyas and Picard (2010) claim that teaching foreign languages, including English, was neglected at the beginning of the educational process in the KSA because it was considered that such language instruction might affect the learning of the country's first language (Arabic) amongst Saudi students. According to Alshahrani (2016), two distinct eras have been chronologically outlined and classified for teaching and learning English in the KSA, the first being the point at which English was introduced into Saudi schools in the late 1920s, and the second after the events of 9/11 in the USA, which led to a remarkable change in relation to the English language in the KSA.

1.1.1 History of English Language Development in the KSA

a. English Language Teaching and Learning (ELTL) in the First Era between the Late 1920s and 2001 in the KSA

The introduction of the EL into the KSA began slowly when the country was just beginning to establish itself as a nation (Faruk, 2013). There is no exact date as to when the EL was first introduced into Saudi education, but rather it is assumed that it was around the time the General Directorate English was established, which was in 1924 (Al-Shabbi, 1989; Niblock, 2006). According to Baghdadi (1985), the EL was first introduced into Saudi elementary schools as a subject was in 1924, while Al-Seghayer (2014) claims EL was first taught in 1928. The actual implementation of EL in the syllabus was in the 1950s. In terms of applied English as a subject at Saudi universities, Al-Abed Al-Haq and Smadi (1996) assert that the first English department for male students was established at "King Saud University" in 1957, whereas the first English department for female students was founded at the "Women's College of Education" in Mecca in 1972.

The teaching of English in the KSA gained considerable attention and focus with the discovery of oil in the early 1930s. An example can be found in the work of Al-Braik (2007) and Zuhur (2011), who both indicate that the KSA has become one of the most attractive markets in the world for oil investment and industry thanks to its newly discovered oil. Since then, the US has become the most heavily investing country in the KSA, as followed by the UK, in relation to the oil industry and commercial investment, which has led to the EL becoming one of the most popular subjects in the KSA's educational system. "The Arabian American Oil Company (Aramco)", which was founded in 1933, has had a highly significant influence on the KSA's economy and on the shaping of EL instruction in the country (Mahboob & Elyas, 2014).

b. ELTL in the Second Era between 2001 to the Present in the KSA

EL was first introduced into all primary schools in the KSA in 2003 (Elyas, 2008). Saudi Arabia's Vision 2005 resulted in a significant change in the development of, and focus on, education and the knowledge-based economy, rather than relying on the oil industry, in order to maintain pace with the developed countries such as the US and UK. As such, from only eight universities in 2001 to 28 in 2015, there has been a considerable increase in the number of universities in the KSA, along with providing

Saudi national students the opportunity to study abroad through the King Abdullah Scholarship Programme, which was implemented in 2005. This programme brought a significant and remarkable change and development to the teaching of English in the KSA. In the official guidelines in the Ministry of Education (MoE) manual for teaching ESL, the objective of teaching and learning English in the KSA has been clearly and explicitly stated as:

> *The aim of teaching English in secondary schools is to have the public attain a standard which will permit him [sic] to make ready use of desired materials in English and which will enable him [sic] to communicate satisfactorily, according to his [sic] needs, in both spoken and written forms (MoE, 2002, p.22).*

EL in the KSA has become the medium of instruction in many schools, faculties and disciplines such as technical education, medicine, engineering, etc. (UrRahman & Alhaisoni, 2013). These authors add that English Language Teaching (ELT) has become a requirement for many jobs, and students are aware of its current importance as a language in that it is required not only need to pass exams but also to pursue further and higher education. It also helps learners to gain good employment, as well as being considered a universal means of communication. Therefore, the number of students who enrol in private EL institutes to learn and improve their EL skills is considerable (UrRahman & Alhaisoni, 2013).

A five-year initiative to reform ELT between 2008 and 2012 was created by "the King Abdullah bin Abdulaziz Public Education Development Project, known as the *Tatweer* Project". The Ministry of Education developed this project as an ongoing reform of Saudi public schools in relation to the KSA's "Sixth Plan for Educational Development". The aim of the *Tatweer* project was to "create a world-class and self-sustaining knowledge workforce that can compete effectively at the global level" (Mitchell & Alfuraih, 2017, p. 320). It was intended to establish new ways of delivering teaching and imparting learning, resulting in a significant contribution to economic development. This project invested not only in public school education but also in higher and vocational education (Wiseman, Alromi, & Alshumrani, 2014). A partnership between the MoE (EL) curriculum division and the *Tatweer* "Company for the Educational Services English Language Teaching Development Initiative" resulted in the reform of ELT textbooks and their materials, with three contracted international publishing partners now supplying these materials to the MoE.

1.1.2 Challenges to Teaching and Learning EFL

The majority of constraints that both EFL teachers and students face are due to the Saudi EFL curriculum which hinders the EFL teaching process, consisting of "limited time for instruction, a lack of learning material resources, the imparting of knowledge, and the constraints of the teaching methodology" (Al-Seghayer, 2014, p. 18), as shown in Figure 1.1 below.
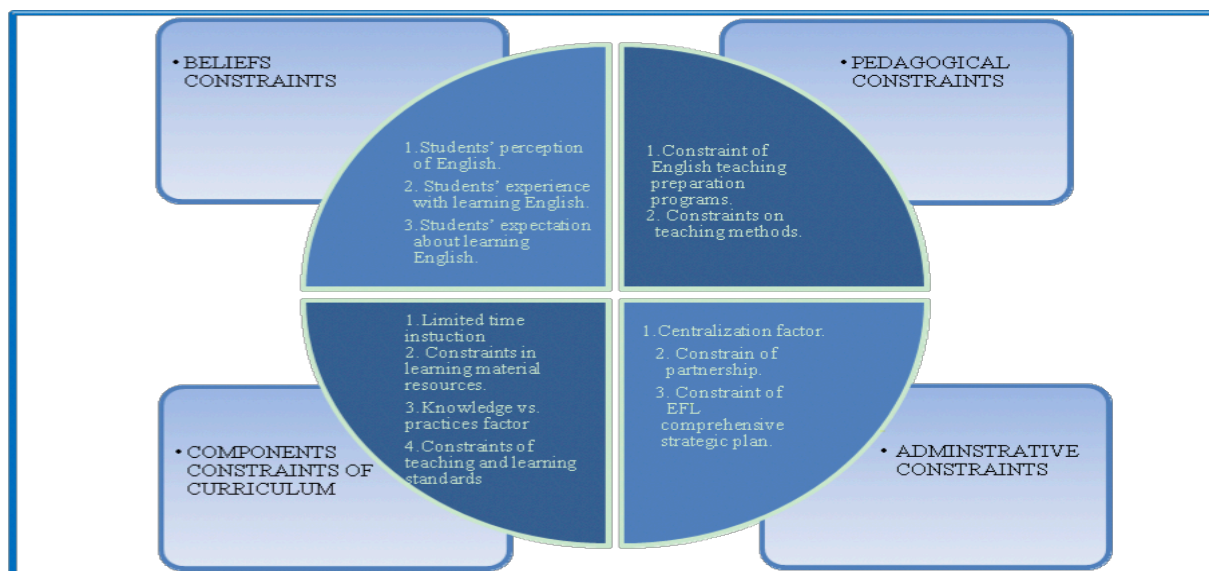
Figure 1.1 The Four most Significant Constraints Facing English Language Teaching in KSA

The first challenge to EFL teaching at the primary (elementary) level in the KSA is that of receiving insufficient time, with only two 45-minute class periods devoted to English instruction per week, in comparison to four 45-minute classes per week at the intermediate and secondary levels (more detail in this regard can be found in Table 1.1). The second challenge is the general lack of available teaching resources. Some schools do not provide ample teaching aids in classrooms such as wall charts, posters, e-learning resources, etc. (Shehdeh, 2010). The third challenge is the relative lack of communicative situations where students can practise EL in a real life; rather, the particular focus is on other skills such as grammar, vocabulary and reading (UrRahman & Alhaisoni, 2013). The fourth challenge is a failure to apply appropriate teaching and learning quality standards within the EL curriculum, along with global standards for assessing the qualifications of EL teachers when hiring them. Currently, to gain employment as an EL teacher, it is only required that the applicant hold a bachelor's degree in English; indeed, previous teaching experience is not even a requirement.

The fifth challenge is the insufficient level of training offered to EL teachers, including teaching preparation and teaching methods (Al-Seghayer, 2011). Consequently, both Shehdeh (2010) and Khan (2012) believe that there are a large number of unqualified EFL teachers because of the general inadequacy of their teaching preparation and the teaching methods they use. The lack of content in the curriculum appears to be related to the objectives of the EFL curriculum being designed without due consideration for the associated need to analyse the entire Saudi EFL situation or context. The final challenge is one of administration, which can be classified into three categories: centralisation factor, where the MoE controls and centralises all administrative education levels, leaving teachers with less autonomy (Khan, 2012); a lack of cooperation and partnership with local and global language institute expertise to develop curricula; and the absence of a comprehensive strategic plan for EFL to enhance Saudi teachers' training and teaching (Al-Seghayer, 2014).

1.1.3 Lesson Duration and Frequency

Table 1.1 indicates the extent of the teaching time devoted to English as a foreign language in different Arabic contexts, who share similar cultures and first languages. It shows the frequency and duration of English classes in six different Arabic countries in state schools, except in Saudi Arabia, where state and private schools devote the same amount of time to teaching English. In the other six countries, private schools devote different amounts of time to their English classes than state schools. The length of the class period varies among the aforementioned countries from 40 minutes to 50 minutes, with the majority devoting 45 minutes to each period.

Table 1.1: Lesson Duration and Frequency

	Country	Grades (G)	Lesson duration per minutes	Number of lessons per week	Total minutes per week
1	Saudi Arabia	From G 4 to 6	45	2	90
		From G 7 to 12	45	4	180
2	Kuwait	From G 1 to 5	45	4	180
		From G 6 to 9	45	4	180
		From G 10 to 12	45	7	315
3	Bahrain	From G 1 to 5	50	5	250
		From G 6 to 12	50	7	315
4	Qatar	From G 1 to 9	45	5	225
		G 10	45	4	180
		From G 11 to 12	45	5/6	225/270
5	Arab Emirates	From G 1 to 5	45	5	225
		From G 6 to 12	45	6	270
6	Oman	From G 1 to 4	45	7	315
		From G 5 to 10	45	5	225
		From G 11 to 12	45	6	270
7	Jordan	From G 1 to 12	45	5	225

As reported in Table 1.1, the number of EFL lessons per week and the period times are different for each of the seven countries considered. For instance, English is taught twice a week in primary schools compared with four times a week in elementary and secondary level schools in Saudi Arabia, with 45 minutes devoted to each teaching period (Alshahrani, 2016). English is taught from grade four in Saudi Arabia, unlike the other six countries where English is taught from grade one. Bahrain and Kuwait adopt a fairly similar approach to teaching English to that of Jordan (Alhabahba, Pandian, & Mahfoodh, 2016; Abdulla, 2012; Dashti, 2015) by offering shorter lessons. In Qatar, the number of classes is increased in grades 11 and 12 compared to grades 1 to 10, with English being taught between five and six times a week (Ellili-Cherif, 2014). The United Arab Emirates and Oman devote the largest amount of time to teaching English, with a total of 720 minutes per week (Al-Jardani, 2013; Al-Issa & Dahan, 2011).

1.2 Teaching and Learning English Vocabulary

Teaching English vocabulary in a way that would help L2 students learn and retain new words is usually a challenge for teachers, especially when considering the diverse usages of each word depending on context (Catalan, 2003). With this in mind, Alsaif and Milton (2012) conducted a study to examine vocabulary input from 19 EFL school textbooks in the KSA at the primary and secondary levels, and considered how Saudi students' vocabulary increased through exposure to different families of words. They used programs such as *RANGE* to count the number of word tokens, types and families as well as the *text_lex_compare* program to identify the word-list in EFL school textbooks. During a seven-year study, Alsaif and Milton (2012) found there was little vocabulary in EFL textbooks via an examination of the textbooks used in the EFL programme in KSA public schools, reporting that around 2800 of the most frequent 5000 words, and an additional 1000 less frequent words, were provided.

Little input and considerable repetition were found in EFL teaching in secondary schools, where most of the frequent and less frequent words were taught at primary and intermediate level schools. Alsaif and Milton (2012) added that "portions of the Ministry of Education's own target word-list are not presented at all. Poverty of input, therefore, helps explain the small volumes of vocabulary uptake. Among the words which are available for learning, three difficulty factors – word length, repetition and concreteness – might explain 63–80% of the variance in vocabulary learnability, although some caution is suggested since the sample of words investigated is very small" (p. 25). Al-Darayseh (2014) found in his quasi-experimental study that students

6

had an interest in learning vocabulary and increasing the extent of their vocabulary so as to be able to improve their EL performance in general and reading comprehension in particular. The Saudi EFL curriculum covers all the four skills – speaking, writing, listening and writing – though with the greater emphasis on vocabulary, reading and grammar (UrRahman & Alhaisoni, 2013).

1.3 Technology in Saudi Education

A considerable amount of money is spent on the development of public education in relation to modern technologies in classrooms, for instance with almost £2 billion in investment going into reforming and improving education in terms of modern technologies in 2007. Almost 25% of the Saudi government budget for 2015, approximately £36 billion, was spent on the educational sector in addition to the above £2 billion (Ministry of Finance, 2015). However, the KSA is still behind the leading countries in terms of educational technologies, despite the significant financial support offered by the Saudi government in Information Communication and Technology (ICT), such as with the Interactive WhiteBoard (IWB) (Ageel, 2011; Almadhour, 2010). This can be seen from the fact that most Saudi schools have implemented the use of ICT technology in their classrooms, yet teachers barely use it (Albugami & Ahmed, 2015). With the massive expenditure on the education sector, an effective strategy plan should be formed and developed by the Saudi government with regards to the implementation of ICT and its use in teaching practice (Al-Harbi, 2014; Almadhour, 2010; Almalki & Williams, 2012; Oyaid, 2009). Similarly, Saudi teachers, as reported by Al-Asmari and Rabb Khan, (2014), should be prepared to spend a considerable amount of their time preparing and integrating ICT tools and materials into their classrooms and teaching practices (Al-Asmari & Rabb Khan, 2014).

1.3.1 The IWB in Saudi Schools

The IWB is a tool that can help develop student motivation, attention, learning skills and the interactivity between teachers and students, as noted by Isman, Abanmy, Hussein, and Al Saadany (2012). These authors added that both teachers and students have generally positive attitudes towards the use of the IWB, yet there is a need for professional training development programmes to be made available to teachers in its use. Such training could enable the use of the more effective features of this tool in relation to improving teachers' teaching skills and students' learning outcomes (Alghamdi & Higgins, 2015). Thus, Saudi teachers have previously been

found to believe that their ICT skills needed improving through an increased number of training courses in connection with the use of the IWB, as per studies carried out into the use of the IWB in the KSA (Alfaki & Khamis, 2018; Alghamdi, 2015; Alwazzan, 2012; Bakadam & Asiri, 2012; Isman et al., 2012).

1.4 Identifying the Problem

Relatively few Saudi teachers use the IWB in their classrooms, even when such equipment is already installed and available for use (Almulla, 2017). This led me to consider some possible reasons, and related questions, as to why this was the case. In addition, my personal interest in this topic stems from relevant experiences during my own seven years of teaching English at Saudi state primary schools. At the start of this teaching career, it was more common to use more traditional teaching resources and tools (such as the whiteboard), which remained the case until ICT and the IWB were introduced into Saudi classrooms. Anecdotal discussions between myself and Saudi EL teachers indicated that these teachers face a number of challenges when using the IWB.

A study by Alghamdi and Higgins (2015) was conducted in Saudi Arabia among 587 male and female primary school teachers to explore their perspectives on the use of the IWB in teaching. The results of the survey indicated that teachers require additional training to be able to make effective use of the IWB. The majority of teachers agreed that the use of the IWB could well be beneficial (Bakadam & Asiri, 2012; Türel & Johnson, 2012), which encouraged me to further research and explore what teachers think and believe with regards to the use of the IWB when they teach English vocabulary, and to determine the type of vocabulary-related teaching strategies that can be used with the IWB. There is much that remains to be determined concerning the use of the IWB by teachers in Saudi classrooms, and indeed how they perceive it as a teaching tool. In this case, understanding these issues could play a vital role in developing teachers' training with regards to how they might more effectively use the IWB in the future.

A number of studies into the use of the IWB in secondary EFL classrooms in Saudi Arabia have been conducted, but to the best of my knowledge there are no studies, as yet, that have explored the role of the use of the IWB when teaching English vocabulary in EFL classrooms at male-only primary schools in Saudi Arabia. However, it has been found elsewhere that the IWB helped students learn English more easily and quickly (Bakadam & Asiri, 2012). Consequently, the aim of my study is to address this research gap and attempt to determine what teachers think about this tool in relation to teaching English, and which teaching strategies are being used in relation to vocabulary. In spite of the fact that several researchers have identified the importance of using this tool in EFL classrooms in teaching in general and science subjects in particular, insufficient explanations have been provided regarding its use in teaching vocabulary at primary schools. Furthermore, I am unaware of any studies that have been conducted at schools in Saudi Arabia that explore teachers' views towards the IWB when teaching English vocabulary strategies that are amenable to support by this tool.

1.5 Research Aims and Questions

Considering the above, the current knowledge of primary-level English teachers' perceptions about the use of the IWB in Saudi Arabia is limited. This study is, as stated previously, probably the first to investigate this issue on a larger scale, since there have been no similar studies in boys' primary schools in Saudi Arabia to date. The study's findings will add to the literature by significantly improving our understanding of teachers' perceptions and views of the use of the IWB when teaching English as a foreign language to children aged 11 and 12 (the age justification is presented in the methodology chapter). This helps to understand the different views held by teachers and the reasons they hold them, along with gaining a holistic picture of what teachers think and understand regarding the use of the IWB in primary schools in Saudi Arabia. Identifying what teachers think about this tool should help to understand their needs and guide stakeholders concerning the support and training that teachers need to use the tool effectively. The literature review explores this topic in more depth in order to critically investigate previous research and theories.

This study aims to explore Saudi primary teachers' attitudes towards the use of the IWB and to examine the different vocabulary strategies that are being used through the IWB. To these ends, the following research questions will be examined.

(1.a): What are teachers' general perceptions, and stated uses, of the IWB?

(1b): How do teachers perceive the IWB, specifically in relation to teaching English vocabulary?

(1.c): How do teachers actually use the IWB when teaching vocabulary?

(1.d): How much training/support have Saudi primary teachers received with regards to ICT and the IWB?

(2): What is the relationship between teacher variables (qualification, length of experience, private versus public schools) and their perceptions and use of the IWB, both stated and actual?

Answering the above questions could help to add to the current knowledge by improving our understanding of teachers' perceptions and views of the use of IWB when teaching English as an EFL. This is important to help the government and policymakers understand how to best support English teachers in Saudi Arabia.

1.6 Conceptual and Theoretical Frameworks of the Study

This study incorporates three frameworks: firstly, Borg's (2003) "language teacher cognition" framework, which is used to understand what teachers think and believe; secondly, the "Levels of Processing Hypothesis" (Craik & Lockhart, 1972) is used to examine the ways in which teachers can assist their learners in terms of developing their vocabulary retention through the provision of various teaching vocabulary strategies and techniques; finally, "Social-Cultural" theory (Vygotsky, 1978) is used to guide the understanding of how teachers can develop and scaffold their learners from the current to a higher level through the use of the IWB. This tool is used as a means of scaffolding when teachers use it to facilitate interaction between themselves and their students (Donato, 1994). The three frameworks are discussed in more detail in the Literature Review chapter.

1.7 Methodology

A mixed method approach was employed to answer the research questions, including a survey of 319 responses from male EL teachers, four classroom observations and semi-structured interviews with six teachers at three private and three state primary schools. With regards to the quantitative data, frequencies and descriptive statistics were computed to give an overview of what teachers thought and believed about the use of the IWB. Teachers' perceptions, and uses, of the IWB were then further explored through a qualitative analysis of the interviews and the classroom observations.

1.8 Significance of the Study

The aims of the study, as stated previously, are to explore teachers' views towards the use of the IWB and the vocabulary strategies that can be employed through the use of this tool. There is no study to date that has considered teachers' beliefs alongside what teachers actually do in classrooms, which describes the current gap in knowledge that I wish to address; this study will fill this important gap in the literature. When the research surrounding this topic was further examined, it was found that there were only a limited number of studies focussing on the IWB that had been carried out in the context of Saudi Arabia, and pre-existing studies tended to focus almost exclusively on older children (Bakadam & Asiri, 2012; Hüseyin, 2014; Türel & Johnson, 2012).

An example of such a study, which focussed on children aged 13-14, was reported by Bakadam and Asiri (2012) and was undertaken in the KSA. A questionnaire was completed by 50 Saudi male teachers and an interview was conducted with three teachers who taught a range of subjects, including English, at the intermediate school level (children aged 13 and 14). The results revealed positive perceptions about the use of the IWB, but that it was felt that teachers needed to receive more substantial training in the use of this tool. Likewise, a study conducted in Turkey (Hüseyin, 2014) showed that 64 Turkish teachers were in favour of the use of the IWB in teaching English at all grade levels, indicating positive beliefs about its utility as a classroom tool. Similarly, another study (Türel & Johnson, 2012) was conducted in the USA which was comprised of a questionnaire completed by 174 teachers who instructed students aged 11-17. The study was intended to evaluate teachers' perspectives regarding the use of the IWB in teaching various subjects, including English, and whose results showed that the majority of teachers believed that the IWB is an effective tool and can

make lessons more interesting, although some teachers acknowledged that they did not know how to use all its features (Türel & Johnson, 2012). For more information about similar studies, the reader is referred to section 2.8 in the Literature Review chapter where they are described in further detail.

Previous research thus reports positive perceptions about the IWB across different ages, countries, settings and subjects, yet with very few studies exploring primary age children in the KSA. Understanding different teachers' views from different settings and educational levels (primary, intermediate and secondary) might be useful in the sense that it could inform the development of future training for teachers in the use of the IWB. Therefore, the present study was conducted in order to add to the existing body of literature, aiming to explore Saudi views of EFL about the use of the IWB in teaching English vocabulary and to determine why teachers have a generally positive perception about this tool yet which few of them actually use in their teaching practice.

1.9 Overview of the Thesis

This thesis is divided into six main chapters, which are sequenced to provide an overall teachers' perspective on the use of the IWB when teaching vocabulary as supported through the use of this tool. Chapter One (the Introduction) gives a general background to the Saudi context in education that consisted of a description of the teaching of EFL in the KSA, listing its development and challenges through two different eras. The scope of the study is then narrowed down to highlight teaching and learning EL vocabulary and technology in Saudi education, including the IWB. Next, the research problem, the aims, the research questions, the framework and methodology of the study are briefly discussed. Finally, the significance of the study is described, and the chapter is summarised through a set of concluding remarks. Chapter Two (the Literature Review) focusses on both direct and indirect vocabulary approaches, including different teaching strategies, techniques and activities. The research design and methods employed to answer the research questions are discussed in Chapter Three (Methodology). Chapter Four presents the findings from the analyses of the qualitative and quantitative data, whilst Chapter Five discusses the findings, including reference to previous studies. The thesis concludes with Chapter Six, where the entire study is reviewed, its limitations are acknowledged, and pedagogical implications for future research are discussed.

As previously stated in the Glossary (Abbreviation Section), several key acronyms are used throughout the study: IWB refers to the Interactive WhiteBoard, L1 refers to Arabic as a First Language, L2 indicates a Second Language, and EFL is an acronym for English as a Foreign Language. ICT refers to Information and Communication Technology, KSA is the Kingdom of Saudi Arabia, MoE refers to the Saudi Ministry of Education and TL refers to the target language, that is, the language being taught. In this thesis, the terms technology, ICT and multimedia are used interchangeably as are the terms survey and questionnaire, whereas the term IWB is used to refer to one type of technology only.

1.10 Conclusion

This chapter gives an overview of EFL teaching in the KSA with regards to the history of implementing EL in schools and how it was developed through two different eras, along with its associated challenges. This is followed by a discussion of the importance of teaching and learning EL vocabulary and integrating technology into Saudi education, including the IWB. As such, these issues will be more thoroughly explored within the Literature Review chapter, as will be achieved by reviewing the literature and previous studies more extensively.

Chapter 2 : LITERATURE REVIEW

2.1 Introduction

This chapter discusses theoretical frameworks and the literature about teachers' perceptions of technology and its challenges, as well as their views towards the use of the IWB; moreover, it considers studies of vocabulary teaching strategies, such as explicit and implicit approaches. The theoretical frameworks which are relevant to the current study are presented in section 2.2. Teachers' perceptions towards the use of ICT in education, including its challenges, are presented in section 2.3, followed by a discussion of EFL teachers' perceptions of using the IWB in classrooms from an international perspective in section 2.4. EFL teachers' perceptions of the use of the IWB in the Saudi context are discussed in section 2.5. In section 2.6, the different views about the IWB from various different contexts are summarised, followed by a discussion of both explicit and implicit vocabulary strategies in section 2.7. The current gaps in the research literature and the justification for this project are identified and given in section 2.8. Finally, the entire chapter is summarised in section 2.9.

Within each section, I have highlighted key themes and then focused on certain important empirical studies in order to evaluate and assess the strength of the empirical evidence more effectively.

2.2 Theoretical Frameworks
2.2.1 Introduction

A theory is defined as "a set of statements about natural phenomena that explains why these phenomena occur the way they do" (VanPatten & Williams, 2014, p. 1). The present study is complex because it explores vocabulary, teaching and teachers' perceptions of the use of the IWB. Thus, it encompasses three complementary frameworks: Borg's framework for understanding language teacher cognition (Borg, 2003), as used to guide me when investigating teachers' cognition, in which there has been little focus on teacher cognition pertaining to vocabulary. Secondly, "Social-Cultural" theory (Lev Vygotsky, 1978) is used to guide the understanding of the classroom environment and how teachers scaffold their students' learning through the use of an interactive tool as a medium, such as the IWB (Donato, 1994). Finally, the "Levels of Processing Hypothesis" (Craik & Lockhart, 1972) is used to guide the exploration of how teachers can develop their learners' vocabulary retention by

14

providing different techniques and tasks. These three frameworks start with teacher cognition, beliefs and perceptions about the use and benefits of the IWB. This feeds into the second section on social-cultural theory as a means of scaffolding their students' vocabulary learning and retention. This subsequently leads into the third theory of vocabulary learning and retention, as shown below in Figure 2.1, as well as connecting to the research questions, as reported in Table 2.1. Therefore, the three frameworks are discussed in more detail in the following sections.
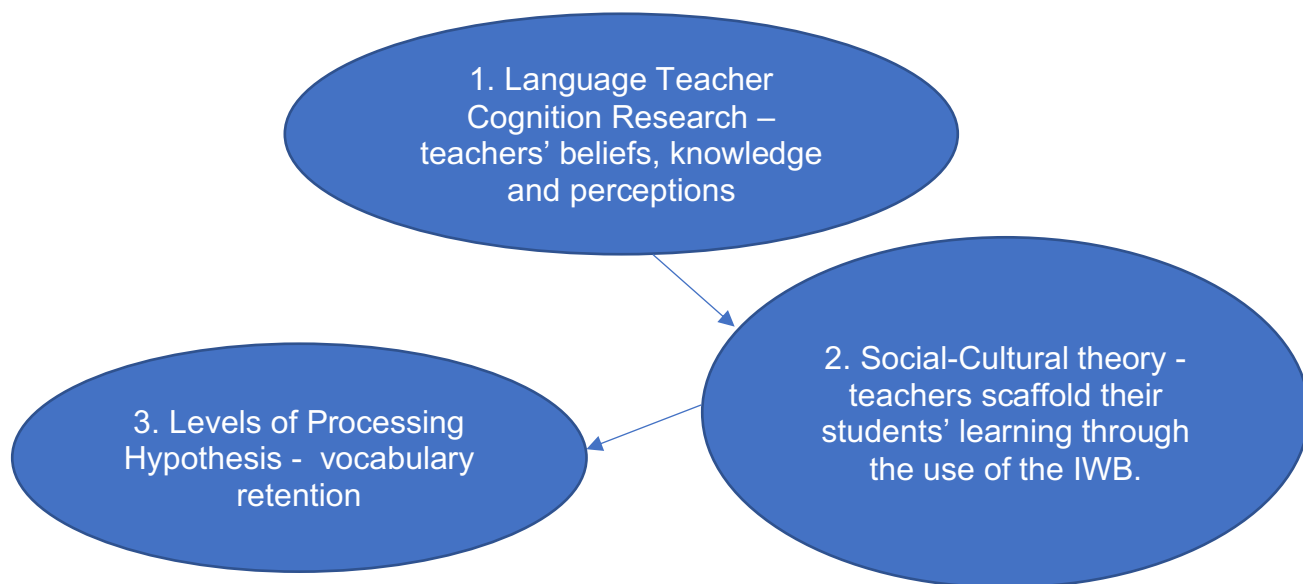
Figure 2.1: A Summary of the Theoretical Frameworks Considered in the Present Study

Table 2.1: A Summary of the Relationships between the Research Questions (RQs) and Theoretical Frameworks Considered in the Present Study.

This symbol (√) refers to the link between the RQs and the theories

Research Questions	Language Teacher Cognition Research	Social-Cultural Theory	Levels of Processing Hypothesis
RQ.1a. What are teachers' general perceptions, and stated uses, of the IWB?	√		
RQ.1b. How do teachers perceive the IWB, specifically in relation to teaching English vocabulary?	√		√
RQ.1c. How do teachers actually use the IWB when teaching vocabulary?		√	√
RQ.1d. How much training/support have Saudi primary teachers received in relation to the use of the IWB?	√	√	
RQ.2. What is the relationship between teacher variables (qualifications, length of experience, private vs. state schools) and their perceptions and use of the IWB, both stated and actual?	√	√	

2.2.2 Teacher Cognition Research

Prior to discussing teacher cognition research in detail, it would be worth giving a brief overview of the connection between teacher identity and teacher cognition.

2.2.2.a The Definition of Teacher Professional Identity

Sachs (2005, p 15) suggests that "teacher professional identity stands at the core of the teaching profession. It provides a framework for teachers to construct their own ideas of 'how to be', 'how to act' and 'how to understand' their work and their place in society. Importantly, teacher identity is not something that is fixed nor is it is imposed; rather it is negotiated through experience and the sense that is made of that experience" (Sachs, 2005, p. 15). Based on this quote, teacher identity appears to require a context whereby teachers are able assess and develop their instructional work based on their personal beliefs, values and attitudes. Similarly, Day and Kington (2008) provide a general definition of professional identity as the way that teachers believe in themselves according to their interpretation of their ongoing interaction with their context.

The focus of teacher cognition research has shifted from that of traditional teaching, that is, the basic transfer of information, more onto teachers themselves and the way they think and believe in their teaching careers, including the classroom and classroom behaviour. Because of this shift in the field of teacher education and teaching, the interest in teachers' sense of their professional identity, including its development and influence on practice, has increased (Beijaard, Meijer, & Verloop, 2004; Bucholtz & Hall, 2005). Professional identity is characterised as "the extent to which someone thinks of his or her professional role as being important, attractive, and in harmony with other roles" (Moore & Hofman, 1988, p. 70). When a teacher plays a role of a facilitator in the classroom, the aim is to assist the learners in developing their learning by providing the necessary support and guidance, and not simply by transmitting information to them. That is, the teacher moves from a more authoritative position to a facilitating position which allows the learners to get involved and actively participate, such as getting involved in critical discussions and individual or collaborative activities while using the IWB (Pratt, 1988). As a facilitator, the role of the teacher is to guide the learners in their knowledge construction process, which might also involve supporting the learners in correcting previously held ideas that might have been incorrect. A

facilitator teacher provides an enabling learning environment, with the appropriate amount of support and resources that will allow the learners to take ownership of their own learning with access to support when they need it (Devine, 2000). Therefore, the teacher allows his or her learners to get involved in their own learning through asking questions and finding answers for themselves and while interacting with the IWB as well (Yoell, 2000).

Generally, there is an increased focus on the field of education with regards to training and reflection via teacher education and development, along with the identity shift that follows the completion of teachers' professional training (Beauchamp & Thomas, 2009; Beijaard et al., 2004; Farrell, 2011). However, the main challenge that might result in a misunderstanding of the term identity in general, and teacher identity in particular as a concept can be seen in finding out and looking for a specific definition. This includes comprehending the various roles in shaping and understanding identity, such as the role of emotion, reflection, discourse and stories, context, and the relationship between identity and agency.

In the literature, the notion of identity is considered a dynamic and ongoing process with which a teacher's identity can be influenced through different factors, both those that are internal to the individual, such as emotion where it changes over time (Beauchamp & Thomas, 2009; Farrell, 2011), and those that are external to the individual, such as job and life experiences in particular contexts (Devine, 2000; Yoell, 2000). Despite the utility of these understandings about identity, there is no definite or clear definition or concept of identity.

Beijaard et al. (2004) reviewed the literature published on professional identity between 1988 and 2000, finding that there are three research areas which focus on: 1) studies related to the formation of teachers' professional identities, 2) studies related to how to identify the characteristics of teachers' professional identity, and 3) studies related to professional identity, as represented by their particular stories. Beijaard et al. (2004) see professional teacher identity formation as "a process of practical knowledge building characterised by an ongoing integration of what is individually and collectively seen as relevant to teaching" (Beijaard et al., 2004, p. 123). They believe that understanding teachers' professional identity can be done through the ongoing interpretation of their own practical/professional experiences. To build a professional identity, four important characteristics play an essential role to create some forms of

framework to allow for future research in the field. Firstly, professional identity allows teachers to interpret and reinterpret their practical experiences due to its ongoing and dynamic process. Secondly, it allows both teacher and context to be involved. Thirdly, professional identity has several sub-identities that vary in their relevance (more or less in harmony) to each other. Fourthly, it depends on self-direction ('agency'), that is, teachers are the main players in their professional development (Beijaard et al., 2004, p. 122). In their review, the relationship between personal and professional identity is somewhat unclear.

2.2.2.b Teacher Professional Education: Reflective Practice

Studies in the literature show that the processes of identity construction is a complex way of developing a professional identity in a particular context because of the disparate interpretations of participants' linguistic resources and previous experiences, as depending on their social status in the community (Farrell, 2011; House & Lévy-Tödter, 2009). This idea is supported by Wenger (1998), who states, "we define who we are by the ways we experience ourselves through participation as well as by the ways we and others reify ourselves" (p. 149). In other words, different social roles themselves play an important role in shaping our own perceptions and those of others towards us as depending on our social activities (House & Lévy-Tödter, 2009).

Language teacher cognition has two components: firstly, it relates to general aspects of decision making, including lesson planning, language learning and teaching beliefs; and secondly, it looks at particular aspects of L2 teaching. The interaction between teachers' personal experiences and pedagogical knowledge is the main focus of research into teacher cognition, "rather than seeking to produce knowledge for teachers to use" (Andon & Eckerth, 2009, p. 289).

There are a number of definitions of Teacher Cognition Research (TCR) given in the literature. These mainly refer to knowledge, beliefs, and thoughts; as Graham, Santos and Francis-Brophy (2014) point out, these terms are often used in the literature interchangeably. Likewise, the term 'belief' was used in Busch's work (2010, p. 320) to indicate "any views held by the participants about the nature of second language learning and teaching". In this thesis, I will also follow this same lead and use these terms interchangeably. The first definition given by Borg (2003, p. 81) described TCR as "understanding what teachers think, know and believe. Its primary concern, therefore, lies with the unobservable dimension of teaching - teachers' mental lives".

However, an important addition to this definition was provided Borg and Burns (2008, p. 457) who pointed out that teacher cognition can be thought of in terms of "what they know, think, and believe … relate to what teachers do".

This is an essential factor in the investigation of Saudi teachers' perceptions towards the use of the IWB in classrooms, because if Saudi teachers do not believe the IWB is of any benefit to their teaching they are clearly unlikely to use it. One powerful source of teachers' attitudes towards teaching could be based on their own learning experiences (Phipps & Borg, 2007). Their past experiences of learning might have a strong influence on their own teaching methods, as currently practised. This is because they might have, unconsciously or otherwise, memorised their teachers' styles and the way they learned and recalled knowledge. As a result, teachers may not be willing to implement and use new types of technology or teaching methodology because this runs contrary to their past experiences as learners (Phipps & Borg, 2007).

Different teachers' perceptions of their teaching actions might result in varying perceptions about the use of technology in classrooms. This means their own cognitions can act as the means of refining and interpreting new information and experiences, as well as offsetting the effects of teachers' education on their classroom practices (Borg & Burns, 2008; Phipps & Borg, 2007). Of relevance to the present study and the focus on L2 language learning, Borg (2006) reviewed 64 studies that explored the relationship between what EFL/L2 teachers do and what they believe, know and think by considering three main themes: "(1) cognition and prior language learning experience, (2) cognition and teacher education, and (3) cognition and classroom practice" (Borg, 2003, p. 81). The last theme, cognition and classroom practice, and indeed some of its sub-themes, are of particular relevance to the present study, and are discussed below.

2.2.2.1 Teacher Cognition and Classroom Practice

As we have seen, teacher cognition is extremely important to classroom practice; however, classroom practice can proceed from different contexts. For instance, differences between countries, educational levels, student ages and different types of schools (private and public) might have a strong effect on the teaching and learning process. The relationship between teacher cognition (TC) and teachers' classroom practices (CP) has been examined in several studies into language teaching (e.g., Breen, Hird, Milton, Oliver, & Thwaite, 2001; Lam, 2000), along with other studies exploring these relationships in the field of education in general. It is not always the

case that teachers' beliefs and practices are congruent due to the various factors and/or constraints they might experience related to curriculum requirements, coursebooks, examinations, etc., over which teachers have no control, and which may even prevent them putting their beliefs into practice (Richards & Lockhart, 1994). Borg (2006) discussed the idea that while a teacher's beliefs may influence their practice, their beliefs may also be shaped by their practice. This might result in a two-way interaction between teachers' personal theories and their teaching experience. Some empirical studies are provided below in relation to TC and CP.

For example, a qualitative empirical study undertaken by Breen et al. (2001) included classroom observations followed by an interview and elicitation procedures with 18 experienced teachers in an Australian context. These teachers taught children and adults English as a second language (ESL). The aim of the study was to examine what meanings teachers assigned to their classroom work in relation to the specific relationships between practice and principle that they were able to identify. The results revealed that each individual teacher conceptualises a particular idea or concept through a specific preferable teaching practice, and thus that these arrangements of concepts and teaching practices could well be unique to individual teachers. The results revealed that there was some considerable diversity in both the individual and group practices teachers chose, and indeed in their fundamental principles. The results also revealed that the relationship between teachers' beliefs, knowledge and actions was coherent with regards to particular principle results in specific practices, and vice versa. However, this study was limited in terms of the number of participants and the method, which focussed on the qualitative approach.

The second study was a case study carried out by Basturkmen, Loewen, and Ellis (2004), which included three male, native English-speaking teachers. Their study was a part of a larger study including 48 classroom observations of 12 teachers and self-reported data consisting of "statements of beliefs about focus on form elicited from teachers through the use of in-depth interviews, cued response scenarios and stimulated recall" (p. 248). The study was intended to explore the relationship between teachers' stated beliefs and their actual practices in intermediate-level ESL communicative lessons at three private schools in Auckland, New Zealand. The results showed that even though these teachers taught students to the same levels at the same school using the same tasks, there were still some differences and inconsistencies in the teachers' beliefs regarding the focus on form and their "preferred

error correction technique. This suggested that each teacher has his own different personal teaching ways or styles and beliefs about these styles. While some statistically significant differences in the teachers' practices were reflected in differences in their stated beliefs, others were not" (p. 248). The results also revealed that the teachers' practices and stated beliefs in relation to focus on form were only weakly correlated.

The inconsistency of the three teachers' stated beliefs in the study by Basturkmen et al. (2004) might have been related to the responses gained during their interviews which can reflect technical, instead of practical, knowledge (Ellis, 1997). It can be argued that such an inconsistency might probably diminish with time and teaching experience. Another explanation might be the fact that each teacher has their own different personal teaching methods or styles, and their own beliefs about these styles. However, the study was limited to a sample of just three teachers, which is clearly not sufficient to fully understand this phenomenon, nor indeed to examine teachers' beliefs only, and instead the study should look to both teachers' stated beliefs and observed behaviours. It is important to note that Breen et al.'s (2001) results do not support the results of Basturkmen et al. (2004), who found teachers' beliefs and their practices were only weakly related.

A third study undertaken by Sawyer (2017) examined the relationship between 51 teachers' attitudes towards the use of technology and the extent of its implementation during classroom observations in a Florida school district. This study used a survey which focussed on the use of technology and teachers' perceptions towards it, and the observation of technology integration that developed at the Florida Center for Instructional Technology (FCIT). The general relationship between teachers' attitudes and technology implementation, as well as the overall predictive value of teachers' perceptions of technology implementation levels, was identified by linear regression. Both of these relationships were found to be statistically significant; a low-moderate relationship existed between what the teachers believed through the survey and what they actually did during the classroom observations.

While Sawyer's study identified some important areas for reflection, it is worth highlighting the fact that the relatively small number of participants (51 teachers) means that the results cannot be generalised. In addition, Sawyer (2017) also reported that her study needed to have a larger number of participants in order to determine

what teachers think about their practices with greater certainty. Finally, it is important to bear in mind that not considering teachers' perceptions about different grade levels and underlying factors, along with looking at different educational levels, might be seen as limitations. Furthermore, Saudi Arabia and the USA are educationally and economically disparate, so there might well be a possibly that the results from the USA will not reflect the situation in the Saudi context (and, of course, vice versa). This suggests that the results of this study may not transfer well, or indeed at all, to the Saudi context.

The studies reviewed above were conducted either quantitatively or qualitatively. The former can give an overall picture of the population of the study, whereas the latter can provide information about the study in more depth. However, separating these methods into these different studies might be problematic because using one over the other might result in an incomplete picture of the overall results. In this case, one way to avoid this problem might be to combine the two methods into a single study, as was done by Alghamdi and Higgins (2015) regarding the use of the IWB. However, this particular study was undertaken in a public high school in Thailand, which might not give a clear indication about primary schools in Saudi Arabia, which again have a very different context (Katwibun, 2014). In addition, this study was carried out on a small scale with a total of only 51 participants. As a result, these studies might lead to a less than complete understanding of the phenomenon. Therefore, a large-scale, mixed methods study needs to be conducted in Saudi primary schools to address this gap in the literature. The following section will look specifically at teachers' cognition and context including both private and public schools.

a. Cognition and Educational Context: Private vs. Public Schools

Now that we have reviewed what is meant by teacher cognition, and looked at ways in which it can affect a teacher's practice in their classroom, it is important to consider some of the contexts in which teachers teach, and review some of the literature about how different environments can affect their beliefs, attitudes and teaching practices. There are a wide variety of educational environments, but in the Saudi context probably the most important division is between public and private schools; that is to say, government-funded schools, where most students study, and private schools, which are available to those who can afford to pay for their children's education.

There is a general lack of research to have either compared or considered the differences between the two types of school (private and state) in order to investigate

the different types of teacher cognition that arise in these different contexts. For instance, Jones (2017) investigated the beliefs and attitudes of state (public) elementary school teachers in the USA. She did this by conducting interviews with 37 teachers and conducting 10 classroom observations in the Openwood Elementary Public School to study teachers' attitudes towards technology and modern teaching methods. Her results suggested that while teachers in the public schools generally viewed modern teaching methods favourably and felt comfortable using new technologies, a few teachers claimed to struggle to find the balance between creating interactions and the time during which these teachers used technology in the classroom.

In contrast, Mustafina (2016) explored teachers' and students' attitudes and beliefs about the use of technology in private high schools in Kazakhstan. He did this by designing questionnaires and conducting face-to-face interviews and focus group interviews with the same 29 teachers. For the quantitative part, the results showed that most teachers have a generally positive perception about the use of technology.

For the qualitative part, the results revealed that teachers generally expressed positive perceptions about the use and importance of integrating technology into classrooms. The results of Mustafina's study suggested that certain differences can exist between the attitudes of different teachers towards technology and teaching methods within private schools, at least in the USA and certain other countries' contexts.

However, it is important to note that there are also important limitations to this study. First of all, it seems possible that given the low number of questionnaires, 29 teachers for the Mustafina (2016) study, the results cannot be generalised nor lead to concrete outcomes. In addition, this research was undertaken using a questionnaire that surveyed only a few participants; whilst this study was able to measure teachers' attitudes towards technology and modern teaching methods, it was unable to investigate the reasons why they held those attitudes in the same way that using both questionnaires and interviews could. Thirdly, the study was conducted in a single secondary school, which might provide insufficient results. Finally, it is essential to bear in mind that Saudi Arabia, Kazakhstan and the USA are culturally very different, so there is no guarantee that results from the USA and Kazakhstan will, once again, reflect the situation in the Saudi context.

Another study contrasted teachers' beliefs towards new technology and its use in classrooms in both public and private schools. This study was conducted by Wozney, Venkatesh and Abrami (2006) in Canada, and showed that even though teachers generally adopted positive attitudes towards technology only 59% used it frequently, whereas just 7% always used it in their classrooms. In this study, 764 male and female teachers from seven public schools and five private schools at different educational levels ranging from kindergarten to high schools in Quebec, Canada, responded to the questionnaire. The respondent teachers were a mixture of novice, less experienced and more experienced individuals. Results from MANOVA were computed to explore the mean differences in frequency of the use of computers by gender and teaching sector (private vs. public). Private school teachers showed more positive attitudes towards the use of technology than public school teachers, along with a statistically significant difference reported between the amount of training received compared to public school teachers. These results might lead to an explanation for the different attitudes towards the use of technology found in the two sectors.

While the study of Wozney et al. (2006) identified some important areas for reflection, it is worth highlighting some of its strengths. First of all, the questionnaire had a very large number of participants (764) which helped to represent the whole (or at least a large) population. Secondly, carrying out that study in two different sectors (private and public schools) and in several different schools in one city could help ensure concrete outcomes. However, the study might have some limitations. First of all, it seems possible that, being undertaken in different countries and settings, it might not relate to the Saudi school systems' results in terms of having different outcomes. This perhaps suggests that the results in this study may not transfer well to the Saudi system. Secondly, it could be possible that, given that the study was conducted 13 years ago, the results might no longer be pertinent to today's schools where technology has a much greater impact on teaching and learning in classroom practice. Thirdly, although there were two high internal reliability values (0.86, 0.73) in the three broad categories of the questionnaire of belief items, there was one category which had a low internal reliability (0.61). The following section will examine the relationship between teachers' cognition and their teaching experience.

b. Cognition and Experience

In this section, teachers' cognition and experience is discussed and some of the literature reviewed in terms of how extensive teaching experience can have an impact on teachers' beliefs, attitudes and teaching practices.

Both the cognition and accumulated teaching experience of teachers shape what they do in their classrooms. For example, several studies have examined the relationship between the extent of teachers' experience and cognition (e.g., Breen et al., 2001; Mok, 1994). A number of studies have discussed the comparison between experienced and inexperienced language teachers with regards to technology implementation (e.g., Jones, 2017; Mustafina, 2016; Sawyer, 2017) and use, as well as in-classroom management and decision making in their teaching practice (Nunan, 1992). These studies shed light on how gaining teaching experience over time can result in positive transformations in teacher cognition. A number of empirical studies are given below regarding teachers' cognition and their teaching experience.

The first study, as undertaken by Nunan (1992), examined 28 ESL teachers' planning and decision-making behaviour in relation to their different teaching experiences in Australia. Each teacher was assigned to one of four different groups, as reflecting their previous experience. An authentic tape and a set of activity sheets were provided for each teacher, from which each teacher had to complete three activities, namely to plan, teach and record a unit of work. Nunan found that the experienced teachers focussed on issues of students' language, whereas less experienced teachers concentrated on classroom management. The results showed that the experienced teachers were able to keep students busy through certain activities and tasks, which enabled them to manage student behaviour and draw their attention to issues of content in an effective manner. The results of this study suggested that there is a difference between experienced and less experienced teachers' attitudes with regards to dealing with students and teaching approaches.

However, Nunan's study (1992) also had certain limitations. First of all, it seems possible that the outcomes of conducting studies in different countries and settings might have produced different results and different outcomes to those that might otherwise arise in Saudi Arabian schools. These results might not transfer well to the Saudi system. Additionally, the fact of the study being more than two decades old, during which time technology and teaching methodology have been developed as a

part of classroom practice, is another significant factor. As such, it is important to note that there are completely different cultures in Saudi Arabia and Australia, and hence there is no guarantee that the results found in the Australian context will reflect the situation in the Saudi. However, the strength of Nunan's study (1992) was that of adopting a qualitative approach with a relatively large number of participants (28) to gain more in-depth information about this phenomenon.

Further evidence as to the importance of accumulated teaching experiences was provided by Richards (1998). He conducted his study with 16 ESL teachers in the UK and assigned them to two groups, namely an experienced and a less experienced group, to examine whether experienced and less experienced ESL teachers with different teacher training used lesson plans differently. The teachers completed a questionnaire, and each teacher was observed where each had a lesson plan for their classes, and then subsequently undertook recorded interviews. In terms of the questionnaire and the interview responses, the teachers were found to share similar beliefs about the importance of using lesson plans. Richards (1998, pp.117–118) found that the experienced group was able to explain and speak spontaneously in their teaching to a much greater extent than the less experienced group. His argument was that "as teachers develop their teaching skills, they are able to draw less on pre-active decision making (the type of planning that occurs prior to teaching) and make greater use of interactive decision-making as a source of their improvisational performance". As such, experienced teachers tend to act as guides or facilitators more than as teachers. One of the experienced teachers commented:

> *As the years go by, I feel less and less a 'teacher' and more and more a 'guide' or 'conductor' trying to extract what is inside my students…*

The difference focus between experienced and inexperienced teachers regarding teaching practice is in accordance with a number of studies in the literature. These studies show that experienced teachers can engage students in the learning process and provide them with the self-confidence to learn independently to a greater extent than inexperienced teachers. Nevertheless, this study was limited by the fact that it was relatively small in scale, including only 16 teachers, which is unlikely to represent the teaching population as a whole even though it was carried out using mixed methods consisting of a questionnaire, observation and interviews. Another limitation was that conducting a study in the UK might result in different results and outcomes to the Saudi context, which has a different culture and education system. Therefore, teaching

experience has a significant effect on teachers' beliefs, knowledge and actions in their teaching practices.

The third study, conducted by Enayati, Modanloo and Kazemi (2012), explored teachers' attitudes towards technology integration and its use in classroom practice in Iranian schools by sending out 380 questionnaires to male and female teachers. Results from the descriptive statistics showed that less experienced teachers (one to 10 years) made up 32% of the sample, and experienced teachers (11 years and above) made up 67%, where 1% of the teachers declined to give their age. The results indicated that these teachers, on the whole, had positive attitudes towards technology integration and use. The results also showed that the more experienced teachers became, the more positive attitudes they held. This idea was supported by Henry (2008), who found a positive relationship between increased teaching experience and the quality of the implementation of technology. The limitation to Enayati et al.'s study (2012) concerned the use of only one method rather using different methods to gain a clear picture of the phenomenon. As such, from their results it could be possible that accumulated teaching experience might lead to an impact on teachers' technology skills, and its use and integration into classroom practice.

c. Beliefs, Attitudes, Knowledge (BAK)

This section considers what teachers believe, think and know about particular ideas or tools or objects that can be used in teaching practice.

There has been an attempt by Woods to discuss constructs such as belief and knowledge which resulted in his "*BAK (beliefs, attitudes, knowledge)"* proposal that presents his views in this regard (Borg, 2003, p. 96). Breen et al. (2001), Golombek (1998) and Woods (1996) shed light on the differences in terms of understanding the relationship between cognition and teaching practice.

Some teachers' pedagogical beliefs are based on implicit assumptions as to how students learn rather than tried and tested theory; these practices are referred to as folk pedagogies (Wertsch, 1985; Bruner, 2000; Olson & Bruner, 1996). An example of folk pedagogies would be learning style theory, which is no longer considered by researchers (An & Carr, 2017; Stahl, 1999; Taasoobshirazi & Carr, 2009; Willingham, 2005) to be valid or reliable as a theory, but a number of teachers still believe in it. Learning styles are believed to have various categories (e.g., the sensory modalities,

patterns of cognition, personality types, and learning preferences, among others) as found by a review of a large number of learning style models by Coffield, Moseley, Hall and Ecclestone (2004). These learning style models include three main learning methods: the visual, auditory, and kinaesthetic (VAK) sensory modalities. Those who might learn best using visual methods grasp information by seeing, whereas auditory learners discover information through listening, and kinaesthetic learners like to learn through physical activities and more "hands-on" approaches (An & Carr, 2017). There, however, has been much controversial debate and dispute as to whether learning style theory has a positive outcome as a theory concerning its impact on pedagogy and the explanations it offers about learning (An & Carr, 2017; Coffield et al., 2004).

Nevertheless, some teachers still make reference to LST. For example, questionnaire findings presented by Peacock (2001) from a study involving 46 EFL teachers and 206 EFL students at a Hong Kong university suggested that EFL teachers believed that they should use different learning styles in a balanced way so as to meet their learners' needs. The findings from both the survey and the interviews revealed that the majority of teachers believed that learning styles were associated with several sensory modalities such as the visual, auditory and kinaesthetic. Given the way in which the IWB can offer teachers the chance to present material in different ways (visual through presenting pictures and videos, auditory through audio tools, and kinaesthetic processes through interacting physically with the board), it is of interest to explore the extent to which teachers refer to the importance of addressing different learning styles when expressing their beliefs about the IWB.

2.2.3 Socio-Cultural Theory

Socio-Cultural Theory (SCT) presents scaffolding as a concept that teachers might use to engage their students in working together, as higher-attaining students can then help lower-attaining students, and when teachers use the IWB as a tool to make lessons more interesting and easier. SCT was conceived by the Russian psychologist Lev Vygotsky (1978), and which sees learning as a means of social interaction, particularly verbally, through having a person's support as a mediator, such as parents or teachers (Kozulin, 1990; Lantolf, 2000). Vygotsky's theory has influenced both the fields of psychology and education. It is considered to be one of the most powerful and fundamental theories since the end of the last century (1990s), highlighting the importance of interactions based on different perspectives (Kozulin, 1990; Lantolf, 2000).

2.2.3.1 Symbolic Mediation and Mediated Learning

Vygotsky (1978, as cited in Lantolf, 2000, p. 80) argued that just as humans do not act directly on the physical world but rely, instead, on tools and labour activity, we also use symbolic tools, or signs, to mediate and regulate, we also use symbolic tools, or signs, to mediate and regulate our relationships with others and with ourselves.

As can be seen in this quotation, SCT supports the view that the linguistic and social worlds are central factors for thought and a means of learning which mediate learners' cognitive development (Mitchell, Myles, & Marsden, 2013). Vygotsky (1978) believes that learning is a mediated process, and he classifies two levels of children's learning and development. The first level operates through interpersonal interaction, which refers to communication with experts or knowledgeable peers or their integration into a community and culture. In this level, learners receive knowledge which is beyond their current level of mental functioning, but which can nevertheless be achieved through cooperative work. The second level operates through intrapersonal interaction, which refers to communication that occurs in a learner's mind. Here, the information and the content go beyond the existing knowledge in a learner's mind, where the first language acts as a means of translation that allows the problem-solving process to be addressed (Lantolf, 2000). The level of this type of mediation is called the "Zone of Proximal Development (ZPD)", where learners can develop significantly based purely on gaining assistance from others (Lantolf, 2000). The part of the interpersonal interaction in SCT theory considers the interaction between child and knowledgeable peers, which is closely related to the current study.

'ZPD' is described as "the zone between the learners' current stage and the next point" of their development reach, which is defined as, "the distance between the actual developmental level as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance or in cooperation with more capable peers" (Vygotsky, 1978, p. 86). The ZPD concept has had a strong impact on developmental psychology, education and applied linguistics. It implies that the difference lies between when learners can undertake a task independently and when they need help or would benefit from a degree of collaboration to direct them towards reaching appropriate answers.

Scaffolding is a key component in building internal and intellectual knowledge and skills in a learner's mind, as based on social activities through communication and dialogue, and which is referred to as interpersonal interaction (Bruner, 1978). Donato (1994)

points out that "scaffolding performance is a dialogically constituted inter psychological mechanism that promotes the novice's internalisation of knowledge co-constructed in shared activity" (p. 41). That is, Bruner (1978) describes the term 'scaffolding' as a verbal collaboration between learners and their more knowledgeable peers or the verbal guidance provided by experts to help a learner to complete tasks and to facilitate intentional learning, but where scaffolding can only occur when the learner is an active participant. In this stage, novice L2 learners can develop their knowledge and skills to reach a high level of competence through their social interaction with more experienced peers or adults.

In an educational context, scaffolding is an instructional process where teachers transform and impart knowledge or tasks and then gradually shift the associated responsibilities to the learners. According to Wood, Bruner and Ross (1976), scaffolding has several advantageous functions: firstly, it provides learners with a clear direction through which to address the aims of the tasks in order to engage them in these tasks and to simplify them; secondly, it is considered to be a means of dispelling and controlling frustration, as well as proposing an appropriate solution to any problem that might occur. Donato (1994) points out that the aim of scaffolding is focussed on how L2 learners gain assistance from teachers and from knowledgeable peers. In this study, the extent to which the IWB is used as a means of scaffolding is explored, when teachers use it as a tool of interaction between themselves and their students on the one hand, and between students themselves on the other, in order to work as a team (Hammond, 2001; Krause, Bochner, & Duchesne, 2003; Stone, 1998). This view is similar to Stone's, as it "highlights one of the key features of children's learning, namely, that it is often guided by others, who strive (explicitly or implicitly) to structure learning opportunities" (1998, p. 358). As such, SCT helps explore how teachers can scaffold L2 learning using the IWB to promote social interaction. In this view, teachers can perhaps use the IWB for different features such as video, audio clips and pictures so as to teach vocabulary and make it easier to retain, as well as to deliver information in a comprehensible manner.

2.2.4 Levels of Processing Hypothesis Theory and Involvement Load Hypothesis: Engagement with Vocabulary

This section considers how teachers can engage their students in learning vocabulary and retain it through following certain processes, for instance, the need for a word and

then searching for it, and then evaluating whether it fits the intended use correctly or otherwise. This section also shows how the IWB can be used to present new and unfamiliar words on the board by using its different functions and features, such as presenting new words side by side with a pictorial representation.

The levels of processing hypothesis theory (LPHT) was proposed by Craik and Lockhart in 1972 within the cognitive psychology field as an alternative model to prior memory theories (Atkinson & Shiffrin, 1968). LPHT classifies human memory into three stages: the sensory, short-term and long-term stages. Craik and Lockhart (1972) clarified the process of LPHT in terms of how learners can recall information, which mainly relies on having appropriate information during and after the use of LPHT and the way in which it is processed in-depth. Craik and Lockhart (1972) state that the ability to retain information depends on the amount of attention paid to an item and thus how far it is 'noticed' (Schmidt, 1990) and how much engagement there is with the item. In this vein, Laufer and Hulstijn (2001, p. 2) provide further suggestions to refine the notion that "involvement for vocabulary learning includes three fundamental components: *need, search*, and *evaluation*".

Firstly, "*Need"* indicates the necessity of having a linguistic feature or category or lexical category to properly achieve task completion, such as knowing specific words so as to comprehend a written or reading text or paragraph. Secondly, "*Search"* indicates making some form of effort to determine some specific information that is being asked for, for example, looking up a particular word and its meaning in a dictionary. Thirdly, "*Evaluation"* attempts to examine the way in which a word can fit in a sentence through comparing the context being used with the information about a word itself. Laufer and Hulstijn also subdivide the "*evaluation"* term into "*moderate evaluation"*, when words match and fit with a context that is given when being evaluated, and "*strong evaluation"*, when an authentic context involves and brings words and additional words together in a combination where the learner created a context when being evaluated (Laufer & Hulstijn, 2001, p. 14). Furthermore, Laufer and Hulstijn (2001) suggest that different types of words require different levels of engagement; for instance, low engagement could represent a means of learning simple words rather than difficult ones.

Given the above, a number of researchers suggest the following most "effective" tasks that can be used in classrooms to allow students to augment their vocabulary through *need*, *search* and *evaluation*. Laufer and Hulstijn (2001, p. 14) list them as, firstly, *need*, which includes: (a:1) "the motivational, non-cognitive dimensional involvement" to achieve what a task requires such as understanding required unknown words in a text by learners. (a:2) "The *need* will arise during a writing or speaking task when the L2 learner wants to refer to a certain concept or object but the L2 word expressing it is unfamiliar". For example, if the *need* is a *moderate need*, the teacher asks learners to use words in a text or a sentence, whereas a *strong need* is where there is a need to use words in a context created by the learners themselves.

Second, *search*, as Laufer and Hulstijn, (2001) classified it, includes: (b:1) searching for the meaning of a word in different ways; (b:2) using the dictionary to look for a word; (b:3) looking up the meaning of a word in the dictionary; (b:4) using the acquired words from L1 and L2 in a composition; and (b:5) increasing the attention, and the frequency of exposure, to the lexical item. Third, *evaluation* "entails a comparison of a given word with other words, a specific meaning of a word with its other meanings, or combining the word with other words in order to assess whether a word (i.e., a form meaning pair) does or does not fit its context" (Laufer & Hulstijn, 2001, p. 14). *Evaluation* consists of: (c:1) when a learner searches for a word which has a similar spelling or pronunciation but a different meaning to another word during a reading task. In this case, the learner needs to compare the word's meanings with the given context in order to choose the most appropriate meaning. Another example can be seen when a learner needs to translate an L1 word to L2, and which can be found in a dictionary but where different meanings show up in a writing task. Thus, the learner is required to evaluate and compare the words' translations against one another to choose the most appropriate to transfer to the L2 word meaning.

The IWB can allow teachers to present vocabulary in ways that are in accord with the LPHT. In the current study, teachers' practices were examined to see how far their IWB use did indeed highlight aspects such as *need, search, evaluate* and *noticing.* As such, understanding the three key elements of engagement for vocabulary learning and retention can possibly pave the way to teachers being able to assist their students in learning and remembering newly learned vocabulary. In this view, teachers probably present vocabulary on the IWB in different ways in order for them to be learned and recalled both easily and efficiently.

2.2.5 Summary

The previous sections have explained the theoretical underpinnings of an exploration into what teachers believe and practise (from the perspective of TCR), of how they use scaffolding (from the perspective of SCT), and as to whether the IWB allows teachers to teach vocabulary through approaches that are in accord with the LPH. These three theoretical frameworks can be summarised as shown in Figure 1. The following section will expand on considering empirical studies relating to teachers' views about using ICT in education.

2.3 Teachers' Perceptions of the Use of ICT in Education

This section looks at teachers' beliefs concerning the use of ICT in teaching practice (in a classroom setting). Recent empirical studies have been considered below to support the discussion and review other writers' findings regarding the use of ICT, with many studies reporting positive attitudes on the part of teachers. ICT assists teachers in simplifying and clarifying lessons through features such as highlighting information with different colours, underlining words, using different font sizes, and so on. Therefore, ICT could be used as a form of scaffolding tool for both teachers and students to reach higher levels based on teachers' cognitions about the benefit of using technology in teaching practice.

Some recent studies have discussed teachers' perceptions of the use and benefits of ICT (e.g., Korte & Hüsing, 2006; Kozma, 2003; Ramalingam, 2012). For example, the first study undertaken by Ramalingam (2012) in a Malaysian secondary school with a full set of ICT equipment involved five EFL teachers from different countries. One teacher had one year of teaching experience whilst the remaining four teachers each had 10 years of teaching experience. The research used semi-structured interviews and classroom observation. The study aimed to explore what teachers thought about the impact of ICT in improving students' English learning and examining teachers' difficulties when using ICT in their classes. The results revealed that most teachers, particularly experienced teachers, expressed positive attitudes towards the implementation and use of ICT when teaching EFL. Teachers believed that ICT allowed for increased interaction and encouragement in terms of learning and enhancing learning despite their relative lack of ICT skills, and which enabled students to increase their vocabulary bank. Teachers also felt there were several reasons that

ICT was not used properly, such as lack of access, resources, training and time constraints.

In a similar manner, the second study included mixed methods research which was carried out by Alshmrany and Wilkinson (2017) and included sending 200 questionnaires to Saudi teachers, supervisors and students. This was followed by randomly conducting nine interviews with male and female Saudi science teachers, supervisors and students in three different cities in Saudi Arabia (Jeddah, Riyadh, and Dammam) in order to examine their attitudes towards the use of ICT in KSA primary schools. Of the 200 responses received, 170 valid responses were selected. The semi-structured interviews were used to investigate teachers' behaviour, attitudes, mindsets and the general acceptability of ICT in their classrooms. For the questionnaires, descriptive statistics were used to identify teachers' ages, levels of education, attitudes, and their use of ICT facilities. The results revealed that some teachers felt that ICT facilities (e.g., presenting pictures and videos) were useful in their teaching practices and indeed for their students' learning in relation to motivation and interest.

Two science teachers described the use of ICT as follows: "*Use of ICT in teaching is effective to make the students understand about difficult topics though use of photos and videos. This also increases the attention of the students"* (Alshmrany & Wilkinson, 2017, p. 151). Therefore, the study is about science teachers rather than EFL teachers, but there are perhaps similarities in what the science teachers thought and what EFL teachers might think, even though the subject areas were different, and the teachers' nationalities and backgrounds were alike.

In the third study, performed in the same vein, Al-Maini (2011) conducted a three-year qualitative case study including 18 classroom observations in 10 classes at one boys' state secondary school (aged 15-17) and semi-structured interviews with four EL teachers in Saudi Arabia. The results of this study showed that during the interviews, one teacher explained that the ICT facilities were available in the Learning Centre in the school, which included computers and a digital projector which could be used by different teachers. He found it useful in terms of improving his students' academic achievements, although he only used it on occasion. Another teacher, unlike teacher one, stated that he felt that the continual use of ICT facilities enabled him to engage and encourage students to participate in their learning in a more active manner. He added that ICT might help teachers to change their traditional teaching styles and

methods, which might otherwise cause their students to become bored during lessons. Even though the two teachers had the same nationality, background and ICT training, they used ICT differently. Both teachers expressed their concerns about insufficient financial support in relation to the ICT equipment and technical support.

The limitations and the gaps in the three empirical studies by Al-Maini (2011), Alshmrany and Wilkinson (2017) and Ramalingam (2012) are discussed in detail. The two qualitative studies by Al-Maini (2011) and Ramalingam (2012) were somewhat limited because of the small sample size used in each. For instance, the study by Ramalingam (2012) was limited to interviews with five EFL teachers and their observations. Another limitation was conducting the study with a single teacher with only one year of teaching experience and four teachers with 10 years of teaching experience; this sample might not be sufficient to represent the teaching population as a whole. Similarly, Al-Maini (2011) conducted a qualitative case study including 18 classroom observations in 10 classes and semi-structured interviews with four EL teachers in Saudi Arabia. The strength of this study lay in the extent of the qualitative data collected by interviewing four teachers, although it was at the same time limited by being conducted within only one state school, which was unlikely to be sufficient to allow for generalisation.

The mixed methods study conducted by Alshmrany and Wilkinson (2017) included 200 questionnaires followed by interviews with nine Saudi male and female science teachers, supervisors and students in three different cities (Jeddah, Riyadh and Dammam). This study had certain strengths: first of all, the study used both Cronbach's alpha and composite reliability statistics to determine the reliability of the constructs used to measure teachers' responses. For the former, the test items of this study was highly correlated based on the high values outputs of its Cronbach's alpha (0.7). For the latter, by measuring composite reliability, all the factors revealed a high composite reliability value (greater than 0.7). Nevertheless, this study also had its limitations; for example, it is essential to bear in mind that this study was carried out with science teachers rather than EL teachers. The gaps in these studies have been addressed in the present study, where a mixed methods approach was used with a large sample of EL teachers in Saudi primary schools.

The studies above showed that many teachers have been found to have positive views towards the use of ICT in teaching practice and how it facilitates motivation, interest

and enriches learning. As such, it is possible that such positive views might lead EFL teachers to use the IWB as a form of scaffolding tool when teaching vocabulary, and as a means to increase their students' vocabulary learning and retention.

2.3.1 The Challenges of Using ICT in Education

In this section, teachers' views concerning the difficulties they encountered in the use of ICT in their teaching practices are discussed, and examples from recent empirical studies are provided. A number of empirical studies have discussed the difficulties in using ICT in teaching practice.

For example, Raman and Yamat (2014) carried out a qualitative study involving 12 semi-structured interviews at an independent Chinese secondary school in Malaysia in order to investigate the reasons that teachers were not using ICT in their classrooms. Subsequent findings revealed that most EFL teachers (66%) were not motivated or interested in integrating technology into their classrooms due to a general lack of interest and readiness to use it; they overwhelmingly preferred traditional teaching methods. Other barriers to this adoption were insufficient training and lack of time to integrate ICT into classrooms, as four teachers reported, with one of them commenting: *"I don't have enough time to go through the lessons via ICT tool"* (p. 14). Another teacher reported that *"limited time is really not enough to set up all those ICT tools and start the lesson"* (Raman & Yamat, 2014, p. 14). Two teachers reported the following *"lack of ICT competence and knowledge is my problem, I do not have enough skills to incorporate ICT tools"* (Raman & Yamat, 2014, p. 14).

Likewise, the second study was a case study undertaken by Unal and Ozturk (2012), which included interviews with 18 Turkish EFL and social studies teachers in order to determine the kinds of obstacles to integrating ICT into their classroom practices. The results showed that six out of these 18 teachers had ICT training, but it was insufficient because appropriate pedagogical aspects were absent. That is, they believed that even though they had attended the appropriate training courses, they in fact need to be relevant to what they taught in classrooms. As one of the teachers stated in his interview (p. 942-943):

> Another related problem is that the training given about ICT is mostly for general knowledge and skills. Interviewed teachers state that the in-service training they received did not include general ICT-based methods and approaches for teaching social studies. Within the scope of in-service training, only general skills regarding the use of ICT equipment were emphasized, without relating them to teaching methods and content knowledge.

As such, it can be concluded that using ICT could possibly result in negative teaching and learning outcomes when used incorrectly and inadequately. Also, some elements should be taken under consideration by teachers prior to integrating ICT in order to ensure its proper use, such as lack of training, flexibility of time and task arrangement.

The limitations and the gaps in the two studies (Raman & Yamat, 2014; Unal & Ozturk, 2012) can be seen by focussing on only qualitative interview data through a large sample in the two studies. However, they are limited in terms of potential generalisation; by sending out questionnaires, one can probably gain a greater understanding about the phenomenon. In the next section, in attempting to understand teachers' perceptions regarding the use of the IWB in teaching practice, it would be helpful to discuss them separately and then provide an appropriate overview and then ultimately make comparisons at a number of different levels in the final section. Firstly, teachers' views towards the IWB in EFL (international) contexts, which do not include Saudi contexts, whilst secondly, teachers' views towards the IWB in the Saudi context, will both be considered. The rationale behind looking at these studies in such a manner is to be able to draw appropriate conclusions as to whether each context and setting would result in having similar or different views towards the use of the IWB.

2.4 EFL Teachers' Views Regarding the Use of the IWB in Classrooms

The first comparison that is made is to explore teachers' perceptions about the IWB with regards to teachers in Intranational Contexts (ICs) where English is taught as an EFL but in neither an Arabic nor a Saudi context. The rationale for presenting the studies is to determine if there are any similarities, or indeed differences, between EFL studies in different ICs and countries.

The first empirical study, as carried out by Golonka, Bowles, Frank, Richardson and Freynik (2014), was to investigate teachers' views about technology, including the IWB. Teachers and students had positive perceptions about technology in general and the IWB in particular, and positive beliefs regarding its role in enhancing teaching and learning as based on triangulation methods including surveys, lesson observations and interviews. Furthermore, some EFL language teachers expressed their positive beliefs about technology with regards to how it can change their teaching practices in an effective manner in classrooms, improve their students' motivation and participation in learning, and draw their students' attention.

This is supported by another empirical study conducted by Mathews-Aydinli and Elaziz (2010) that was carried out in Turkey in an EFL context in order to examine 82 teachers and 458 students' views about the use of the IWB through a questionnaire. Participants were taught and studied at different educational levels ranging from the primary to university levels. The results showed positive attitudes and beliefs among teachers regarding the use of the IWB in classrooms and increasing students' motivation, interest, interaction, participation and learning. The results revealed that there were strong beliefs among 90% of teachers about the use of the IWB as "a good supplement for the language teaching process" (p. 243). Teachers also reported training issues, 63% of whom felt further training was required, and indeed necessary, with respect to the use of the IWB.

The third empirical study was conducted by Türel and Johnson (2012) to explore the perceptions of Turkish EFL teachers about the use of the IWB. A survey was sent to 174 teachers who were deemed to have sufficient knowledge of the IWB and its issues in practice and who taught between grades 6 and 12, as well as having actively used the tool for six months in their schools. The results from descriptive analysis and chi-squared tests showed that most teachers had positive attitudes about the use of the IWB.

These results were in accord with those of Saltan, Arslan and Gök (2010, p. 357), who examined the attitudes of 12 male and 22 female Turkish primary EFL teachers regarding the use of the IWB in primary school classes. A questionnaire was distributed to the participants which consisted of three parts and 30 items: perceived usefulness (PU), perceived ease of use (PEU), and teachers' attitudes (TA). Frequencies and descriptive statistics revealed that all teachers generally expressed positive views about each of the three parts, including the use of the IWB in the classroom. The mean scores showed teachers have more positive beliefs about PU regarding the IWB than PEU and TA toward the IWB. 91% of teachers believed in the importance of using the IWB thanks to it improving the quality of both teaching practice and the learning process.

There are some limitations and gaps within the four empirical studies by Golonka et al. (2014), Mathews-Aydinli and Elaziz (2010), Saltan et al. (2010), and Türel and Johnson (2012). For instance, Golonka et al.'s (2014) work used mixed methods with a large

sample size, but their study might be limited in the sense of looking at only one school in relation to the qualitative data. In terms of the other three studies, Mathews-Aydinli and Elaziz (2010), Saltan et al. (2010), and Türel and Johnson (2012) were limited in their use of only qualitative data, along with conducting their research at only one school in each case. Additionally, these studies were undertaken in different countries which are culturally, economically and educationally different from the Saudi context, which might lead to different learning outcomes.

The above results showed no differences in relation to teachers' beliefs about using the IWB, regardless of them being from different countries, nationalities, educational levels, contexts and settings. Thus, the empirical studies that are provided of EFL and Saudi English language teachers indicated expressed positive attitudes and beliefs about the use of the IWB, as well as the need for regular training courses in its use. Hence, teachers' cognitions about using the IWB in classroom practice are essentially similar, despite significant differences in contexts.

2.5 EFL Teachers' Perceptions Towards the Use of the IWB in Classrooms in Saudi Contexts

The second comparison made is between teachers in the Saudi context (SC) where English is taught as an EFL. The rationale for presenting the studies is to determine any similarities and differences between EFL studies in SC and other studies, including EL as an EFL in an international context.

The first empirical study undertaken by Gashan and Alshumaimeri (2015) in Saudi secondary schools in Riyadh included a questionnaire which was distributed to 43 female EFL teachers, with the majority of them, 41.9%, having five years or more experience in teaching EFL, 39.5% having 2-5 years' experience, and 16.3% having less than two years of teaching experience. The study aimed to examine teachers' beliefs about the use of the IWB when teaching English. The results showed that most teachers expressed positive beliefs about the use of the IWB in terms of making lessons easier, the use of different online resources, saving time, using different pages and flipping forth and back on the board. However, the results also showed that some teachers had difficulties in solving technical issues relating to the IWB, where 75.8% of these teachers agreed that there was, generally speaking, insufficient IWB training in teaching. 66% of the teachers were in agreement with regards to the difficulties in controlling students' behaviour when the tool was applied and used in the classroom.

Similarly, the second study was undertaken by Alghamdi (2015) in Saudi public schools including 100 female and male Saudi teachers. It examined teachers' attitudes towards the use of the IWB in teaching. A questionnaire was distributed, both online and paper-based, and a semi-structured interview was conducted with 10 of the teachers who completed the questionnaire. Descriptive statistics were calculated to assess the teachers' attitudes towards the use of the IWB, the results of which showed that positive beliefs and agreement about the IWB had a significant effect on their teaching practices. The results also showed 95% of the teachers believed in the importance of applying and using the IWB in classrooms, where it enabled them to improve the teaching and learning process. As one teacher in their interview stated: *"I really agree with the potential of IWB in improving the quality of teaching"* (p. 548).

The above study was further supported by the third study carried out by Bakadam and Asiri (2012) which included a mixed method approach, and which involved a questionnaire being sent to 50 EFL male teachers at a boys' intermediate school (aged 13-15), and further semi-structured interviews with three of these teachers. The study aimed to examine teachers' beliefs about the use of the IWB and the benefits thereof. For the questionnaire, descriptive statistics were calculated to identify the teachers' perceptions with regards to the IWB. The results showed that most teachers agreed that the IWB facilitated easier lesson delivery, helped teachers to integrate various activities, and brought a higher level of interaction to the classrooms. The teachers also agreed that the IWB enabled them to prepare lessons and motivate students with regards to learning, as well as increasing teachers' productivity. From the interview, most teachers believed that the IWB facilitated a reduction of time-consuming tasks, effort, engaging, encouraging students in learning EFL and considerably developed teaching methods and practices, though without changing their approach to teaching entirely.

There are some limitations and gaps that can be seen in the following studies (Alghamdi, 2015; Bakadam & Asiri, 2012; Gashan & Alshumaimeri, 2015). For example, the studies of Alghamdi (2015) and Gashan and Alshumaimeri (2015) used only small-scale quantitative studies without considering the depth available from qualitative studies, and which might have led to more robust results. Although Bakadam and Asiri (2012) conducted both quantitative and qualitative research which could possibly be more robust than the former studies, they were limited in terms of

the small scale of the mixed methods and in looking at only one school to collect the qualitative data.

2.6 The Negative Perspectives towards the IWB

A large and growing body of the literature has investigated the drawbacks and challenges resulting from the use of the IWB that teachers may face. First, teachers may face technical problems when the tool stops working, such as freezing or experiencing a sudden stoppage, where IT staff should be recruited to solve such problems (Türel & Johnson, 2012). Secondly, the tool sometimes needs to be connected to the internet to use some of its features, where some schools do not provide this facility to the entire school or to staff and students (Miller & Glover, 2002). This might be due to insufficient budget. Thirdly, insufficient training into the use of the IWB may make it difficult for teachers to use it properly, or they might even avoid using it completely (Gashan & Alshumaimeri, 2015). Therefore, there is a need to offer ongoing training to teachers as delivered by experts to address both the technical and pedagogical aspects of the IWB (Alfaki & Khamis, 2018).

In addition, lack of self-confidence and competence amongst teachers with regard to the IWB are essential factors that result in its lack of use in classrooms (Miller & Glover, 2002). This might be due to the hesitance of teachers not to be embarrassed in the classroom, particularly if there are students who are themselves competent in using the tool as well as it might be confusing to students if it is used inappropriately. Also, the tool is expensive; its installation in classrooms costs a lot of money in comparison to other presentation technology tools. As such, it would be best if teachers used the tool and developed their IT skills to use it properly and benefit from its features (Beauchamp & Kennewell, 2010; Smith, Higgins, Wall, & Miller, 2005). Lastly, it is somewhat time-consuming for teachers to prepare classroom lessons the first time they use the IWB (Miller & Glover, 2002). Therefore, teachers may need considerably more time to prepare for IWB lessons than for regular lessons. The tool can also be affected by sunlight, where both teachers and students alike might struggle to see the screen clearly, so a dark place should be provided to see it appropriately (Miller & Glover, 2002). This might require an extra expense since classrooms might need to be provided with blinds or curtains.

2.7 Summary of the Different Views about the IWB from Various Different Contexts

Given the studies above, it can be concluded that the idea of separating the empirical studies into two different settings and contexts (i.e., the use of the IWB in international and Saudi contexts) could be a useful means by which to determine any similarities and differences in relation to teachers' attitudes and the use of the IWB. In spite of differences in teaching English as an EFL with children, adults or even people in different countries, the common responses from teachers were positive with regards to the use of the IWB, though they expressed the need for increased ICT and IWB training. Teachers' understanding of the use of the ICT in general and the IWB in particular in classroom practices as a tool for scaffolding students' learning vocabulary and retention is evident. They saw technology as a useful teaching tool with which to scaffold their students' vocabulary and learning processes. It should be noted that although these standpoints were gained from teachers from such diverse countries as Turkey and China, their perceptions and comments regarding the IWB may nevertheless be relevant in the Saudi context. However, the literature research shows that the IWB also has several disadvantages, such as it needs regular maintenance, it is expensive to install, and it sometimes requires an internet connection (Yudt & Columba, 2011). It also needs IT staff to be recruited to solve technical problems and teachers need regular and ongoing training in the use of the tool. The IWB is widely used in school settings to increase interactions and develop teachers' pedagogical strategies by integrating the features of this particular device into teaching (Smith et al., 2005). The processes by which teachers integrate the IWB into the classroom can provide students with positive learning outcomes but require them to have the pedagogical skill to do so and to go beyond using it, for example, as a display tool.

2.8 Direct (Explicit) and Indirect (Implicit) Approaches to Vocabulary Teaching Strategies

One cannot speak, understand, read or write a foreign language without knowing a lot of words. Therefore, vocabulary learning is at the heart of mastering a foreign language (Rubin & Thompson, 1994, p. 79).

This section reviews literature and empirical studies related to teaching vocabulary that can be used with the IWB. The quotation above has been used in much L2 research to show the importance of teaching vocabulary as a central component in relation to acquiring and learning a language. Vocabulary teaching plays a vital role in supporting teachers to help learners acquire and understand languages. It is also considered to be a key means by which to master reading comprehension skills, in particular, and to improve the four language skills, namely listening, speaking, reading and writing, in

general. Therefore, language learners can communicate successfully with others (Beck, McKeown, & Kucan, 2002; Blachowicz & Ogle, 2001; Cunningham & Stanovich, 1998). The following sections will discuss and review studies about explicit and implicit vocabulary teaching strategies to determine the benefit of using the combination of both of these two approaches simultaneously in teaching practices. This research tends to focus purely on teachers and teaching, where the two terms teaching and learning would appear to be used interchangeably and are tightly interwoven in many studies, such as those by Borg (2006), Ellis (2008), Nation and Newton (1997), and Schmitt (2008), which might lead to unnecessary obfuscation.

I have chosen a number of teaching strategies, as shown below, which can be termed either as explicit or implicit teaching approaches. However, my judgement as to whether to call them as explicit or implicit was based on articles I found in the literature such as (DeKeyser, 2003; Khamesipour, 2015; Li, 2013; Mirzaii, 2012) which contained content related to the themes that I had identified in my research, as detailed below. This is based on my interpretation and judgement and hence is open to debate.

A search of the literature has revealed a number of studies which have discussed both explicit (direct or intentional) and implicit (indirect or incidental) approaches to vocabulary teaching, and the distinctions between the two (e.g., Coady & Huckin, 1997; DeKeyser, 2003; Nation & Newton, 1997). The explicit teaching approach was defined by Nation (2013) as teaching which aims to make it extremely clear to learners exactly what information or skills they are supposed to take from a lesson. There are many ways that a teacher could enact explicit teaching including; collocation activities, semantic mapping, word part technique, and the keyword method. By contrast, an implicit teaching approach aims "to attract learner attention and to avoid metalinguistic discussion, always minimising any interruption to the communication of meaning" (Doughty & Williams, 1998, p. 232). Another definition was provided by Ellis (1994) in which teachers enable students to use repetition, which has a strong impact on teaching and learning implicitly, involving "attention to the stimulus but does not involve other conscious operations" (p. 212). Explicit and implicit teaching in L2 vocabulary can perhaps be different from the terms of explicit and implicit teaching in general. In teaching as a whole explicit and implicit teaching are contestable. However, in second language vocabulary teaching in particular the issue is perhaps less contested (Ellis, 2009), although it is recognised that they can lead to the development of different forms

of knowledge (Schmitt, 2008). Furthermore, there are a number of empirical studies which look at the combination of the two approaches in teaching and learning vocabulary and which are given below.

The first study, conducted by Al-Darayseh (2014), used a total of 55 Saudi students studying English at Al-Imam University aged between 19 and 22, and where participants were randomly selected. Al-Darayseh (2014) conducted a quasi-experimental study to explore whether combining both the explicit vocabulary teaching strategy (EVS) and implicit vocabulary teaching strategy (IVS) to teach EFL learners improved their vocabulary and reading comprehension (RC). An experimental group and a control group were assigned with two teachers in each group, and pre- and post-tests for vocabulary and reading comprehension were used. The experimental group was taught using a combination of EVS and IVS for teaching vocabulary and reading texts, whereas the control group were taught using traditional vocabulary teaching methods. The results revealed statistically significant differences between the experimental group and the control group which favoured the experimental group. The use of both EVS and IVS is considered to be efficient in augmenting students' vocabulary, which results in improved RC and EL performance.

Similarly, the second study, carried out by Khamesipour (2015), aimed to examine the impact of explicit vocabulary teaching (EVT) and implicit vocabulary teaching (IVT) on EFL learners' vocabulary development through reading. EVT was introduced by teaching definitions of vocabulary prior to reading, whilst IV was taught through narrow reading. A total of 30 EFL students, aged from 20 to 27 and attending ESP courses at an Iranian university were selected. A pre-test was given first, followed by a post-test for each group. Results from a t-test revealed statistically significant higher scores for IVT over EVT.

Likewise, the third study by Li (2013, p. 138) examined and compared three word-learning methods (WLM) to explore learners' retention of L2 word meanings (e.g., "Meaning-Given (MG), Meaning-Inferred with Multiple Choices (MIMC), and Pure Meaning-Inferred (PMN) in two modes of learning (i.e., incidental learning (ICL) and intentional learning (ITL) respectively)". The study was conducted with 262 EFL students at a Chinese university in seven different classes. The mean retention scores of each method in the two modes with three teachers was compared using six t-tests. The results showed a significant improvement in performance for ITL compared to ICL,

with higher significant mean retention scores found for ITL. However, by showing different results among the WLM, the suggestion is that teachers should consider a balance between the use of the ICL and ITL modes of learning.

In the same vein, the fourth study, undertaken by Mirzaii (2012, p.1), examined the effect on two groups within a quasi-experimental study including Implicit Vocabulary Learning (IVL) taught with extensive reading, and Explicit Vocabulary Learning (EVL) received through activities "requiring Deep-level Cognitive Processing on the long-term vocabulary recall". An example of these activities is "matching sorting, ranking, grouping, sentence completion and translation" (Mirzaii , 2012, p. 5). These activities were integrated with those of the main ones performed by the EVL group. A total of 62 EFL learners in an intermediate Iranian school were selected to participate in this study. Pre- and post-tests were administered, where the post-test results showed a significant improvement in both groups. The EVL group showed better performance than the IVL in relation to meaning and preposition, but the IVL outperformed in terms of collocation.

The above empirical studies offer an overall discussion and definitions of the explicit and implicit teaching and learning methods, as well as reviewing empirical studies regarding the benefit to using each of the two approaches. However, they were limited to a small number of participants (students), which might not be applicable to other students nor allow for the generalisation of the results. For example, Al-Daryseh (2014) undertook his study with only 55 EFL students, Khamesipour (2015) with only 30 EFL students, and Mirzaii (2012) with only 62 students. These studies could possibly be considered more valid if they had been conducted with different classes and schools using a large-scale sample such as in Li's (2013) study, where the latter was carried out with 262 participants in seven different classes. However, there could be limitations and problems in conducting Li's (2013) study in seven classes, as this would result in an excessive amount of data. While the studies surveyed here looked at different approaches to teaching vocabulary, another area which has been shown to be important to the field of vocabulary teaching is that of teachers' beliefs about how lexis should be taught. The following section reviews some of the literature in this area.

2.8.1 Teachers' Beliefs about Vocabulary Teaching

In this section, I will review teachers' beliefs regarding vocabulary teaching as the area of language teacher cognition which refers to teachers' beliefs, knowledge and

attitudes about their classroom practices, as stated previously in section 3.2.2 (Borg, 1998).

The term lexis teaching has an association with the four main language skills, namely speaking, writing, listening and, in particular, reading. This suggests that teachers' beliefs about teaching reading comprehension in general and vocabulary in particular concern the teaching of lexical items, either implicitly or explicitly. Teachers' beliefs can impact on their decision making regarding classroom instruction, including their aims, roles, students, materials, etc. (Harste & Burke, 1977). A number of empirical studies related to teachers' beliefs about vocabulary teaching are discussed below.

An empirical study conducted by Nural (2014) investigated the relationship between what two EAP teachers in two Turkish private universities believed about teaching lexis and what they actually did in their teaching. Several instruments were used in this study such as "classroom observations, field notes, stimulated recall and semi-structured follow-up interviews" (Nural, 2014, p. 7). The results showed that despite the similarity of their students' profiles and characteristics, the teachers used markedly different teaching methods to help students' lexical knowledge. The results also identified a relationship between what teachers believed to be the most effective way of teaching lexis and what they actually did in the classroom. For example, during the observations, one of the teachers tended to be subjective when making judgements regarding which lexical items students should learn. However, this appeared to cause difficulties because some of the lexical items were complicated, meaning that the teacher found them difficult and time-consuming to explain. During the interview, the same teacher explained that she believed it was better to avoid providing detailed explanations of teaching lexis items and expressed a preference to explain them in a simple way that could be easily understood. This meant that the specific teacher was unable to provide explanations to complex lexical items (Nural, 2014).

A different teacher focussed on the key lexical items necessary to enable students to understand a given text easily and allocated them sufficient time and attention to introduce the items. The teacher believed that this could reduce the students' difficulties when attempting to understand these lexical items. During the interview, the same teacher reported that there was inadequate time to prepare to teach lexical items, and that preparation assisted in finding the students' errors with regards to lexical items, and further believed that it was important to clarify and illustrate the key lexical

items for learners to assist them in understanding a given text both easily and clearly (Nural, 2014).

A further study by Ma and Kelly (2006) examined what 52 teachers thought and believed about vocabulary learning and teaching practices. A questionnaire was distributed to three different universities in China, the results of which revealed that few teachers trained the students in learning and memory strategies related to vocabulary. The teachers possibly held the belief that extensive reading enables students to acquire a lot of vocabulary, which might justify the absence of training in direct vocabulary strategies. This difference could also have been due to teachers' diverse backgrounds with regards to their differing experiences at various institutional levels, as ranging from kindergarten to secondary school.

A third empirical study, conducted by Gao and Ma (2011), was intended to explore Hong Kong and Chinese pre- and in-service teachers' teaching beliefs and vocabulary teaching and learning in Hong Kong. According to a comparative study, these EL teachers constituted 89 Hong Kong and 44 Chinese pre-service teachers, as well as 37 Hong Kong and 80 Chinese in-service teachers. These teachers taught at levels ranging from kindergarten to secondary school. A mixed-method approach was used that included a questionnaire and open-ended questions about how teachers should teach vocabulary based on their beliefs, along with in-depth narrative interviews. The results showed that the two teacher groups (pre-service and in-service teachers) held varying beliefs in each the two settings or contexts (Hong Kong and on the Chinese mainland). In comparison to these variations in the beliefs held by these two teacher groups in each of the two contexts, Hong Kong teachers were found to have stronger beliefs than those of teachers in mainland Chinese. The results also revealed that it is important that the language strategies and awareness on the part of teachers regarding their development programmes should be raised and strengthened.

Gao and Ma (2011) reported that teachers' teaching experience and their teaching styles had an impact on their different perceptions of vocabulary teaching. However, only seven Hong Kong and eight mainland Chinese pre-service and in-service teachers participated in the interviews, which examined their previous teaching experience. The results of these interviews appeared to help me evaluate the beliefs held by the teachers in their previous lived experience. Gao and Ma (2011) used content analysis to determine the appropriate categories, and such categories included

contextual use, fixed meaning, list learning and repetition in their content analysis. Nonetheless, by doing the content analysis, there was no significant influence found in terms of what the teachers chose regarding the lexis features that they taught. In spite of the limitations of not conducting classroom observations, which might provide more authentic results than the above self-reported ones, the study did have certain strengths. Firstly, the sample size was quite large for quantitative, and substantial for qualitative, data. Secondly, comparing between the two contexts gave a broader understanding of the phenomenon.

Although the three studies above had certain strengths and limitations, it is reasonable to assume that the teachers believed that teaching vocabulary could be useful when being taught with a focus on specific vocabulary knowledge in order to be able to grasp a reading text, for instance. Additionally, the use of pre-reading strategies could enable learners to understand the meaning of unknown or unfamiliar vocabulary in a text which can then perhaps augment learners' vocabulary. In the following section, I will discuss the explicit approach and review some of its related empirical studies in more detail.

2.8.2 Direct (Explicit) Approach

After discussing the combination of the two approaches in the previous section, along with briefly giving definitions of both the explicit and implicit approaches, I will now provide further definitions about the explicit approach and review some empirical studies in more detail to demonstrate its importance. As previously explained, explicit teaching is where teachers involve students in a "more conscious operation where the individual makes and tests hypotheses in a search for structure" (Ellis, 1994, p. 1). This definition is corroborated by the ideas of Nation and Newton (1997), who suggest that direct teaching allows teachers to draw the explicit attention of learners towards vocabulary through certain vocabulary exercises (e.g., matching words, learning and acquiring vocabulary within contexts, etc.). Another definition of explicit teaching is when teachers' engagement of students in learning is "characterised by the learner's conscious and deliberate attempt to master some material or solve a problem" (Dörnyei, 2009, p. 136). That is, when teachers enable learners to receive knowledge and learning with full consciousness and awareness, this is seen as constituting explicit knowledge (Anderson, 2005; Ellis, 2008; Hulstijn, 2005). Therefore, teachers engage their learners in activities and their attention focuses on learning vocabulary.

Given the above, teachers can use an explicit teaching approach as a means by which to move the current level of L2 learners' proficiency to the expected or targeted level that they need to achieve, without relying on, or asking for, simplified input. In support of this idea, Laufer (1997), and Nation and Wang (1999) proposed that teachers can directly introduce new vocabulary to learners by providing definitions of words, explanations of terms and collocations, word lists, word families, word associations, and semantic mapping. Explicit teaching takes place consciously, intentionally and it mainly involves memorisation on the part of learners. Teachers by using the explicit teaching approach can help and guide learners to focus on learning words by understanding, storing, and memorising the target vocabulary. As Hulstijn (2002) notes, explicit teaching "is a conscious, deliberative process of concept formation and concept linking" (p. 206).

Explicit teaching can also be carried out using pictures, explanations, and translations to accelerate the L2 learning process. The visual elements of explicit teaching (e.g., pictures) that the teachers display can increase the learner's awareness that learning is taking place, and so they can more easily verbalise the results of that learning process (Ellis, 2009). The following empirical studies support the role of explicit teaching and learning in both children and adults.

A study was conducted by Yaghoubi and Seyyedi (2017) to examine and compare the impact of explicit and implicit teaching of vocabulary to Iranian female EFL students. A total of 100 intermediate students were selected from four different English classes. A Preliminary English Test (PET), a pre-test and a post-test were used as the relevant instruments. Two groups were assigned, one as the Explicit Group (EG), which indicates that the treatment group was taught vocabulary explicitly and which included being given the definitions of the words. The other group was the Implicit Group (IG), which was taught vocabulary implicitly through giving them the new words to use in example sentences. The results revealed that the two teaching vocabulary methods were effective in that both groups learned some words, even though a significant difference was found between the two groups in the post-test scores where the EG outperformed the IG.

It was concluded that the explicit approach requires some degree of conscious attention in comparison with the implicit approach. Certain explicit teaching methods and activities can be used to support and increase learners' vocabulary, as discussed

in the following sections, such as collocations, semantic mapping, keyword method, word-parts method and guessing from context. These methods, whether individually or collectively, seem to be useful and effective in increasing vocabulary and retention. There appears to be a range of views on this, and therefore on how the condition can best be used effectively in teaching practice and vocabulary when the IWB is being used.

In the following sections, explicit teaching methods and activities such as focussing on collocations, semantic mapping, keyword method, word part method and guessing from context will be discussed and presented briefly, and consecutively an overview to understand of their uses will be given. In the following section, I will discuss collocation activities by giving a general overview about this method as an explicit teaching method.

2.8.2.1 Collocation Activities

Collocations "are lexically and/or pragmatically constrained recurrent cooccurrences of at least two lexical items which are in a direct syntactic relation with each other" (Heid & Gouws, 2006, p. 980). Teachers can give learners activities related to collocations to improve vocabulary retention; teaching collocations is seen as an effective strategy by which to build a wealth of vocabulary (Wray, 2005). In addition, collocations can combine more than one word, for instance, the word *strategy* has a range of uses. It can be preceded by different adjectives as a *political strategy*, *economic strategy, alternative strategy, important strategy*, etc., each of which have different meanings. These uses can lead to an understanding of multiple meanings and allow the student to build a bank of various words (Balcı & Çakır, 2012; Nattinger & DeCarrico, 1992). As such, developing students' awareness of collocations could possibly represent a useful strategy by which to build a range of vocabulary if learners know how to use them in the correct situation and context, but could perhaps be a severe hinderance to learning if they are used inappropriately.

2.8.2.2 Semantic Mapping

Semantic mapping is considered one of the most useful means of encouraging collaborative work between students and offering interaction between teachers and their students in classrooms, and as a successful means by which to recall and expand words (Hashemi & Gowdasiaei, 2005). This is because "it has the effect of bringing relationships in a text to consciousness for the purpose of deepening understanding of

a text and creating associative networks for words" (Nation & Newton, 1997, p. 250). Semantic mapping consists of a graphic web which displays a word and a set of related words in a visual manner. That is, it can help teachers support their learners' vocabulary retention within text, so as to increase their learners' bank of words. It can also be a powerful associative method, where teachers can provide learners with visual aids to link their prior knowledge with the new vocabulary (Griebel & Oller, 2012; Johnson & Pearson, 1984; Rosenbaum, 2001; Stahl & Vancil, 1986). Semantic mapping offers learners a means by which to perceive the relationships between words by helping them exploit their previous knowledge, since the correct "interpretation of new information hinges on its congruency with the schemata currently activated" (Nassaji, 2007, p. 82).

2.8.2.3 Keyword Method

Various studies have provided definitions of the mnemonic technique such as that by Barcroft, (2009, p. 76) who defines it as "the employment of any specific strategy or 'mental device' intended to improve memory retention for a given item". A keyword method is considered to be a part of the mnemonic technique and refers to the similarity of an acoustic L1 word (the keyword) to some part of the foreign word. Moreover, the keyword method works closely with deep processing, where a learner is able to recall vocabulary, and where it can be successfully recalled and remembered for later and future use when one deeply engages with it (deeper processing). This method is considered a good example of an explicit (direct, intentional) teaching technique that requires deep processing (Hulstijn, 1997).

The keyword method generally includes two linking stages for teaching and learning vocabulary (Wei, 2014). In the first stage, the learner creates an association between the spoken foreign word (EFL) with an L1 word or translation (the keyword) that has a similar sound to part of the foreign word. For example, the French word *livre* sounds phonetically related to the English word *live*, which is the keyword, and in French means 'book'. This stage is called the acoustic link. In the second stage, the learner builds an interactive mental image to the link between the keyword and the new L2 learning word (e.g., *livre* means *book*, so the learner can visualise what living in a house looks like and what a book looks like). This stage is called the imagery link. Given that, teachers can use the IWB to present the word form and its meaning by providing a photo of the mental image of the word (Kuder, 2017; Mastropieri & Scruggs,

2017). Wei (2014, p. 44) listed the parts of the keyword technique, as shown in Figure 2.2.
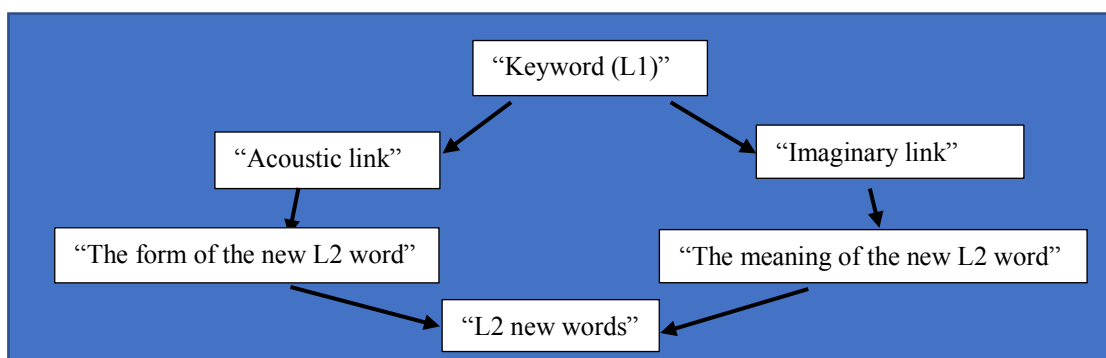
Figure 2.2: The Parts of the Keyword Technique

2.8.2.4 Using the Word Part Technique

The word part technique deals with learning the roots of the known L2 word, and has two learning stages: 1) the learner needs to discover the similar form link between the L2 new word and the linking word (the familiar L2 word) so as to construct a connection with "the form of the new L2 word" to be recalled (Wei, 2014, p. 46). 2) The learner needs to recognise the similar meaning link that is shared by the new L2 word and the familiar L2 word in order for it to be connected with the former (Wei, 2014, p. 46). This vocabulary technique is considered one of the mnemonic devices that are based on the roots of words (Nation & Webb, 2011; Wei, 2014). For instance, the high-frequency word 'ascent' has the same root – *scent* - with a number of lower frequent words such as 'adolescent', 'obsolescent, 'senescent', 'convalescent', 'crescent', etc. (Wei, 2014, p. 46). These words have a common form similarity and the root – *scent* – in them, as well as having relatively similar meanings because in each case – "scent" indicates '**growing or rising'** as per the below:

Ascent: a climb or **rising** to the summit of a hill or a mountain

Adolescent: the process of **growing** in age

Obsolescent: **growing** or becoming old

Senescent: **growing** old in age

Convalescent: **growing** healthy again

EFL learners who know the root part of the high frequency word 'ascent' thus have an excellent opportunity to easily access the other lower frequency words listed above because of the similarity between the form and meaning of each of these words. Therefore, the idea of the word part vocabulary technique, as seen in Figure 2.3 below,

is that learners can recall the new word through its similarity in form and meaning with familiar words and the new target L2 words (Wei, 2014, p. 46).
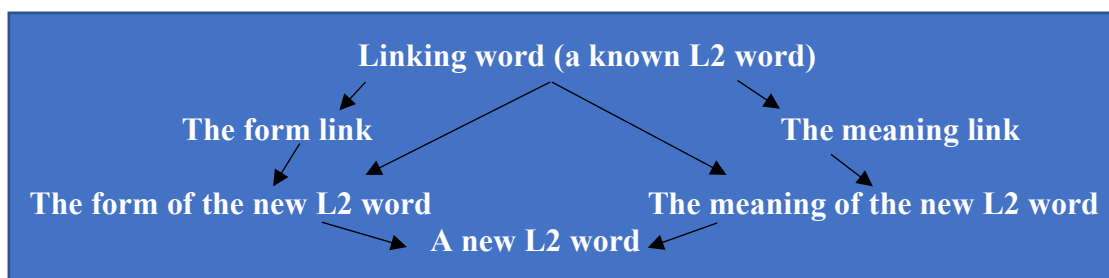
Figure 2.3: Analysis of the Word Part Technique

The word part technique has distinct differences to the keyword method, as follows:

- The keyword method neither deals with the root of a word nor has an association with it, whilst there is a root association between the word part technique and the part of the linking word.
- In the keyword technique, creating an interactive mental image which connects to the keyword and the English translation leads to memorising the newly learned word, whereas "the meaning of the root of a new word" and its form have a similarity to a familiar "word in the word part technique" which is used when remembering the word (Wei, 2014, p. 47).
- The keyword method usually relies on L1 "whereas the linking word in the word part technique is a known high frequency L2 word" (Wei, 2014, p. 47).

These two learning techniques can complement each other, and might lead to different outcomes (Paivio,1986 as cited in Wei, 2014, p. 47). This technique is possibly more effective when there is insufficient transparency of the form and meaning of the root of a word for learners to see in the L2 word. The above offers a general discussion about the word part and its importance for ameliorating problems with vocabulary retention and development.

As such, given that the keyword method and word-part technique can play a powerful role in increasing vocabulary and developing its retention in this manner, the IWB can be used in teaching practice to present the new word using the word-part method. By using the IWB, teaching and learning vocabulary might be easier than when using a normal traditional whiteboard or text page. For instance, this technology provides visual features which can be used to stimulate students' thinking about the meaning of words, linking words' memorisation with a mental image and connecting related words

together to build further vocabulary, and possibly even making memorisation considerably easier.

2.8.2.5 Guessing from Context (Contextual Guesswork)

The guessing from context technique is explored in this study from the perspective of how teachers think and what they believe about presenting this technique through the IWB and how they can help their students to learn and retain vocabulary. Previous research such as Dubin and Olshtain (1993) discussed the importance of using the contextual guesswork technique as a means of determining the meaning of unfamiliar words. Nation and Coady (1988) list two types of contexts: the first is the guessing of unknown words from a written passage. This includes specific knowledge in a given text which refers to those words and phrases that are close to unfamiliar words in order to simplify, or give an indication of, their meanings. The second type refers to the general context, which itself refers to the background knowledge and experiences of the reader regarding the subject or the text they are reading (Carter & McCarthy, 1988; Nation, 2001; Williams, 1985). Nevertheless, the learner's ability to guess may be negatively affected if any one of these elements is missing. However, the use of this technique can allow learners the opportunity to anticipate and guess the meaning of the unfamiliar words. As a result, teachers can help their learners with different uses so as to be able to find a general meaning, for instance, illustrations, similarity of spelling or sound in the mother tongue (Walters, 2004).

2.8.3 Indirect (Implicit) Approach

The implicit approach involves receiving knowledge and learning implicitly, where learners are not consciously aware of, or at least not consciously focused upon, the learning taking place. (Dörnyei, 2009; Ellis, 2004). Hence, progress in knowledge occurs sub-symbolically, which means that it cannot be explained in words, and where learners are unable to articulate what they have learned due to the absence of awareness that they are, in fact, learning something. Nation and Newton (1997) stated that teachers may attempt to use the implicit teaching approach through dictionaries and group activities to teach vocabulary, although this may not be the main aim of these activities. Teachers can also encourage their learners to engage in certain activities to reinforce their vocabulary. Generally, teachers need plan for both the explicit and implicit approaches before they deliver them to learners. An implicit method, such as using a dictionary, will be briefly discussed in the following section.

2.8.3.1 Using a Dictionary

The technique of using a dictionary in classrooms is useful as everyone needs it to find out new words, and check spelling and pronunciation (Nation, 1990). As Kirkness (2004, p. 66) put it, "the dictionary has long been and still is an essential source". Allen (1983, p. 83) defined dictionaries as "passports to independence" because they offer the input that learners need to acquire. Dictionaries come in different types such as bilingual, monolingual, pictorial, thesauri, and so on. According to Hayati and Pour-Mohammadi (2005), a dictionary is a means of providing powerful and useful help for contextual guesswork. However, in terms of a bilingual dictionary, Nation (1990) claimed that its translation does not support a learner's paraphrasing skill development in order to grasp and assimilate unknown words. On the other hand, when learners use the monolingual dictionary they can acquire and master the newly learned words through definitions. Therefore, learners may have the opportunity to improve their paraphrasing skills through practising them, which is better than translating text verbatim (Nation, 1990). To demonstrate the importance of using dictionaries when learning vocabulary, some empirical studies are discussed and reviewed in the following sections. As such, teachers perhaps think and believe that the use of the IWB to access online dictionaries to help teach and recall vocabulary might be helpful, as well as online dictionaries being considered useful as a scaffolding method.

In general, reviewing the literature and studies' findings indicates that explicit teaching has a stronger influence on learning than implicit teaching, as found in various studies (e.g., Al-Darayseh, 2014; Ellis, 1993; Mirzaii, 2012; Mizumoto & Takeuchi, 2009; Rosa & O'Neill, 1999; Soleimani & Esmaeili, 2012; Yaghoubi & Seyyedi, 2017). To date, only a few of the empirical studies such as those below here have shown that implicit teaching is better than explicit teaching in relation to learning vocabulary and increasing its retention, such as Ender (2014), Khamesipour (2015), Li (2013), Marzban and Kamalian (2013). Nevertheless, some authors argue that the implicit teaching approach may lead to better understanding, thinking, and vocabulary acquisition because learners seem to have to work harder to learn and recall vocabulary learnt in this manner (Ender, 2014).

Explicit teaching occurs directly and intentionally with the information to be learned and requires conscious awareness and attention (Marzban & Kamalian, 2013). Also, teachers directly involve their learners in explicit learning (Schmitt, 2008). Moreover,

the findings by Marzban and Kamalian (2013) and Mirzaii (2012) showed that the explicit teaching of vocabulary leads to more effective learning outcomes than implicit teaching-learning and is a useful way of teaching for longer vocabulary retention. These findings support the views of Coady and Huckin (1997) who state that explicit teaching leads to better vocabulary retention in the long-term.

By contrast, in implicit teaching, teachers tend to allow their learners to absorb information indirectly through the environment without being aware and conscious in relation to teaching and learning. Zimmerman (1997) indicated that teaching and learning vocabulary implicitly can be more effective than explicit approaches because it is more student-centred, making learners keener to acquire and learn vocabulary; therefore, teachers help their learners to retain information indirectly.

Overall, it is generally still arguable as to which method would be best for teaching and learning vocabulary, although explicit teaching-learning methods seem to have more support in the literature than implicit ones. For example, Ellis (1994) concluded that vocabulary can be taught and learned both implicitly and explicitly. Some aspects of vocabulary are best taught implicitly, such as word frequency, phonological aspects, and so on, whereas some aspects of vocabulary are best taught explicitly, such as semantic aspects. Based on the previous review of related literature it can be seen that researchers and educators have attempted to find out which techniques can work best for teaching vocabulary. Although most of the studies that mentioned above show that an explicit teaching approach works better than an implicit approach in terms of teaching and learning vocabulary, yet, different contexts, settings, students' levels, teachers' qualifications and teaching experiences might have a strong impact on the way of teaching vocabulary explicitly. As such, it might be hard to select the best approach to teach vocabulary. Alternatively, the reviewed studies also showed that the combination of both explicit and implicit vocabulary teaching approaches can be the best way for teachers to teach vocabulary and build their learners' vocabulary so that their students' vocabulary store and language performance are developed.

As Schmitt (2008) notes, there is a consistent failure in the literature to provide clear descriptions and guidelines in textbooks and syllabuses, which unsurprisingly creates confusion in relation to the best ways in which learners can acquire vocabulary. In contrast, he notes, the explicit and implicit approaches represent useful approaches to helping teachers improve learners' vocabulary by creating better involvement for them.

Therefore, there is an argument for using both approaches within teaching. In this case, it would seem that a combination of the two modalities or approaches (explicit and implicit teaching of vocabulary) indeed play a significant role in allowing teachers to help L2 learners build more words and gain better comprehension in terms of their reading skills. The combination of these two approaches is also a useful way to develop cognitive mechanisms and to enhance deep engagement with words, resulting in learners using deeper mental processes, as found in a number of studies (e.g. Al-Darayseh, 2014; Altınok, 2000).

2.9 Gaps in the Research Literature about the Use of the IWB when Teaching Vocabulary

To understand the gaps in the current research, this section discusses the studies that this present research has built on, as well as discussing the rationale behind this research regarding the use of the IWB when teaching English in general and in teaching vocabulary in particular. Very little, however, is known about the use of the IWB in vocabulary teaching generally. To the best of my knowledge, and after going through the previous research thoroughly, no other studies have discussed teachers' views towards the use of the IWB when teaching vocabulary in primary schools. I have found the nearest studies to his topic, which explore teachers' perspectives regarding the use of the IWB with all age groups and in various subjects, including English.

There are five studies which are most relevant to this thesis. Firstly, Alghamdi and Higgins (2015) examined the type of IWB training experienced by EL teachers and the challenges teachers faced when learning to use IWB by sending a survey to 587 male and female teachers. The survey results showed that there was a considerable effect on teachers' IWB skills and satisfaction with their level of training due to insufficient training courses, resulting in them self-training or seeking support from their colleagues to improve their capabilities. Secondly, Bakadam and Asiri (2012) undertook a study to explore teachers' attitudes towards the use of the IWB in KSA classrooms. A questionnaire was distributed to 50 male Saudi teachers and interviewed three teachers who taught a range of subjects, including English, at the intermediate school level (students aged 13 and 14). The results revealed that teachers had positive attitudes towards the use of the IWB yet felt that they needed to have ample training in its use.

Thirdly, Hüseyin (2014) conducted a study to examine teachers' views regarding the use of the IWB in Turkish EFL classrooms. The results showed that 64 Turkish teachers were in favour of the use of IWB in teaching English at all grade levels and had positive beliefs towards the tool. This was especially true of those who had more teaching experience. The study suggested that teachers need regular training in relation to the use of the IWB. Fourthly, a study was undertaken by Lai (2010) to explore teachers' perceptions of IWB training workshops in secondary schools in Taiwan. Classroom observations took place at the training sites and interviews with six secondary school teachers were conducted. Lai's (2010) results showed that the teachers held positive beliefs about the use of the IWB in classrooms. It was also suggested that teachers should attend training workshops to get practical training in the use of the IWB. Lastly, a study was carried out by Türel and Johnson (2012) to evaluate teachers' perceptions regarding the use of the IWB in teaching various subjects, including English. A questionnaire was completed by 174 teachers who instructed students aged 11-17 in US schools. The results showed that the majority of teachers believed that the IWB is an effective tool and can make lessons more interesting, although some teachers acknowledged that they did not know how to use all its features.

The five studies above were, in some senses, limited. Firstly, several of these studies used a small sample size. For instance, even though the work of Alghamdi and Higgins (2015) gained a large survey response from 587 individuals from different Saudi schools, the qualitative phase of the research only conducted a small number of interviews in one school. This is important because it did not look at the impact of financial and ongoing training situations in different types of schools. Similarly, the studies of both Bakadam and Asiri (2012) and Hüseyin (2014) were limited by a small sample size in their questionnaires.

Secondly, some studies were limited from the perspective that they only used one method of analysis. Specifically, although the study by Lai (2010) took the form of a substantial large-scale qualitative study (which included six classroom observations and interviews with the same teachers), it was limited in that Lai chose not to conduct a quantitative analysis. One the other hand, the work of Türel and Johnson (2012) is limited due to its lack of a qualitative data, which could provide a greater depth of interpretation for the specific phenomenon.

Thus, the current study tried to address these limitations by collecting a large quantity of survey responses, followed by qualitative data that included six classroom observations and interviews with the same teachers, who taught in six different primary schools, both private and state. This allowed the consideration of a variety of different educational contexts. The large sample may allow for the generalisation of the data, whereas the qualitative context could help to gain a more in-depth understanding of the phenomenon.

All the aforementioned studies found that teachers generally have positive perceptions about the IWB across different ages, countries (including KSA), settings and subjects, yet with few exploring primary age children in the KSA. These different teachers' views can allow for an overall understanding on how the IWB can be used to teach English in different settings and at different educational levels (primary, intermediate and secondary) in general, and for teaching vocabulary in particular. They also show how different beliefs about this tool can result in its mode of employment varying among teachers, which might inform the development of future training for teachers in the use of the IWB. Despite the importance of the IWB in teaching vocabulary, as shown in the previous literature, there remains a paucity of evidence and a lack of research exploring the perception of EFL teachers towards the use of the IWB when teaching vocabulary in primary schools (11- and 12-year-old students). Therefore, the present study has attempted to fill this gap in the literature through undertaking a large-scale study of EFL teachers at primary schools, where teachers' views towards the use of the IWB and the vocabulary strategies that can be used with this tool are explored.

2.10 Chapter Summary

This section summarises the current chapter, which first discussed the benefits of using technology in general and the IWB in particular, as based on teachers' perceptions of the IWB as a useful tool and resource in relation to teaching and learning, in particular when teaching English vocabulary. The latter discussed teaching different vocabulary strategies. The chapter has discussed explicit teaching as a direct instruction to students. It focussed on learning words by understanding and memorising the target vocabulary, whereas implicit teaching can be indirectly stated, and focusses on learners' attention being required to perceive a particular written text. The chapter also discussed the relationship between teachers' beliefs and their actual

use and teaching practice, as well as their hidden beliefs towards their teaching and their beliefs regarding the three learning styles (visual, auditory and kinaesthetic). Most of the studies reviewed above showed that the majority of teachers reacted positively to, and expressed satisfaction towards, the use of technology in general and the IWB in particular in relation to teaching on the ground.

Considering the above, this study aims to explore Saudi teachers' perceptions of the use of the IWB when teaching English vocabulary as an EFL in primary schools. An additional aim of this study is to look at how teachers use the IWB when teaching vocabulary. The explicit approach can be delivered through various activities, for instance, collocation activities, semantic mapping, etc. However, in the implicit teaching approach the focus is on meaning rather than on conscious learning, such as using a dictionary.

Chapter 3 : RESEARCH METHODOLOGY

3.1 Introduction

The term 'methodology' refers to a systematic way in which to approach a research problem, and to then create appropriate questions in order to solve this problem through the use of various methods. It is also a process by which research is carried out, and the way in which knowledge is gained by explaining or predicting a phenomenon, and which helps researchers to design a plan to address their research (Maxwell, 2012). This current study adopts a multiple-case study design to address the research questions in order to focus on specific organisations and a specific population, incorporating a mixed-methods approach that includes both the quantitative and qualitative methods.

This chapter first sets out the aims and the research questions in order to explore the research problem given in section 3.2, and then describes the educational research methods, including mixed methods (quantitative and qualitative), which are introduced in section 3.3. The nature of the case study, along with an explanation of its type and design, is presented in section 3.4. This is followed in section 3.5 which includes a discussion of sampling, including random and non-random sampling methods. Research tools, including the data collection and analysis which represent how the data was collected and how it was then analysed and coded, are discussed in section 3.6. Subsequently, ethical issues are addressed in section 3.7, which show how informed consent is gained and how participants' anonymity is ensured, along with how the data is securely stored. The role of the researcher is discussed in section 3.8, including their responsibilities when conducting their studies. Finally, a summary of the chapter is presented in section 3.9.

3.1.1 Aims and Research Questions

This study, as stated previously, aimed to explore Saudi primary teachers' perceptions of the use of the IWB and examine different vocabulary strategies that were being used by teachers. Through these aims, the following research questions were answered:

(1.a): What are teachers' general perceptions, and stated uses, of the IWB?

(1b): How do teachers perceive the IWB, specifically in relation to teaching English vocabulary?

(1.c): How do teachers actually use the IWB when teaching vocabulary?

(1.d): How much training/support have Saudi primary teachers received with regards to ICT and the IWB?

(2): What is the relationship between teacher variables (qualification, length of experience, private versus public schools) and their perceptions and use of the IWB, both stated and actual?

3.2 Paradigm

There is some discussion about paradigms in the literature and several research paradigm definitions that have been offered by researchers over the last few decades are relevant to this study. For instance, Guba (1990, p.17) defines a research paradigm as "a basic set of beliefs that guides action". Esterberg (2002) argues that paradigm creates knowledge and information based on beliefs and the reality of the world. The paradigm includes two well-known types, positivism and interpretivism, as listed by Thomas (2013). Thomas describes positivism as measurement of numeric data, which can be objectively gained through the social world. Interpretivism, by contrast, aims to understand the meanings of the social world and encourages participants to express their perspectives freely. This paradigm requires the attempt to interpret what people mean as regards their thoughts and perspectives on the social world, which, though social constructed, could also be based on reality.

A third perspective is the pragmatic paradigm, which suggests that a researcher needs to use tools such as surveys, classroom observations and interviews that answer the research questions properly (Esterberg, 2002). In this study, I sought to gather a large quantity of information through using a questionnaire, which allowed me to generalise my data and understand the phenomenon of the study from a broader perspective (Crotty, 2003). However, a solely quantitative approach was felt to be limited because the data may not be sufficiently fine-grained to understand the context of a phenomenon and to explain complicated issues, along with encountering certain potential difficulties in terms of its interpretation (Creswell & Plano Clark, 2011). Therefore, I also used the qualitative approach to gain a deep understanding of the phenomenon of the study from the perspective of individual participants. By combining the two perspectives, I developed a practical understanding of how teachers view and use the IWB in their teaching vocabulary.

Based on this paradigm, the best way to answer all research questions for this study and to fill the associated research gaps was to employ a mixed methods approach. This study was informed by using both interpretivist and positivist paradigms. Due to the research methods used, such as classroom observations, assumptions could be made about the social world as a viewable mirror in order to enable me to break down social activity into quantifiable elements, as related to the two teachers' particular contexts. I then aimed to interpret the meanings of the situation being studied, and generate a pattern of meaning. As a paradigm consists of ontology, epistemology and methodology, I will discuss the ontological and epistemological perspectives in the following sections. In this thesis, I am using the two terms of Interpretivism and Constructivism interchangeably.

3.2.1 Ontological Perspective

The ontological perspective mainly considers the nature of reality and what this actually is. According to Richards (2003), the idea of reality refers to the interaction between individuals with their environment. Constructionism was defined by Crotty (2003, p. 42) as "the view that all knowledge is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essential social context". Constructivists or interpretivists see *reality* as being created by individuals in groups, which indicates that there is no single reality.

The advantages of adopting an interpretivist or constructivist perspective include gaining a fine-grained and deep understanding of participants' perspectives, which allowed me to gather detailed information about individual attitudes and experiences. However, as an educational researcher, I aimed to influence the development of the use of technology in teaching in Saudi Arabia. Therefore, it was necessary to build a general understanding of the field of language teaching. The constructionism perspective does not allow one to build a general understanding, and so on its own it is not entirely sufficient (Burr, 2015).

Positivists, on the other hand, see *reality* as a single or true reality (Crotty, 2003). To explore the relationship between teachers' beliefs and practices, there could well be an urgent and pressing need to understand teachers' experiences about their personal and professional lives. As such, the aims of this present study were to determine what teachers believe about the use of the IWB when teaching vocabulary strategies, and

indeed which of these strategies could be used with the IWB and how these teachers use them.

The advantages of adopting a positivist perspective include gathering a general holistic view of the entire field of Saudi EL teachers using quantitative research technique. However, clearly, such an approach only allowed me to gather data which, while covering a large number of participants, did not allow me to collect much detail about the individual involved. Considering both the strengths and weaknesses of these two paradigms, pragmatism seemed the most appropriate perspective to adopt for the current research as it would allow one to gather quantifiable, and thus generalisable in the Saudi context, data about the field of English teaching in Saudi Arabia, as well as to gather qualitative data about the views, attitudes and experiences of individual teachers.

Hence, there was no intention to identify the best vocabulary teaching strategies that could be taught through the IWB because the effects of these strategies comprise several related variables. Therefore, it would be worth noting that "effective teaching depends more than anything else on the ability to read situations and understand the reality they have for participants" (Tudor, 1998, p. 323). However, this does not indicate that these variables are necessarily uncontrolled and unmeasurable, but the aim of the study is rather to gain a holistic view about the reasons why the teachers used certain teaching vocabulary strategies more than others when using the IWB, and indeed the way they do so. As Tudor (1998) states:

> The reality of language teaching emerges from the dynamic interaction of [...] different perceptions and goals of the various participants involved more or less directly in the teaching process, a process which is unique to each classroom and which can rarely be predicted in advance (Tudor, 1998, p. 319-323).

3.2.2 Epistemological Perspective

Epistemology mainly considers the way in which we can know reality and knowledge. In this case, the way one can interpret the world is through the exploration of the relationship between the individual and the environment (Richards, 2003). Positivists see reality as being measurable through reliable and valid tools, whereas constructivists or interpretivists believe no single reality exists that can be interpreted to discover the meaning of certain activities, events or phenomena (Crotty, 2003). From the positivist perspective, in this present study I sought to generalise the findings of the current study from the sample to the population of Jeddah in Saudi Arabia in order to gain a full picture of the phenomenon of the study by sending the survey to a

large, selected sample. However, it is important to note that the extent to which these findings ultimately are generalisable is limited due to the fact that as explained in the sampling (see page 75), the survey was partly sent by the English supervisors of Jeddah education department rather than me personally, so it is unknown exactly how many surveys were sent. As a result, it was impossible to accurately determine exactly how many potential participants received the survey, and thus what proportion of the whole population completed it. Consequently, it was impossible to generate precise statistics from which to generalise any conclusions reached.

Furthermore, I acted as objectively as possible, by entering and analysing the quantitative data in the SPSS software. I adopted this perspective because I believed that there was a community of Saudi teachers; even though individual teachers had their own perspectives, they nonetheless form a population whose views and beliefs can be usefully measured in an objective manner. As such, adopting a positivists epistemology allowed me to develop a general understanding of the teaching community's opinions as a group. This was important because education policy must be formed with respect to the entire profession, not just based on individual teachers' beliefs.

In contrast, from the interpretivist perspective, exploring vocabulary teaching strategies when using the IWB from teachers' perspectives could lead to an understanding and perception of what the teachers' perceptions are about the use of the IWB regarding vocabulary teaching strategies in depth. The interpretivist paradigm could be used to interpret the various realities inherent to teachers' beliefs and practices, as the former claims that individuals' interpretations could allow the determination of associated meaning. As such, I adopted this perspective because I believed that individual teachers had their own individual personalities and approaches to teaching. This means that each teacher might understand and use the IWB in a different way. As well as understanding the perspectives of the teaching community as a whole it was also important to understand differences between individual members of that community. The interpretivist paradigm could enable me to explore what teachers think and believe regarding the use of the IWB in teaching vocabulary. This individual perspective was important when considering how to design programmes of continuous professional development.

3.3 Educational Research Methods

3.3.1 Investigating Quantitative and Qualitative Methods

A quantitative research method focusses on numerical data and deals with variables to quantify behaviours, attitudes and thoughts in order to determine accurate results. It also seeks to extend objectivity in its study and obtain data through different tools such as questionnaires (Lincoln & Guba, 1985). Quantitative research measures variables through statistical data, which provide general and precise results (Lincoln & Guba, 1985). However, the intention of qualitative research methods is to explore questions in more depth, for example through conducting interviews, observations, field notes, recordings and taking photographs in order to understand people's experiences, perspectives and thoughts (Schwartzman, 1993). It focusses on discovering the world through studying phenomena in their natural settings and interpreting them to gain more information. It allows researchers to study a phenomenon in more depth with regards to how people behave, feel and think, as well as relying on descriptive and written data (Creswell, 2009).

3.3.2 Mixed Methods Research

A mixed methods research includes a mixture of quantitative and qualitative data which can enable researchers to use different data collection tools to facilitate gaining the answers to questions and to addressing research problems, which can be achieved through the use of multiple tools (Creswell & Plano Clark, 2011). A number of definitions of mixed methods have been provided over the past three decades. Greene, Caracelli and Graham (1989) defined mixed methods as a design which combines quantitative and qualitative methods. The former is designed to collect numerical data and measure some given variable objectively, whereas the latter is used to gain an understanding of opinions, perceptions, and so on, through meanings and interpretations. Similarly, Tashakkori and Teddlie (1998) defined mixed methods as the combination of two approaches, quantitative and qualitative, in a study methodology to give an overview of a phenomenon and to resolve the associated research problem. Johnson, Onwuegbuzie, and Turner (2007) provided a more recent definition which states that mixed methods is a combination of quantitative and qualitative research approaches that is designed to incorporate various diverse viewpoints in the hope of achieving a greater breadth and depth of understanding and corroboration. Based on these definitions, a mixed methods approach can play a

significant role in ensuring that a particular research effort is broader and more comprehensive, as well as ensuring that the research questions are answered more appropriately and extensively through the combination of the two research approaches.

Mixed methods approach also provides a complete analysis of a problem and presents a greater diversity of views (Hancock, 2006). In the present study, the quantitative approach provides a general overview of the issue, as derived from the viewpoints of a large number of participants, in only a short time via an online questionnaire. Employing the combination of the two approaches strengthens and extends the research discussion, and gives a better insight into, and expanded understanding of the research problems by using the advantages of each approach (Creswell & Plano Clark, 2011). By contrast, the use of the qualitative approach allows for an in-depth exploration of a situation or an event from the participants' perspectives through classroom observations and interviews. Considering the above, I used a mixed methods research approach in this present study by employing an online questionnaire, classroom observations and interviews to collect the necessary data to answer the research questions.

3.3.2.1 The Advantages of Mixed Methods

Many studies (e.g., Creswell, 2009; Johnson & Onwuegbuzie, 2004) show the advantages of using a mixed-methods approach which perhaps enables me to gain a broader and better understanding of the appropriate questions and explain the research problem with greater clarity. Moreover, Gorard and Taylor (2004) and Johnson and Onwuegbuzie (2004) indicate that employing a mixture of research methods can strengthen research results where the data can be confirmed, explained, and verified by a researcher. The combination of the strengths of quantitative and qualitative research can be used when using a mixed-methods approach. Thus, using the two approaches simultaneously can allow for one method's strengths to compensate for the other method's weaknesses. Therefore, I can learn more about a topic, and gain the breadth and depth of understanding required to more fully corroborate some given phenomenon. The use of different forms of data collection and analyses through using mixed methods could help educational researchers to improve the accuracy of classroom-based studies (Denscombe, 2007; Johnson & Onwuegbuzie, 2004).

3.3.2.2 The Disadvantages of Mixed Methods

The mixed methods approach, however, has some disadvantages; it is a relatively recent approach compared to the qualitative or quantitative, and its data collection processes are not yet fully established. It can be a complex approach, and requires considerable time, resources, and effort to plan and implement. There are also difficulties in testing validity and reliability, as based on the issues relating to combining data from the quantitative and qualitative approaches (Creswell, 2009; Tashakkori & Teddlie, 2010). The aim of using mixed methods, in this study, was to reach the best possible understanding of particular questions and to gain a better picture through which to understand research problems than otherwise possible through either approach alone. It was used to utilise one method (quantitative) to gain a general understanding, and then from its initial findings, more in-depth information could be explored from the subsequent method (qualitative) (Corbin & Strauss, 2008; Creswell, 2009; Feuer, Towne, & Shavelson, 2002; Johnson & Onwuegbuzie, 2004; Maxwell, 2012). For this study, the two main research questions included quantitative and qualitative phases which could be answered using mixed methods. Findings from the quantitative results would enable me to identify and to select the results subsequently explored, and to discuss them in more detail using the qualitative, as facilitated through observations and interviews.

3.4 The Nature of this Case Study
3.4.1 The Research Design

A research study attempts to understand the best means by which to resolve and answer research questions and problems through an appropriate plan, structure, and strategy of investigation of a phenomenon. It also represents a detailed plan of the journey a study will take, from designing research questions to writing them up (Kumar & Phrommathed, 2005). A research design aims to collect and analyse data in order to ensure the relevance of the purpose behind the research (Biggam, 2011). This definition explains the role of a research design, such as a case study, as being a particular instance of research, in which detailed consideration is given to investigating and to analysing the associated data. Kumar and Phrommathed (2005) note that researchers are able to determine who their participants are, how they will collect information, as well as how they present the findings. Kumar and Phrommathed (2005) name a number of important research designs such as case study, historical, descriptive, experimental, and quasi-experimental and action research.

Several different definitions of the case study approach have been provided in the literature, such as that by Yin (2009) who describes it as an empirical study that carries out an in-depth exploration of a phenomenon in a specific place with a small population within a real-life context. Likewise, the case study is a varied and deep source of information which is richly descriptive and answers the question as to what happens in a given setting and why (Denscombe, 20007). It also determines my knowledge with regards to research questions and problems, as well as the strengths and weaknesses of previous research, and the methods which fit the research questions appropriately (Denscombe, 2007).

A number of researchers (e.g. Hancock, 2006; Yin, 2013) have classified the case study approach design into three types, namely the exploratory, explanatory and descriptive, depending on the aim of the study. An exploratory design seeks to define research questions for a subsequent study. It provides initial information collection and fieldwork prior to introducing a research question. An explanatory design focusses on establishing a relationship between cause and effect. It seeks to determine how events happen and which events represent the most influential outcomes, whereas a descriptive design gives an in-depth explanation of a phenomenon within its context (Hancock, 2006; Yin, 2009). However, in this study, a holistic multiple-case study, including the exploratory sequential design, will be used to gain a more detailed understanding of the situation, and to obtain further in-depth information on the phenomenon from different cases, as well as to allow for greater generalisation (Cohen, Manion, & Morrison, 2013). Therefore, I focussed on six teachers in six different schools for the study. The exploratory design is explained and discussed in more detail in the following section. The four types of the case study that (Yin, 2013, p. 50) listed are provided in Figure 3.1.

	Single-case designs	Multiple-case designs
Holistic (single-unit of analysis)	(Type1) CONTEXT — CASE	(Type3) CONTEXT CASE / CONTEXT CASE / CONTEXT CASE / CONTEXT CASE
Embedded (multiple units of analysis)	(Type2) CONTEXT — CASE: Embedded unit of analysis 1 / Embedded unit of analysis 2	(Type4) CASE: Embedded unit 1 & 2 / CASE: Embedded unit 1 & 2 / CASE: Embedded unit 1 & 2 / CASE: Embedded unit 1 & 2
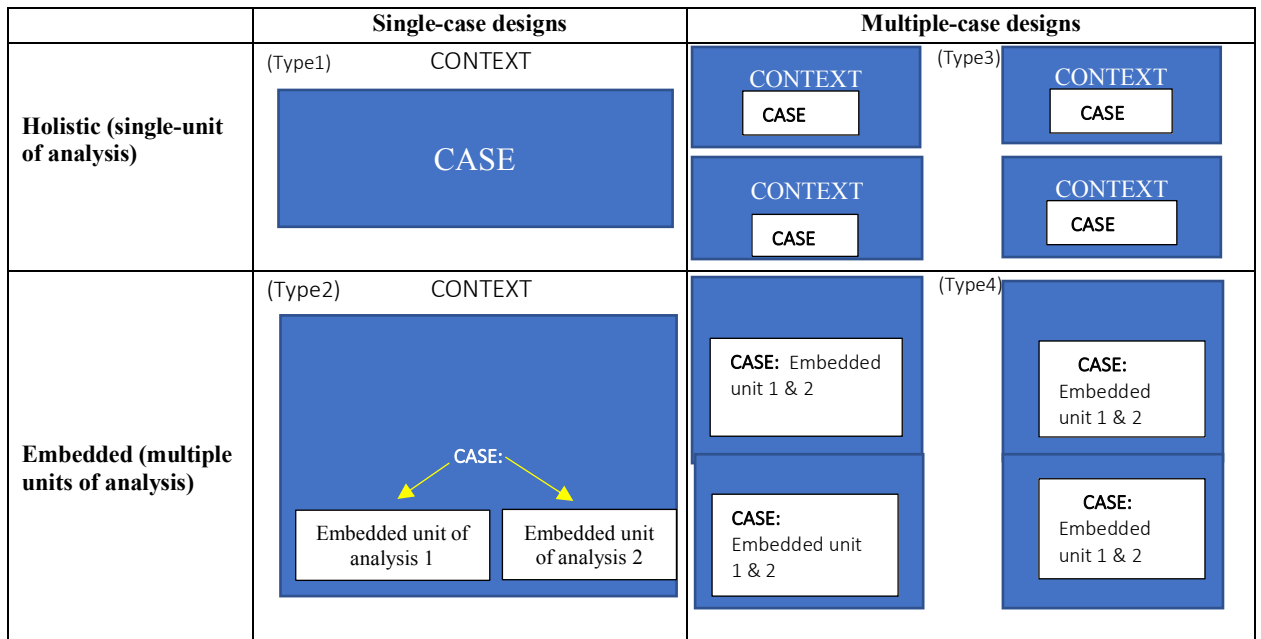
Figure 3.1: The Four Types of the Case Study

3.4.2 The Types of Case Study

Yin (2009) states that a case study can combine numeric and narrative data, or in other words quantitative and qualitative data. Yin (2013) classifies the case study design, as shown above in Figure 3.1, into the following four types: (1) a single-case (holistic) design which focusses on examining a single unit of analysis, such as one school and one teacher; (2) a single-case (embedded) design where the focus is on one case which has more than one unit of analysis, such as investigating one school with more than one teacher; (3) a multiple-case study (holistic) design which has multiple cases in different contexts, such as investigating six teachers within six different schools; and (4) a multiple-case study (embedded) design which has more than one case and where each case has multiple units of analysis, such as exploring six teachers within three schools and where each school has two teachers (Louis, Lawrence, & Keith, 2007; Yin, 2013). Following up on the difference between the single and multiple case study, Denscombe (2007, p. 37) identifies further differences between the single and multiple case study through some of their characteristic qualities, which offers detailed and in-depth information as seen in Table 3.1 below.

Table 3.1: The Qualities of Case Study Research

"Case study research characteristically emphasises		
Depth of study	rather than	Breadth of study
The particular	rather than	The general
Relationships/processes	rather than	Outcomes and end-products
Holistic view	rather than	Isolated factors
Natural settings	rather than	Artificial situations
Multiple sources	rather than	One research method"

3.4.2.1 Multiple-Case Study

In this study, a holistic multiple-case study was used to provide a detailed explanation and description of the understanding of a phenomenon (Eckstein, 2000; Yin, 2013). This approach could allow a researcher to capture a comprehensive view by replicating the study at different sites in order to strengthen the evidence to back up these findings (or, indeed, otherwise). Similarities are likely to be explained in a holistic multiple-case study (Savin-Baden, 2013). It also aims to compare different cases in their entirety in a holistic manner and offer an extended picture of its findings. The study constitutes a large number of cases each of which contains a single sub-unit using a range of tools such as a questionnaire, classroom observations and interviews (Eckstein, 2000; Yin, 2013).

The generalisation of a multiple-case study relies on an analytical rather than a statistical analysis based on replication of the data (Yin, 2013). A multiple-case study has many advantages; it is a strong means of increasing the robustness of the findings and strengthening the validity of the study through replicating the results. It also provides conclusive and strong evidence, which ensures the overall robustness of the study by raising new questions. Conversely, the drawbacks of the multiple-case study are that it consumes a lot of time and requires a lot of resources, as well as being costly (Eckstein, 2000; Yin, 2013). A multiple-case study includes *literal replication*, whereby the results of the cases are predictable as they corroborate each other, and *theoretical replication*, which "predicts contrasting results but for anticipatable reasons" (Yin, 2013, p. 57). In other words, the former aims to produce the same results, whereas the latter produces contrasting results for predictable reasons (Eckstein, 2000; Yin, 2013).

Based on the above, a holistic multiple-case study design was adopted, including six cases with six male EL teachers. Two tools were used in each case to gather data: a classroom observation, and a semi-structured interview with six teachers. The main focus of the two data collection tools was the same in each case, with the aim of discovering teachers' perceptions, and the use of IWB in teaching English vocabulary. However, the main reason for selecting a holistic multiple-case study for this research was to enable me to accommodate any contrasting (theoretical replication) results that might arise due to the different views that the participating teachers might have. I was able to collect additional information from different cases through the holistic multiple-case study design, which offered more fine-grained analytical conclusions. It also allowed me to investigate each school as a single case study before combining the data, which should allow for the development of a richer bank of data (Cohen, Manion, & Morrison, 2007; Yin, 2013).

3.4.3 Exploratory Sequential Design

The exploratory, sequential mixed-method design typically consists of two phases (qualitative and quantitative), with the quantitative phase usually following the qualitative one (Creswell & Plano Clark, 2011). However, this is not a fixed rule and researchers can decide which phase would best serve as the primary method and which as the secondary with due consideration for the study's aims. For example, the decision can be made through the level of the two phases' interaction (quantitative and qualitative), the process of mixing the two phases, or the priority and the timing of the phases (Creswell & Plano Clark, 2011, p. 64-65). Therefore, in this study, I started identifying, conducting, collecting and analysing quantitative data in the first phase, as it had been given priority, in order to gain broad and general ideas.

After collecting the initial quantitative results, I determined which results should be explored in depth in the subsequent qualitative research (during the second phase), such as significant or non-significant results. In qualitative research the term 'significant results' differs from the meaning that this has in quantitative research (Creswell, 2009). Specifically, in qualitative research, significant results refer to those which reflect the majority of the responses in the first phase (for example responses that may indicate that teachers believe that the IWB is a highly effective tool in teaching). Similarly, the term 'non-significant results' refers to those results that would not apply to the majority of responses. The first phase would help me refine the second phase, if necessary,

and select the participants (this also was piloted: for more detail, see appendix J). The level of the interaction of the two strands was connected at the intermediate stage in the study, which showed that the two strands were independent and interacted with each other separately and subsequently (Creswell, 2009; Greene, 2007). That is, one strand (quantitative data) was conducted first and then was followed up by carrying out the second (qualitative data).

The exploratory, sequential mixed-method design had more of a focus on qualitative than quantitative data through its use of classroom observations and interviews to answer the two questions. It sought to obtain a comprehensive understanding of a phenomenon which focussed on words by exploring participants' teaching strategies. Moreover, how the IWB was used in teaching was explored through classroom observations, and teachers' views explored in in-depth interviews after the quantitative phase had provided more general information. These methods assisted a more in-depth explanation and interpretation of the initial findings (quantitative) (Creswell, 2009; Morgan, 1998). The main rationale for using this design was that the quantitative results provided me with a general understanding of the research problem, and then through the subsequent qualitative results I was able to refine the research questions. This was followed by discussing and explaining the initial results in more depth (Creswell, 2009; Tashakkori & Teddlie, 1998).

The advantage of the exploratory sequential design was that the first phase provided a more overall understanding and elaboration of the research problems. The design also enabled me to report the results in a straightforward manner because of its flexibility, and helped me to either expand or specify the qualitative results. Conversely, the disadvantage of this design was that it required a large amount of time to complete the data collection. So, I had to specify which findings, as selected from the quantitative results, would be focussed on during the subsequent qualitative phase (Creswell, 2009; Morgan, 1998; Tashakkori & Teddlie, 1998). The exploratory sequential design also required me to identify the numerical data to further explore in the study. Another challenge was that I had was to determine which quantitative results would be explored in the second phase (Creswell, 2009; Tashakkori & Teddlie, 1998).

3.5 Sampling

Sampling plays an essential role in defining the population and accessing the sample itself in order to ensure the suitability of the sample design, which has been categorised into three types: random, non-random and mixed sampling. The selection of a sample in quantitative and qualitative research can be followed by two different strategies: probability and non-probability sampling. In quantitative research, a researcher takes various different elements into consideration, such as the accessibility of the responses and the respondents' backgrounds with regards to a topic. The sample in this type of research represents the study of a population which could be gathered through randomisation, whilst in qualitative research, a researcher selects a sample that may represent a particular perspective, so this perspective may be explored in rich detail (Cohen et al., 2007; Kumar & Phrommathed, 2005; Tashakkori & Teddlie, 2010).

3.5.1 Purposive Sampling for the Quantitative Approach

Purposeful sampling is usually a qualitative research technique that can be used to identify and select information-rich cases to allow for the most effective use of limited resources (Patton, 2002). "Purposive sampling is deductive with reference to the research questions, so that units of analysis are selected in terms of criteria that will allow the research questions to be answered" (Bryman, p. 410). In addition to knowledge and experience, Bernard (2002) and Spradley (1979) note the importance of availability and willingness to participate, and the ability to communicate experiences and opinions in an articulate, expressive, and reflective manner.

Purposive sampling is used when a researcher sees that particular participants or contexts would add important information when they are chosen that could not otherwise be gained from other sampling designs (Maxwell, 2012). Therefore, the researcher could be able to decide which of the participants would provide the best information regarding the phenomenon of the study so as to invite them to participate in their study. Moreover, the advantage of this sampling approach is that it saves time and cost, whilst still gaining a wide range of responses (which is of particular value in qualitative research). However, the disadvantages of purposive sampling are that the researcher might accidently overlook essential information; moreover, the researcher might also be unconsciously biased in relation to selecting the sample depending on the way they judge participants' selection; therefore, the sample can be referred to as a selective or subjective sampling. In addition, it is also prone to errors of judgement

on the part of the researcher and the findings, whilst being potentially broad, will not necessarily be representative (Patton, 2002).

As previously mentioned, purposive sampling is used for qualitative research, however, purposive sampling (PS) in this present study was used for both quantitative and qualitative phases. For the latter, it enabled me to identify and select individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest (Creswell & Plano Clark, 2011), in this case the use of the IWB. The population from which the sample was drawn were all primary school teachers in Jeddah. The population of EL teachers in Jeddah is estimated to be between 600 and 650, however, the precise number is difficult to verify due to a lack of response from some of the local government education authorities in this regard. The figure of 600 to 650 is based on discussions with EL supervisors in the municipal Directorate Education in Jeddah who supervise Saudi EL teachers and assess their work. The questionnaire was sent to as many of these EL teachers as possible, estimating that it reached approximately 500 teachers as informed by some English language supervisors.

Distribution was done by: firstly, contacting the heads of departments of Saudi EL supervisors in Jeddah city which is divided into five sections in the city. Secondly, these supervisors contacted their subordinates to ask them to send out the survey to the teachers under their jurisdiction. Thirdly, the majority of EL supervisors responded positively to this request; however, a small number of them did not respond. The supervisors reported it was probably sent to around 500 teachers. However, this figure is an estimation. Ultimately 319 completed surveys were returned. Although we do not have a precise figure for the number of EL teachers in Jeddah, this response rate could be taken to represent roughly half of the population of EL teachers in the city. For more details, see Figure 3.2 below.

3.5.2 Non-Probability Sampling for the Qualitative Approach

To answer the qualitative questions (Q1 and Q2), non-probability (or non-random) sampling was used, whereby I was able to ensure that different types of school sectors were included (e.g., state and private schools) (See Figure 3.2 below). The non-probability sampling focussed on multiple groups and organisations and looked at a particular selection of the population (Cohen et al., 2007; Denscombe, 2007). This

sampling method also helped me gather data from different schools and populations. However, as with most qualitative research, this sample relied on only a small sample of the total population in order to develop a more in-depth understanding of the situation (Denscombe, 2007; Henry, 2008; Kumar & Phrommathed, 2005). Therefore, it is acknowledged that these findings do not represent the whole population of Saudi English language teachers in Jeddah, and those six teachers' views might be different from the other teachers in the same context. Whilst in depth knowledge is gained from the qualitative sample, it is accepted that this is not generalisable. In addition, another major limitation of this study might be the sample of self-selective participants bias. This is because those participants were already motivated and willing to take part in the qualitative study and arguably had an interest in the topic. I used this sampling method to select and focus on particular groups (six male teachers) at six different organisations (six schools), conducting classroom observations and interviews in order to explore and gain more detailed information about the phenomenon.
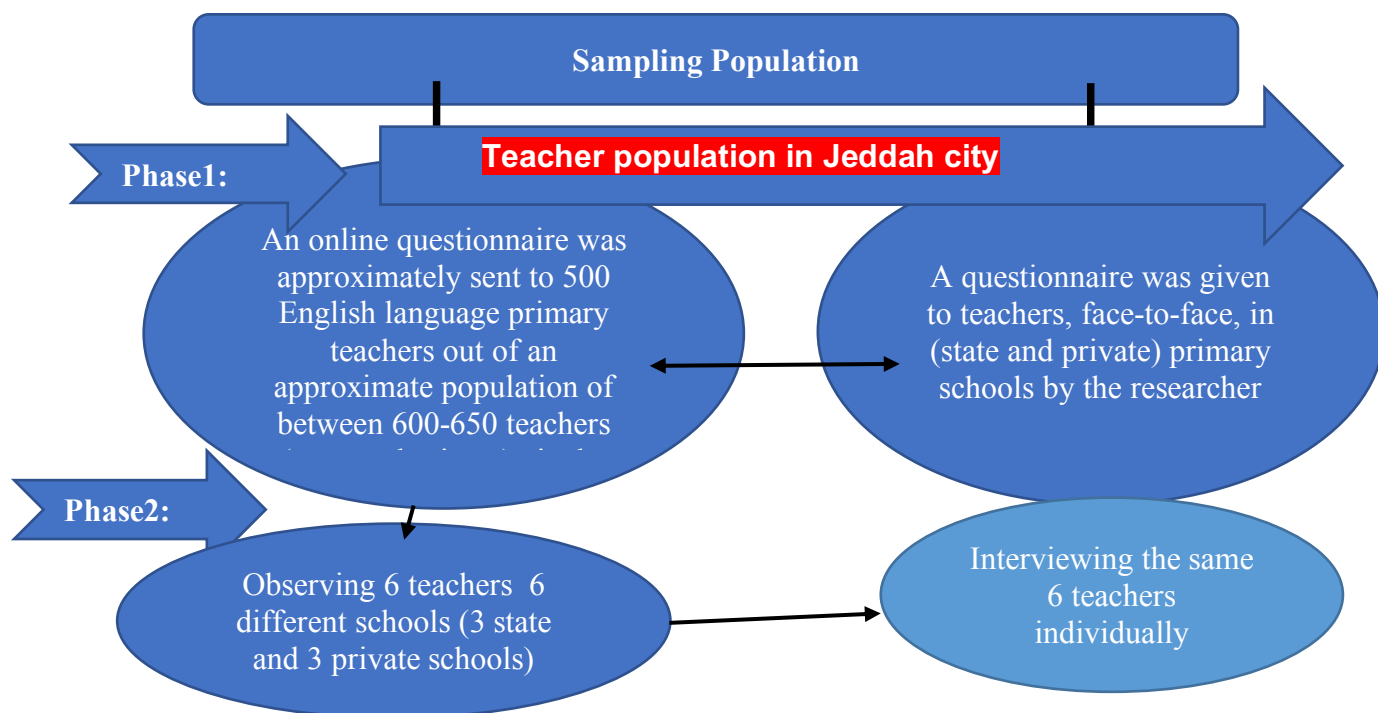
Figure 3.2: Sampling Population and Participants

3.5.3 Participants and Schools

The participants of the first phase (quantitative phase) of the study were EL teachers, working with 11- and 12-year old pupils, in primary schools that were equipped with IWBs in Jeddah. The questionnaire was initially distributed online using Google Forms. Due to a low initial response rate, I then personally visited schools around Jeddah to leave copies of the questionnaire with the teachers, and then returned to collect them.

For the second phase (qualitative phase), six male EL teachers were observed in six different schools, three state and three private from different parts of Jeddah (see Table 3.2 below). The six male EL teachers were chosen based on their willingness to participate in the qualitative phase, as ascertained through the last question of the questionnaire, which asked teachers who were willing to take part in the next stage to express their interest. An additional element of consideration when selecting teachers was the extent of their teaching experience, aiming to (if possible) have at least one teacher with more than 13 years of teaching experience and at least one teacher with less than 10 years of teaching experience in each school type. This choice was made to determine whether experience would have any impact on the use of technology in teaching. The reasons for selecting three state and three private schools, and indeed these teachers, were that I wanted to examine different perspectives regarding the use of the IWB from different male English supervisors, EL teachers and schools, in order to identify any associated similarities or differences. This selection could also help me to determine additional and more in-depth information about the use of the IWB when teaching vocabulary.

Table 3.2 below shows the participants' characteristics; the six male teachers who were interviewed and observed were given pseudonyms instead of using their real names, and letters were used for their schools (A = private and B = state) in order to protect their anonymity and confidentiality.

Table 3.2: Teacher Characteristics

Interviewees (Teachers' pseudonyms)	Teachers' ages	Years of teaching experience	Years of the IWB experience	Type of schools	Grade
Sami	48	16	7	A (private)	5th & 6th
Tariq	43	12	7	A	6th
Waleed	43	14	9	A	5th
Naser	42	14	6	B (state)	6th
Mazen	45	13	5	B	6th
Majed	42	12	5	B	6th

In terms of the background of the three state and private schools in this study, they taught between five and seven classes to the fifth and sixth grades (students aged 11 and 12). Traditionally, all schools in Jeddah have morning classes. Based on public data available from the Ministry of Education (MoE) in Jeddah, the standard range of the schools' facilities and resources could range from sufficient to excellent. In general, most teachers working at state and private schools had similar qualifications, while

their competence in the use of the IWB depended on the teachers' skills and their self-confidence in the classroom.

Some male Saudi English supervisors informed me that teachers in private schools were usually supportive of, and responded positively to, researchers visiting their classrooms more so than teachers in state schools (Almulla, 2017). This might be because such activity was encouraged by head teachers working in private schools. Nevertheless, I did not want to be limited by this assumption but wished to undertake my study in both sectors (state and private schools) to ensure holistic and in-depth views from the teachers in the two sectors, which it was felt would augment the robustness of the study's findings.

3.6 Data Collection

The fundamental purpose of data collection in any research study is to gather and measure information from a variety of sources. This enables researchers to gain a complete and accurate picture when answering the research questions (Creswell, 2009). The data in this study were collected through a mixed methods approach (quantitative followed by qualitative). The first phase was collected and then analysed in order to formulate and refine the research questions. In the second phase, the questions were developed from the initial findings in order to interpret and explain specific information in more depth. The main data collection took place during autumn 2016.

3.6.1 First Phase of Data Collection: Quantitative Approach

3.6.1.1 The Questionnaire (Survey)

A questionnaire is a written form of questions, including open or closed questions or both, where these questions should be very clear and easy to follow (see section 3.6.1.2 on Piloting). This is because I may not have been able to clarify their meanings, and sensitive questions should be avoided or at least introduced in an appropriate manner. Cohen et al. (2013) classify the survey or questionnaire as having three major purposes: the specific aim for which it is used, the identification of an appropriate population, and the availability of sources. Firstly, in this thesis, I administered a questionnaire to gain a general understanding of teachers' use of the IWB in teaching vocabulary. It also led me to explore the reasons why some EL teachers did not use

the IWB in teaching, even though the technology was already implemented in their classrooms. Secondly, I focussed on the different perceptions of Saudi EL teachers towards the use of the IWB. Those teachers taught in schools which had essentially identical facilities in this regard (i.e., the use of an IWB which was connected to the internet) and worked in the same city. Thirdly, the questionnaire was translated into Arabic (participants' first language), to make it easier for the teachers to add more useful information in the open, optional questions. The anonymous questionnaire had many advantages; it was inexpensive, convenient, encouraged honest answers, was more economical than an interview, and far less time consuming (Cohen et al., 2013).

However, a questionnaire also has several disadvantages; for instance, illiterate, very young and very old people are not able to take part in such a survey, and they can be filled out in a hurried manner. The questionnaire can suffer from lack of clarification or lack of supplementation by other methods, and may include complex or vague questions, unlike an interview which can be supplemented with observations. It might not provide researchers with a sufficiently robust and rigorous investigation of their topic. Its response rate could be very low because a certain proportion of the people receiving the questionnaire may well choose not to respond to, or return it (Denscombe, 2007; Hudson & Miller, 1997; Paltridge & Phakiti, 2015). Based on the response rate of the pilot questionnaire, I assumed that I would probably receive a 20-30% response rate. This was because the questionnaire, as mentioned, was distributed in two ways (an online and a print version). As previously mentioned, at the end of this process, a total of 319 questionnaire responses were collected. Considering that the entire population of EL teachers in primary schools in Jeddah is approximately 600-650 (as discussed previously), 319 responses can be estimated to represent roughly one half of the total population.

3.6.1.1a Designing the Main Questionnaire

The questionnaire offered a certain flexibility, which helped when it was necessary to increase the response rate as it was possible to collect data through two different methods: an online and a print version. The advantage to this was that the participants had the opportunity to complete the questionnaire whenever and wherever it suited them (Cohen et al., 2013; Denscombe, 2007). As mentioned above, the questionnaire was initially distributed online using Google Forms, after which I visited schools personally to provide printed copies to the EL teachers, and then later returned to

collect them. This helped to increase the response rate, as on the basis of the pilot study it was thought that it would be difficult to gain a sufficient number of responses from the online version alone. This technique might offer an efficient means by which to gather data quickly and effortlessly, as well as raising the expectation of receiving a high number of responses (Cohen et al., 2013; Denscombe, 2007) (for more detail, see Appendix G).

The questionnaire included 31 closed-ended questions and two open-ended questions, using multiple choice to answer the general questions in the first part (age, qualifications, etc.). The number of closed questions might offer a better understanding of the phenomena whilst the open questions allowed participants to express their opinions and give some suggestions and comments in this regard (Denscombe, 2007). Likert Scale questions were used for the second part, such as exploring teachers' perceptions about using the IWB in vocabulary teaching and the challenges of using the IWB, which allowed for an exploration of strength and direction in responses. Frequencies or rating scale questions were also used in the third part where the focus was on the use of different teaching vocabulary strategies to rate frequency from *always use it* to *never use it*. Additionally, there was an open question at the end of some of the closed questions, with the intention of adding more information or comments so as to gain more general ideas and understanding from a given statement (Creswell, 2009; Paltridge & Phakiti, 2015).

3.6.1.1b Piloting the Questionnaire (Pre-Pilot and Pilot Studies)

After designing the questionnaire, I piloted it in two stages. The questionnaire was initially shared with a number of Saudi EL supervisors. These supervisors had considerable experience with working and communicating with EL teachers, some of whom had taught English in primary schools themselves. This experience enabled them to identify any issues with the questionnaire design or questions (e.g., confusion or problems with comprehension). After making the appropriate adjustments based on the supervisors' comments, the research moved to the second stage where the questionnaire was piloted again with 63 EL teachers. These EL teachers were asked to give comments and suggestions about the structure, the layout, the consistency and the clarity of the questions.

The number of items in the questionnaire was reduced, amended and improved as well as the meaning of the terminology being clarified based on the participants' feedback for use in the second stage of the pilot study. As a result, the second stage allowed me to identify positive elements of the questionnaire. For example, the clarity and consistency of the questions, along with some further suggestions for improvement such as reducing the number of the items and avoiding or clarifying any jargon or terminology to be used in the main study survey. The online and print version questionnaires shared the same design, layout and items; thus, the only difference was in the method of distribution. The final version of the questionnaire appears in Appendix G.

3.6.1.1c Administering the Main Questionnaire

The final version of the questionnaire, for the main study, was distributed in two ways similar to the pilot study: (1) firstly, online via Google Forms, where Saudi EL supervisors distributed it to approximately 500 EL teachers in Jeddah via email as a link. This guided them to the Google Forms website to answer the questions and then return them by email. Those supervisors are responsible for supervising EL teachers in primary schools. The questionnaire was written in English and then translated into Arabic as the mother tongue of the participants and the researcher prior to sending it out to potential participants. 2) Secondly, I printed hard copies of the questionnaire and distributed them to the teachers to collect as many responses as possible. The online questionnaire and the preliminary letter were sent together to the EL teachers and whoever was willing to participate could effectively complete the questionnaire on the spot. The preliminary letter explained the aim of the questionnaire to the participants, the importance of the results, and the effortlessness and rapidity of completing the questionnaire. At the end of the questionnaire, I had added a small box to ask participants to add any comments and their contact details if they were interested in participating further in the second phase (qualitative).

3.6.2 Second Phase of Data Collection: Qualitative Approach

3.6.2.1 Classroom Observations

Observation is considered to be a systematic and useful method through which to watch and listen to an interaction, or to discover an attitude or a perception or a behaviour as it takes place (Hennink, Hutter, & Bailey, 2010). Kumar and

Phrommathed (2005) classify observation into two broad types: participant or unstructured, and non-participant or structured observations. In the former, researchers have no fixed observation schedules and participate in the activities of a group and share thoughts and ideas within this group. In the latter, which is the form used in this study, my role as a researcher was that of a passive observer and was not to get involved in the activities of the group; rather, my role is to watch and to listen, and then to draw conclusions accordingly.

Walliman (2005) points out that one of the strengths of observation is that it allowed me to explore the interaction between teachers and their students and their reactions and interactions when, for example, the IWB is used in teaching vocabulary. Thus, I explored what EL teachers' stated and actual use of the IWB was when teaching vocabulary, even though the focus of the current study was only on teachers, not students (Walliman, 2005). However, Walliman (2005) points out that one of the weaknesses of observations is that researchers may be seen as intrusive. The other challenge is that observation is time-consuming due to the necessary transcribing, coding, and analysis. Furthermore, researchers may lack observation skills, and there may be so many different things occurring simultaneously which because of this are impossible to observe and record. As a result, to tackle these challenges, I attended courses and practised my observation skills through the pre-pilot and the pilot study as well as by doing informal observations in different classrooms. Additionally, the observation schedule helped to facilitate the process. Lessons were also videoed and audio recordings taken so that I could go back to the recordings when necessary, which helped to revisit events and parts of the observation (see Observation Schedule section in Appendix H.

3.6.2.1a Designing the Observation Schedule for the Main Study

I designed a provisional observation schedule for the main study to observe the six EL teachers based on the results of the pilot study. This schedule is divided according to the length of the lesson, where each lesson lasts for 45 minutes. The observation sheet was split into 10-minute intervals as a personal choice and because most lessons in Saudi schools used the last five minutes of each class to deal with managerial matters. As such, dividing the class into four 10 minute intervals allowed me to segment the lessons into manageable chunks. This approach allowed me not only to record how long each strategy and feature of the tool were used, but also at what points within the

lesson they were used. This was designed to make it simple to complete while I was observing the lessons. The teaching strategies and the IWB features that were added in the schedule were based on what I found in the literature and previous studies (Al-Fuhaid, 2004; Khair 2017, Kneen, 2014; Kulikova, 2015). The schedule had partly been adopted and amended from various PhD studies (e.g., Kambouri, 2011; Kneen, 2014) (See Validity section for more details). This schedule was amended after collecting and analysing the results of the main questionnaire. For example, many EL teachers reported that the IWB provides different features, helps them to use diverse teaching strategies, creates an interactive classroom environment, and encourages interaction among teachers, students and with the IWB itself.

The observation schedule contained a fixed list of anticipated items and a space for notes to add any information that might be gathered during 180 minutes of observation for each teacher, or a total of 1,080 minutes over eight weeks. It also contained space for general information on how the classes were organised, such as participants' names and grades that they taught, and the duration and frequency of using the IWB and teachers' and students' interaction during the use of the IWB. It also included teacher's talk, teaching aids (e.g., posters), vocabulary teaching strategies, and the features of the IWB being used, etc. (See Appendix H). By the time of the main study, my observation skills had improved considerably.

3.6.2.1b Piloting the Observation Schedule

During the classroom observations in four different schools and with four different teachers, I only took notes along with ticking an observation schedule (see Appendix H) without making any recordings. Each of the four EL teachers was observed once, and separately. Each of the classroom observations lasted for 45 minutes and focussed on vocabulary skills.

3.6.2.2 Interviews

An interview is a technique that allows one to develop a deep understanding and elicit issues or facts or statements from interviewees (Burns, 1996; Creswell, 2009). Burns (1996) provides a general definition of an interview as "a verbal interchange, often face to face, though the telephone may be used, in which an interviewer tries to elicit information, beliefs or opinions from another person" (p. 329). An interview is a common method to collect information from people, and there are different kinds of interviews such as structured, unstructured and semi-structured. In a structured

interview, researchers follow a set of specific, pre-prepared questions, which assures the comparability of data due to requesting uniform information, as well as requiring fewer interviewing skills. In an unstructured interview, researchers can freely formulate and raise questions, structure, and content. In a semi-structured interview, researchers can formulate and design a set of predetermined questions where they can add or remove questions as appropriate during the interviews. They also had freedom with regards to the wording used, and how they presented the questions, along with being able to use it in both the quantitative and qualitative approaches (Kumar & Phrommathed, 2005).

An interview has an abundance of advantages in terms of developing a better understanding of a research problem as it provides detailed information. It is a very useful method with which to collect information regarding complex and sensitive areas where an interviewer can explain complex questions personally (Burns, 1997; Cohen et al., 2013; Creswell, 2009). Participants may also provide useful historical information. In contrast, the disadvantages of an interview can be seen in different ways. Firstly, they can be time-consuming, costly, and the quality of information can be affected by the quality of the interaction between interviewer and interviewee. Secondly, the quality of the interview can be affected by the interviewer's skills, preparation of questions, and experience. Thirdly, the interviewer can become biased about the questions and the interpretation of responses, or select response categories, or choose some responses that they prefer and reject what they dislike (Kumar & Phrommathed, 2005; Savin-Baden, 2013).

3.6.2.2a Designing the Main Interviews

I used semi-structured interviews which helped to add or remove questions during the interview and allowed the male EL participants to explain and give responses that were more detailed (Kumar & Phrommathed, 2005; Savin-Baden & Major, 2013). The interview, as explained earlier, lasted between 20 and 45 minutes for each participant and included open questions where participants could speak freely and express their opinions frankly. It was conducted after the observation in a quiet place in the schools. The interview in the main study included questions based on the responses to the questionnaire, plus more questions based on the classroom observations made for each individual teacher.

In the pilot study, the face-to-face semi-structured interview was carried out directly after the piloted observation and lasted between 20 and 45 minutes to cover some of the issues that arose during the lessons and the questionnaire. Each EL teacher was interviewed once individually, and the interview was recorded. The observation matrix and the interview questions were amended in the main study (see Appendix H and I). Based on the pilot results, some interview questions were removed, and some questions were added, which helped the overall process to be more precise and to collect the necessary data to answer the research questions.

3.7 Data Analysis

The aim of data analysis is to provide a means to address research questions by establishing a framework though which to evaluate, model ad filter the relevant questions and themes (Creswell, 2009). Therefore, the data can be converted into meaningful segments by breaking it down for examination so that the data can be comprehensible (Creswell, 2009; Merriam & Tisdell, 2015; Savin-Baden, 2013). In addition to this, the quantitative data analysis can be undertaken using deductive reasoning or a top-down approach which starts from a general statement that is then narrowed down to be more specific. This type of approach uses a theory which relates to the chosen topic or interest so as to generalise it, and which then becomes more specific in order to design appropriate hypotheses to be tested. Meanwhile, the qualitative approach can be conducted using inductive reasoning or a bottom-up approach which begins from a specific theory to produce a generalised statement (Check & Schutt, 2012; Frith & Gleeson, 2004). To analyse the data from this mixed methods study, which includes quantitative and qualitative data, the two analytical methods, statistical and thematic analysis, were used. Further details of the questionnaire are given in the Findings chapter.

3.7.1 Quantitative Data

In the first phase (quantitative), the questionnaire and the observation schedule were analysed quantitatively, the former was through SPSS and the latter manually. The questionnaire included both closed and open questions. The closed questions were analysed statistically using SPSS. In more detail, (1) I reviewed the data (by cleaning the data of incompleteness, errors, misclassification and checking internal consistency, etc.) and (2) converting to numerical data and entering it into SPSS. Following on, I (3)

searched for themes and then used different themes to develop the codes and separated the similar ones, and (4) interrelated and connected the themes with each other. Finally, at step (5), the data coding took place, which was then verified and re-examined to clean it of any discrepancies. (6) A frame of analysis was developed, to help analyse the data (e.g., to determine which variables were analysed and how these variables could be analysed) (Kumar, 2005).

However, while analysing the data, four items were found in Section B of the survey, which indicated a negative direction. Therefore, these negatively worded items were reversed, aiming to score positive worded items to match the positive scheme of the other items. These negative questionnaire items are provided in Table 3.3 below:

Table 3.3: Reversing Negative Worded Items

Negative Items	Reversing Items
No.12) I think the IWB is difficult to use.	1. Strongly agree → Strongly disagree
No.13) The IWB can be time-consuming.	2. Agree → Disagree
No.14) The IWB is a distractive tool for students.	3. Neutral → Neutral
No.15) I do not use the IWB because I do not know how to use it (I do not have the skills.)	4. Disagree → Agree
	5. Strongly disagree → Strongly agree

However, the open questions within the questionnaire were analysed thematically, in a similar manner to the qualitative interview data (please see the Qualitative Data section for further details).

Secondly, the observation was analysed manually both quantitatively, including a fixed observation schedule, and qualitatively, using note-taking in order to capture more information than could be captured during the classroom observations themselves. Thus, I will explain in the following section how I analysed the fixed observation schedule, whereas the note-taking data, which was qualitatively analysed using the thematic approach (Boyatzis, 1998), will be addressed in the Qualitative section.

These quantitative items of the observation schedule, as stated previously, were analysed manually in order to calculate the amount of time that was spent on different types of usage of the IWB. These quantitative data were analysed and included as follows: (1) organising the data according to the themes used when I developed the observation table (e.g. key word method, role play, etc.) regarding which vocabulary strategies the teachers used and how frequently. 2) The first version of the observation table was written in English and verified by my two PhD supervisors. 3) Then, I translated the observation table from English to Arabic. 4) This translation was

validated by five native Arabic PhD students in the UK, who are also teachers in Saudi Arabia (Cohen et al., 2013; Creswell, 2009; Yin, 2009).

3.7.2 Qualitative Data

Three tools were used for the qualitative analysis in the present study: 1) the open questions in the questionnaire, 2) the note-taking from the classroom observations, and 3) the interviews.

Firstly, the participants' responses regarding the open questions of the questionnaire were analysed as follows: 1) the answers were analysed to identify teaching strategies used by teachers that *were* included in the questionnaire. 2) The answers were analysed to identify teaching strategies used by teachers that were *not* included in the questionnaire. Then, 3) the first version of the open questions was written in English and verified by my two PhD supervisors and 4) I translated the two questions from English to Arabic. I then 5) translated the responses of the participants from Arabic to English. This translation was validated by five native Arabic PhD students in UK, who were also teachers in Saudi Arabia (Denscombe, 2003; Kumar, 2005).

Secondly, the note-taking data from the observation table were analysed as follows: 1) the first version of the notes taken in the observation was written in English and then translated into Arabic, 2) the coding categories were derived firstly by summarising the comments I made during the observation into themes and then matching these with vocabulary teaching strategies that had previously been identified in the literature as being relevant to both implicit and explicit teaching strategies, as well as IWB features. I then 3) interrelated and connected each theme with the others to see what the relationships were between different elements. 4) The notes were proofread by two native English-speaking PhD students to ensure the language was accurate. 5) My two PhD supervisors validated the strategies that I had identified during the note-taking from my observations.

Thirdly, the interview data were analysed through the following steps: 1) after summarising the most important data collected from the classroom observations' notes, I asked the teachers why they used certain strategies more than others, along with the set questions planned for the interviews. 2) Then I transcribed the verbal data to written data, 3) I then translated the data from Arabic to English and checked the

texts regarding the occurrence of any language problems. Following this, 4) I read the transcripts and wrote notes in order to provide an initial exploration of the data. 5) I produced initial themes in terms of teachers' perceptions about the tool and their training as well as the vocabulary strategies that could be used with this tool. I then 6) interrelated and connected each theme with the others to see what the relationships were between different elements (e.g., teachers' attitudes towards their training and their self-confidence when using the IWB). Then, I 7) used a framework analysis as shown in detail below (page 91) to help analyse the data (Creswell, 2009).

Thematic analysis is a research technique frequently used in qualitative analysis when seeking to identify, analyse and report the various themes, or patterns of meaning, present in a data set (Boyatzis, 199). The benefit of using this method is that is sufficiently flexible to address a variety of research questions relating to participants' views, experiences and perceptions, and do so from within a diverse range of frameworks (Boyatzis, 1998). Additionally, as a technique it is also reasonably accessible to researcher who are new to the field of qualitative research and is a useful means of highlighting the similarities and differences in the data. However, the drawback of this method is that it is repeated between different phases, which may lead to it being rigid, and the data can be ambiguous. It consumes time and effort as well as having no fixed ways that can be followed and conducted in order to analyse and transcribe the data (Attride-Stirling, 2001; Boyatzis, 1998; Poland, 2002). In Table 3.4 below, the overall themes and subthemes of the interview, observations and survey are provided in more detail.

Table 3.4: The Overall Themes and Subthemes of the Interview, Observation and Survey

Research Questions	Tools	Themes	Subthemes
(1.a): What are teachers' general perceptions, and stated uses, of the IWB?	**Questionnaire** **Interview**	**1**. Overview of all the items in Section C in the survey. **2**. Overview of the total means **3**.Overview of all the positive items in Section B in the survey. **4**. Overview of all the negative items in Section B in the survey. **5**. Positive teachers' views regarding the use of the IWB	a/ Visual and audio aspects of the IWB b/ Engagement in lessons
		6. Changing teachers' practices with the use of IWB	a/ Flexibility and versatility b/ interactivity and connectivity c/ virtual video monitoring

(1b): How do teachers perceive the IWB, specifically in relation to teaching English vocabulary?	Interview	7. Teachers' attitudes towards the use of the IWB and their views on pedagogy	a/ Learning styles b/ Teaching vocabulary strategies c/ Fun and problem-solving in learning d/ The positive use of the plain whiteboard within pedagogy
(1.c): How do teachers actually use the IWB when teaching vocabulary?	Observation	8. Private and state school teachers' actions and teaching strategies with the use of the IWB	Memory methods: role-playing, semantic mapping, teaching techniques, repetition, vocabulary involvement, mnemonic technique, word part, realia, collocations.
		9. Classroom activities for vocabulary comprehension	Guessing from context, applying and connecting the classroom tasks and activities to the IWB
		10. Clarifying meanings	Scaffolding: open and close questions, cooperative work, monitoring learning, translation, code switching, Information gap activities, negotiation of meaning strategy.
		11. Main teaching styles in teaching vocabulary	Teacher-centred and student-centred.
		12. Teaching aids	Countdown timer, posters interactive CD, small whiteboard.
		13. Using the IWB features to ease reading passages and increase vocabulary retention and comprehension.	Photos, online dictionaries, online activities, highlight, saving data, audio and video clips.
(1.d): How much training/support have Saudi primary teachers received in relation to ICT and the IWB?	Interview	14. Obstacles to use of the IWB	a/ The IWB training b/ Maintenance c/ Internet connection
(2): What is the relationship between teacher variables (qualification, length of experience, private vs. public schools) and their perceptions and use of the IWB, both stated and actual?	Questionnaire	15. Spearman rank order correlations between attitudes and teaching strategies and teacher variables. 16. Differences between groups of teachers: Mann-Whitney U-tests.	

3.7.2.1 The Overall Deleted Themes and Subthemes in the Interview

Themes were reduced after a further review from ten to five. The themes eliminated from the original ten are shown below in Table 3.5:

Table 3.5: The Deleted Themes and Subthemes

Omitted themes	Brief description of omitted themes
(1) The IWB's effectiveness	Aiming to the effect of using the IWB in teaching
(2) Teaching strategies without using the IWB	Describing the vocabulary teaching strategies, techniques and methods that are being delivered without using or relevance to the IWB
(3) Using activities and tasks without the IWB	Looking at any activities or tasks that are not pertinent to the IWB
(4) Students' behaviour	Explaining the way in which the IWB manage students' behaviour
(5) The IWB training	The lack of teachers' training

The main justifications and reasons for deleting these themes were because (1) they did not provide enough data from a range of teachers, (2) they were irrelevant to the main research questions, (3) they were not pertinent to the aims or to the focus of the study, (4) the last deleted theme was *teachers' IWB training* because it was frequently mentioned and repeated in the theme of *the challenges of IWB*, even though it is relevant to the study. In the following section, I will name the important teaching strategies listed.

3.7.2.2 Coding the Themes and Subthemes in the Open Questions of the Survey

These activities or strategies were given headings and subheadings derived from the responses to the two open questions in the survey. The participants were asked these questions in order for them to list other activities/strategies they used with the IWB other than those listed in the questionnaire, as well as the most important teaching strategies listed in the survey. After that, the responses were analysed and grouped into the activity types identified in the literature review. The activities highlighted in this study showed a clear relationship with activities identified in the studies included in the literature review. Therefore, I grouped the activities under headings taken from the literature review. The themes and subthemes are presented as follows:

a. Active Learning
This heading contains a number of subheadings such as the Total Physical Response (TPR) method, hot seat or chair, and role-play, which require physical and active work (Bonwell, & Eison, 1991).

b. Group Work
This heading contains several subheadings, for example, cooperative work, pair work and discussion which require cooperative work with other peers (Bonwell, & Eison, 1991).

c. Brainstorming

This heading also includes various subheadings, for instance, mind concept, semantic mapping, brainstorming and elicitation which require a lot of critical thinking (Bonwell, & Eison, 1991).

d. Memory Games

This heading consists of various subheadings such as word or puzzle games, guessing games, words with pictures, word parts, and the mnemonic technique. These activities assist learners in improving vocabulary and knowledge retention (Bonwell & Eison, 1991).

3.7.2.3 Framework Analysis

Framework Analysis is a qualitative method that used as a means of supporting to the explore the data. It is also considered as a data management method rather a means to interpret the data (Barnard, 2010). Ritchie and Spencer developed the framework, for 'Social Research (NatCen), at the National Centre' (Barnard, 2010). The framework is used to manage the process of data through breaking down, reassembling and prioritising data (Barnard, 2010). This arrangement allowed for each sub-theme to be set against each teacher, thereby allowing the relevant data for each case or teacher to be matched with the relevant themes. Table 3.6 below reports an example of the framework, and a further completed example can be found in Appendix K.

A summary of the data is "entered into the cells of the matrix, as opposed to the verbatim text, which not only keeps the matrix manageable but also supports the process of moving away from the verbatim text towards a conceptualisation of the data" (Kneen, 2014, p.106-107). The main advantage of using the framework analysis matrix is that it enables me to organise the data so as to give a clear overview and focus in relation to both the case study and the theme. This allowed me to not only to explore each case in relation to a variety of different themes, but also to investigate each theme in relation to all the various cases. This allowed me to more easily develop a broad overview of how the different themes and cases were associated (Barnard, 2010).

Table 3.6: The Framework Analysis

Theme	Teachers' attitudes towards the use of the IWB and their views on pedagogy			
	Subthemes			
Teachers	a/ Learning styles methods	b/ Teaching vocabulary strategies	c/ Fun and problem solving in learning	d/ The positive use of the plain whiteboard within pedagogy
Sami	*	*	*	*
Tariq	*	*	*	
Waleed	*	*	*	
Naser	*	*		
Mazen	*	*		
Majed	*	*		

This symbol (*) refers to the subthemes mentioned by each teacher

3.8 Validity and Reliability

There is some debate among researchers concerning the accuracy of the terminology that can be used in qualitative research with regards to validity and reliability or trustworthiness and credibility (Lincoln, 1995; Silverman, 1993). The terms 'reliability' and 'validity' can be replaced with other terminologies within the context of qualitative studies. For example, Lincoln and Guba (1985, p. 301) suggested different terminologies and concepts instead reliability and validity such as "credibility, transferability, dependability and confirmability". Credibility and transferability are used as alternative terms to describe internal and external validity, whereas dependability is another term for reliability. Researchers can use confirmability to achieve objectivity. Lincoln (1995) and Silverman (1993) propose that researchers can use either terminology to refer to the accuracy and the assessment of data. As the current study employed a mixed-methods approach, the terms 'validity' and 'reliability' are used in the present study.

3.8.1 Validity

The term validity is seen as a degree of measuring accuracy and the correctness of the interpretations of a study over time (Creswell, 2009; Paltridge & Phakiti, 2015; Walliman, 2005). Validity refers to whether a tool or method measures what it is actually intended to measure (Wellington, 2000), and, according to Silverman (2010) is an additional definition of the word 'truth'. Another definition by Sapsford and Abbott (1996) describes validity as "the design of research to provide credible conclusions; whether the evidence which the selecting methods of data collection research offers

can bear the weight of the interpretation that is put on it" (p. 1). Validity is a fundamental requirement for both quantitative and qualitative research, where if a piece of research is lacking in validity then it is essentially worthless. Creswell (2009) states that qualitative validity can be ensured when the accuracy of a study's results are checked through the use of particular procedures, while achieving quantitative validity indicates to what extent a concept is accurately measured. For instance, a survey designed to examine happiness, but which actually measures satisfaction would not be considered valid (Silverman, 2010).

Robson (2002) points out that validity refers to how the results are considered to be accurate, which leads to them being reliable. Yin (2009) points out that to increase the validity of case studies, it is important to use multiple sources of evidence during data collection in order to triangulate the data where validity can be increased. To increase the validity of the study, the aims, research questions and methods must be consistent and fit together (Punch, 2005). Therefore, the main and subsidiary research questions of this study were designed and revisited during the design of data collection instruments which could support the provision of checks that the methods were relevant to answer the research questions and capable of providing the necessary data. Working in a chronological order from the research questions to the data helped increase the focus of the study, which led to the appropriate methods that served to answer and link aims, questions and data being established.

3.8.1.1 Validity of Questionnaire (in the Main Study)

The questionnaire was piloted, in the first strand (quantitative), in two stages, as mentioned earlier, with my EL supervisors and teachers in his field who taught English using IWB in primary schools. They went over the questionnaire to ensure that all questions and the layout of the questionnaire were consistent and relevant as well as not being too long, too short, or ambiguous. I added a friendly request and invitation at the end of the questionnaire in the pilot and the main questionnaire for participants to take part in the subsequent stage (observations and interviews), as well as to explain the importance of this study to the education field (Belson, 1986; Hudson & Miller, 1997; King, Morris, & Fitz-Gibbon, 1987; Litwin, 1995). The questionnaire items were adopted from those reviewed by me in the literature review (Aytaç, 2013; Isman et al., 2012; Lai, 2010; Zheng, 2012) in order to strengthen the validity of the questionnaire. These research study questionnaires explored teaching strategies, teachers'

perceptions regarding the IWB, and the use of the IWB in teaching which were very similar to my study.

3.8.1.2 Validity of Observation (in the Main Study)

In the second phase, the fixed observation schedule, which included a list of checklist items, provided consistency to the study by covering the expected events and providing the ways in which things could be measured, as well as using thorough and careful note-taking (Denscombe, 2007). The accuracy of the data was ensured by sharing the observation schedule and the note-taking information with the six EL teachers, after conducting the observation, to enhance the validity of the conclusions and ensure that I had covered what they explained in both languages (Arabic and English). As previously mentioned on pages 78-79, the observation schedule helped to facilitate the process and the video and audio recordings were available to go back to when necessary, which helped to revisit events and parts of the observation (see Observation Schedule section in Appendix J for details). The observation schedule, as mentioned previously, had been partly adopted and amended from various studies and PhD theses, such as those by Kambouri (2011) and Kneen (2014), which served to add additional strength in terms of increasing the validity of the tool.

3.8.1.3 Validity of Interview (in the Main Study)

With regards to the interviews, the participants (six EL teachers) were allowed to speak freely so as to minimise or avoid bias insofar as was possible. In addition, the first language (Arabic) of both the interviewer and the interviewees was used regarding questions of the interviews to eliminate misunderstandings and to enable the interviewees to give and explain in more detail. The interview atmosphere was kept very friendly to ensure that all the interviewees felt comfortable by asking the interviewee to choose a suitable time and place for them. The recordings were listened to more than once and gone over with the transcriptions to ensure that interviews were transcribed verbatim, aiming to further increase validity (Cohen et al., 2013; Yin, 2009). I asked two of my PhD colleagues (who studied different subjects and were not familiar with my work) to review the items and questions of the tools of the study (survey, observation and interview) and the analysis of the study (Creswell, 2009; Kumar, 2005). For example, these PhD colleagues looked at the questions to check if they were clear and consistent.

3.8.2 Reliability

Reliability concerns the accuracy of measurement which deals with how the data is being measured consistently over time (Cohen et al., 2013; Paltridge & Phakiti, 2015).

3.8.2.1 Reliability of Quantitative Data

In the first phase, the reliability of the data was measured using a pilot study on two occasions, once as a pre-pilot study and then as a main or full pilot study on a small scale. In the main study, I assessed the internal consistency of 31 questionnaire items (.840), which indicated that the items had a relatively high (very good) internal consistency. In order to check that they were measuring the same constructs, measures of internal consistency (Cronbach's alpha) were reported in the pilot study (.860). During the pilot stage, I included a question at the end of the questionnaire that asked the respondents if they felt the questions were consistent in their level of difficulty. At this stage, I was able to measure the consistency over a short time using similar data from similar respondents. As such, the internal consistency was used to assess or identify the correlation between scores of each item as well as the total score for all items in the test. When the scores of the correlation are high, the items indicate a high reliability. In contrast, when the scores of the correlation are low, the reliability of the items is poor. Therefore, .840 indicates very good internal consistency, as stated previously (DeVellis, 2016; Pallant, 2013).

3.8.2.2 Reliability of Qualitative Data

In the second phase, the observation schedule was amended and modified after the pilot study. With regards to the interview, I enhanced reliability by piloting the interview questions, learning about coding the responses, and the extent of my interview skills. In addition to these closed questions, there was an extended use of open questions where the interviewees expressed their opinions and ideas freely. The transcript was checked to ensure that it was free from transcription mistakes.

3.9 Ethical Issues

Ethics refer to the norms of conduct that distinguish between acceptable and unacceptable behaviour, or right and wrong. "Ethics is the study of what are good, right, or virtuous courses of action" (Oancea, 2014, p. 36). Ethical approval was sought from, and granted by the University of Reading Ethics Committee (Appendix E).

3.9.1 Confidentiality and Anonymity

The nature of confidentiality in research is to protect participants' rights in terms of privacy, and complete discretion should be observed with any personal data. The present research follows Robson's definition (2002) since it adheres to the standard "code[s] or set of principles" (p. 65). The respondents were guaranteed confidentiality and the six English language teachers who were involved in the project were not personally identified at any point. Therefore, the participants were secure in the knowledge of their confidentiality, which was critical (Creswell, 2009). The respondents were anonymous, and the data collection were confidential after the observations and interviews were conducted.

An example of confidentiality can be seen when the questionnaire was distributed to teachers and then collected: the preliminary letter clarified the simple instructions and the steps required to complete the questionnaire (Walliman, 2005). After receiving the agreement, the participants were left to complete the questionnaire in a separate room where I was available and ready to answer any questions. Another example was the pilot study of the observation, as I used note-taking to add additional information if needed but did not use any recordings as no ethical approval had been given to do so at that stage. Each of the four EL teachers were observed once and separately. All the classroom observations lasted for 45 minutes and focussed on vocabulary skills. However, by the time of the main study, my observation skills had improved, and he had by then received full ethical approval to use video and audio recordings in the main study to capture any events that happened during the observation.

The essence of anonymity is that researchers should keep participants' information and identities anonymous, as well as which their privacy should be respected and be in no way disturbed (Robson, 2002). The six male EL teachers were reassured that their identities would remain completely confidential and the recordings would be deleted once I completed my thesis. Sapsford and Abbott (1996) point out that "*confidentiality* is a promise that a participant will not be identified or presented in identifiable form while *anonymity* is a promise that even the researcher will not be able to tell which responses came from which respondents" (p. 319).

3.9.2 Informed Consent of the Participants

According to Diener and Crandall (1978), informed consent is defined as the process that seeks the agreement of individuals to be participants in a study or otherwise by providing its aims. According to Bowling (2009), participants should be aware of what they are going in order to be involved in the research. The six male EL teachers (Appendix A), the children (Appendix C), and their parents (Appendix B) were informed of the main goals and procedures of the project and asked to sign an informed consent form before participating in the project. The participants were also informed about the research's instruments, duration, the specific time that they would be observed and interviewed for, and the utility of the research, as well as how the data would be collected. I invited the participants to get involved in the research by accessing these consent forms and allowed them to consider their choice in their own time. I was flexible and ready at any time to discuss any queries or answer any questions asked by the participants and the parents of the pupils taught by the teachers.

3.9.3 Sensitivity of the Participants

With reference to the sensitivity of the respondents, the participants were informed that they had the right to refuse to answer or to withdraw entirely whenever they wished. It was explained to the six teachers that their identity would be kept anonymous in the interviews and that the goal was to gain more information regarding the use of the IWB in teaching vocabulary. The six male EL teachers were also reassured that the goal of the questionnaires, the observations and the interviews was not to assess their teaching performance. The parents of the children and their children in the classrooms were informed of the aim of the study and informed that their children's identities were confidential. They were also informed that the audio and the video recordings, along with the data, were being saved in a secure place and would be destroyed after finishing the PhD, i.e., within four years.

3.9.4 Schools' Permission and Similar Studies in the Field

A verbal agreement was received from the principals of the schools and permission granted by the six male EL teachers and the parents of the children. Following this, informed permission and consent were received from the Ministry of Education in Saudi Arabia (Appendix F), the state and private primary schools' principals (Appendix D), the children and their parents (Appendix C and B), to make video and audio

recordings during the classroom observations and audio recordings during the interviews. A consent letter was also sent to the six male EL teachers regarding the interview and audio recording (Appendix A).

3.10 Role of the Researcher

Several roles were fulfilled in this study as a researcher; for instance, I was objective and non-participant when I was observing, videotaping or taking notes during all the classroom observations. I sat at the back of the class, behind the students, to avoid causing any distractions or disruptions or causing any behavioural issues during lessons. By visiting each teacher four times, students got used to my presence over time, unlike the first visit where students appeared to be curious as to the identity of their visitor. Additionally, the participants, that is, the teachers, seemed relaxed with me being there and my presence was not reflected in any negative reactions on the part of the teachers, where they might have seen me as any typical visitor to their classrooms.

My theoretical role as a researcher in the quantitative studies was non-existent. In other words, the acts of the participants were independent of my own, as if I was not present in the scene and was not involved in any way in the data. By entering the numeric data into SPSS and receiving or gaining the output automatically, this reduced, or possibly even removed, any sense of bias and subjectivity involved in the current study. However, I acted differently in the qualitative phase, where my role reflected a mixture of cautious subjectivity and objectivity. My role as a researcher in the qualitative section was more etic in nature; that is, my role was as an objective observer during the observations, while during the interview I did not interrupt the participants and allowed them to speak freely. I tried to avoid being emic as an insider through full participation in activity (Punch, 2013). Objectivity is closely associated with quantitative data, whilst subjectivity is related to qualitative data, as barriers that might I might have faced in my role within the research process.

3.11 Summary of the Chapter

This chapter examined the research approach of a multiple-case study, including the use of exploratory mixed methods through a two-phase design. In the first phase, a questionnaire was distributed to almost 500 teachers in Jeddah using Google Forms and in hard copy format. The quantitative data collected in the first phrase were used to provide a general understanding of the phenomena under investigation. In the second phase, I conducted classroom observations, using video and audio recordings and face-to-face interviews in order to collect more in-depth information. Six male Saudi EL teachers (three from state schools and three from private schools) were chosen to participate in the second phase, namely that of interviews and observations. These individual single case studies helped to collect more specific information and gain an in-depth understanding of teachers' perceptions of the use of the IWB. The qualitative data collected during the second phrase were used to analyse the framework of the classroom observations through video and audio recordings and the interviews. This data allowed me to code and to transcribe the use of the IWB when teaching English vocabulary.

A pre-pilot study was undertaken, and a main pilot study was conducted. The main pilot allowed all the tools to be retested, including the observation schedule and the use of appropriate technology (i.e., cameras and voice recorders). The double pilot helped to increase the validity and the reliability of the study. To further enhance validity, I shared the data collected with the six teachers, while reliability was measured through comparing the results of the pilot study with those of the main study. The observations were conducted over an eight week period (See Observation Table). Ethical issues were considered and acknowledged while conducting the study and when collecting data. In the next chapter, the findings of this present study will be presented in more detail.

Chapter 4 : FINDINGS

A. Quantitative Data Results (Survey)

4.1 Introduction

This study aimed to investigate teachers' views towards the use of the IWB and the vocabulary teaching strategies that they employed when using it. In this chapter, the results of the quantitative analyses are reported to answer the research questions. As the questionnaire data were ordinal and not normally distributed, non-parametric statistics were used. A number of statistical analyses were employed to answer each research question and provide a clear picture of the phenomenon. Firstly, frequencies and descriptive statistics were computed to give an overall picture of the phenomenon of the study by looking at teachers' perspectives about and use of the tool. Spearman Rank Order correlations were used to assess the strength of the relationships between different variables (e.g., ICT skill, ICT training, teaching experience, etc.). Mann-Whitney U-tests were then employed in order to explore relationships between ICT skill/training and perceptions and use of the IWB and whether different groups of respondents reported different perceptions and uses of the IWB. These statistical analyses were used as part of the quantitative perspective on attitudes towards and use of the IWB, in order to understand better the factors that might underlie attitudes and practices. The results of each research question is given in the order in which research tools were used. Firstly, findings related to the questionnaire will be discussed; following from this, the findings from the classroom observations will be given; and finally, the results from the interviews will be offered.

As the questionnaire contained a number of related items, in order to get the total average means which can give these variables more powerful overall results, these were combined into the following scales: a) positive attitudes (all items relating to positive views about using the IWB); b) barriers (all items relating to perceived barriers to using the IWB); and c) teaching strategies (all items relating to the frequency of different types of teaching strategies using the IWB). For each scale, internal consistency was assessed by calculating Cronbach's Alpha, with the following values obtained: a) .848; b) .762; and c) .830, respectively. The following section, section 4.2, aims to provide an overall understanding of the data and draw a holistic picture of the participants' characteristics in the survey.

4.2 Participants' Characteristics

Table 4.1: Participants' Experience

	Teaching Experience	
	Frequency	Percent
1-0 year	49	15.4
2-6	111	34.8
7-15	102	32.0
16 & more	57	17.9

As can be seen from Table 4.1, the 319 teachers who completed the survey had a range of years of experience. The sample was fairly evenly divided between teachers with a lot, and those with relatively little teaching experience.

Table 4.2: Participants' Qualifications

	Qualifications	
	Frequency	Percent
Bachelor	75	23.5
Pedagogical Bachelor	161	50.5
Master	80	25.1
Doctorate	3	.9
Total	319	100.0

What stands out in Table 4.2 is that nearly half of the teachers had only a pedagogical bachelor's degree level qualifications. Furthermore,75% of the sample had a pre-masters qualification.

Table 4.3: Participants' English Level

	IELTS levels	
	Frequency	Percent
Good	39	12.2
Very good	106	33.2
Excellent	123	38.6
Expert	51	16.0
Total	319	100.0

Table 4.3 shows that the combining excellent and expert participants meant that almost 55% of the respondents had an advanced level of English. Also, 16% of the respondents were experts, while just 33% had a very good level of English.

Table 4.4: Participants' Confidence

Confidence Using English

	Frequency	Percent
Not confident	4	1.3
Less confident	50	15.7
Confident	105	32.9
Very confident	160	50.2
Total	319	100.0

In Table 4.4, it can be seen that 83% of those who completed the survey showed that their self-confidence was good or very good regarding the use of English in their classes. However, it can also be seen that almost 17% were not confident in their use of English, when the results for those labelled as either not confident and less confident were combined. This relatively high number of respondents expressing a high level of self-confidence is surprising, considering that only 12% of respondents said that they had an advanced level, at IELTS, as seen in Table 4.3. In other words, the percentage of those participants 17% who were lacking in self-confidence was higher than what might be expected. This might be an indication that there was a problem with confidence in using English that did not correspond to the IELTS level.

Table 4.5: Participants' ICT Training

ICT Training Course

	Frequency	Percent
Nothing	71	22.3
1-2 training courses	117	36.7
3-4 courses	89	27.9
5 & more	42	13.2
Total	319	100.0

Table 4.6: Participants' ICT Skills

ICT Skills

	Frequency	Percent
Limited	127	39.8
Novice	58	18.2
Competent	75	23.5
Expert	59	18.5
Total	319	100.0

As shown in Table 4.5, the majority of the respondents had had some training but nearly a quarter of them had had no training, even though the IWB has already installed in their classrooms. Almost 43% of the respondents had a considerable amount of training. However, in Table 4.6 it can be seen that 42% of the respondents felt very competent whilst the majority of the respondents (combining competent and expert), 58%, felt they had no or few ICT skills (combining limited and novice). These were rather unexpected results given that over 75%% of the participants had attended at least one ICT training course. These rather contradictory results might be due to respondents perhaps not putting what they learned into practice, or to courses not meeting their needs.

4.3 Analyses and Results Relating to Research Questions

Research Question: What are Teachers' Perceptions of, and Stated Uses, of the IWB?

To answer this question, frequencies and descriptive statistics were calculated for teachers' attitudes towards the use of the IWB, and the barriers to the use of the IWB identified.

4.3.1 Overview of all the Items in Section B (Positively Worded)

As outlined earlier, a scale for teachers' overall attitudes was created by combining 11 positive items relating to the extent to which the IWB helps teachers to use the electronic dictionary to find sources, encourage learners to pay attention, to increase interactivity and interaction between teacher and students, bring improvement to teaching and learning, and effects and changes to teachers' practice regarding the teaching of English vocabulary. The items also covered the extent to which the IWB can facilitate various vocabulary teaching strategies, the extent to which the IWB's features make lessons interesting, allow effective vocabulary teaching, require excellent IT skills, and the ease of using the IWB in the classroom. Another scale for the teachers' overall perceived barriers to the use of the IWB was created by combining four negative items: regarding whether there was any difficulty when using it, or if it consumes a lot of time, or distracts students, or whether teachers are prevented from using it because of a lack of ICT skills. Another scale for overall teaching strategies was created by combining items relating to the use of semantic mapping, supplying collocations, presenting word parts, applying mnemonic techniques, and delivering different activities such as the use of games to teach vocabulary.

4.3.2 Overview of the Total Means

Table 4.7 presents frequencies, percentages and means for all the individual items that made up scales. The scale used ranged from 1 to 5, with 1 indicating 'strongly disagree', and 5 'strongly agree'.

Table 4.7: Overview of the Total Means

	Mean	Minimum	Maximum	Std. Deviation
Total means of Positive Attitudes	3.93	2.36	5.00	.541
Total means of Barriers	4.02	2.00	5.00	.711
Total means of Teaching Strategies	3.40	1.00	5.00	.678

In Table 4.7, any mean above 3 indicates a positive attitude, as 3 is the median on a 5-point scale. Table 4.7 shows that the majority of the teachers showed a moderately high level of positively towards using the IWB, as based on the large total mean which is just less than 4. In terms of applying various teaching vocabulary strategies, on average teachers showed a moderate degree of use of the IWB in so doing. However, the higher standard deviations for barriers indicated greater variability in respondents' views than for the other two areas.

Table 4.8 presents frequencies, percentages and means for all the individual items that made up the scales presented in Table 4.7. The scale used ranged from 1 to 5, with 1 indicating 'strongly disagree', and 5 'strongly agree'. As before, a mean over 3 indicates positivity.

Table 4.8: Frequencies and Descriptive Statistics for Teachers' Positive Attitudes

No	Teachers' Positive Attitudes	Values	Frequency	Percent	Mean	Std. Deviation
1	Electronic dictionary	Strongly disagree	1	.3	4.04	.751
		disagree	17	5.3		
		Neutral	26	8.2		
		Agree	198	62.1		
		Strongly agree	77	24.1		
2	Catch attention	Strongly disagree	0	00	4.29	.699
		disagree	10	3.1		
		Neutral	15	4.7		
		Agree	167	52.4		
		Strongly agree	127	39.8		
3	Make lesson interactive	Strongly disagree	00	00	4.23	.701
		disagree	12	3.8		
		Neutral	14	4.4		
		Agree	182	57.1		
		Strongly agree	111	34.8		

4	Encourage interaction	Strongly disagree	1	.3	4.21	.701
		disagree	7	2.2		
		Neutral	25	7.8		
		Agree	178	55.8		
		Strongly agree	108	33.9		
5	Improve teaching	Strongly disagree	24	7.5	3.30	1.188
		disagree	69	21.6		
		Neutral	63	19.7		
		Agree	113	35.4		
		Strongly agree	50	15.7		
6	IWB effect	Strongly disagree	6	1.9	3.81	.849
		disagree	24	7.5		
		Neutral	43	13.5		
		Agree	198	62.1		
		Strongly agree	48	15.0		
7	IWB features	Strongly disagree	4	1.3	3.61	.941
		disagree	44	13.8		
		Neutral	70	21.9		
		Agree	154	48.3		
		Strongly agree	47	14.7		
8	Makes lessons interesting	Strongly disagree	1	.3	3.83	.779
		disagree	21	6.6		
		Neutral	59	18.5		
		Agree	188	58.9		
		Strongly agree	50	15.7		
9	Teach effectively	Strongly disagree	0	00	3.77	.830
		disagree	28	8.8		
		Neutral	71	22.3		
		Agree	167	52.4		
		Strongly agree	53	16.6		
10	IT skills requirements	Strongly disagree	1	.3	4.45	.703
		disagree	5	1.6		
		Neutral	18	5.6		
		Agree	120	37.6		
		Strongly agree	175	54.9		
11	Easy to use	Strongly disagree	15	4.7	3.70	1.134
		disagree	45	14.1		
		Neutral	42	13.2		
		Agree	136	42.6		
		Strongly agree	81	25.4		

The table shows that the majority of the teachers had highly positive attitudes towards the use of the IWB in the areas of: *using the electronic dictionary; helping learners to pay attention; create interactive lessons; increasing interaction between teachers and students; the effectiveness of its outcomes; creating an interesting learning environment; making lessons interesting through the use of its various features, design effective teaching*. Most agreed the IWB requires *IT skills* and depends on *the ease of using the IWB*. Furthermore, the area where the teachers had less positive but not negative perspectives regarding using the IWB related to: *teaching and learning improvement*. However, the standard deviation for '*improve teaching'* and '*easy to use'* was higher than for other items, which indicates that there was more variation in opinion with regards to these items.

There were, furthermore, inconsistent results for the following items: *using the IWB requires IT skills, ICT training course and IT skill courses.* Almost 80% of the teachers had undertaken ICT courses but just under half stated they felt competent about using the IWB; furthermore, a large number of the participants (295 out of 319) still felt that the use of the IWB required increased IT skills. This indicates that respondents felt a lack of confidence and dissatisfaction in using the IWB. Over a third of the participants believed that the IWB does not bring improvements to teaching and learning in spite of the fact that most of the participants believed that the IWB assists them in their teaching and learning environment. It is difficult to explain this result, but it might be related to the outcomes of using this tool in classrooms. For instance, it might be a useful tool to urge students to participate and to engage them, especially through the use of pictures or running short video clips or games, but this does not necessarily develop the teaching and learning process.

4.3.3 Overview of all Items in Section B (Negatively Worded)

The negatively worded items were reversed so that *1 strongly disagree* became 1 *strongly agree,* and *5 strongly agree* became *5 strongly disagree*.

Table 4.9 below shows that, on the whole, teachers did not see the IWB as a difficult tool to use, and almost 88% of those participants felt that the IWB did not waste time or distract students during lessons. One unanticipated finding was that 83% of those respondents who completed the survey disagreed that having fewer IWB skills could stop teachers from using it. This discrepancy could be attributed to the misunderstanding between the concept of *lack of IT skills* and *IT skill requirements.* In general, it seems that teachers could use the IWB in teaching with or without IT skills, but when teachers had the required IT skills this could lead to better and more useful teaching and learning outcomes.

Table 4.9: Overview of all the Negative Items

No	Teachers' Negative Attitudes	Values	Frequency	Percent	Mean	Std. Deviation
1	**Difficult to use**	Strongly agree	20	6.3	2.49	1.199
		Agree	58	18.2		
		Neutral	50	15.7		
		Disagree	120	37.6		
		Strongly disagree	71	22.3		
2	**Time-consuming**	Strongly agree	2	.6	1.78	.752
		Agree	7	2.2		
		Neutral	30	9.4		
		Disagree	161	50.5		
		Strongly disagree	119	37.3		
3	**Distraction**	Strongly agree	0	0	1.83	.759
		Agree	15	4.7		
		Neutral	24	7.5		
		Disagree	171	53.6		
		Strongly disagree	109	34.2		
4	**Lack of skills**	Strongly agree	3	.9	1.81	.941
		Agree	24	7.5		
		Neutral	26	8.2		
		Disagree	121	37.9		
		Strongly disagree	145	45.5		

4.3.4 Overview of all the Items in Section C

Items relating to different teaching vocabulary strategies were ranked on a scale from 1 to 5 (never, seldom, sometimes, often, always). Table 4.10 presents teachers' most frequent use of the various teaching strategies in conjunction with the IWB in classrooms. On the whole, teachers quite often used the IWB to deliver vocabulary strategies, at 64%, 54% and 67% for teaching collocations, word parts and the mnemonic technique, respectively. However, the majority of teachers (68%) tended not to use the IWB when teaching semantic mapping and supplying different tasks (e.g., vocabulary games).

Table 4.10: Teachers' Frequent Use of Teaching Methods Involving IWB

No	Teaching Strategies Items	Frequency	Percent	Mean	Std. Deviation
1	**Semantic mapping**				.796
	Always	4	1.3	3.52	
	Often	24	7.5		
	Sometimes	117	36.7		
	Seldom	149	46.7		
	Never	25	7.8		
2	**Collocations**				.847
	Always	6	1.9	3.19	
	Often	56	17.6		
	Sometimes	142	44.5		
	Seldom	100	31.3		
	Never	15	4.7		
3	**Word parts**				.877
	Always	11	3.4	3.37	
	Often	29	9.1		
	Sometimes	133	41.7		
	Seldom	123	38.6		
	Never	23	7.2		
4	**Mnemonic techniques**				.922
	Always	14	4.4	3.08	
	Often	67	21.0		
	Sometimes	134	42.0		
	Seldom	89	27.9		
	Never	15	4.7		
5	**Perform Different tasks**				.946
	Always	7	2.2	3.85	
	Often	17	5.3		
	Sometimes	77	24.1		
	Seldom	134	42.0		
	Never	84	26.3		

4.3.5 Frequency of Participants' Use of the IWB

Table 4.11: IWB Usage in one lesson

IWB Usage		
	Frequency	Percent
Once	20	6.3
Twice	49	15.4
Three times	111	34.8
Four times	139	43.6
Total	319	100.0

Table 4.12: Frequent Use of the IWB in One Class

Using IWB in One Class		
	Frequency	Percent
Never	5	1.6
1-5 minutes	5	16.3
6-10	52	42.9
11 & more	137	39.2
Total	125	100.0

Table 4.11 illustrates that a large proportion of the participants, almost 80%, used the IWB multiple times in any given lesson, whilst almost 20% used it two times or less. However, in Table 4.12, almost 82% of the participants used the IWB for more than 5 minutes during their lessons while just under one-quarter used it for less than 5 minutes.

Research Question: What is the Relationship between Teacher variables (IT skills, ICT Training Courses, IELTS Levels, Qualifications and Teachers' Experiences) and their Perceptions and Stated Uses of the IWB?

The second question was intended to explore the relationships between the teacher variables. Correlational analysis was used to measure, describe and interpret the strength of linear relationships between any two given variables in order to answer the question. The relationship was investigated using Spearman's correlation, a non-parametric statistical procedure. The results revealed there were positive and statistically significant correlations between the variables.

Table 4.13 illustrates that the total means of teachers' attitudes had various positive, statistically significant relationships ranging from strong, moderate to weak. As can be seen from Table 4.13, the strongest correlations were between:

the total means of positive attitudes with (1a) ICT skills, (1b) ICT training courses, (1c) teaching strategies, and (1d) the IWB usage on the one hand; and between The total means of teaching strategies with (1a) ICT training courses and (1b) teaching strategies.

The weakest relationships were between both total positive attitudes and teaching strategies and teaching experience and teaching qualifications.

Table 4.13: Spearman Rank Order Correlations between Attitudes and Teaching Strategies and Teacher Variables

c	Items	Teaching Experience	Qualifications	IELTS Levels	ICT Skills	ICT Training Courses	IWB usage	Teaching Strategies
1	**Average of Positive Attitudes**	.236***	.310***	.381***	.541***	.610***	.542***	.592***
2	**Average of Teaching Strategies**	.240***	.270***	.348***	.463***	.556***	.462***	------

*** All the correlations are statistically significant (p<.001).

In summary, the highest proportion of teachers had positive beliefs and agreed that the IWB assisted them in using the electronic dictionary, catching students' attention, and changing teachers' teaching practice to deliver different teaching vocabulary strategies. Additionally, correlations were used to explore relationships between the total means of the teachers' teaching strategies and the total positive attitudes when using the IWB and various teacher variables, such as IT skills, teaching experiences, IELTS levels and teachers' qualifications. The results showed a range of statistically positive correlations ranging from strong to weak, showing that positive attitudes towards, and teaching strategies using the IWB were most strongly related to teachers' reported levels of ICT skills and how much ICT training they had previously received.

4.3.6 Differences Between Groups of Teachers: Mann-Whitney U-tests

The Mann-Whitney U-test is used to assess any significant differences in a scale or ordinal dependent variable via a single dichotomous or categorical independent variable. In this research, it was used to determine if attitudes towards, and reported use of, the IWB, were related to how much training and skill teachers had for using the IWB. In other words, it allowed the researcher to say with greater certainty whether more highly trained and skilled teachers had more positive attitudes towards, and greater use of, the IWB. Responses to questionnaire items for ICT skills and training were used to group teachers in two different ways. Firstly, for ICT training : *the low*

training group included teachers who had either completed *no training courses*, or those who had done either *one or two training courses*; and *the high training group*, who stated they had undertaken between *three and four and five or more training courses*. For ICT skills the categories were : *novice group*, combining those who stated their experience was either limited or at novice level; and an *expert group*, whose experience was either at competent or expert level with regards to their reported ICT skills.

Results from the Mann-Whitney U test showed there were differences between the groups of teachers regarding their reported attitudes towards ICT and their use of teaching strategies with the IWB. There was a higher level of reported teaching strategies using the IWB among more highly trained teachers (Mdn = 4.27) than for teachers with low training levels (Mdn = 3.81, *U* = 4547.50, *p* = .001). Furthermore, the Mann-Whitney test indicated higher positivity for more highly trained teachers (Mdn = 3.77) than for teachers with low levels of training (Mdn = 3.20), *U* = 4789.00, *p* = .001). The Mann-Whitney test also indicated that positive attitudes to the IWB were greater for experts in ICT (Mdn = 4.27) than for those teachers with lower reported ICT skills (Mdn = 3.77, *U* = 4674.00, *p* = .001). Moreover, the Mann-Whitney test indicated that teaching strategies using the IWB were greater for ICT experts (Mdn = 3.80) than for novice-level teachers (Mdn = 3.20, *U* = 5538.50, *p* = .001).

In summary, the Mann-Whitney U-test showed that more highly trained teachers, and those with a higher level of skills, held more positive attitudes towards the IWB and showed greater use of teaching strategies employing the IWB compared with teachers with low levels of training and skill.

4.4 Introduction

This section of Chapter 4 examines the answers given to the two open questions in the survey regarding the teaching strategies (TS) that were included. Only 52 (nearly 17%) out of 319 teachers who completed the survey answered the open questions. More specifically, the two open questions of the survey were:

Q1. Is there anything you wish to add with regards to the use of IWB in teaching vocabulary and activities? Please name other teaching strategies that you use which are not mentioned in the survey.

Q2. Following the table's questions above, in your typical teaching, what are the most important teaching strategies you use and why?

This section begins by giving a brief overview of the analysis in section 4.4, including a matrix table that outlines the themes and sub-themes that emerged from the data (Table 4.14); activities are discussed in detail in section 4.5, including the themes and sub-themes and how they were selected, and from where they emerged. Then the chapter concludes with a summary of the findings, as given in section 4.6.

4.5 Activities

Based on the two open questions, different strategies and activities were combined under four separate headings, which are reasonably related to their subheadings, as shown in Table 4.14 below. For example, the subheadings role play, TPR and hot chair can be represented by the heading, "active learning", therefore the number of teachers who chose these subheadings for question one was 11 and for the second of the open questions was four, and which represented the outcomes of the responses to the active learning heading. As such, the activities below are named according to my knowledge of the literature review, in which there is lack of terminology by which these activities can be classified.

Table 4.14: Matrix Table of the Activities and Sub-Headings

Activities	Sub-headings	Q1 No of teachers	Q2 Most important TS
1.Active learning	1. (TPR) Total Physical Response method 2. Hot seat or chair 3. Role play	**11**	**4**
2.Group work	1.Cooperative work 2. Pair work 3. Discussion	**11**	**9**
3.Brainstorming	1. Mind concept 2. Semantic mapping 3. Brainstorming 4. Elicitation	**12**	**15**
4.Memory games	1. Games words/cars 2. Words in pictures/cards 3. Guessing games 4. Word parts 5. Mnemonic technique	**18**	**24**
Total		**= 52 teachers**	**= 52 teachers**

Activity One: Active Learning

This heading contains several subheadings such as the Total Physical Response (TPR) method, hot seat or chair and role-play. Nearly a quarter (22%) of those teachers who answered the open questions had the belief that the active learning method should have been included in the survey's items thought this strategy to be essential in terms of learning and memorising new words. This may suggest that teachers see active learning as a fundamental strategy, which helps to engage students in the learning of new words.

Activity Two: Group Work

This heading implies a number of subheadings, for example, cooperative work, pair work and discussion. Nearly a quarter (22%) of the participants believed that working either in pairs or in groups, or both, in class is useful and should be included and listed in the survey's items. This was followed by under the half of the proportion (18%) expressing the feeling that group working methods are indispensable to teaching and learning vocabulary.

Activity Three: Brainstorming

This heading also includes various subheadings, for instance, mind concept, semantic mapping, brainstorming and elicitation (Bonwell & Eison, 1991). Nearly 24% of the teachers suggested that some of these methods should have been included in the survey's items, such as eliciting the main ideas of a passage and brainstorming. Slightly more than a half (52%) of the teachers considered the aforementioned

methods to be extremely important as memory tools for encoding difficult-to-remember information in a way that is much easier.

Activity Four: Memory Games

This heading consists of several subheadings such as word or puzzle games, guessing games, words with pictures, word parts, and the mnemonic technique. Just over half of the participants (55%) held the belief that memory games are a necessary strategy for learning, acquiring and recalling vocabulary, and which should be included in the survey's items. This was followed by nearly half (47%) of the teachers feeling that memory games are the most important teaching vocabulary strategy by which to learn and remember new words. This could be due to learning unfamiliar words including having fun and playing along, with critical thinking through guessing and puzzle games, where the students are required to pay attention, search for correct words, recognise their meanings and think critically and link them to similar and much more familiar words.

4.6 Summary

To summarise, the four headings and several subheadings included various teaching strategies, methods and techniques that the teachers mentioned when completing the open-ended questions, as they seemed to consider these essential to teaching and learning, as well as better ways of remembering vocabulary. The memory games method was thought to be the most important method of teaching, learning and recalling vocabulary among the different strategies and methods. These results, however, will be re-examined and triangulated with the observations and the interview results from this study, although with such a small sample size (the number of the observations, interviews and the collective responses to the open questions), caution must be applied, as the findings may not be representative of the entire population.

This section of the chapter investigates teachers' English vocabulary strategies and activities when the IWB is used by conducting classroom observations. It also explores the IWB features used when teaching vocabulary, similar and dissimilar teaching approaches as well as whether certain users employ the teaching strategies and the IWB more than the others. To gather empirical data on the use of the IWB within this study, classroom observations were used. I observed a total of twenty-four lessons, as taught by six teachers in six different schools (three private and three state). The matrix for the main classroom observations is provided in Appendix H and the contextual information about the lessons covers the following seven areas: the types of schools, teachers, the number of lessons and observations, year groups, the time for which the IWB was used, teaching strategies and activities, and the differences and similarities between the two types of schools.

During the lessons, the data were collected through a data collection matrix, and codes made against each of the following variables: the teachers using the board, the type of content, the tools used within the IWB (e.g., electric pen, projector, etc.) during vocabulary teaching. The matrix of the classroom observation included the time for which the IWB was used out of 45 minutes for each lesson, which is the class period length in Saudi schools. The types of school, the IWB features, how long it was used for and the total of time of use are presented in Table 4.15 below. More information can be found in Chapter 3, section 3.7.

As mentioned in the Methodology chapter, the data from the observations were collected from three private (A) and three state (B) primary schools, each being given letters to maintain their anonymity; with six teachers, four observations each meant twenty-four observations in total for the age 11 and 12 groups. In this chapter, the type and function of the IWB is discussed in section 4.2, which looks at the percentage and length of time for which the IWB was used, and where a comparison of such is made between the teachers in private and state schools. The features of the IWB are presented in section 4.3, which discusses the features used in the classrooms by the teachers. The teachers' actions, activities and teaching strategies are explored in section 4.4, which looks at the teaching strategies and activities used by the teachers when using the IWB, as well as comparing these activities for teachers in both private and state schools. In section 4.5, the chapter is summarised.

4.8 The Status and the Amount of Use Made of the IWB

Each teacher was observed in the classroom four times, with each lesson lasting for 45 minutes, such that each teacher was observed for 180 minutes in total. The overall status of the IWB in each observed lesson was established by calculating the total amount of lesson time for which it was "on, but not in use" or "on, and the main focus" per teacher, as shown below in Table 4.15. During the twenty-four observed lessons, the IWB was always on when the teachers were giving classroom instructions, activities, or engaged in teacher talk. On average, the IWB was the main focus for 70% of the total lesson time observed. Keeping the tool on to show relevant materials and content for the lesson, but not as the main focus, occurred for 30% of the lesson time.

Table 4.15: The Use of the IWB in Private and State Schools

Teachers	School types	The IWB status	Minutes of use (out of 45 minutes)				Total
			Observation 1	Observation 2	Observation 3	Observation 4	
Sami	Private	On, but not in use	15	05	20	15	55
		On, and the main focus of the task	30	40	25	30	125
Tariq		On, but not in use	10	15	20	05	50
		On, and the main focus of the task	35	30	25	40	130
Waleed		On, but not in use	15	15	10	05	45
		On, and the main focus of the task	30	30	35	40	135
Total of use		Total of the IWB as on only					150=(27.78%)
		Total of the main focus					390=(72.22%)
Naser	State	On, but not in use	15	20	15	10	60
		On, with the main focus of the task	35	25	30	30	120
Mazen		On, but not in use	15	10	15	10	50
		On, with the main focus of the task	30	35	30	30	125
Majed		On, but not in use	15	25	20	15	75
		On, with the main focus of the task	30	20	25	30	105
Total of use		Total of the IWB as on only					185=(34.26%)
		Total of the main focus					350=(64.81%)

The findings from the table above indicated that teachers in state schools tended to keep the IWB on without actively using it while they talked to the students slightly more than those in the private schools. They used classroom activities and tasks along with teacher talk. Looking at the proportions for keeping the IWB on without using it, however, it can be clearly seen from Table 4.15 that the percentage counts fluctuated and were unstable among the four classroom observations for all the teachers, in both

private and state schools. Teacher Tariq, for instance, kept the IWB on during the first observation for nearly 17% of the time, which went up to 21% in the second observation and reached a peak on the third observation of nearly 60% before slumping sharply to around 10%. In contrast, teacher Waleed kept the tool on without using it nearly 25% of the time in both the first and second observations, compared to 21% in the third observation and only 11% in the fourth. These results showed that teacher Waleed decreased the amount of time for which the tool was left on without it being the main focus. Waleed was the most extensive user of the IWB as a main focus, with a proportion of 75% across all observations, followed by teacher Tariq at 72% and then teachers Sami and Mazen at almost 70% each. Teacher Majed was the lowest user of the IWB during class as a main focus, at a proportion of only 60%. These findings showed that teachers in private schools tended to use the IWB more consistently during lessons than the teachers in state schools, with the exception of Naser.

4.9 The Features of the IWB

The features of the IWB include a connection to the internet, presentation of images, use of online activities, saving data, and highlighting text. Table 4.16 shows whether teachers used these features or otherwise. This symbol **x** indicates that a given features was used.

Table 4.16: The Features of the IWB

IWB features	Private school teachers' actions and of the IWB			State school teachers' actions and of the IWB		
	Sami	Tariq	Waleed	Naser	Mazen	Majed
Presenting images	x	x	x	x	x	x
Online activities	x	x	x			
Save data	x	x	x	x	x	x
Highlight texts	x	x	x			
Audio and video recordings	x	x	x	x	x	X
Access to online dictionaries	x	x	x	x	x	x
Internet connection	x	x	x	x		

All the teachers used the IWB regularly and connected it into the internet, even though a few of the state schools used it mainly as a presentation tool with only limited use of its other features. The IWB is connected to a digital projector and a computer in the classroom. Some teachers used an interactive CD player along with the IWB which covers the entire English curriculum and is recorded by native English speakers. The teachers manipulated some of the features and the elements on the tool manually by touch, electric pen, or by using a mouse. For example, without exception, all the teachers presented images to represent newly learned words along with short cartoon videos and audio clips on the board which modelled the main usage of new target words with recordings of native English speakers.

Most of the teachers highlighted text in various colours and fonts, and also saved the data and shared it with their students. Exceptionally, teachers Tariq and Waleed in the private schools shared data on the board with their students through a connection between their own boards and their students' mini laptops. By connecting to the internet and digital projector, most of the teachers were able to bring or show real situations within their classrooms. A good example can be seen from one class that showed the four seasons of the year (spring, summer, autumn and winter). When teaching these terms, teacher Waleed showed the students images of these seasons and then used the web camera installed on the tool to present a virtual video where children could actually 'live' in the four seasons. The children experienced the newly learned words used in the summer and what happens in this season, such as the temperature increasing to its hottest of the year, whilst in the autumn rainfall increased and the temperature got cooler.

Teachers Sami, Tariq, Waleed and Naser used online dictionaries in their classrooms in order to define new words and give their synonyms and antonyms. The online dictionaries offer bilingual translations with examples, and use native English and American speakers with regards to pronunciation. The majority of the teachers also used a timer or countdown timer for classroom exercises and tasks with which they asked the students to finish within a specific time, either individually, or cooperatively in groups or in pairs. Through the classroom observations, the use of such a timer encouraged the students to work swiftly to get the job done on time, and appeared to increase their motivation towards the lessons in general, and towards the tasks in particular.

A few teachers such as Sami utilised teaching aids in addition to the IWB, for example posters, an interactive CD player and a small whiteboard. He used the posters in two lessons to give more examples of house activities and outdoor sports, as well as using the small whiteboard next to the IWB to write instructions, notes and assignments, along with asking the students to both write and use the newly learned words in simple sentences.

Research Question: How Do Teachers Actually Use the IWB when Teaching Vocabulary?

4.10 Teachers' Actions and Teaching Strategies Using the IWB

In order to examine the sequential flow of the four observed lessons for each teacher, it was useful to divide (segment) them into identifiable components or activities, as shown in Table 4.17. The process of segmentation was advantageous in making comparisons between teachers' strategies, lessons and type of schools' teachers. Table 4.17 below gives a summary of the main components of the lessons conducted by the six teachers, as drawn from the observation matrix and video recordings. The observed lessons provided examples of what the teachers used in relation to teaching strategies, activities and classroom tasks, along with the use of the IWB. In their interviews, the teachers in private schools showed that their conceptualisation of the IWB was as an important learning resource, whereas some state school teachers saw it as an entertaining, encouraging and time-saving tool more than a fundamental learning tool, possibly because of their lack of training and confidence in it, as suggested by the interview and survey findings.

4.10.1 Private and State School Teachers' Actions and Teaching Strategies with the Use of the IWB

Table 4.17 refers to teachers' actions and teaching strategies using the IWB. The symbol (x) in Table 4.17 below indicates the strategy was used. This table shows only one observation for each teacher as an example (see Appendix L for the complete table).

Table 4.17: Teachers' Actions and Teaching Strategies with the Use of the IWB

Stage of lessons/ observations	Strategies and activities	Private teachers (Grade taught)			State teachers (Grade taught)		
Introduction		Sami (5&6)	Tariq (6)	Waleed (5)	Naser (6)	Mazen (6)	Majed (6)
	Memory methods:						
	Realia		x		x		
	Word part technique		x	x			
	Mnemonic technique		x	x			
	Role play	X	x	x	x	x	x
	Repetition	X	x	x	x	x	x
	Semantic mapping	X	x	x	x	x	x
	Teaching techniques	X	x	x	x	x	x
	Vocabulary involvement	X	x	x	x	x	x
	Collocations					x	
	Classroom activities and vocabulary engagement:						
	Extensive reading	X	x	x	x	x	x
	Elicitation	X	x	x			
	Guessing from context	X	x	x	x	x	x
	Gaps-filling	X	x	x	x	x	x
Observation 1	Word games	X	x	x	x	x	x
	Rearrange sentences	X	x	x	x	x	x
	Matching words	X	x	x	x	x	x
	Clarifying meanings:						
	Questions:						
	Open	20 mins	17	20	20	10	10
	Closed	10 mins	15	18	20	10	10
	Scaffolding	X	x	x	x	x	x
	Monitoring learning	X			x		
	Cooperative work	X	x	x	x	x	x
	Information gap activities	X	x	x	x	x	x
	Translation	x	x	x	x	x	x
	Codeswitching L1 (Arabic) & L2 (English) and vice versa:	x	x	x	x	x	x
	a. Floor holding	x	x	x	x	x	x
	b. Negotiation of meaning	x	x	x		x	x
	Teachers' pedagogy:						
	a. Teacher-centred	x	x	x	x	x	x
	b. Student-centred		x				
	Teaching aids:						
	a. Small whiteboard	x					
	b. Poster	x					
	c. Countdown clock		x	x			
	d. A CD player				x	x	x

A number of the teachers delivered their teaching of English vocabulary using the IWB in unique manners, whilst others showed a few similarities in relation to vocabulary teaching strategies. Teachers Tariq and Waleed connected the IWB to the students'

mini laptops and indeed were the only two teachers whose students had mini laptops with them in the classroom. These laptops were controlled and monitored by the teachers and were provided by the school. Their classes adopted a mixture of cooperative work and visual virtual monitoring where they could connect, access, and present tasks on their laptops, as well allowing their actions to be monitored.

All the teachers allowed their students to think, ask questions, perform role-playing, learn new words, elicit information, summarise texts through their own words and understanding, problem-solve independently and collaboratively, as well as comment on their peers' and teachers' ideas and views. Students were curious and open-minded, which seemingly enabled them to formulate their own views and draw their own conclusions. They were left to themselves for much of the negotiation of meaning process to verify their understanding and offer room for discussion and criticism among the students. Another example was when open questions were asked to leave the room for information gap activities, from thinking through discovery to synthesis of knowledge. All these strategies, methods and activities were linked in some manner to the IWB when the students were invited physically to interact with it. All the aforementioned strategies and activities are discussed in detail in the following section, which also discusses the teaching strategies and activities shown in Table 4.17.

As shown in the Table 4.18 above, during classroom observation one, I had a matrix and ticked the list of teaching strategies and the IWB features that were being used by the teachers during the classroom observations, along with video and audio recordings to ensure all the events and aspects were covered. The next section presents the common approaches and differences in relation to the use of different approaches to teaching English vocabulary through the use of the IWB.

4.10.1.1 Memory Methods

Memory methods refers to a number of teaching strategies and activities that might help students to improve their vocabulary retention such as role play, the mnemonic technique, word part, repetition, realia, collocations, learning styles and semantic mapping. A number of activities and methods were used by the teachers in all the four lessons, for instance role-play, repetition, learning styles and semantic mapping. However, other activities and methods were used by some of the four teachers in only certain lessons and for certain events, for example, the mnemonic technique, word

part, collocations and realia. The following section presents the similarities and differences among teachers in relation to the use of vocabulary strategies, activities and methods when using the IWB.

4.10.1.1a. Common Vocabulary Approaches and Activities among the Teachers with the IWB

a. Role-play and Semantic Mapping

In role-play, all teachers allowed their students to code switch between L2 and L1 and vice versa in their discussion during tasks, along with writing on the board. Two students from each group were selected to put the newly learned words in sentences as a dialogue to play out in front of their peers and then to write the dialogue or the sentences on the IWB. After presenting the target new words and giving some exercises, the students pretended to be someone else in order to use and practise the newly learned words with one another. This seemed to assist them in finding connections with the reading passages and gain real-life speaking practice.

In terms of semantic mapping, teacher Sami mainly focussed on the visual capabilities of the IWB. Sami engaged his students with learning and memorising new words using semantic mapping and through considering the three fundamental components: need, search and evaluation. These components are described by Laufer and Hulstijn (2001) in terms of Involvement Load Hypothesis, which facilitates learning and recalling unfamiliar words. Sami presented a reading text on the board and then asked his students to brainstorm words related to the main or target word. The students were asked to demonstrate their understanding of the main or concept word and other related words by determining their meanings and definitions from their own dictionaries. Then, each student had to draw their own semantic map on a blank piece of paper and link related words to the main concept or words in the centre of the map. After that, the students shared their answers and exchanged ideas with each other. Lastly, Sami selected some students to draw a semantic map on the board and to write the related words. Meanwhile, the students were asked to correct their peers if they made any mistakes. Finally, Sami used the online dictionary to define the target words and pronounce them, and then allowed the students to repeat the words.

Prior to the beginning of the study of learning styles, the focus of research was on the relationship between memory and oral or visual methods. Then the French psychologist, Alfred Binet, developed the first intelligence test in1904, which resulted in looking at individual differences. This led to the beginning of the study of learning styles which started in 1907 by Dr. Maria Montessori, who came up with the Montessori method of education and applied it for her students using materials to enhance their learning styles. She had a belief that students learn best, and so are able to master a subject, through their actions rather through a multiple-choice answer sheet (Pashler, McDaniel, Rohrer, & Bjork, 2008). However, most modern understanding of learning styles grows out of the work of Kolb who argued that learners can be divided into different types namely visual, auditory and kinaesthetic.

Learning styles seem to be considered as a primary concern to language learning scholars and educators as pedagogy refers to "the study of how learning takes place" (Fletcher, Potts, & Ballinger, 2008, p. 378), therefore, learning styles seem to be relevant to teaching and learning. Indeed, Fletcher, Potts, and Ballinger point out that "an understanding of the preferred learning style of an individual provides an insight into the teaching methods that are likely to be most effective for that individual" (2008, p. 383). This notion is in line with Kolb, who points out that "to understand knowledge, one must understand the psychology of the learning process, and to understand learning, we must understand epistemology — the origins, nature, methods, and limits of knowledge" (1984, p. 37). As such, it is argued that teachers should keep their students aware of their preferred and primary learning styles in order to focus on them as an advantage and develop the their skills on the other learning styles (Gyeong & Myung, 2008). This is the view of learning styles that was most adopted by the teachers who took a part in this study.

There were no exceptions among the six teachers when it came to applying and integrating learning styles into the classroom, although some of them applied it in a different manner to others. There is a degree of controversy about learning styles theory. Many researchers see it as a discredited and disputed theory (e.g., Stahl, 1999; Willingham, 2005), with little evidence that teaching according to learners' supposed learning styles leads to better learning outcomes. The term 'learning style' indicates that every individual learner is different when it comes to acquiring a language and

learning in which the student absorbs, processes, comprehends and retains information. This includes three types of learner: visual, auditory and kinaesthetic. Visual learners may best understand a message or lesson from verbal instructions or through visual materials such as images, graphs, videos. Auditory learners may prefer to learn through listening and speaking such as repetition and discussion, whereas kinaesthetic learners may best understand information through tactile representation of information such as manipulating, touching and figuring things out by hand (e.g., touching the IWB) (Willingham, 2005).

During the observations, teachers seemed to regularly try to cater for different learning styles in their lessons. A good example can be seen when teacher Sami focussed on addressing learning styles during the lessons where he presented images, ran video and audio clips, along with asking the students to participate on the board by matching words and semantic mapping as well as performing role-play. In his lessons, he seemed to be trying to address all three categories of the learning styles. Likewise, Tariq's lessons were introduced with digitally projected images accompanied by a number of images and real objects along with diagrams to help students to understand the theme of the lesson. A CD player was used to play the reading passages and pronounce the new words. This was followed by asking the students to perform certain tasks and activities on the board such as gap-filling, matching words role-play, and semantic mapping. An example of addressing the three categories of learning styles can be seen in one of Tariq's lessons below:

Visual: lesson one was about ancient civilisations within a theme of *The Kings*, on which the students had been working for two lessons, according to the teacher. Before commencing the lesson, the teacher clarified the classroom and lesson instructions, aims and content, along with the tools and objects that were to be used. He had prepared a number of ancient kingdoms images and objects along with diagrams such as China. The teacher presented photos of kings to seemingly help the students understand the lesson topic, along with a reading passage. The students were initially required to answer a set of questions on the passage displayed about kings and kingdoms that included images.

Auditory: a CD player was used to play the reading passages and pronounce the new words along with asking the students to say the words in front of their classmates and repeat the words after them. Other teachers presented vocabulary and played the CD

player to pronounce the new words and then asked their students to repeat in unison.

Kinaesthetic: the students then worked in groups again to put the newly learned words into sentences and write them on the board, and then do some associated role-play. As examples, they were given words such as 'ruled by', 'bricks' and 'weapons' to be placed in sentences by writing them physically on the board.

In terms of repetition, this method was used in all twenty-four lessons, although some of the teachers used this method in a different manner. Teacher Sami, for instance, asked a number of students to take part by standing in front of the board and reading the words aloud and allowing their classmates to repeat after them. Similarly, teacher Majed invited some students to the board to read the reading passages and repeat the new words aloud. However, teacher Mazen presented the words on the board and asked the students to read them repeatedly. Finally, he asked the students to put the newly learned words in sentences as a way of remembering them.

c. Vocabulary Involvement

The *Involvement Load Hypothesis* (Laufer & Hulstijn, 2001) suggests that retention of unfamiliar words is facilitated through learning activities that include three components: need, search and evaluation. During the observation lessons, the 'need' is to learn the words as part of a role and as part of the classroom activities mentioned by both teachers and students. Secondly, the students worked both individually and cooperatively to determine the meanings and the forms of the unfamiliar words using dictionaries and by completing some word games. Thirdly, the students tried to compare the new words and meanings with other words. One example is provided below from teachers Sami and Waleed using the three components of need, search and evaluation:

Firstly, Sami's lesson started with a form of interactive dialogue between the teacher and the students, where the teacher at times began with open and closed questions about the meanings of the new words. The lesson focussed on the new words in a passage regarding doctors and nurses in hospital, where these included terms such as patient, emergency, outpatient, and so on. After this task, the students were asked to do picture-to-word matching tasks on an individual basis in order to answer and match the newly learned words with the pictures. He then commenced with a

questioning sentence and paused to wait for the class to complete it with one or two words in order for him to identify if they know the new words. Next, the teacher asked the students to summarise the main ideas and the main words in the passage. The students then worked in groups to attempt to determine or search for the meanings of the unknown L2 words using dictionaries, consulting teachers, or performing tasks such as matching words and word games. Finally, the students compared the newly learned word with another word in order to assess the word's relevance into its context.

The vocabulary involvement occurred when the students became engaged with learning the new words and then discussed, exchanged and shared them with peers or a partner to determine their correct meanings and usage. The students then completed another filling in the blanks task where they read sentences and replaced words that were missing from a section of text, placing them in the appropriate spaces, before contributing to a whole-class discussion which was shared and presented on the board. In one of Waleed's lessons, a picture of different weather forecasts and temperatures was given, including small images, e.g., bright cloud, clear, fine, partly cloudy, cloudy, gloomy, foggy, misty, sunny, rainy, windy and hazy. The students were asked to discuss these images in groups and describe the common seasons of the year and what they stand for. Secondly, the students discussed the weather vocabulary using codeswitching between L1 and L2, and dictionaries. Thirdly, the students participated by matching the correct images on the left to the correct word on the right using the board to compare the newly learned words with other words to determine if they seemingly fit with one another.

4.10.1.1b. Different Vocabulary Approaches and Activities Among the Teachers with/without the IWB

Some of the teachers used these methods (e.g., mnemonic technique: keyword method, word part, realia and collocations) more than the others, whereas some of the teachers used them differently.

a. Mnemonic Technique (Keyword) and Word Part Methods

The term 'mnemonic strategy' refers to "the employment of any specific strategy or 'mental device' intended to improve memory retention for a given item" (Barcroft, 2009, p. 76). A mnemonic is technique that both teachers and students can use to more easily remember vocabulary or information through creating and associating a mental image to link it to a phrase, an ordered list or months of the year in order for them to

retain vocabulary and its forms. The keyword method is a part of the mnemonic technique, which will be discussed in the next paragraph.

Two teachers (Waleed and Tariq) used the keyword method, and did so in two stages: in the first stage, the teachers allowed students to create an association between the spoken foreign word (L2) with the first language (L1) word or translation (the keyword) which has a similar sound to some parts of the foreign word (e.g., the Arabic word *mattar* sounds fairly similar to the English word *meter*, which is the keyword, and means rain). In the second stage, the learner builds an interactive mental image to link the keyword and the new L2 learning word (e.g., *meter* refers to *a measuring device*, so the learner can visualise measuring the amount of rain falling on his house's garden, as an example). The two teachers used three categories of this technique to improve vocabulary retention: mental images, association and location. The two teachers used them in a fairly similar manner, as shown in the examples below:

Teacher Waleed used the mnemonic technique to help his learners to memorise unfamiliar words by dividing them into syllables or using similar techniques by drawing a mental image that could be linked to the newly learned words. For example, for a word like a 'museum', the teacher instructed the students to write the 'mu' at the beginning and 'mu' at the end of the word. Another example, the teacher used this technique to link the newly learned words with real-life names in the classroom. For instance, a child's name was *Jumaha*, which means Friday in Arabic. In another example, another student's family name was *Motairi*, which sound vaguely similar to *matter* in Arabic, which means rain. This kind of association makes it easier for the students to remember these words because they are linked to their names or something that relates to their daily lives, so the mental images, association and the place are applied to achieve the goal of word retention.

In terms of the word part method, these two teachers (Waleed and Tariq) used this method on two occasions during their lessons. These teachers attempted to form a connection between the new words by adding prefixes and suffixes, and then breaking them down again to make remembering the new words easier. Waleed believed that his students already know the high frequency word *brother*, which could be used with the lower frequency words *-hood and -in-law.* Then he broke the new words down and taught their roots; for instance, words like brotherhood and brother-in-law have the same root, which is brother. Another example could be seen with the word *friend*, via

friendship, friendly, unfriendly and friendless. More examples are words such as use, useful, usefulness, useless, usefully, useable, using, usage, used and misuse. This occurred when the students became engaged with learning the new words and then discussed, exchanged and shared them with each other to find the roots, prefixes and suffixes of the new words they needed to memorise. Lastly, Waleed used an online dictionary to define and pronounce the words. The online dictionary was accessed through internet and used an associated voice recording to pronounce the words and present them on the board. In Waleed's interview, the teacher had commented that he used the most basic part of the aforementioned words to form a connection between the new words by adding prefixes and suffixes, and then breaking them down again to make remembering the new words easier.

As a result, Waleed's belief in visual and auditory learning methods was seen through his teaching practices and actions during lessons. This was a result of his belief that visual and kinaesthetic teaching and learning methods can be useful, as stated in the interview (in Section 4.3 in theme two about teaching learning style). Surprisingly, although many teachers had expressed positive attitudes about the use of the IWB for keyword and word part methods, in practice only two teachers actually used them.

b. Realia and Collocations

Teachers Tariq and Naser used realia in four lessons in total. Realia refers to the use of real objects in a classroom to help learners' comprehension and vocabulary memorisation as well as bring the class to life. In other words, the words are presented through the use of real objects (Gómez, 2012; Nikmah, 2018; Nunan, 1999).

Tariq gave the students real objects such as boat tickets, pamphlets showing islands, bridges, canals, and so on. The real objects from real life can be used to make connections to real-life situations using props, in order to help teachers to identify different patterns. There were a number of real objects employed in the classroom such as animal models and a pamphlet that was full of information and photos of animals, where each group was given a specific model or photo and then asked to talk about it. They then put this information in a sentence and wrote this down in the worksheets they had been given by the teacher. Next, they were required to write their sentences on the board and do role-playing in front of their peers to explain what they had discussed in their groups and what their photos were about.

In terms of using collocations, only two teachers, Waleed and Mazen, utilised them, and then only in one instance each. For Waleed, this was in lesson four, which formed part of a theme on our planet and a revision of the main words learnt from previous lessons. Prior to the lesson, Waleed prepared some visual images with a CD player with recordings of a native speaker reading the passages. The teacher varied his teaching pedagogy and strategies when he presented the compound words and collocations with images. For example, a word such as *cow* was presented with an image of a *cow*, and then another word was placed side by side with the word *cow*, which was a boy with its image, to show the full compound word, cowboy, as shown in the example below: *(e.g., cow + its image) + (word e.g., boy + its image) = cowboy*. In Waleed's classroom, the students employed their mini laptops to answer any questions or perform tasks on the board through the connection between their laptops and the IWB, even though most of the time they were invited to participate physically on the board.

4.10.2 Classroom Activities for Vocabulary Comprehension

This heading refers to classroom activities that can engage students in understanding vocabulary. For example, guessing from context, extensive reading, gap-filling, multiple-choice, words games, rearranging sentences, elicitation, and matching words (e.g., by matching the correct images or words on the left to the correct words or definitions on the right). Semantic mapping is a web or diagram within which teachers place the main word at the centre and link it with its synonyms, antonyms, parts of speech, etc. (Smith & Humphreys, 2006).

a. Guessing the Meaning from Context

Some teachers often put up short sections of text from a reading passage on the IWB which contained words they knew their students were unlikely to be familiar with. Students worked together to find the correct meanings and usage of these words. The teachers wrote the correctly guessed words on the board using the online dictionary. They then highlighted the words in different colours to make them easier for the students to identify. The other teachers presented short reading passages with photos, while others ran short carton videos in their classrooms which included English subtitles. They then asked the students to find the meanings of the new words by educated guesswork. After that, the students were asked to write down the key ideas

129

expressed in the reading passages or short videos and the main vocabulary they contained. Some students were observed guessing the meanings of the unfamiliar words by understanding the pre- and post-sentences. However, some teachers in some of their lessons presented the new or unfamiliar words with photos and then asked the students some open and closed questions to enable them to comprehend their meanings by guessing, as noted in the teaching instructions.

Variations in this approach were seen in a number of lessons. Teacher Sami, for instance, started the third lesson with a type of interactive dialogue between himself and his students, where he began with open and closed questions to revise previous lessons, after which he presented the key concepts of the new lesson. The lesson focussed on the new words in a passage regarding doctors and nurses in hospital. He commenced with a questioning sentence and paused to wait for the class to complete it with one or two words in order for him to identify whether they know the new words. The teacher then asked the students to surmise and summarise the main ideas and the main words in the passage in a cooperative manner. This occurred when the students became engaged with learning the new words and then discussed, exchanged and shared them with peers or a partner to determine their correct meanings and usage before contributing to a whole class decision which was shared and presented on the board. An example of the teacher's and the students' dialogue about guessing the meanings of the words is presented as follows:

Teacher: what can you see in the photos?
Students raised their hands and called 'teacher' to be chosen to respond enthusiastically. Then the teacher chose one student and then two more.
Student 1: I can see doctors and nurses in a hospital and a sign saying emergency.
Teacher: well done. What else you can see?
Student 2: patients, injection, tablets
Teacher: excellent. Any more.
Student 3: bed, stethoscope, plaster.
Teacher: good work, guys.

The first instance of interactive dialogue, with guessing meanings of words, took place when decisions as to which on-screen options best suited the displayed arguments were initially made by pair collaboration, and then by group consensus. A number of ideas and words were presented, namely the roles of the doctors and nurses, the tools used, and hospital uniforms. The words associated with hospitals included patients, emergency, outpatient, and so on. Another way of guessing from context that was noted during the observed class was that the students were repeatedly exposed to unfamiliar words and provided with multiple examples of their usage in

spoken and written form to enable them to enhance their understanding and improve their memories.

b. Applying and Connecting the Classroom Tasks and Activities to the IWB

These tasks and activities, such as extensive reading, elicitation, gap-filling, multiple-choice, word games, rearranging sentences and matching words, were presented on the IWB, after which the students were asked to do the tasks and activities in pairs or in groups prior to applying them on the board. For example, Sami presented some multiple choice, rearrange the sentences and gap-filling exercises, as follows:

The students were initially required to answer a set of questions on a written passage, and then work in pairs and in groups to answer the multiple-choice questions. An example of such a task is provided below:

> *The king and his family lived in:*
> *a. large decorated palaces*
> *b. small houses*
> *c. big flats:*

This was followed by inviting some students to the board to read the reading passage aloud and then complete various exercises such as matching words, multiple choice, filling in blanks and response cards.

Teacher Sami engaged his students in a number of memory methods such as puzzle words and filling in blanks with accurate words. He asked them to go physically to the board and touch the screen and drag the correct answer from the side of the screen to the blank space. With regards to the words that are used in a hospital, these included patients, emergency, outpatient, and so on. After this task, the students were asked to do picture-to-word matching tasks on an individual basis in order to answer and match the newly learned words with the pictures and try to link them with mental images to make them easier to remember. Then the students completed another filling in the blanks task where they read sentences and then guessed at and replaced words that were missing from the text, placing them in the appropriate spaces.

4.10.3 Clarifying Meanings

This heading refers to a number of teaching strategies and activities that are intended to help students to clarify, rephrase and explain what the teacher or another student has said in relation to sharing information or explaining a concept such as using L1,

translation, codeswitching between L1 and L2, closed and open questions, scaffolding and negotiation of meaning strategy.

a. Scaffolding: Open and Closed Questions, Cooperative Work, Monitoring Learning and Translation

Scaffolding refers to a process of assistance where teachers or parents give some tasks to be solved as a problem, and then offering support as needed, along with engaging students in activities to improve understanding (Bruner, 1978). The term 'scaffolding' in this section indicates asking open and closed questions, students working in groups or in pairs, pre-teaching vocabulary, translation, codeswitching between L2 and L1, and monitoring learning.

The scaffolding was apparent when the teacher was monitoring and moving around the class to respond to any inquiries or to give any assistance, along with providing each team an excellent student to give increased support. It is probable these activities were as a result of linking students' prior knowledge of a lesson or information and the relationship between the current lesson and the new information through the team and the excellent student. An example can be seen with Mazen when he used this method via a wide variety of online resources, where he allowed his students to access online dictionaries and various resources in order to reinforce their comprehension and increase retention. Another means of scaffolding was to divide the students into groups to do cooperative tasks and exercises and monitoring them to give any assistance and feedback that might be necessary.

Without exception, the teachers used a variety of supportive tasks and activities in all four lessons. For example, teacher Sami asked the students open and closed questions about the words that they learned in the previous class and about the newly learned words, along with asking yes or no questions. 20% of the classroom period was intermittently spent answering the open questions, whilst less than a quarter of the class period was spent answering closed questions (over a forty-five-minute classroom period). The majority of the students responded in unison to the teacher's questions or requests to see who wanted to participate and answer the questions. A possible explanation is that these questions seemingly helped the teacher to involve the students in the lesson and ensure that they absorbed it, along with giving the students who were less proficient at English than their peers the opportunity to learn.

132

The students put the newly learned words into sentences; some examples are given below, where some of the students code switched between L2 and L1 to convey the message and respond clearly:

> *Student: the man on the picture is a police officer who protects people.*
> *Student: that man is a doctor who saves people's lives and treats patients.*
> *Student: he is a waiter who greets customers, takes their food orders and serves them.*
> *Student: he is a firefighter who puts out fires and save peoples' lives and rescues them from fires, car crashes and floods.*

With regards to monitoring, it is a classroom management technique where teachers can check students' progress in relation to classroom activities and tasks as well as determine whether the students are on the right track (Allen, 2010; Kunter, Baumert, & Köller, 2007). During the observation classrooms, all the teachers moved around the classrooms and listened to the students if they had any queries and questions. Generally, teachers monitored behind the students where they were out of sight, so that they would be able to focus on the required task or activity. However, Tariq and Waleed connected the IWB to the students' mini laptops and indeed were the only two teachers whose students had mini laptops to help them in the classroom. These laptops were controlled and monitored by the teachers and were provided by the school. Their classrooms were a mixture of cooperative work and visual virtual monitoring where they could connect, access, and present tasks on their laptops as well allowing their actions to be monitored, as they noted in their interviews.

b. Information Gap Activities and Negotiation of Meaning Strategy

The information gap activities are intended to exchange and share information between pairs in a task after they look at different information. This can be seen when two students looked at a reading passage for different information and then discussed it (Kayi , 2012; Nakahama, Tyler, & Van Lier, 2001; Pica, Kang, & Sauro, 2006). During the observation lesson, teachers such as Sami and Naser applied it in two instances each, while Tariq and Waleed applied it in all the lessons. An example from Tariq is provided below:

Tariq presented the target words on the board using semantic mapping. He then presented the passage whilst highlighting and underlining any new words. He also presented some questions about the passage, giving three choices for each question, and asked the students to team up in pairs, using and showing the countdown clock

on the board. This made them aware of when they should finish and answer the question or the task. It seems that the aim of applying the multiple-choice questions was to ensure the students' understanding and vocabulary memorisation in the reading passage and in exchanging information. Samples of the multiple choice questions were provided. One question or exercise was:

> *The city of Venice was built on a group of; a) 114 islands, b) 118 islands c) 119 islands. One of the student groups got it right and chose the correct answer 'b'.*

Based on the excerpt above, each pair of students were asked to look at different questions which they then discussed, asked questions about and shared information with one another.

Negotiation of meaning, however, is a process that speakers go through to reach a clear understanding of each other. To illustrate this, teachers can ask students (and vice versa) or students can ask students for clarification, explanation or to rephrase certain information or a message, as well as showing confirmation they have received clear information. This method was seen in the cooperative work and discussion among students and between teachers and students in classrooms. However, all the teachers used it in the four lessons in spite of the fact that it is probable that they used it unconsciously. An example from Tariq is given below:

The typical lesson commenced by presenting a photo of *a polar bear* with a reading passage that highlighted the main new words and playing the recording to read it, and then asking the students to repeat it afterwards. Tariq then asked some questions for classroom discussion, some examples of which are provided:

What do you know about polar bear? Where do they live? What do they eat? What do you know about penguins?

Then the students worked in groups to describe the pictures in sentences. For instance, one group said that:

Group one: *the polar bear has a thick fur.*

Group two: *the polar bear is the biggest predator.*

Group three: *the polar bear likes to eat fish.*

They discussed the responses above and words such as predator, fur, thick, polar bear, Iceland, and more endangered animals such as penguins. The students were then asked to read the passage quickly, skimming it to gain the main ideas and encourage learning the new words in groups.

4.10.4 Main Teaching Styles and Methods of Teaching Vocabulary

This section considers whether the overall approach was teacher-centred or student-centred. It also reports on the different methods used for teaching vocabulary. Tariq and Waleed showed the most balanced combination of both teacher and student-centred approaches. By contrast, the lessons of Naser, Mazen, Majed and Sami were more teacher-centred as seen below in Table 4.18.

Table 4.18: Teaching Pedagogy

Teachers' pedagogy:	Sami	Tariq	Waleed	Naser	Mazen	Majed
a. Teacher-centred	x	x	x	x	x	x
b. Student-centred		x				
a. Teacher-centred	x	x	x			
b. Student-centred		x	x	x	x	x
a. Teacher-centred	x	x	x		x	x
b. Student-centred		x	x	x		
a. Teacher-centred	x	X	x	x	x	x
b. Student-centred			x			

4.11 Section Summary

Overall, the teachers used a variety of teaching vocabulary strategies when the IWB was on but not used. The teachers in the private schools used the tool as the main focus of their lessons to a greater extent than the teachers in the state schools, and they also maintained a certain interactivity with their students for the majority of each of their lessons. A number of IWB features were used such as audio, video, images, internet access, data saving, highlighting data and its use as an interactive CD player. All the teachers used various vocabulary teaching strategies and methods, although some of them applied these more than others. Teaching strategies and methods were used directly and indirectly during the twenty-four observed lessons. The former (direct method) was apparent through giving word definitions, meanings, repetition and code switching prior to a reading passage or text. The latter (indirect method) could be seen through incidental vocabulary learning such as guessing from context, scaffolding, working independently and within groups, along with being exposed to language-rich contexts. The findings showed that teaching vocabulary is indeed possible with and without the use of the IWB, but when used to its fullest the IWB would seem to offer a wider range of strategies to employ for vocabulary teaching. The findings also showed that teachers can possibly teach vocabulary differently thanks to the various resources and features of the IWB. It is possible that students may learn and retain vocabulary

more effectively through the use of this tool, although evidence for this was not gathered in the present study. Some strategies were only possible with the IWB, such as semantic mapping, keyword methods etc.

4.12 Introduction

Based on in-depth interviews with six teachers, this section will focus on two aspects of teachers' perceptions and use of the IWB: 1) what teachers think about the IWB when teaching vocabulary in their English classes, and 2) which vocabulary-teaching strategies do teachers claim to use that involve the use of the IWB. Throughout this chapter, several terms are used: *A* describes private schools, while *B* refers to state schools. The participants were chosen for interviews by asking people with a diverse range of teaching experience and skills along with a clear willingness to take part, particularly those concerning the use of the IWB, as volunteers during the original survey. A few Saudi English supervisors also advised me to interview and visit certain teachers who have good IT skills in general and in the IWB in particular. I was aware that this selection approach may mean that the participants might have particularly strong views regarding the use of the IWB which might not be typical of Saudi English teachers in general. The six male teachers who were interviewed, as shown in Table 4.19 below, were assigned pseudonyms instead of their real names and assigned letters for their schools' names in order to maintain their anonymity.

Table 4.19: Teachers' Identities

Interviewees (Teachers' pseudonym)	Age	Years of teaching experience	Years of the IWB experience	Type of school	Grade
Sami	48	16	7	A (private)	5th & 6th
Tariq	43	12	7	A	6th
Waleed	43	14	9	A	5th
Naser	42	14	6	B (state)	6th
Mazen	45	13	5	B	6th
Majed	42	12	5	B	6th

The chapter begins by giving a brief overview of the analysis of the interview in section 4.1, followed by providing a matrix table that outlines teachers' characteristics and discusses the process of data analysis, as presented in section 4.2. Section 4.3 is devoted to representing the themes and sub-themes. The chapter concludes with a summary of the findings in section 4.4.

4.13 The Process of Data Analysis

The use of the semi-structured interview is a qualitative approach which collects in-depth data and allows researchers to gain detailed and holistic information in relation to a specific phenomenon or situation. Bryman (2012) notes the "richness of qualitative

data but also 'the difficulty in finding analytic paths through the richness" (p. 565). After listening to the audio recordings, I transcribed the data verbatim, translated, coded and then analysed using NVivo. During the transcription of the interviews, some unimportant items were not transcribed, such as pauses, and utterances that indicate hesitations (e.g., 'um' or 'err, well', etc.) as suggested by Creswell (2009) and Savin-Baden & Major (2013). For more information, see section 3.7 in Chapter 3 where the process of transcribing, translating and analysing data is outlined in detail. After translating the interview responses from Arabic to English, the data were classified, segmented and coded into categories based on the main themes (Attride-Stirling, 2001; Poland, 2002). Different aspects of the teachers' perceptions and the use of IWB were considered the main themes of the study; each theme was then divided into sub-themes. The themes and sub-themes are shown in Table 4.20 below.

4.14 Applying the Coding

Each theme has a particular focus by which to address the research questions about the teachers' perceptions of the use of the IWB and the teaching strategies being used with the IWB. The five themes that emerged from the interviews do not stand alone, but rather are interconnected. In addition, as mentioned previously, the aims of the study are to explore teachers' views about the use of the IWB when teaching English vocabulary, and further to examine the teaching vocabulary strategies teachers employed when using the IWB. I created 15 initial themes based on the interview questions and responses and then reduced them to eight and then to five after sharing them with my two PhD supervisors. Another qualified researcher looked at these codings and in four out of nine cases, changes were made to ensure a more accurate use of language and wording, which was then used to amend the original coding. These differences were discussed, and an agreed set of codes arrived at. Because of this process, I overcame the issue of having too many codings. For more information, see Tables 3.3 and 3.4 in Chapter 3 where the process of coding, transcribing and analysing the data is outlined in detail.

The purpose of this coding was to organise data so as to enable me to search for patterns. The coding of this study was a mixture of the inductive and deductive approaches because the themes and sub-themes in Table 4.20 below were carefully selected due to their frequent representation during the interviews and their responses. The analysis of these responses was also closely linked to the research questions,

aims, theories, literature review, the items of the questionnaires and the study focus. Two rounds of coding were undertaken: the first was to read and code the data using the questions posed in the interview with reference to the research questions. The second round of coding looked at other themes that did not fit with the first set. In addition to themes raised in the interview questions, some additional areas emerged that extended beyond the research questions.

Table 4.20: The Overall Themes and Subthemes from the Interview

Themes emerging from the interviews' questions			
Research Questions	**Themes**	**Subthemes**	**Examples**
Q1/a. What are teachers' general perceptions, and stated uses, of the IWB?	1/ Positive views amongst teachers regarding the use of the IWB	a/ Visual and audio aspects of the IWB b/ Engagement in lessons	(e.g., colour and movement, audio and video recordings and clips, pictures, and tactile elements). Encouragement, motivation, participation and self-confidence.
Q1/b. How do teachers perceive the IWB, specifically in relation to teaching English vocabulary?	2/ Teachers' views of the IWB when and their views on pedagogy	a/ Learning styles/ multimedia aspects b/ Vocabulary teaching strategies c/ Fun and problem-solving in learning	1/ Visual learning. 2/ Audio learning. 3/ the capabilities of touchscreen. Role-play, the mnemonic technique and word part method. Memory games (e.g., match words to pictures, crosswords), and semantic mapping.
Q1/c. How do teachers actually use the IWB when teaching vocabulary?	3.a Changing teaching practices b. Using specific teaching vocabulary strategies	a/ Flexibility and versatility b/ Interactivity and connectivity c/ Virtual visual monitoring	Flexibility, saving time and effort, rapid performance and versatility. Interaction between teachers and students, connecting to varying devices Behaviour management and engaging in vocabulary tasks
Q1/d. How much training/support have Saudi primary teachers received with regards to ICT and the IWB?	4/ Obstacles presented by the IWB	a/ IWB training b/ Maintenance	Provide sufficient ICT training Recruit IT staff and train teachers in IWB maintenance

4.14.1 Themes Emerging from the Interview Questions and Responses

Theme One: Positive Views amongst Teachers Regarding the Use of the IWB

On the basis of teachers' comments in this study, it seems that the IWB was viewed very favourably by teachers. This theme covers teachers' views towards the use and benefits of the IWB as a teaching aid.

a. Visual and Audio Aspects of the IWB

Teachers revealed a positive attitude towards the IWB's capabilities in terms of its visual aspects (e.g., colour and movement, audio and video recordings and clips, pictures, and the tactile elements). All teachers shared the belief that the IWB is a useful and helpful tool for teaching and learning vocabulary. In other words, the ability to touch the board and manipulate objects on it was considered particularly valuable. The teachers felt that these audio and video tools helped them to clarify and simplify the meaning of the words, as well as helping their students link words and associate pictures. One teacher (Sami) reported, for example, that when teaching the word *plane,* he would present the appropriate image in order for students to recall the word more easily in future use by remembering the image. The use of these visual and audio aspects, according to some of the interviewees, was to present new words and link them to their meanings using pictures and video clips. One interviewee's comment indicated the above:

Teacher (Sami)
> *The IWB also accommodates visual and audio tools for learners where they can listen, see the pictures, and videos that help them to remember unfamiliar words.*

Teacher Sami believed that visual learners were the most common type in his classrooms, where he mainly focussed on the visual capabilities of the IWB in his teaching practice.

> *I think the visual way is the most common one among my students and I feel they learn best compared to the other ways of teaching.*

b. Engagement in Lessons

This sub-theme covered several of the elements mentioned in the interview such as encouragement, motivation, participation and self-confidence, along with attention span in lessons. There is a sense, from teachers' comments, of learning development when the IWB was used in lessons, which could be contrasted with the somewhat static nature of the plain whiteboard. They indicated that when students became motivated, excited and confident about learning new vocabulary, they would be able to practise with peers and search for meanings independently. Two teachers explained motivation, participation and engagement, respectively:

Teacher (Tariq)
> *I used the IWB to motivate students and make them fond of learning English …...*

Teacher (Waleed)
> *It enables students to be more engaged in the learning process ….*

The teachers believed that the IWB, by offering access to the aforementioned multimedia (e.g., video and audio clips, photos, colours, etc.) mentioned in the interviews, effectively assists teachers in the creation of a real-life classroom drawn from the teacher's and their students' culture. Teachers believed that multimedia (technology) helps them to encourage their students in terms of participation, confidence and engagement. They had the belief that audio tools allow their students to listen to information repeatedly, if necessary, and the IWB screen allows the use of videos to provide visual and auditory input and interaction. Therefore, the students are better able to retain unfamiliar words by listening to them on the audio and watching them constantly on video tools and images, whilst relating this learning to their own life experiences.

Theme Two: Teachers' Views of the IWB and their Views on Pedagogy

a. Teaching Learning Styles

A number of the teachers in the interviews seemed to believe in the value of learning styles in their teaching and classes. Teachers talked about learning styles referring to visual learning, audio learning and kinaesthetic learning, echoing the ideas of Pashler et al. (2008), Avillion (2009) and Sternberg and Grigorenko (2008), who suggested that catering for different learning styles offers useful, measurable and valuable teaching and learning techniques in classrooms.

The three learning styles that the teachers referred to are: 1) visual learning (when learners can watch visual elements that are presented on the board by the teacher); 2) audio learning (when learners can listen to audio recordings and then follow up with further discussion; and 3) kinaesthetic learning, the role of the touchscreen capabilities that the board offers which allow learners to touch and interact with it. The majority of the teachers believed that these three learning styles are helpful when using the IWB to help their students to learn best through a variety of visual aspects, audio features and the flexibility of the interaction with the board simultaneously. As a number of the teachers explained:

Teacher (Tariq)

> *…The IWB enables teachers to contact with this tool and write on it by completing a task or exercise. It also provides audio and visual capabilities to meet the learners' needs.*

Teacher (Waleed)

> *…The IWB serves different teaching and learning styles.*

141

Teacher (Sami)

> *By using the tool of the IWB I can improve my students' learning outcomes because it helps me provide my students with their preferred learning ways when I use visual, aural and hands-on activities. In this way I would be able to deliver teaching successfully without considering each student's preferred learning way.*

Teacher (Naser)

> *…The IWB allows me to make my lesson much easier with using videos, pictures, sounds, and more interesting with keeping students interacting with the tool itself. In this way my students can be more motivated for learning and participations.*

Teacher (Majed)

> *…The IWB enables me to make lessons much easier and fun for children by using pictures define the given vocabulary along with using short videos that can describe the lesson's content.*

b. Vocabulary Teaching Strategies

There were a number of teaching vocabulary strategies, methods and techniques that the participants (teachers) claimed to use with the introduction of the IWB, and which were memory-based. This theme contained various subthemes such as role play, the mnemonic technique and word part technique. Without exception, all the teachers believed that the IWB helped them generate varied teaching and learning strategies and methods, as the following comment demonstrates:

Teacher (Mazen)

> *…The IWB enables teachers to create varying vocabulary teaching strategies... The IWB is very convenient for both teachers and students and it allows teachers to deliver their teaching smoothly and succinctly...*

A number of teachers believed that role-play allows their students to exchange roles and interact with one another in a managed way in order to develop experience and improve the target skills (e.g., speaking, practising new vocabulary) in a supported environment. Based on the aim of the activity, the teachers expressed the belief that they can provide learners with the possibility of significant learning. This can be done through playing a role similar to their own or playing the opposite part of a conversation or interaction, or to practise newly learned vocabulary. The teachers believed that the aims of these methods are to assist learners in gaining experience and to encourage them to develop an understanding of the concept of opposing points of view, as well as strengthen the retention process.

An example of one interviewee who specifically noted the role-play method is as follows:

Teacher (Waleed)

> This strategy (role play) can enable students to put the new words in a sentence to be easy for them to recall… this could be done when two students work in pairs and use the IWB as an interactive tool to write the new words in a complete sentence and read them aloud in the class, so each student can read his partner's sentence and explain how the students acquire these words and find their meanings as well as how they compared these words with other words in a self-provided context.

Another teacher explained another scenario regarding the role-play method as follows:

Teacher (Mazen):

> I found the role-play method helpful, so I gave the students particular roles to play in a conversation or other interaction with specific instructions on how to do that. Each pair of students were required to learn new words, put them in simple sentences, read them aloud, and then swap roles. This could help them to remember unfamiliar words.

As the quotes above show, common to all teachers' beliefs was the idea that the IWB helped them to deliver varied teaching strategies in an interesting and efficient manner. The teachers' comments also demonstrated their belief that the use of role-play methods is useful for the acquisition and recall of new words, where students can put the words learned in the class into practice in front of their peers. Each student was required to put the newly learned words into sentences and work with a partner in order to write their sentences on the IWB and read them aloud, subsequently swapping roles to repeat the exercise. They were also asked to define the new words by the teacher and the students.

Mnemonic technique is another term for memory tool, and its aim is to help the learners to remember information and improve their memory. This can be done by coding information such as vocabulary using vivid mental images, colours, funny stories or jokes, songs, symbols such as red traffic lights, road signs, and rhythms, in such a manner as to help students to recall vocabulary and its form. Furthermore, two interviewees (teachers Tariq and Waleed) discussed the mnemonic technique, where they used three elements to improve vocabulary retention: mental images, association and location, and stated that:

Teacher (Tariq):

> I use mnemonic technique to help the students to retain vocabulary and information much easier through songs, rhythms, along with acronyms which refers to the first letters of the new words and puts them in sentences, or making up a funny story or joke to assist the students to recall them in both the short and long term... by using the IWB, I can link the newly L2 learned word with mental and memorable images to facilitates recalling information and new vocabulary.

Teacher (Waleed):

I try to use the mnemonic technique to help my students to remember unfamiliar words through dividing them into syllables or using similar techniques by drawing a mental image that can be linked to the newly learned words. For example, for a word like a 'museum', I say to the students, write the mu at the beginning and mu at the end of the word.

Based on the above extracts, some teachers believed that making a connection between the students' learning and their experiences could be the best way to improve memory and recall information and vocabulary. This might be seen when students relate their newly learned vocabulary to what they already know through creating memorable mental images that are then associated with the learned words.

One individual (teacher Waleed) noted the word part method in particular when they commented that:

I used the IWB to present the word part technique to assist the students to break the new words down and learn their roots; for instance, words like brotherhood, brother-in-law have the same root, which is brother.

The teacher used the most basic part of the aforementioned words to form a connection with the new words by adding prefixes and suffixes, and then breaking them down again to make remembering the new words easier. The teacher believed that his students already knew the high frequency word *brother*, which can be used with the lower frequency words – *hood and in-law* to complete the tasks in the reading passage.

The realia technique refers to the use of tangible and real objects from the world outside the classroom to help learners practise the target language as a means by which to present meaningful explanations and examples from real situations and real-world lives (Nunan, 1999). Teachers Tariq and Naser expressed the belief that this technique is useful in practising newly learned and known words along with memorising these words by seeing and touching the associated real objects. They also believed that this technique brings the class to life by using the real objects which can help understanding. Two interviewees had fairly similar responses and specifically noted the realia technique:

Teacher (Naser)

I ask the students to sit in a circle, then they pass an object from real life (e.g., fruit, doll, etc.) to their classmate on their left or right. They say the name of the object, and then they pass the object to the next learner. Then they talk about it, giving a short example or story.

What is presented in this section is the teachers' beliefs about the IWB as a tool that can bring fun to the class and facilitate problem-solving activities. There were a number of teaching and learning strategies and methods that were used by the teachers as stated in the interviews, such as learning through fun and games (match words to pictures, crosswords) and the use of semantic mapping. The teachers believed that they used these strategies and methods to allow their students to acquire new vocabulary and recall it for future use. All the teachers believed that teaching children with 'fun' methods, such as games, photos and cartoons, can lead to better learning and greater retention with regards to unfamiliar vocabulary. All the teachers expressed the belief that the IWB made the lessons more enjoyable and fun for their students, which in turn helped and encouraged them to learn and acquire new words. The following comments were made by the teachers regarding memory and puzzle games:

Teacher (Tariq):

> *Memory games, including puzzle and crossword methods, aim to instil information and consolidate memory to recall words for future use. They stimulate the memory and urge the students to be more motivated and enthusiastic when it comes to learning to recall vocabulary. Normally, the students rarely forget the vocabulary learned through games such as puzzle and crosswords.*

Teacher (Waleed):

> *memory games enable the students to do more research from books or surfing the internet or look up the meanings and the definitions of the words in a dictionary.*

Semantic mapping is another way to assist teachers in helping students to remember and explore their knowledge of new words by creating a visual web or drawing a map that displays and makes connections between set of related words and phrases so as to allow them to be recalled easily (Denton, Bryan, Wexler, Reed, & Vaughn, 2007; Rosenbaum, 2001), as in the following example from teacher Naser:

Teacher (Naser):

> *I use semantic mapping to allow the students to recall unfamiliar and familiar words. For instance, I ask the students to choose and mark unfamiliar words from a text they're reading, then to draw a map or a web in their notebooks, and then place unknown words in the centre of the map, look for similar words in the text along with using a dictionary. Finally, I ask them to draw the whole map on the IWB, read them aloud, give their meanings and share and compare these maps with their classmates.*

The teachers felt that semantic mapping is a useful means by which to expand the students' vocabulary, especially when being used and presented on the IWB because it has attractive and varied features such as colours and shapes. The teachers had the belief that semantic mapping also represents a better way of learning new words from

another through related and similar words, such as synonyms or even antonyms. However, the majority of teachers believed that teaching and learning that involves fun is productive, where the brain becomes more active and the students are excited to learn. This might lead to the kind of mental alertness that allows students to notice new things and learn from them. The teachers expressed the belief that incorporating fun into teaching and learning is fundamental to creativity and innovation; that is, the teachers assist students in developing new ideas, problem-solving and engaging with whatever they are learning through play.

Theme Three: Changing Teaching Practices

Several teachers believed that the introduction of the IWB alone would not transform and improve teachers' teaching and pedagogical practices unless they have been well trained in its use.

a. Flexibility and Versatility

The teachers had the belief that the IWB allows for a considerable degree of flexibility in teaching and learning, which in turn facilitates collaborative learning where play can have an important role in creating remote collaboration and online learning inside and outside the classroom. They also believed that it can also allow teachers to assist students to generate different approaches to contribute to lesson content from the front of the class and work cooperatively with their peers in problem-solving activities. They believed that flexibility includes online collaborative work and the use of such features as being able to connect to different devices (e.g., phones, tablets, etc.), allowing for rapid performance, and a saving in time and effort. However, the teachers believed that the versatility embodies access to software and allows users to integrate with a wide range of software applications.

All the teachers expressed similar views about the IWB as a tool that can improve the flexibility and versatility of teaching and learning. In the teachers' comments, there was a sense of variety with regards to the IWB's features. The following examples highlight the IWB's flexibility:

Teacher (Sami):
It (the IWB) offers the kind of flexibility whereby I can generate an online connection between my students and myself because they have their own mini laptops and tablets…..

146

Teacher (Waleed)

> *It (the IWB) is an essential tool for generating collaborative learning inside and outside the classroom.*

Examples of saving time and effort can be seen in some of the teachers' comments below:

Teacher (Sami)

> *I believe that the IWB plays an important role in saving time and effort... .*

Teacher (Mazen):

> *This modern technology tool (the IWB) saves time and effort, for instance, teachers who spend 40 minutes on the traditional board can reduce this time by 60% because of the flexibility of the IWB with regards to saving data.*

Commenting on the rapid performance that the IWB offers, two of the interviewees (teachers Sami and Waleed) noted:

> *The IWB has speedy performance.*

A common example is shown below regarding versatility:

Teacher (Sami):

> *It (the IWB) offers ease of access to information and databases...*

Teacher (Waleed)

> *It provides an easier and more versatile way to give teachers better ways to teach, and students to learn, through devices such as tablets and laptops.*
> *…the IWB allows teachers to use other technological sources. It also accommodates teachers in the integration with a wide range of software applications from the assessment list on the board.*

It is clear to the teachers that the IWB is a more flexible and versatile tool than the plain whiteboard (traditional or whiteboard) because it allows both themselves and their students to access and utilise a greater number of online resources, e.g., Internet, educational software, video clips, games and pictures. It also helps teachers to save time and effort as well as providing rapid performance.

b. Interactivity and Connectivity

Some teachers believed that the IWB offers vibrant interactions through touch input from a finger or pen. They expressed the belief that this tool can allow users to integrate the IWB with a wide range of software applications. They felt that the interactive nature of the IWB offers teachers the opportunity to engage their students through working in groups and exchanging and sharing in the instructional process. They also believed that it offers various forms of connectivity, for instance, wireless, or via USB, or cable. Some of the teachers believed that it allows for connectivity in different settings that can bring up cooperative work and constitutes a useful online or distance-learning

environment. It can help to boost participation and augment teacher-to-student and student-to-student collaboration during lessons, as the comments below illustrate:

Teacher (Sami)

> *….It provides a wireless capability where teachers neither need to be tied to their computer, nor need to worry about someone tripping over cables, and it is a connectable apparatus used as a touchpad to control computers from a projector which assists the teaching of vocabulary.*

> *….The IWB enhances the interaction between teachers and students in learning new vocabulary and retaining it. It supports both teachers and students in the exchange and sharing of information, ideas and knowledge ……It enables teachers to make it easy to add technologies to an interactive classroom in order to help the students acquire and recall new word.*

The teachers felt that the IWB allows for easy connectivity to various devices and a creative, interactive interaction among the students from where they can develop and learn new words

c. Virtual Visual Monitoring (Behaviour Management and Engaging in Vocabulary Tasks)

Teachers Tariq and Waleed gained access to the IWB and connected it into their students' mini laptops. The two teachers had the common belief that this access could help teachers involve learners in a range of vocabulary activities and carry out student monitoring. Examples of these activities, including linking students' laptops to the IWB and presenting what they are doing (such as playing vocabulary games, doing vocabulary tasks, drawing word maps, etc.), and sharing their work with their peers by presenting it on the IWB. Thus, teachers can watch and monitor their students' behaviour, do required classroom tasks and generally be attentive. The two teachers believed that this means of virtual visual monitoring helped them monitor their students and urge them to become more engaged in lessons and in learning vocabulary. The two teachers expressed a common belief that the IWB helped them to identify whether a student was doing their tasks correctly, or if a student has grasped their lessons properly through doing vocabulary-based classroom tasks and exercises. The following comments highlight some of their activities:

Teacher (Tariq):

> *I am able now to track and watch what my students do when explaining the lesson and to ensure whether they are engaged in doing vocabulary tasks (e.g., playing vocabulary games).*

Teacher (Waleed):

> *I link the IWB to the students' mini laptops to monitor, watch and keep them under observation. For instance, I know if they are on the right page or if they are working on the given vocabulary.*

Some teachers expressed the belief that there was clearly a need to provide students with mini laptops to allow them access to technology, and to allow their teachers to access their students' devices in order to do classroom activities and tasks for students, and to monitor and encourage student engagement. However, some of the teachers were of the belief that incorporating the IWB into the classroom environment might not only change the way teachers impart and deliver knowledge to students but might also simplify the learning process. In their views, this tool could be ideal in terms of helping students to learn and remember new words when being used for fun, with puzzle games, visual and audio aspects, along with the flexibility of the associated physical interaction.

Theme Four: Obstacles Presented by the IWB

Another of the questions that the teachers were asked was to give an account of the disadvantages of the IWB. The majority of participants agreed with the statement that the IWB has some shortcomings such as being expensive to maintain, its sensitivity, internet connection, professional IT skills being required to manage it properly and the recruitment of additional IT staff.

a. Lack of IWB Training

This concerns teachers' IT skills in general and those for the IWB in particular. The teachers mentioned in the interviews that they all were keenly aware of their strengths and shortcomings in relation to their IT skills and the technical and pedagogic uses of the IWB. Only three teachers, however, highlighted some of their problems in terms of IT and IWB skills, which might not be of a sufficient number to determine whether this was a local or a more general problem. They had the belief that the extent of these problems might be revealed by conducting a study with a large number of teachers. Comments from some of the teachers concerning these issues are presented below:

Teacher (Naser):

> My IT skills are limited concerning the IWB because it is only newly implemented in my school and I have not been trained for it properly.

Teacher (Mazen):

> No, I did not have any training or background, but I developed my IT skills through watching YouTube and reading about it a lot, but I still lack certain IT skills.

The majority of the teachers expressed the belief that teachers should have confidence in order to use the IWB efficiently, both technically (i.e., how to switch the tool on), and pedagogically, (i.e., how to integrate it effectively into lessons). They also

believed that the lack of confidence amongst teachers regarding the use of IWB might effectively result in poor and limited use of this technology. They felt that this may be a case of giving the teachers more time to build up their experience of using the technology. This could be achieved in conjunction with additional formal training in order to bring teachers up to speed both technically and pedagogically. This could lead to increased teacher confidence in terms of the effective use of this technology.

Teachers Mazen and Tariq gave similar responses, highlighting the importance of technical support and ICT training, and recommended that:

> *Continuing support for teachers by providing more training in how to integrate the ICT in general and the IWB in particular...*

A common belief among the teachers was that teachers who use the IWB in their classrooms should receive regular and ongoing training sessions in the technical and pedagogical aspects of the IWB so that they can maintain and develop their ICT skills. They had the belief that those teachers should be trained in the use of the IWB in their lessons to demonstrate activities such as accessing the internet and using its features wisely, which would also support student learning. They also felt that they could benefit from IWB installation in schools and the attempt to use this advantage regularly through independent and self-directed training, as might be achieved by watching YouTube IWB lessons; this might build teachers' confidence and knowledge as to the use of the technology. However, most of the teachers believed that the IWB is currently only being used to full effect in a small number of schools (Alghamdi & Higgins, 2015), whereas the majority of schools do not provide sufficient training for teachers to gain the required confidence in its use or support them in terms of meeting their students' technological needs. These shortcomings might affect the way that teachers teach vocabulary.

b. Maintenance

All the teachers had the belief that the IWB requires regular maintenance, so schools need to recruit IT staff or technicians or to provide training for teachers who use the IWB in their teaching, and to avoid spending large amounts of money to fix it regularly. Interviewees commented that the IWB requires regular maintenance. They felt that schools need to recruit IT staff or technicians or to provide training for teachers who use the IWB in their teaching. Comments from two teachers in this regard are provided below:

Teacher (Mazen):
> *…its maintenance is costly as well as requiring IT staff in each school to fix it when it is needed.*

Teacher (Majed):
The maintenance is a big challenge, especially when it has broken down; it is kept in storage instead of being fixed...

4.15 Individual Differences and the IWB

In this section, brief conclusions about the interviews, classroom observations and the open questions' findings are given. These findings were analysed to assess how often the teachers use the IWB in private and state schools. The findings also identified the differences between trained and untrained teachers regarding the IWB when delivering vocabulary strategies along with being skilled or unskilled in terms of IT abilities.

4.15.1 Private and State Schools

The data that emerged from the survey, observation, interviews and the open questions of the survey were analysed in such a way as to allow me to assess teachers' uses of the IWB. Therefore, I was able to assess how often the teachers used the IWB and how long it was on during the lessons observed. During the observed lessons, there were three instances on average in the private schools during which the teacher used different features of the IWB. In contrast, in the state schools there was only one instance of such, as shown previously in Table 4.15. This indicates that the teachers in the private schools used the tool more often in comparison to teachers in state schools. Based on the results of the three aforementioned tools (survey, classroom observation, and interview), teachers in private schools tended to have more ICT skills They also attended more regular teaching courses and training than those in state schools. Having said this, these findings may be somewhat limited by the fact that there were only three teachers in private schools and three teachers in state schools therefore a note of caution is due here.

4.15.2 Skilled and Unskilled Teachers

The findings of the survey, observations and the interviews indicated that the more teachers that have ICT skills, the more and better they will be able to use the tool in their teaching practice. The findings also showed that the skilled teachers who were interviewed and observed in classrooms shifted their roles from the centre of the learning process to facilitators to a much greater extent than less-skilled teachers. The

findings also showed that those skilled teachers not only allowed their students to present what they learned, such as new vocabulary, but also engaged them in pairs or groups to put this learning into practice through contact with the IWB to a greater extent than less skilled teachers. The results demonstrated that a skilled teacher can change their teaching practices by reinforcing existing pedagogical practices, and changing and developing the interaction between teachers and students. The results of this present study will be discussed in the next chapter.

4.16 Summary of the Chapter

In summary, the teachers interviewed were positive about the use of the interactive whiteboard when teaching English vocabulary. However, this is only in regard to certain aspects. Specifically, teachers felt the use of IWB improved teachers' and students' interaction with each other. However, there were some contradictions between the responses to the questionnaire and the interviews. In the former, teachers were least positive about the ability of the tool to improve teaching and learning. By contrast, in the interviews it was reported by a majority of the respondents that the IWB provide valuable support in empowering them to reach their teaching goals, citing such factors as the wide variety of resources IWB provides for them the motivating nature of the presentations that be given and the generally flexible nature of IWB as an educational tool. The majority believed that the use of the IWB in lessons assisted them in improving their students' motivation and engagement and in remembering new vocabulary, along with improvements to their students' participation in lessons and scaffolding their level of knowledge and development.

In terms of working patterns, a number of teachers held the belief that the IWB could significantly change their teaching practices should they receive a large amount of ICT training. The majority of the interviewed teachers believed that even though the IWB has several advantages, it has a few limitations, for instance it needs regular maintenance, it sometimes requires an internet connection and users need to be quite highly trained to be able to use it effectively. Overall, the responses were positive about the introduction of this technology into the classroom, and indeed its use, with the majority of teachers commenting that they believed that the IWB helped them to achieve their teaching aims and to increase students' vocabulary and retention, as well as the additional encouragement.

152

The teachers in private schools used the IWB as *the main focus* more often than those in the state schools. Also, the state school teachers kept the tool *on without using it* more frequently than the teachers in the private schools. There was also a correlation between the amount of use and the amount of training on the IWB, as shown in the questionnaire. Teachers who have more ICT skills will be able to use the tool in their teaching practice in a better way. Therefore, they can change and develop their teaching practices by developing the interaction between them and their students.

Chapter 5 : DISCUSSION

5.1 Introduction

Firstly, this chapter restates the aims and the research questions of the current research, followed by summarising the main findings of the study with regards to these research questions. The main findings of each element with regards to the related literature will then be discussed prior to summarising the entire chapter.

5.2 Revisiting/Restatement of the Aims and the Research Questions of this Study

This study aimed to (1) explore teachers' perceptions towards the use of the IWB, and to (2) investigate the vocabulary teaching strategies that they used with the IWB.

5.3 Summary of the Main Findings

The main findings of the current study are discussed in relation to previous and current studies in this field.

5.3.1 Research question (1.a): What are teachers' general perceptions, and stated uses, of the IWB?

First of all, the results of the questionnaire determined by the present study found that: a) teachers were most positive about the interaction that was facilitated by the IWB; and b) teachers were least positive about the extent to which the IWB improved teaching and learning. Secondly, the results of the interview showed positive overall views of the IWB, including flexibility, connectivity, saving time and effort.

a. The IWB's Interaction

Based on the results of the questionnaire, teachers were most positive about the interaction that was facilitated by the IWB. These results were in accord with previous research (e.g., Baran, 2010; Mathews-Aydinli & Elaziz, 2010; Smith, Higgins, Wall, & Miller, 2005; Türel & Johnson, 2012) as a number of previous questionnaire-based studies aimed at teachers have found that the majority of teachers surveyed claimed that the use of the IWB allowed for a pedagogical and physical interaction. The pedagogical interaction reported in the present study, and indeed the aforementioned studies, was in the classroom and was teacher-student and student-student in nature, as well as supporting whole-class lessons. In terms of physical or technological interaction, respondents reported that the IWB enabled both teachers and students to

154

participate and interact physically and directly when creating sentences. The teachers expressed their belief in the importance of the IWB as an advantage in promoting interactivity between teachers and students, with the tool itself enhancing the delivery of discussion and presentation.

The findings of the present study and the previous research, on the whole, suggested that the teachers used their knowledge and beliefs to help them scaffold activities in different ways through the use of the IWB, such as through teacher-student and teacher-IWB interactions. These findings could be linked to Borg's work (2003), which looked at different teachers' perceptions and knowledge and considered how these impacted teaching. This pedagogical interactivity, or the interaction between teacher and student, could be an important factor in student learning, as reported in Vygotsky's work (1978). As such, different perceptions and beliefs might lead to the different use of the IWB as a tool and the application of different teaching approaches and methods.

b. The Role of the IWB in Teaching and Learning

As seen above (Findings of interview, pages 150,151 and152), based on the results of the questionnaire in this study, the teachers were least positive about the extent to which the IWB improved teaching and learning. By contrast, a number of questionnaire-based studies conducted in Saudi Arabia have found that the majority of teachers surveyed claimed that the use of the IWB improved the teaching and learning process (Alghamdi, 2015; Bakadam & Asiri, 2012; Gashan & Alshumaimeri, 2015). The authors of these studies also believed that the IWB could lead to enhanced teaching methods and practices thanks to its functions and features. They also believed that the IWB helped to encourage their students' learning and was useful in assisting them with lesson preparation and to keep their students focussed on their lesson content. Similarly, studies from countries such as Turkey (e.g., Isman et al., 2012; Mathews-Aydinli & Elaziz, 2010; Türel & Johnson, 2012) found that the IWB could enhance the teaching and learning process and environment, as well as enriching teaching skills and approaches.

The present study found that teachers expressed less satisfaction with, and a less positive perception of, the use of the IWB in relation to improving teaching and learning, which contradicted those of previous research. This might indicate that the teachers saw the IWB as less helpful and useful in relation to improving their teaching in general. Another possible explanation was that some teachers only saw the IWB as being useful

in certain circumstances, specifically for vocabulary teaching methods such as semantic mapping, keyword and word part methods. Therefore, there was evidence that the teachers found the IWB to be a useful scaffolding tool for some aspects of teaching, but that it might be not useful or even needed in other teaching methods or approaches. Interestingly, the results of the present study showed that teachers were more positive about the use of the IWB in allowing interaction in classrooms but less positive regarding teaching and learning improvements, although the two should arguably be linked. That is, this interaction is part of teaching and learning. It was likely that some teachers saw the interaction as useful in terms of engagement and participation as a scaffolding way of teaching, whereas other teachers did not.

c. Flexibility, Connectivity, Saving Time and Effort

The interview results showed that, overall, teachers had positive views about the IWB concerning flexibility, connectivity, and its ability to save time and effort.

Flexibility

A number of questionnaire-based studies of teachers in Saudi Arabia, and indeed other countries, found that the majority of teachers surveyed claimed that the IWB provided flexibility in terms of flipping back and forth on the board, highlighting, colouring, important content, saving material and recording content (e.g., Bakadam & Asiri, 2012; Gashan & Alshumaimeri, 2015; Türel, 2010; Türel & Demirli, 2010). Similar to the teachers in previous studies, the teachers in my study commented on the flexibility of the IWB in terms of its ability to deal with advanced tools and functions such as importing files, using the camera, and adding audio files from the library.

Connectivity

The interview results from the present study found that most teachers expressed the belief that the IWB could offer various forms of connectivity, for instance, software applications and access to the web through different devices. These results were in line with those of Alfaki and Khamis (2018) and Gashan and Alshumaimeri (2015) for Saudi Arabia, and with those of Isman et al. (2012) and Türel (2010) for Turkey. These studies revealed that many teachers believed that users could integrate the IWB with a wide range of software applications and could access the web through different devices such as tablets, laptops, and with other tools such as wireless, USBs, and cables. Furthermore, the teachers believed that the IWB could be linked to other interactive web-learning resources and materials that could be used when teaching the EL.

The interview results from the present study showed that teachers believed that the IWB could allow for a significant saving in time and effort, where teachers could save data and re-use it when needed. The study's results were consistent with those of questionnaire-based studies (Alfaki & Khamis, 2018; Bakadam & Asiri, 2012; Bidaki & Mobasheri, 2013; Gashan & Alshumaimeri, 2015; Isman et al., 2012) in Saudi Arabia, and with those of Isman et al., (2012), Jwaifell and Gasaymeh (2013), Kennewell and Morgan (2003), Mathews-Aydinli and Elaziz (2010), Miller and Glover (2002), Saltan et al., (2010), Türel (2010) and Türel and Johnson (2012) in different countries such as the U.K. and Turkey.

The results of the present study were in line with those of previous research into the features of the IWB such as its flexibility (Bakadam & Asiri, 2012; Gashan & Alshumaimeri, 2015; Türel, 2010; Türel & Demirli, 2010), interactivity (Smith et al., 2005; Türel & Demirli, 2010; Verenikina, Wrona, Jones, & Kervin, 2010), connectivity (Alfaki & Khamis, 2018; Bidaki & Mobasheri, 2013; Gashan & Alshumaimeri, 2015; Isman et al., 2012) and for saving time and effort (Bakadam & Asiri, 2012; Gashan & Alshumaimeri, 2015; Miller & Glover, 2002; Kennewell & Morgan, 2003; Mathews-Aydinli & Elaziz, 2010; Saltan et al., 2010; Türel & Johnson, 2012). The findings of the present study suggested that the IWB could enable teachers to manipulate this tool through the functions of the IWB. Therefore, they could use their knowledge and beliefs to scaffold their teaching methods and activities using three principal learning methods, namely visual, auditory and kinaesthetic.

These results of the present study could also suggest that some teachers were familiar with Vygotsky's work (1978). Some of the teachers (participants) were using the functions of the IWB to scaffold teaching and learning to a higher level. As such, teachers' beliefs and knowledge might differ regarding the use of the IWB but might be similar regarding its utility. Overall, the teachers in Saudi Arabia agreed with those teachers in different settings and countries regarding the benefits of the IWB.

5.3.2 Research Question (1.b): How Do Teachers Perceive the IWB, specifically in relation to Teaching English Vocabulary?

The purpose of this question was to determine what teachers thought about the use of the IWB in teaching English vocabulary. The question was answered through teachers'

interviews. The teachers were found to hold positive views about the IWB in relation to teaching English vocabulary, including the multimodal aspects of the use of IWB such as the visual, audio and kinaesthetic.

The interview results in this present study showed that the six teachers, overall, held positive views about the IWB in relation to teaching English vocabulary thanks to its wide range of visual and audio features such as colour, movement, pictures, audio and video clips, as well as its tactile elements. Thus, the teachers believed that multimedia including the IWB could constitute a useful means of teaching and learning vocabulary.

The present study's results were in accord with qualitative research in the literature (Al-Maini, 2011) which indicated teachers believed in the use of multimedia tools. This includes the three principal methods or styles of learning, which represented a useful scaffolding in relation to teaching vocabulary. The interview results revealed that the teachers felt the IWB could provide advantages to make course content more visual, and the IWB could be used with various instructional and teaching methods and techniques. In addition, the IWB could facilitate teaching, learning and remembering via visual media. The teachers expressed the belief that these audio and video tools enabled learners to grasp the meanings of words and memorise them through linking the newly learned words and associating them with particular pictures and video clips. Using a strategy such as the keyword method might require linking to visual images to make a word easier to recall. However, the results of qualitative studies from this present and previous literature present insights into teachers' beliefs about effectiveness rather than evidence of actual effectiveness.

5.3.3 Research Question (1.c): How do teachers actually use the IWB when teaching vocabulary?

The results of the classroom observations provided the answers to the question of how teachers (in private and state schools) actually used the IWB in terms of teaching vocabulary strategies and methods. This was done by looking at two aspects of classroom practice, namely their classroom practice itself, followed by interviews to identify the reasons for using specific teaching vocabulary strategies. The first aspect was the teaching strategies they most frequently used with the IWB, which included semantic mapping and guessing the meaning from context. The second aspect was the teaching strategies they least frequently used with the IWB, which included the

word part and keyword methods. The findings of the observations showed that, overall, the teachers used the IWB extensively but to varying degrees when teaching vocabulary strategies.

5.3.3.1 Group One: Most Frequent Teaching Strategies used with the IWB
a. Semantic Mapping

The classroom observations were conducted to determine teachers' actions in classroom practice in this present study which were followed by interviews about specific teaching vocabulary strategies and methods. These results showed that, overall, teachers, during the classroom observations, tried to address three learning styles (visual, auditory and kinaesthetic) but all teachers relied heavily on the visual capabilities of the IWB to present new words. The observations' results also revealed that teachers used ICT and IWB to engage their students in learning and memorising new words by asking students to work individually and cooperatively to look up for the new words. By accessing the internet to make use of online dictionaries, the teachers presented their meanings and definitions on the IWB. These practices suggested elements of what Laufer and Hulstijn (2001) identify as important activities for vocabulary learning: need, search and evaluation. For instance, when using semantic mapping, teacher Sami mainly focussed on the visual capabilities of the IWB because of his belief that visual learners were the most common type in his classrooms, as he reported in the subsequent interview. Sami engaged his students in learning and memorising new words through his use of semantic mapping.

If we look at Sami's teaching by analysing the Findings chapter, we can find that he used many principles of vocabulary teaching that are consistent with the three common teaching vocabulary activities; *need, search* and *evaluation*. Starting with need, there is evidence from Sami's lessons that he used *moderate need* (Laufer & Hulstijn, 2001) when he presented a reading text on the board and then asked his students to brainstorm words related to the main or target word. Next, Sami moved to the second component which is *search*, where the students were asked to demonstrate their understanding of the main or concept word and its related words through finding out the words' meanings and definitions from their own bilingual dictionaries (from L1 and L2). Then, Sami moved to the third component, *evaluation*, when he asked each student to draw their own semantic map on a blank piece of paper and then link words related to the main concept, or the words in the centre of the map. After that, the

students shared their answers and exchanged ideas with each other. Lastly, Sami selected certain students to draw a semantic map on the board and to write the related words as well as asking them to correct their peers if they made any mistakes.

In this way, Sami also combined visual, auditory and kinaesthetic teaching and learning techniques in the belief that this combination builds upon Learning Styles Theory to achieve maximum positive learning outcomes. According to his comments during the interview, he used this method to provide scaffolding and work which was just beyond learners' current abilities, enabling him to lead his students gradually through an increasing vocabulary bank and its retention. These findings of the current study were in agreement with those of Verenikina et al. (2010), who found through classroom observations that technological and physical interactivity provided teachers and their students with various opportunities. Firstly, it provided them with the chance to actively and physically participate in creating sentences. Secondly, it connected visual images and words or phrases with their meanings. Thirdly, it allowed teachers to use the repetition of the word to practise the construction of sentences.

The main link between the IWB and teaching in general might be the way that it can be used as a supportive tool for both teachers to enhance their teaching methods and students to enrich their learning. This might happen through using its resources and features to make lessons much easier to absorb. The tool can also be used as a means of engaging the students in learning in general and learning vocabulary in particular through showing, for instance, pictures that represent the new learned word. As well as this, the tool can bring interactivity when teachers allow the students to engage in hands-on learning while interacting physically with the board to complete a task. Additionally, the tool can enable teachers to use different online resources in classrooms such as surfing on google, using pictures and videos where the students can benefit of this facility to comprehend the lessons better.

b. Guessing the Meaning from Context

The findings of the classroom observation in the present study showed that the teachers often put up short sections of text from a reading passage on the IWB, which contained words teachers were aware their students were unlikely to know.

As explained in Chapter 4, some teachers, such as Majed, used many ways of presenting new vocabulary to be guessed by students that were consistent with the notion of noticing (Laufer & Hulstijn, 2001; Schmitt, 2008) through relying heavily on the visual learning style. He asked his students to work together to find the correct meaning and usage of new words by looking at the reading passage on the board. Then, Majed presented the correctly guessed words on the board using the online dictionary, and then highlighted the words in different colours to make them easy for the students to identify.

There is a paucity of research regarding the use of the IWB in teaching vocabulary through guessing a word's meaning from context. Some studies, however (e.g., Maurisa, 2013; Redouane, 2011) have found that guessing based on the context is useful in teaching vocabulary. In line with previous research (Mathews-Aydinli & Elaziz, 2010; Ting, Tai, & Lin, 2015), some teachers in the present study expressed their beliefs that their students guessed unfamiliar words and learned them better with the IWB than without it. The results from the present study suggested that teachers believed that the use of the IWB to teach how to guess meaning from context was helpful when different functions could be used, such as highlighting, colouring and underlining to identify the meanings of the words and to gain the students' attention. In this view, teachers used the IWB to scaffold their students as they believed in its benefits (Donato, 1994). As such, teachers believed that the IWB facilitated learning words and guessing their meaning through its varied features to a greater extent than more traditional methods. These results can be linked to the idea of noticing (e.g. paying attention to lexical items) which is important in vocabulary teaching.

5.3.3.2 Group Two: Least Frequent Teaching Strategies used with the IWB

a. Word Part Method

Two teachers (Waleed and Tariq) among the six in the present study used the word part method. These teachers attempted to form a connection between the new words by adding prefixes and suffixes, and then breaking them down again to make remembering the new words easier. There is evidence to suggest that teachers were using the word part method to teach vocabulary as explained in the findings chapter. In doing so, the two teachers similarly used many principles of vocabulary teaching that were again consistent with the three fundamental components regarding

involvement for vocabulary learning: *need, search* and *evaluation* Laufer & Hulstijn, 2001).

Surprisingly, although many teachers had expressed positive attitudes about the use the IWB for keyword and word part methods, in practice only two teachers actually used them. This finding is linked to Shifflet's and Weilbacher's (2015) findings, who reported that teachers' beliefs and actual uses in classroom practice were sometimes not in accord with each other; that is, the teachers do not always put their beliefs into action in their teaching practice.

b. Keyword Method

There is evidence in the present study to suggest that two teachers (Waleed and Tariq) used the keyword method, and did so in two stages as stated previously in the Findings chapter. In the first stage, the teachers allowed students to create an association between the spoken foreign word with the first language word or translation (the keyword) that has a similar sound to some parts of the foreign word (e.g., the Arabic word *mattar* sounds similar to the English word *meter*, which is the keyword, and means rain). In the second stage, the learners built an interactive mental image to link the keyword and the new L2 learning word (e.g., *meter* refers to *a measuring device*, so the learner can visualise measuring the amount of rain falling on his house's garden, as an example). Also, as mentioned previously, there was evidence that need, search and evaluation were addressed in Waleed's teaching. It is worth noting that these two teachers were the only ones to use the keyword and word part methods.

There is a lack of research regarding the use of the IWB in teaching vocabulary through the word part and keyword methods, although many studies have considered the impact of the word part method itself (e.g., Ebrahimain & Nabifar, 2015; Storkel & Hoover, 2011; Wei, 2014) and on the impact of the keyword method (e.g., Toghyani Khorasgani & Khanehgir, 2017; Piribabadi & Rahmany, 2014). The present study found that teachers expressed positive beliefs about these two methods in terms of their utility for teaching vocabulary. These results suggested the use of the IWB allowed the teachers to present the newly learned words visually, along with their pictures and meanings. A probable explanation for these results was that teachers' beliefs about the visualisation learning style might support them to help students understand the word and then memorise it. These results could help teachers to

scaffold students' learning. Moreover, analysis of the classroom observation results followed by subsequent interviews showed important differences between the ways in which teachers in public and private schools used the IWB.

5.3.3.3 Public and Private School Teachers

a. Public School Teachers

The findings of the classroom observation in this present study showed two teachers in public schools used the IWB as a presentational tool. They did this using the CD player to play various features on the CD-Rom that covered the entire English curriculum. This included such features as audio tracks, vocabulary lists, etc. However, although they used a few functions of the IWB, such as highlighting sections of text or adding pictures and notes, they did not use the full range of functions which the IWB provides. It should be noted that one public school teacher did make full use of the IWB; however, two out of the three public school teachers did not use its full range of functions. By contrast, in the private schools, all three teachers used the IWB for almost the entire lesson, fully taking advantage of most of the features the IWB makes available perhaps because they had received considerably more training in how to use the IWB than public school teachers.

The results of the present study were in line with the quantitative findings of Alfaki and Khamis (2018) who found that a large number of teachers in public schools were satisfied with their use of the IWB purely as a presentational tool for teaching the EL. These results support those of Dawam et al. (2009), who pointed out that although the use of ICT was encouraged in the public sector among teachers where they were keen to use it in their classroom practices, the ICT facilities in the private sector were more extensive. Additionally, the results of the present study were in agreement with that of Hayes (2010), whose pre-training survey indicated that teachers in public schools expressed positive attitudes towards the effects and use of the IWB while the post-training results revealed significant differences, which demonstrated the impact of providing training for teachers in the use of the IWB.

b. Private School Teachers

The current findings from the classroom observations disagreed with those of Alghamdi and Higgins (2015) and Wozney et al. (2006) regarding private school teachers. Their results showed that there was a significantly greater level of

163

satisfaction among private school teachers compared with public school teachers regarding the use of technology. First of all, the results from the interview of the present study showed that the private school teachers believed training was important to use the IWB. This corroborated the findings of Abuhmaid (2014) and Wozney et al. (2006), who found that private school teachers expressed overall positive attitudes towards the importance of receiving training in the IWB because they received more ICT and IWB training sessions than those teachers in public schools. However, the current study also conflicted with Abuhmaid (2014) who found that the teachers were less satisfied with the technical support and training they *actually received* during their IWB integration and were dissatisfied because of the insufficient amount of training they had received. The results from the interview of the present study showed the private school teachers were satisfied with the training that they received and the amount of training.

A possible explanation for the results of the current study was that private schools might ask their teachers to use the IWB because of their investment in the technology. They had more support such as ongoing courses and encourage to use the tool and to integrate it into their teaching. As a result, providing constant training courses and ensuring the regular use of the IWB whilst teaching might lead to better learning outcomes. The more training teachers had received, the more confident they were with their skills and the more likely they were to use the IWB.

To summarise, the private school teachers in the present study tended to use the IWB with its features and had more and better IT and IWB skills than those in state schools. By contrast, the state school teachers used the IWB in most of their teaching as a presentation tool, relying on the CD player, for instance, unlike private school teachers who were keener to manipulate and use the IWB to its fullest. Furthermore, private school teachers applied a larger number of teaching vocabulary strategies than those in state schools.

 It is important to recognise that these findings were based on interviews with only three teachers from either the private or the public school which took part in this study. Therefore, the findings are not representative of the whole population because of the small and limited size of the sample. It may be helpful for future research to investigate whether this is a trend is replicated in private and public schools in Saudi more generally.

5.3.4 Research Question (1.d): How Much Training/Support have Saudi Primary Teachers Received in ICT and the IWB?

To answer this question, firstly, the questionnaire results regarding the levels of training in ICT were computed using descriptive statistics, and teachers were found to consist of two groups: less competent or untrained in ICT skills, and very competent or trained in ICT skills. Secondly, Mann-Whitney tests were used to determine whether there were any differences between the expert and novice teachers as well as teachers who had received high and low levels of training with regards to their attitudes towards and use of the IWB. Thirdly, the analysis of the interview results regarding the IWB training courses and the levels of ICT training was discussed.

Overall, the results of the questionnaire in the current study indicated that teachers might not only need sufficient ICT skills and IWB training to start using this technology but also that these training courses should be ongoing, where teachers could be trained to apply technology in their teaching practices to a much greater extent. The majority of the teachers in the present study had received some level of IWB training, whereas a minority had received no training, even though the IWB had already been installed in their classrooms.

a. Less Competent or Untrained in ICT Skills

The results of the present study showed that, overall, a small majority of teachers felt they had less competence with, or had few ICT skills and IWB training, although almost 80% of these teachers had attended at least one ICT training course, which was a rather unexpected result. These rather contradictory results might be due to teachers perhaps not putting what they learned into practice.

The findings of the present study were in accord with previous research (Alghamdi & Higgins, 2015; Bakadam & Asiri, 2012; Bahadur & Oogarah, 2013; Gashan & Alshumaimeri, 2015; Hayes, 2010) that suggested many Saudi teachers felt they did not have sufficient ICT skills or had received sufficient ICT and IWB training. These authors believed that teachers had received no training courses, either from the Ministry of Education or from private institutions, which resulted in their attitudes towards the levels of their ICT and IWB knowledge. The teachers also agreed about the importance of intense training in the use of ICT and the IWB, and which they lacked, which led to them not using such technology regularly and efficiently in their

classrooms. The results suggested that extensive and ongoing practical training, including ICT and IWB skills from qualified trainers, should be provided in order to allow teachers to use the technical facilities and deal with any technical problems that might arise in the classroom. However, the findings showed that the development of teaching practice is a greater requirement than a mastery of ICT because teaching vocabulary demands the former but does not necessarily need the latter.

A possible explanation for these results was that some teachers thought if they did not have ICT skills, including dealing with general technological tools such as computers and projectors and how to fix them, they might also feel less confident using the IWB compared to those teachers who had strong ICT skills. As such, training teachers on both ICT skills and IWB encouraged them to use technology in their teaching practices confidently.

b. Very Competent or Trained in ICT Skills

The results showed that only a minority of the teachers felt very competent regarding ICT skills, including the IWB. These results are in line with a few studies (e.g., Alghamdi, 2015; Karsenti, 2016) that showed some teachers might see themselves as competent IWB users because of the intensive training and technical support they had received. Hence, the teachers always had to deal with technical problems when they used ICT and the IWB in class, which indicated how competent they were.

The present study's results, obtained through Mann-Whitney tests, showed that teachers' attitudes towards ICT were more positive amongst more highly trained teachers than those of teachers with low levels of training. Satisfaction with teaching strategies using ICT was greater for more highly trained teachers than for teachers with low levels of training. There were also greater levels of satisfaction amongst experts in ICT skills than for teachers who were less experienced or novices. Use of teaching strategies using the IWB was higher amongst ICT experts than for teachers who were novices. These findings are evident in instances where those skilled teachers not only allowed their students to present what they learned, such as new vocabulary, but also engaged them in pair or group work. This allowed the more skilled teachers to increase their students' contact with the IWB as compared to less skilled teachers, according to the interview and observational results.

In terms of the interview results of the present study regarding the ICT training courses, the levels of ICT training showed that findings about the quality of ICT and the IWB training and trainers were important. For example, some teachers expressed their beliefs about training sessions, which were more theoretical than practical. This could be seen where some trainers explained how to use ICT and the IWB without giving more practice as to how this tool should actually be used. Some teachers believed that some ICT and the IWB trainers were not really sufficiently qualified to contribute to the teachers' knowledge and skills in these regards. However, it is worth noting that the teachers interviewed may not be typical of all teachers, as they volunteered to be interviewed and observed and thus might be more likely to be ICT competent and/or interested in ICT. This may link to the fact that during the interviews, teachers did express feeling competent regarding ICT skills. A possible explanation for these results was that some teachers might have had a personal interest in technology and use their own computers or laptops, which might lead them to become competent in ICT skills.

c. ICT Skilled Teachers and Teachers Expertise

The findings of this present study, in terms of the difference between teachers who were skilled in ICT and those who are less skilled (as categorised by the variables in the questionnaire) showed that the former shifted their roles from being in the centre of the learning process and having a more authoritative role to becoming a facilitator of the learning process to a much greater extent than the less skilled teachers. This is potentially the study's most interesting and notable finding, as it appears that those teachers who are skilled in ICT in general and the IWB in particular, focus more on facilitating learning and work with the learners in the classroom while using the IWB as tool that can support learning. These teachers act as guides rather than direct instructors when using the IWB, something that the less skilled teachers do less. Another reason this result is interesting is because, traditionally, teachers are those who lead classrooms and deliver knowledge (Devine, 2000). The results indicate that such teachers can be found in both private and public schools, as their levels of confidence in relation to their ICT skills relate more to their previous training and experiences, rather than the school they are in at the moment (although it seems that private schools offer more opportunities for ICT training to their teachers).

These teachers who are skilled in ICT and teaching are able to use the IWB to create an autonomous classroom environment where their role becomes less directing, as they are facilitating learning. Being a facilitator, the teacher creates an active and

facilitative learning environment in the classroom, where the learners engage in activities individually or in groups to solve problems and tasks for themselves with or without using the IWB, while the teacher moves around the classroom to provide support and   advice. As a result, the learners play a more dominant role in the classroom and manage their own learning, while they ask questions and answer them in discussions and critical teamwork activities among themselves. As such, learners perhaps become more enthusiastic and motivated in learning when being engaged in challenging activities and controlled their own learning with having some guidance and assistance by their teacher (Yoell, 2000).

In this way, making better use of the IWB while teaching can help teachers scaffold their students' learning by allowing them to provide a supportive learning environment within which teachers can ask students to work collaboratively and then interact with the tool as well. Therefore, they can share their knowledge with their peers using the IWB, exchange ideas, learn from each other while they also take an active role in their own learning. Scaffolding with the use of technology in general and the IWB in particular can allow teachers to help their students go beyond their current knowledge and skill levels. The students need assistance and guidance in their learning to move to the next level or stage of gaining knowledge or information (Alibali, 2006). As such, this represents a possible claim that training teachers on the IWB might be beneficial to increase their use of this equipment. IWB training might be beneficial in terms of providing training in ICT skills more generally to increase teachers' levels of confidence in the use of technology and pedagogical skills overall.

5.3.5 Research Question (2): What is the Relationship between Teacher Variables (Qualification, Length of Experience) and their Perceptions and Use of the IWB, both Stated and Actual?

Statistical analysis of the relationship between the teacher variables using Spearman Rank order correlations indicated that statistically significant, positive but weak relationships were present between teachers' stated uses of the IWB and uses of the IWB related to teaching experience and qualifications.

a. Length of experience

Teaching experience had the lowest positive correlation with IWB use. Similarly, a few questionnaire-based studies involving teachers (Gorder, 2008; Henry, 2008; Öz, 2014; Türel & Johnson, 2012) from different countries revealed a positive relationship

168

between increased teaching experience and the ability to implement technology to a greater extent. By contrast, some qualitative studies (e.g., Russell, O'Dwyer, Bebell, & Tao, 2007) showed that some teachers expressed their beliefs that teaching experience had no effect on the implementation and use of technology and could lead to improved technical skills in general and with the IWB in particular. However, a few qualitative studies (e.g., Baek, Jong, & Kim, 2008; Jwaifell & Gasaymeh, 2013; Lau & Sim, 2008) indicated that teachers expressed their beliefs that experienced teachers used and integrated technology less than those whose had less experience, or who were inexperienced, in classroom practices. The teachers also stated that their ICT skills were insufficient, and therefore more training on ICT and the IWB was needed.

The findings of the present study were not in accord with the previous research that showed teaching experience was related to the use of ICT and the IWB. The findings of the current study suggested that teachers who used ICT and the IWB regularly and had done so for years could use it more confidently than those who had less teaching experience. A probable explanation for these results was that experienced teachers could use and try out the IWB in their classroom practices, which helped them to shape their skills. As such, the constant use of both ICT and the IWB might lead to developing teachers' technological skills to a higher level. Teaching experience might play a role in the use of technology general and the IWB in particular in the classroom, but not a strong one. Specifically, all the teachers believed the IWB was useful, but only those teachers who had confidence in their ability made it a central part of their classroom practice.

To summarise, there was a conflict in the research concerning the effect of teaching experience on the level, and integration of technology and the IWB within teaching practices with respect to the results for the individual differences and the IWB.

a. Qualifications (Degree Level)

The results of the Spearman Rank order correlations in the present study also showed that the positive correlation between degree level and use of technology was statistically significant but weaker than correlations between teacher variables and technology use. Because of a lack of sufficient research, there was no study that could be found to support the current study's results. The results of the present study suggested that teachers who were more highly educated used the IWB regularly and that therefore they were competent in terms of ICT. A possible explanation for these

results was that qualified teachers might be more open to learning new things and enjoy studying, which might help them to shape and hone their skills. As such, the more qualified the teachers were, the more ICT skills they were likely to have.

5.4 Chapter Summary

The chapter summarised and discussed findings of the study along with linking these findings with the aims, theories and research questions of this study. The majority of the findings of the current study supported previous research in that it identified teachers' positive attitudes towards the use of technology in general and the IWB in particular. The majority of the teachers believed that the IWB provided an interactive learning environment in the classroom and that they needed more ongoing and regular IWB training. A summary of this entire chapter will be given in the following chapter.

Chapter 6 : CONCLUSION

6.1 Introduction: Outline of the Chapter

The current study provided original information concerning teaching outcomes relating to the IWB in Saudi primary schools, including both private and state schools, in terms of teachers' views towards the IWB and the vocabulary teaching strategies that can be used with it. This final chapter summarises the key findings of the current study. It also highlights the pivotal and essential areas to discuss pertaining to the requirements of exploiting this tool and the activities, methods and strategies that were employed in relation to vocabulary.

Firstly, this chapter gives a brief introduction, followed by presenting a summary of the study in section 6.2. The significance of the study is discussed in section 6.3, highlighting where the findings show originality and make an important contribution to the literature. The implications and recommendations of this study are presented in section 6.4. The limitations and the reflections on the study are discussed in sections 6.5 and 6.6, respectively.

6.2 Study Summary

The present research was intended to explore Saudi English teachers' views about the use of the IWB, and the vocabulary strategies that were being implemented through this tool in primary schools in Saudi Arabia. Firstly, the question of how teachers perceive the IWB in teaching English vocabulary was addressed. Secondly, teachers' views on the drawbacks of the IWB were explored, along with the differences between groups of teachers concerning their IT knowledge, and the IWB skills when teaching English vocabulary. Thirdly, the features of the IWB were considered to identify how they assist the provision of a range of vocabulary teaching methods; examples of these methods include classroom engagement, vocabulary involvement, vocabulary strategies and activities.

Three complementary frameworks underpinned the study design and data analysis. Teachers' beliefs and practices were explored from the standpoint of Borg's (2003) work exploring language teachers' cognition and mental lives; in other words, the process or study by which we know teachers' knowledge, thoughts, and beliefs and how these relate to what they do in classrooms. Vocabulary teaching strategies were examined from the perspective of the Levels of Processing Hypothesis introduced by Craik and Lockhart (1972), which outlines principles for vocabulary acquisition and retention, supplemented by the Involvement Load Hypothesis of Laufer and Hulstijn (2001), suggested three components for additional vocabulary involvement: need, search, and evaluation. "Social-Cultural Theory" (Vygotsky, 1978) guided the exploration of the classroom environment and how teachers scaffold learning from a low to a high level through the use of IWB and how students work in tasks with experts (e.g., teachers, parents or excellent peers). Specifically, I looked at the context when students have assistance to undertake problem-solving or tasks as a first stage, and subsequently are able to complete these tasks or activities individually and independently in the next. Social-Cultural Theory also focussed on interpersonal skills, where children receive a large amount of support and assistance from knowledgeable individuals such as teachers.

This study used an exploratory multiple case study mixed-method approach. This mixed-method approach was the principal methodological strength of this study, which brought the benefit of triangulating the tools of survey, observation and interview. Furthermore, using mixed methods enabled me to undertake a thorough analysis of teachers stated and actual use of the IWB, and also to provide rich and detailed data on individual teachers. The research proceeded in two phases. In the first phase, a survey was distributed to approximately 500 EL teachers, from which 319 responses were received, using both online Google Form and hard copies of the survey questions. In the second phase, four classroom observations, each of six teachers at three different private and three different state primary schools, were conducted using an observation schedule as well as video and audio recordings. In addition, face-to-face interviews with each of the six teachers were conducted in order to collect more in-depth information about their perceptions and to support the classroom observation data.

The use of a case study approach allowed me to probe and analyse a wide range of the IWB's features and vocabulary teaching strategies in considerable depth. For the quantitative analysis, frequencies and descriptive statistics were computed to give an overview of teachers' reported use of the IWB and their attitudes towards it. Spearman Rank Order correlations and Mann-Whitney U-tests were then employed in order to explore the relationships between key variables and whether different groups of respondents reported different perceptions and uses of the IWB. Teachers' perceptions and uses of the IWB were then further explored through a qualitative analysis of the interviews and the classroom observations, along with the open-ended questions in the survey.

Teachers' views towards the IWB tool were generally positive in relation to improving their students' motivation and engagement and in remembering new vocabulary, along with improvements in their students' participation in lessons and scaffolding their level of knowledge and development. During the classroom observations, teachers used and applied different teaching vocabulary strategies and activities when the IWB was used such as semantic mapping, collocations, key method, and so on. The teachers in private schools used the IWB as their main tool during of their lessons to a greater extent than teachers in the state schools, and indeed maintained interactivity with their students for most of their lessons. Overall, the results of classroom observations and interviews showed both private and state school teachers hold positive beliefs about the use of the IWB in relation to presenting and teaching different vocabulary strategies and activities.

The question about teachers' perceptions of, and stated use, of the IWB looks at what teachers believe about the use of the IWB in their teaching practices, which links to Borg's (2003) work that explored language teachers' cognition and mental approaches. As shown in the survey, teachers frequently made use of various teaching strategies, as facilitated through the use of the IWB in classrooms. On the whole, teachers frequently used the IWB to deliver vocabulary strategies, teaching, for instance, collocations, word parts and mnemonic techniques. However, according to the survey's responses, the majority of the teachers tended not to use the IWB when teaching semantic mapping and supplying different tasks (e.g., vocabulary games). To answer the question about the actual use of the IWB in teaching, during the classroom observations, several teaching methods and activities were seen to have been applied with the use of the IWB such as semantic mapping, keyword methods, word part

technique, collocations, guessing from context, and online dictionaries, as well as other audio and video activities.

In answer to the question about the training or support that Saudi primary teachers received in the use of the IWB, the participants who completed the survey and were interviewed believed that teachers should be provided with regular and ongoing training courses in the use of the IWB in their lessons. EL teachers in private schools, unlike in state schools, seemed to receive sufficient ICT and the IWB training, as per the results of the interviews. Private school teachers felt that having adequate and ongoing training helped them to apply different vocabulary methods and activities using the IWB.

The question about the relationship between teacher variables (IT skills, ICT training courses, IELTS levels, qualifications and teachers' experiences) and their perceptions and stated use of the IWB was intended to determine what teachers thought and believed about the IWB, and how this related to various competencies. Positive attitudes seemed prevalent among teachers towards the use of the IWB when teaching vocabulary, despite the different range of correlations, from strong, moderate to weak.

The responses to the two open questions in the questionnaire were completed by 52 out of 319 participants. These responses revealed various teaching strategies, methods and techniques (SMT). The two open-ended questions on the questionnaire were as follows: (1) what were the teaching strategies that were not listed on the questionnaire, and (2) what were the most important teaching strategies that were listed in the questionnaire. Four groups of activities emerged from the responses to the two open-ended questions, namely *active learning, group work, brainstorming,* and *memory games* activities, each of which included sub-activities. Memory game activities were the most preferable activities among teachers. This includes mind word or puzzle games, guessing games, words with pictures, word parts, and the mnemonic technique with more than half of the responses suggesting this should be listed in the survey. Additionally, in answer to the second question, just under half of the teachers felt *memory games* were very important.

Most of the findings of the current study were in agreement with other research studies where most teachers expressed positive attitudes towards the use of the IWB when teaching vocabulary through the use of its various visual and audio features. The study

also showed that the teachers had positive attitudes about the ability of the IWB to increase classroom engagement, encouragement, motivation, participation, self-confidence, and attention span of their students during lessons. Teachers expressed their belief in the facility of the tool to present useful teaching techniques and methods. The quantitative data also indicated that teachers use many different teaching strategies, as depending on the level of their training in relation to using diverse features of the IWB.

Chapter 4 discussed several areas of research and gave an overview of teachers' perceptions relating to the importance of the use of the IWB when teaching English vocabulary strategies. It showed how the aims, theoretical frameworks, research questions and the tools of the current study were related to each other. It also showed how teachers used the IWB to assist them in helping their students to acquire the necessary knowledge and master sufficient vocabulary to be able to understand, communicate with others, and express their thoughts. Overall, the chapter presented the current implementation of ICT in classrooms and teachers' perceptions towards it when teaching. ICT includes different kinds of technologies, one of which is the IWB.

6.3 Contribution of the Study

The present study has contributed to the understanding of both Saudi teachers' attitudes towards, and actual use of, the IWB in the Saudi context. While other studies have shown that teachers are positive about the use of the IWB, almost none have investigated how the IWB is used in practice in the classroom in relation to specific teaching strategies. In the current study, this led to important questions being raised about the nature of the IWB in relation to changing and improving teachers' practices and teaching pedagogy and increasing students' vocabulary retention. Therefore, the findings would be of interest in the further investigation of the impact of this tool on changing teachers' pedagogy and helping them to augment their students' vocabulary memorisation. Perhaps one of the most important contributions the present study makes to the field of educational technology for language learning is the vital link it highlights between training in ICT and the development of language teaching pedagogy. Throughout the study, the participating teachers emphasised this was the key factor that allowed them to make full use of the technology. As mentioned previously, relatively little is known about how teachers actually use the IWB, how they perceive it as a teaching tool, and the relationship between perception and use, and

key teacher variables. Understanding these issues is important in terms of informing the development of the future training offered to teachers in the use of the IWB.

6.4 Limitations of the Current Study

There were some limitations that might be taken into consideration in any future research. One limitation was that the study was conducted on a large scale, considering the quantitative phase, but with fewer participants for the qualitative phase. This was mainly due to time restrictions, as the original intention was to include eight EL teachers and eight classes at eight different schools, but this proved to be too difficult. Another limitation is the fact that the study focussed only on teachers, where it would be worth including students' views as well. This is because the focus of the main study considered the views of the teachers only, even though future studies could include the children's perspective as well.

The third limitation of this study was that it focussed on just two age groups, 11- and 12-year-olds, whereas more than three age groups would be preferable. This is because I thought I would gain too much data if I included another age group. Another reason is that the 10-year-old age group have a much easier and basic English curriculum in comparison to the 11- and 12-year-old age groups. Therefore, this might have required teaching methods, which might affect the focus of the study. The fourth limitation was holding one interview with each teacher after the four classroom observations, where it would be worth conducting six interviews, where each should be completed after each observation, where teachers would be much better able to remember what they did in the classroom.

6.5 Implications and Recommendations

The current study provides a number of ideas, the consideration of which gave rise to the following recommendations for future work.

6.5.1 Implications for Theory: Examining Language Teachers' Cognitions

The current study has shown how some Saudi teachers think about the IWB and how they use the IWB when teaching English vocabulary. The study has highlighted the importance of understanding teachers' backgrounds and the consideration of any contextual factors in exploring how teachers' beliefs influence their practice. Applying theories related to perceptions and beliefs might lead to understanding how teachers

176

tackle issues that might arise in classrooms when they make little use of the IWB, despite its availability in the classroom. Moreover, understanding teachers' perceptions can perhaps help to understand why some teachers refrain from using certain features of the IWB rather than merely using it as a presentation tool via PowerPoint.

Teachers in this study expressed positive beliefs regarding the use of the IWB. Additionally, by exploring what teachers know, think and believe about the use of the IWB and what teaching English vocabulary strategies, methods and activities might be used with this tool, it may be possible to gain an overall picture of the importance of teachers' perceptions and attitudes in teaching practice. The current study has shown that applying these theoretical frameworks (teacher cognition research, social-cultural theory and levels of processing hypothesis theory) to the analysis of teachers' practices in the classroom can lead to useful recommendations regarding how new technology should be implemented to teach vocabulary. The study has shown these are useful when looking at this area of research and would be used in future studies.

6.5.2 Implications for Practice: Exploring Teachers' Use of the IWB in Teaching Vocabulary

The study suggested that teachers should have more training in relation to the use of the IWB in classrooms owing to an associated lack of confidence, insufficient IT skills, and few or none having attended IT training courses. The study suggested that those teachers who were competent to use this tool implemented and used a larger number of both its features and vocabulary teaching strategies. The study also showed that teachers believe that the IWB can effectively serve different learning approaches such as visually (through presenting videos and pictures), aurally (through sounds and music), and kinaesthetically (through physical contact with the board). As found through the classroom observations, teachers who were trained in ICT tended to use more varied teaching methods than those with less developed ICT skills. This is important because adequate and regular training in technology can build self-confidence in its use in teaching practice in an appropriate manner. Additionally, continuous technology training for teachers will facilitate a successful learning environment (Williams, Atkinson, Cate, & O'Hair, 2008). Similarly, Taiwo (2009) stated that there were significant differences between teachers' attitudes towards the use of technology in teaching, and the trained teachers showed greater satisfaction than untrained teachers with reference to the use of technology.

6.5.3 Recommendations for Future Research

Insofar as the current study is about teachers' perceptions of the use of the IWB when teaching English vocabulary and what vocabulary teaching strategies are used with this tool. Further experimental studies should be carried out; for example, a vocabulary memory test using the IWB, or an experimental study including pre-tests and post-tests, where teachers deliver teaching vocabulary strategies with and without the use of the IWB. In addition to this, future studies might include a test that examines the impact of the IWB on teaching in general and vocabulary in particular. Another suggestion is that of including a test of vocabulary involvement with and without the IWB, where researchers can test the effects of the IWB in terms of whether it has a powerful impact on vocabulary teaching and learning, along with retention, or otherwise. Lastly, an attempt could be made to identify the differences when teachers present vocabulary strategies using the IWB before and after sufficient ICT training in order to find out if the IWB has an influence on teaching and learning vocabulary for both teachers and students. As the qualitative aspect of this study included a relatively limited sample of participants, that is, only six teachers, future studies should involve more participants in interviews and in observation of both teachers and students. Further investigation and experimentation into examining the impact of the IWB when teaching language vocabulary is strongly recommended.

6.6 Reflections

The PhD journey represents an essential change to my life with respect to enriching my knowledge in research in general, and in my expertise and areas of interest in particular, as well as improving my EL and gaining an understanding of a new culture. My expectations, prior to commencing and setting out on the voyage of my studies, were to make steady and ongoing progress without encountering the kind of barriers that might impede my academic achievements. A challenge I encountered during my PhD journey was to have to change the focus of my study at an early stage and choose another topic, which took time to decide. However, being a PhD researcher allowed me to develop my research and data analysis skills, the ability to read and write critically, as well as improve my interpersonal and public speaking skills thanks to taking part in various national and international conferences, such as BAAL, BERA, the 21st Century Academic Forum Conference at Harvard and Clute. My written and spoken language have also improved considerably during the four years of my studies. In addition to this, my qualitative and quantitative skills have been enhanced, including

the use of software such as NVivo and the SPSS statistical analysis tools. I have also attended more than 35 Reading Researcher Development Programme (RRDP) training courses at the University of Reading and have boosted, and ameliorated issues with, my pedagogical skills.

6.7 Concluding Remarks

In conclusion, the present study would hope research and teachers devote and pay increased attention to the teaching and learning of vocabulary.

REFERENCES

Abdulla, A. M. (2012). *Exploring secondary teachers' perception towards teaching intercultural competence in English language classrooms in Bahrain* (Doctoral dissertation, University of Exeter, Exeter, UK) retrieved from https://ore.exeter.ac.uk/repository/handle/10036/3688

Abuhmaid, A. (2014). Teachers' perspectives on interactive whiteboards as instructional tools in four Jordanian schools. *Contemporary Educational Technology*, *5*(1), 73-89. doi:10.30845/aijss

Ageel, M. (2011). The ICT proficiencies of university teachers in Saudi Arabia: A case study to identify challenges and encouragements. *Hummingbird University of Southampton's Doctoral Research Journal,2*(1),55-60

Al-Abed Al-Haq, F., & Smadi, O. (1996). The status of English in the Kingdom of Saudi Arabia (KSA) from 1940-1990. In J. A. Fishman, A. W. Conrad, & A. Rubel-Lopez (Eds.), *Post-imperial English: Status change in former British and American colonies* (pp. 457-484). Berlin, German: Mouton de Gruyter.

Al-Asmari, A. M., & Rabb Khan, M. S. (2014). E-learning in Saudi Arabia: Past, present and future. *Near and Middle Eastern Journal of Research in Education, 2*(13), 1-11. doi: org.10.5339/nmejre.2014.2

Al-Braik, M. (2007). Performance of KFU English major students. *Scientific Journal of King Faisal University, 8*(2),677–647

Al-Darayseh, A. A. (2014). The Impact of using explicit/implicit vocabulary teaching strategies on improving students' vocabulary and reading comprehension. *Theory and Practice in Language Studies,4*(6),1109-1118. doi:10.4304/tpls.4.6.1109-1118

Al-Fuhaid, M. R. (2004). *Vocabulary learning strategies: an empirical study of their use and evaluation by Saudi EFL learners majoring in English* (Doctoral dissertation, Durham University).

180

Al-Harbi, H. (2014). Towards successful implementation of ICT in education. In *The 2014 WEI International Academic Conference Proceedings, 2014 Vienna, Austria,14*(15),33-46.doi:westeastinstitute.com/proceedings/2015-vienna-presentationons

Al-Issa, A., & Dahan, L. S. (2011). Global English and endangered Arabic in the United Arab Emirates. *Global English and Arabic: Issues of Language, Culture, and Identity*, *31*(3), 1-22. doi:10.3726/978-3-0353-0120-5/3

Al-Jardani, K. S. S. (2013). *Developing a framework for English language curriculum evaluation in Oman* (Doctoral dissertation, University of Malaya) retrieved from https:// studentsrepo.um.edu.my/5734/

Al-Maini, Y. (2011). Using technology in EFL in Saudi Arabia. *Literacy Information and Computer Education Journal (LICEJ)*, *2*(3),477-480. doi:10.20533/licej.2040.2589.2011.0066

Al-Seghayer, K. (2011). *English teaching in Saudi Arabia: Status, issues, and challenges*. Jeddah, Saudi Arabia: Hala.

Al-Seghayer, K. (2014). The four most common constraints affecting English teaching in Saudi Arabia. *International Journal of English Linguistics*, *4*(5),17-26. dio:10.5539/ijel.v4n5p17

Al-Shabbi, A. (1989). *An investigation study of the practical preparation in EFL teacher preparation programs in colleges of education in the Saudi Arabia.* (Unpublished PhD thesis). University of Wales, Cardiff, UK.

Albugami, S. S., & Ahmed, V. (2015). Towards successful implementation of ICT in Saudi schools. *International Journal of Education and Development Using Information and Communication Technology* *11*(1),36-54.doi: 10.4324/9780203400197

Alfaki, I. M., & Khamis, A. H. A. (2018). Difficulties facing teachers in using interactive whiteboards in their classes. *American International Journal of Social Science,3*(2), 163-158. doi:10.30845/aijss

Alghamdi, A. (2015). An investigation of Saudi teachers' attitudes towards IWBs and their use for teaching and learning in Yanbu primary schools in Saudi Arabia. *International Journal of Arts and Sciences*, *8*(6), 539-554. doi:1944-6934

Alghamdi, A., & Higgins, S. (2015). Investigating how teachers in primary schools in Saudi Arabia were trained to use interactive whiteboards and what their training needs were. *International Journal of Technical Research and Applications, Special Issue*, *30*(15),1-10. doi:23.208163/ijtra

Alhabahba, M. M., Pandian, A., & Mahfoodh, O. H. A. (2016). English language education in Jordan: Some recent trends and challenges. *Cogent Education*, *3*(1), 1-14. doi:org.10.1080/2331186X.2016.1156809

Alibali, M. (2006). Does visual scaffolding facilitate students' mathematics learning? Evidence from early algebra. *Retrieved February*, *13*, 2016.

Allen, K. P. (2010). Classroom management, bullying, and teacher practices. *Professional Educator*, *34* (1), 1-15. doi:files.eric.ed.gov/fulltext/EJ988197

Allen, V. F. (1983). *Techniques in teaching vocabulary*. New York, NY, USA: Oxford University Press.

Almadhour, B. (2010). *The integration of information and communication technology into secondary technology teachers' pedagogy in New Zealand*. (Unpublished Master's Thesis). Auckland University of Technology, New Zealand.

Almalki, G., & 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 Application,* *3*(10),1-198.doi:2156-5570/ijacsai.thesai.org

Almulla, M. (2017). *An investigation of cooperative learning in a Saudi high school: A case study on teachers' and students' perceptions and classroom practices.*

(Doctoral dissertation, University of Leicester, School of Education, Leicester, UK). Retrieved from https://lra.le.ac.uk/handle/2381/29248

Alsaif, A., & Milton, J. (2012). Vocabulary input from school textbooks as a potential contributor to the small vocabulary uptake gained by English as a foreign language learner in Saudi Arabia. *The Language Learning Journal*, *40*(1), 21-33. doi: org.10.1018/09571736.2012.658221

Alshahrani, M. (2016). A brief historical perspective of English in Saudi Arabia. *Journal of Literature, Languages and Linguistics,26*(16),43-47. doi:2422/8435/iiste.org

Alshmrany, S., & Wilkinson, B. (2017). Factors influencing the adoption of ICT by teachers in primary schools in Saudi Arabia teachers' perspectives of the integration of ICT in primary education. *International Journal of Advanced Computer Science and Applications*, *8*(12), 143-156. doi:2156-5570/ijacsai.thesai.org

Altınok, Ş. İ. (2000). *Teaching vocabulary using collocations versus using definitions in EFL classes* (Doctoral dissertation, Bilkent University, Ankara, Turkey). Retrieved from http://hdl.handle.net/11693/18208

Alwazzan, M. (2012). *Enhancing collaborative learning through interactive whiteboards in primary schools in Saudi Arabia*. (Unpublished master's dissertation). University of Birmingham, Birmingham, UK.

An, D., & Carr, M. (2017). Learning styles theory fails to explain learning and achievement: Recommendations for alternative approaches. *Personality and Individual Differences*, *116*(17), 410-416. doi.org.10.1016/j0paid.2017.04.0500191-8869

Anderson, N. J. (2005). L2 strategy research. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning*. New York, NY, USA: Routledge

Andon, N., & Eckerth, J. (2009). Chacun à son gout? Task-based L2 pedagogy from the teacher's point of view. *International Journal of Applied Linguistics*, *19*(3), 286-310. doi:org.idpproxy.reading.acuk/101111/j.1473-4192.2009.00240.x

Atkinson, R. C., & Shiffrin, R. M. (1968). Human memory: A proposed system and its control processes. *The Psychology of Learning and Motivation*, *2*(19), 89-195. doi:10.1016/s0079-7421(08)60422-3

Attride-Stirling, J. (2001). Thematic networks: An analytic tool for qualitative research. *Qualitative Research*, *1*(3), 385-405. doi:qrj.sagepub.com/cgi/content/abstract/1/3/385

Avillion, A. E. (2009). *Learning styles in nursing education: Integrating teaching strategies into staff development*. Marblehead, MA: HCPro.

Aytaç, T. (2013). Interactive whiteboard factor in education: Students points of view and their problems. *Educational Research and Reviews*, *8*(20),1907-1915. doi:10.5897/ERR2013.1595

Baek, Y., Jong, J., & Kim, B. (2008). What makes teachers use technology in the classroom? Exploring the factors affecting facilitation of technology with a Korean sample. *Computers and Education, 50*(8),224-234. doi:10.1016/j.compedu.2006.05.002

Baghdadi, A. (1985). *The educational start in the Kingdom of Saudi Arabia*. Jeddah: Ashuruq Publishing House.

Bahadur, G. K., & Oogarah, D. (2013). Interactive whiteboard for primary schools in Mauritius: An effective tool or just another trend? *International Journal of Education and Development Using Information and Communication Technology*, *9* (1),19-35. doi:1814/0556/ijedict.dec.uwi.edu/

Bakadam, E., & Asiri, M. J. (2012). Teachers' perceptions regarding the benefits of using the interactive whiteboard (IWB): The case of a Saudi intermediate school. *Procedia-Social and Behavioural Sciences, 64*,179-185. doi:10.1016/j.sbspro.2012.11.021

Balcı, Ö., & Çakır, A. (2012). Teaching vocabulary through collocations in EFL classes: The case of Turkey. *International Journal of Research Studies in Language Learning*, *1*(1), 21-32. doi:10.5861/ijrs11.2012.v1i1.31

Baran, B. (2010). Experiences from the process of designing lessons with interactive whiteboard: Assure as a road map. *Contemporary Educational Technology*, *1*(4), 367-380. doi: dergipark.gov.tr/cet/issue/25719/271396

Barcroft, J. (2009). Strategies and performance in intentional L2 vocabulary learning. *Language Awareness*, *18*(1),74-89.doi: org/10.1080/09658410802557535

Barnard, M. (2010). *What is framework*?. (Unpublished master's dissertation). University of Oxford, Oxford, UK. Available at http://onlineqda.hud.ac.uk/movies/ESRC_RMF_2010/index.php#Part2 (Accessed: 9 July 2012).

Basturkmen, H., Loewen, S., & Ellis, R. (2004). Teachers' stated beliefs about incidental focus on form and their classroom practices. *Applied Linguistics Oxford Academic*, *25*(2), 243-272. doi:org/10.1093/applin/25.2.273

Beauchamp, C., & Thomas, L. (2009). Understanding teacher identity: An overview of issues in the literature and implications for teacher education. Cambridge Journal of Education, 39(2), 175–189.

Beauchamp, G., & Kennewell, S. (2010). Interactivity in the classroom and its impact on learning. *Computers and Education*, *54*(3),759-766.doi: org/10.1016/j.compedu.2009.09.033

Beck, I., McKeown, M. G., & Kucan, L. (2002). *Bringing words to life: Robust vocabulary development* (2nd ed.). New York, NY, USA: The Guilford Press.

Beijaard, D., Meijer, P. C., & Verloop, N. (2004). Reconsidering research on teachers' professional identity. Teaching and Teacher Education, 20(2), 107–128.

Belson, W. A. (1986). *Validity in survey research: With special reference to the techniques of intensive interviewing and progressive modification for testing and constructing difficult or sensitive measures for use in survey research: A report*. Aldershot, UK: Gower Publishing Company.

Bernard, H. R. (2002). Research methods in anthropology: Qualitative and quantitative approaches (3rd ed.). Walnut Creek, CA: Alta Mira Press.

Bidaki, M. Z., & Mobasheri, N. (2013). Teachers' views of the effects of the interactive white board (IWB) on teaching. *Procedia-Social and Behavioural Sciences*, *83*(13), 140-144. doi:101016/j.sbspro.2013.06.027

Biggam, J. (2011). *Succeeding with your master's dissertation: A step-by-step handbook* (2nd ed.). Derby, UK: McGraw-Hill Education.

Blachowicz, C., & Ogle, D. (2001). *Reading comprehension: Strategies for independent learners* (2nd ed.). New York, NY, USA. The Guilford Press.

Bonwell, C. C., & Eison, J. A. (1991). *Active learning: Creating excitement in the Classroom*. Washington, DC, USA: Wiley.

Borg, S. (1998). Teachers' pedagogical systems and grammar teaching: A qualitative study. *TESOL Quarterly*, *32*(1), 9−38. doi:jstor.org/stable/3587900

Borg, S. (2003). Teacher cognition in language teaching: A review of research on what language teachers think, know, believe, and do. *Language Teaching, 36*(2), 81-109. doi:org/10.1017/S0261444803001903

Borg, S. (2006). *Teacher cognition and language education: Research and practice.* London, UK: Bloomsbury Publishing.

Borg, S., & Burns, A. (2008). Integrating grammar in adult TESOL classrooms. *Applied Linguistics*, *29*(3), 456-482. doi:org/10.1093/applin/amn020

Bowling, A. (2009) *Research methods in health: Investigating health and health services* (2nd ed.). Maidenhead, UK: Open University Press.

Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. London, UK: Thousand Oaks, CA: Sage Publications.

Breen, M. P., Hird, B., Milton, M., Oliver, R., & Thwaite, A. (2001). Making sense of language teaching: Teachers' principles and classroom practices. *Applied Linguistics*, *22*(4), 470-501. doi:org/10.1093/applin/22.4.470

Bruner, J. (1978). The role of dialogue in language acquisition. In A. Sinclair, R. J. Jarvelle, & W. J. M. Levelt (Eds.), *The child's concept of language* (pp.241-256). New York, USA: Springer-Verlag.

Bruner, J. (2000). *Learners and pedagogy: Folk pedagogies* (2nd ed.). New Delhi, India: Paul Chapman Publishing Ltd.

Bryman, A. (2012). *Social research methods* (4th ed.). Oxford, UK: Oxford University Press.

Bucholtz, M., & Hall, K. (2005). Identity and interaction: a socio-cultural linguistic approach. Discourse Studies, 74, 585—614.

Burns, A. (1996). Starting all over again: From teaching adults to teaching beginners. In Freeman, D ., Freeman, D. J., Richards, J. C., & Swan, M (Eds.), *Teacher learning in language teaching* (154-177). Cambridge, UK: Cambridge University Press.

Burns, R. B. (1997). *Introduction to research methods* (3rd ed.). London, UK: Addison Wesley Longman.

Burr, V. (2015). *Social constructionism* (3rd ed.). New York, NY, USA: Routledge.

Busch, D. (2010). Pre-service teacher beliefs about language learning: The second language acquisition course as an agent for change. *Language Teaching Research*, *14*(3), 318-337. doi:10.1177/1362168810365239

Carter, R., & McCarthy, M. (1988). *Vocabulary and language teaching.* New York, NY, USA: Routledge.

Catalan, R. M. (2003). Sex differences in L2 vocabulary learning strategies. *International Journal of Applied Linguistics*, *13*(1), 54-77.doi: org/10.1111/1473-4192.00037

Check, J. W., & Schutt, R. K. (2012). *Research methods in education*. Boston, USA: Thousand Oaks, CA: Sage Publications.

Coady, J., & Huckin, T. (1997). *Second language vocabulary acquisition: A rationale for pedagogy*. Cambridge, UK: Cambridge University Press.

Coffield, F., Moseley, D., Hall, E., & Ecclestone, K. (2004). *Should we be using learning styles? What research has to say to practice*. London, UK: Learning and Skills Research Center.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (5th ed.). London, UK: Routledge.

Cohen, L., Manion, L., & Morrison, K. (2013). *Research methods in education* (7th ed.). London, UK: Routledge.

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (4th ed.). San Francisco, USA: Sage Publications.

Craik, F. I. M., & Lockhart, R. S. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning and Verbal Behaviour,* 11, 671-684. doi:org/10.1016/S0022-5371(72)80001-X

Creswell, J. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). California, USA: SAGE Publications, Incorporated.

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). California, USA: SAGE Publications.

Crotty, M. (2003). *The foundations of social research: Meaning and perspective in the research process* (2nd ed.). Australia: SAGE Publications.

Cunningham, A. E., & Stanovich, K. E. (1998). The impact of print exposure on word recognition. In J.L. Metsala & L. C. Ehri (Eds.), *Word recognition in beginning*

literacy (pp.235-262). Mahwah NJ, USA: Lawrence Erlbaum Associates Publishers.

Dashti, A. (2015). The role and status of the English language in Kuwait: How is English used as an additional language in the Middle East? *English Today*, *31*(3), 28-33. doi:10.1017/S026607841500022X

Dawam, S. R. M., Ahmad, K. A., Jusoff, K., Tajuddian, T., Elias, S. J., & Mansor, S. W. (2009). The use of ICT in public and private institutions of higher learning, Malaysia. *Computer and Information Science*, *2*(4), 122. doi:ccsenet.org/journal.html

Day, C., & Kington, A. (2008). Identity, well-being and effectiveness: The emotional contexts of teaching. Pedagogy, Culture & Society, 16(1), 1-23.

DeKeyser, R. M. (2003). Implicit and explicit learning. In C. Doughty & M. Long (Eds.), *The handbook of second language acquisition* (pp. 313–348). Oxford, UK: Blackwell.

Denscombe, M. (2003). *The good research guide: For small-scale social research projects* (2nd ed.). Maidenhead, UK: Open University Press.

Denscombe, M. (2007). *The good research guide for small-scale social research projects* (3rd ed.). Maidenhead, UK: Open University Press.

Denton, C., Bryan, D., Wexler, J., Reed, D., & Vaughn, S. (2007). *Effective instruction for middle school students with reading difficulties.* Baltimore, Maryland, USA: Paul H. Brookes Publishing Company.

DeVellis, R. F. (2016). *Scale development: Theory and applications* (2nd ed.). California, USA: Paul H. Brookes Publishing Company.

Devine, T. (2000). English for autonomy, autonomy in English: Students' and teachers' beliefs about autonomy in language learning. Proceedings of the 13th Annual EA Education Conference, 67-77.

Diener, E., & Crandall, R. (1978). *Ethics in social and behavioural research* . Chicago, USA: University of Chicago Press.

Donato, R. (1994). Collective scaffolding in second language learning. *In: Lantolf, J. P. Vygotsky* (Eds.), *Vygotskian approaches to second language research*. New Jersey, USA: Ablex Publishing Corporation.

Dörnyei, Z. (2009). The antecedents of task behaviour: A dynamic systems account of task motivation. The *3ʳᵈ Biennial International Conference on Task-Based Language Teaching,1*(2), 1-4

Doughty, C., & Williams, J. (1998). *Focus on form in classroom second language acquisition*. Cambridge, UK: Cambridge University Press.

Dubin, F., & Olshtain, E. (1993). Predicting word meanings from contextual clues: Evidence from L1 readers. *Second Language Reading and Vocabulary Learning*, 181-202

Ebrahimain, A., & Nabifar, N. (2015). The effect of three vocabulary learning strategies of word-part, word-card and context-clue on Iranian high school students' immediate and delayed English vocabulary learning and retention. *The Journal of Applied Linguistics*, *8*(17), 42-63

Eckstein, H. (2000). Case study and theory in political science. In *Case study method*, (pp.119-164). London, UK: SAGE

Ellili-Cherif, M. (2014). Integrated language and content instruction in Qatar independent schools: Teachers' perspectives. *Teacher Development - An International Journal of Teachers' Professional Development*, *18*(2), 211-228. doi: org/10.1080/13664530.2014.900819

Ellis, E. S. (1993). Integrative strategy instruction: A potential model for teaching content area subjects to adolescents with learning disabilities. *Journal of Learning Disabilities*, *26*(6), 358-383. doi: org/10.1177/002221949302600602

Ellis, N. C. (1994). Introduction: Implicit and explicit language learning - An overview. In N. C. Ellis (Ed.), *Implicit and explicit learning of languages* (pp. 1-31). San Diego, CA: Academic Press.

Ellis, N. C. (2008). Implicit and explicit knowledge about language. In N. H. Hornberger & P.A Duff (Eds.), *Encyclopaedia of language and education* (pp.1878-1890). Philadelphia, USA: Springer USA.

Ellis, R. (1997). *SLA research and language teaching*. New York, NY, USA: Oxford University Press.

Ellis, R. (2004). 21 Individual Differences in Second Language Learning. In A. Davies & C. Elder (Eds.), *The handbook of applied linguistics*, (pp.525). Victoria, Australia: Blackwell Publishing.

Ellis, R. (2009). *Implicit and explicit knowledge in second language learning, testing and teaching*. Ontario, Canada: Multilingual Matters.

Elyas, T. (2008). The attitude and the impact of American English as a global language within the Saudi education system. *Novitas-Royal*, 2(1), 28-48

Elyas, T., & Picard, M. (2010). Saudi Arabian educational history: Impacts on English language teaching. *Education, Business and Society: Contemporary Middle Eastern Issues, 3*(2), 136 -145. doi:org/10.1108/17537981011047961

Enayati, T., Modanloo, Y., & Kazemi, F. S. M. (2012). Teachers' attitudes towards the use of technology in education. *Journal of Basic and Applied Scientific Research*, *2*(11), 10958-10963. doi:2090-4304.textroad.com

Ender, A. (2014). Implicit and explicit cognitive processes in incidental vocabulary acquisition. *Applied Linguistics*, *37*(4), 536-560

Esterberg, K. G. (2002). *Qualitative methods in social research*. Massachusetts, USA: McGraw-Hill.

Farrell, T. (2011). Exploring the professional role identities of experienced ESL teachers through reflective practice. System, 66(39), 54–62.

Faruk, S. (2013). English language teaching in Saudi Arabia: A world system perspective. *Scientific Bulletin of the Politehnica University of Timişoara Transactions on Modern Languages, 12*(1-2), 73-80. doi:org/10.1093/applin/amu051

Feuer, M. J., Towne, L., & Shavelson, R. J. (2002). Scientific culture and educational research. *Educational Researcher*, *31*(8), 4-14

Fletcher, S., Potts, J., & Ballinger, R. (2008). The pedagogy of integrated coastal management. The Geographical Journal, 174(4), 374–386.

Frith, H., & Gleeson, K. (2004). Clothing and embodiment: Men managing body image and appearance. *Psychology of Men and Masculinity*, *5*(1), 40. doi:10.1037/1524.9220.5.1.40

Gao, X., & Ma, Q. (2011). Vocabulary learning and teaching beliefs of pre-service and in-service teachers in Hong Kong and mainland China. *Language Awareness*, *20*(4), 327-342. doi:10.1080/09658416.2011.579977

Gashan, A. K., & Alshumaimeri, Y. A. (2015). Teachers' attitudes toward using interactive whiteboards in English language classrooms. *International Education Studies,8*(12), 176. doi:10.5539/ies.v8n12p176

Golombek, P. R. (1998). A study of language teachers' personal practical knowledge. *TESOL Quarterly*, *32*(3), 447−64. doi:jstor.org/stable/3588117

Golonka, E. M., Bowles, A. R., Frank, V. M., Richardson, D. L., & Freynik, S. (2014). Technologies for foreign language learning: A review of technology types and their effectiveness. *Computer Assisted Language Learning*, *27*(1), 70-105. doi:org/10.1080/09588221.2012.700315

Gómez, P. A. U. (2012). *The effects of using realia on concrete vocabulary learning in fourth grade at Inem High School*. (Master's Dissertation, *Universida De Magaanes*, Punta Arenas, Chile). Retrieved from http://www.umag.cl/biblioteca/tesis/paredes_oyarzo_2008.pd

Gorard, S., & Taylor, C. (2004). *Combining methods in educational and social research*. New York, NY,USA: McGraw-Hill Education.

Gorder, L. (2008). A study of teacher perceptions of instructional technology integration in the classroom. *Delta Pi Epsilon Journal, 50*(2), 63-76

Graham, S., Santos, D., & Francis-Brophy, E. (2014). Teacher beliefs about listening in a foreign language. *Teaching and Teacher Education*, *40*(14), 44-60. doi: org/10.1016/j.tate.2014.01.007

Greene, J. C. (2007). *Mixed methods in social inquiry*. San Francisco, USA: John Wiley & Sons.

Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis*, *11*(3), 255-274. doi:jstor.org/stable/1163620

Griebel, U., & Oller, D. K. (2012). Vocabulary learning in a Yorkshire terrier: Slow mapping of spoken words. *PLOs One*, *7*(2),1-10. doi:org/10.1371/journal.pone.0030182

Guba, E. G. (1990). *The paradigm dialog*. Thousand Oaks, San Francisco, CA, USA: SAGE Publications, Inc.

Gyeong, J. A., & Myung, S. Y. (2008). Critical thinking and learning styles of nursing stu- dents at the baccalaureate nursing program in Korea. Contemporary Nurse, 29(1), 100–109.

Hammond, J. (2001). *Scaffolding: Teaching and learning in language and literacy education*. Marrickville, New South Wales, Australia: Primary English Teaching Association.

Hancock, D. R. (2006). *Doing case study research*. New York, NY, USA: Teachers College Press.

Harste, J. C., & Burke, C. L. (1977). A new hypothesis for reading teacher research: Both the teaching and learning of reading is theoretically based. *Reading: Theory, Research and Practice*, 32-40

Hashemi, M. R., & Gowdasiaei, F. (2005). An attribute-treatment interaction study: Lexical-set versus semantically-unrelated vocabulary instruction. *RELC Journal*, *36*(3), 341-361. doi:10.1177/0033688205060054

Hayati, A. M., & Pour-Mohammadi, M. (2005). A comparative study of using bilingual and monolingual dictionaries in reading comprehension of intermediate EFL students. *The Reading Matrix*, *5*(2), 61-66. doi:semanticscholar.org

Hayes, T. (2010). Interactive whiteboards for teacher training. *ScholarSpace,690*(10), 1-12. doi:hdl.handle.net/10125/115398

Heid, U., & Gouws, R. H. (2006). A model for a multifunctional dictionary of collocations. *Atti del XII Congresso Internazionale di Lessicografia: Torino, 6*(9), 979-988. doi: dialent.unirioja.es/servlet/articulo? codigo=4685330/8f2d/

Hennink, M., Hutter, I., & Bailey, A. (2010). *Qualitative research methods*. Thousand Oaks, California, USA: SAGE Publications.

Henry, A. (2008). *The relationship of age, gender, and personality style with the level of technology implementation at the university level* (Doctoral Dissertation). Available from ProQuest Dissertation and Thesis Database. (UMI No. 3324558).

House, J., & Lévy-Tödter, M. (2009). Language, authority and face in academic English lingua france advising sessions. In J. House & D. Meer (Eds.), Hochschulkommunikation in der Diskussion (pp. 157–178). Frankfurt: Peter Lang.

Hudson, P., & Miller, C. (1997). The treasure hunt: Strategies for obtaining maximum response to a postal survey. *Evaluation and Research in Education*, *11*(2), 102-112. doi:10.1080/09500799708666920

Hulstijn, J. (2002). Towards a unified account of the representation, processing and acquisition of second language knowledge. *Second Language Research*, *18*(3), 193-223. doi:10.1191/0267658302sr207oa

Hulstijn, J. H. (1997). Second language acquisition research in the laboratory: Possibilities and limitations. *Studies in Second Language Acquisition, 19*(2), 131-143.
doi:dare.ubvu.vu.nl/bitsream/handle/1871/22993/105037.pdf?sequence=1

Hulstijn, J. H. (2005). Theoretical and empirical issues in the study of implicit and explicit second-language learning: Introduction. *Studies in Second Language Acquisition*, *27*(2), 129-140. doi:10.1017/S0272263105050084

Hüseyin, Ö. Z. (2014). Teachers' and students' perceptions of interactive whiteboards in the English as a foreign language classroom. *TOJET: The Turkish Online Journal of Educational Technology*, *13*(3),156-177. doi:files.eric.ed.gov/fulltext/EJ1034243

Isman, A., Abanmy, F. A., Hussein, H. B., & Al Saadany, M. A. (2012). Saudi secondary school teachers attitudes' towards using interactive whiteboard in classrooms. *Turkish Online Journal of Educational Technology-TOJET*, *11*(3), 286-296. doi:files.eric.ed.gov/fulltext/EJ989220

Johnson, D. D., & Pearson, P. D. (1984). *Teaching reading vocabulary*. New York, NY, USA: Holt Rinehart & Winston.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, *33*(7), 14-26. doi:10.3102/0013189X033007014?casa_token=G1NRNHJE7AYAAAAA

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. doi:10.1177/1558689806298224

Jones, S. J. (2017). Technology in the Montessori classroom: Teachers' beliefs and technology use. *Journal of Montessori Research*, *3*(1), 16-29. doi:2378-3923journals.ku.edu/jmr

Jwaifell, M., & Gasaymeh, A. M. (2013). Using the diffusion of innovation theory to explain the degree of English teachers' adoption of interactive whiteboards in the modern systems school in Jordan: A case study. *Contemporary Educational Technology*, *4*(2), 138-149. doi:files.eric.ed.gov/fulltext/EJ1105530

Kambouri, M. (2011). *Early-years teaching of science in Cyprus: Appreciation of young children's preconceptions* (Doctoral dissertation, University of Warwick, Coventry, UK). Retrieved from http://www.wrap.warwick.ac.uk/49669/

Karsenti, T. (2016). The interactive whiteboard (IWB): Uses, benefits, and challenges. *Library and Archives Canada, ISBN,2,*1-51.doi:SG/SM/9070-PI/1535

Katwibun, H. (2014). Using an interactive whiteboard in vocabulary teaching. *Procedia-Social and Behavioural Sciences*, *116*(14), 674-678. doi:org/101016/j.sbspro.2014.01.278

Kayi, H. (2012). Teaching speaking: Activities to promote speaking in a second language. *Новейшие научные достижения*, *12*(12). doi: rusnauka.com/pedagogic/2_104902

Kennewell, S., & Morgan, A. (2003). Student teachers' experiences and attitudes towards using interactive whiteboards in the teaching and learning of young children. *Australian Computer Society, Inc, 34*(3),65-69.

Khair, S. A. M. (2017). *Investigating the Use of Vocabulary Learning Strategies among English Major Students* (Doctoral dissertation, Sudan University of Science and Technology).

Khamesipour, M. (2015). The effects of explicit and implicit instruction of vocabulary through reading on EFL learners' vocabulary development. *Theory and Practice in Language Studies*, *5*(8), 1620-1627. doi:org/10.17507/tpls.0508.11

Khan, I. (2012). Teaching and learning of English: An exploratory study of difficulty and strategies. *British Journal of Social Sciences*, *1*(1), 76-93

King, J. A., Morris, L. L., & Fitz-Gibbon, C. T. (1987). *How to assess program implementation* (5th ed.). California, Los Angeles, USA: SAGE Publications.

Kirkness, A. (2004). Lexicography. In A. Davies & C. Elder (Eds.), *The handbook of applied linguistics* (pp.25-53). Oxford, UK: Blackwell Publishing Ltd.

Kneen, J. E. (2014). *An exploration of how interactive whiteboard technology is being utilised in secondary English classrooms* (Doctoral dissertation, School of Education). Retrieved from https://lra.le.ac.uk/handle/2381/29248

Kolb, D. A. (1984). Experiential learning: Experience as the source of learning and development. Englewood Cliffs, NJ: Prentice-Hall.

Korte, W. B., & Hüsing, T. (2006). Benchmarking access and use of ICT in European schools 2006: Results from head teacher and a classroom teacher surveys in 27 European countries. *ELearning Paper*, *2*(1),1-6.doi:1887-1542elearningpapers

Kozma, R. B. (2003). Technology and classroom practices: An international study. *Journal of Research on Technology in Education*, *36*(1), 1-14. doi:org/10.1080/15391523.2003.10782399

Kozulin, A. (1990). The concept of regression and Vygotskian developmental theory. *Developmental Review*, *10*(2), 218-238. doi:org/10.1016/0273-2297(90)90011-R

Krause, K., Bochner, S., & Duchesne, S. (2003). Intelligence and motivation. In S. Duchesne & A. Mcmaugh (Eds.), *Educational psychology: For learning and teaching* (pp.197-229). Melbourne, Australia: Cengage.

Kuder, S. J. (2017). Vocabulary instruction for secondary students with reading disabilities: An updated research review. *Learning Disability Quarterly,40*(3),155-164.doi:org/10.1177/0731948717690113

Kulikova, O. (2015). Vocabulary learning strategies and beliefs about vocabulary learning: a study of beginning university students of Russian in the United States.

Kumar, R. (2005). *Research methodology: A step-by-step guide for beginners* (3rd ed.). London, UK: SAGE Publications.

Kumar, S., & Phrommathed, P. (2005). *Research methodology* (3rd ed.). London, UK: Springer USA.

Kunter, M., Baumert, J., & Köller, O. (2007). Effective classroom management and the development of subject-related interest. *Learning and Instruction*, *17*(5), 494-509. doi:org/10.1016/j.learninstruc.2007.09.002

Lai, H. J. (2010). Secondary school teachers' perceptions of interactive whiteboard training workshops: A case study from Taiwan. *Australasian Journal of Educational Technology*, *26*(4). doi:org/10.1080/09687769.2010.529314

Lam, Y. (2000). Technophilia vs. technophobia: A preliminary look at why second-language teachers do or do not use technology in their classrooms. *Canadian Modern Language Review*, *56*(3), 389-420. doi:10.3138/cmlr.56.3.389

Lantolf, J. P. (2000). *Sociocultural theory and second language learning*. Oxford, UK: Oxford University Press.

Lau, B. T., & Sim, C. H. (2008). Exploring the extent of ICT adoption among secondary school teachers in Malaysia. *International Journal of Computing and ICT Research, 2*(2), 19-36. doi:1996-1065.ijcir.org

Laufer, B. (1997). What's in a word that makes it hard or easy? Intralexical factors affecting the difficulty of vocabulary acquisition. In N. Schmitt & M. McCarthy (Eds.), *Vocabulary: Description, acquisition and pedagogy* (140-155). Cambridge, UK: Cambridge University Press.

Laufer, B., & Hulstijn, J. (2001). Incidental vocabulary acquisition in a second language: The construct of task-induced involvement. *Applied Linguistics, 22*(1), 1–26. doi: org/10.1093/applin/22.1.1

Li, Q. (2013). Incidental and intentional vocabulary learning: A case study of meaning-given, meaning-inferred with MC, and pure meaning-inferred methods on the

retention of L2 word meanings in a Chinese university. *Education Journal*, *2*(4), 138-148. doi:10.11648/j.edu.20130204.16

Lincoln, Y. S. (1995). Emerging criteria for quality in qualitative and interpretive research. *Qualitative Inquiry, 1*(3),275-289. doi:10.1177/107780049500100301

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. California, USA: SAGE Publications.

Litwin, M. S. (1995). *How to measure survey reliability and validity*. California, USA: SAGE Publications.

Louis, C., Lawrence, M., & Keith, M. (2007). *Research methods in education* (7th ed.). New York, USA: Routledge.

Ma, Q., & Kelly, P. (2006). Computer assisted vocabulary learning: Design and evaluation. *Computer Assisted Language Learning*, *19*(1), 15-45. doi:org/10.108/09588220600803998

Mahboob, A., & Elyas, T. (2014). English in the Kingdom of Saudi Arabia. *World Englishes, 33(*1), 128–142. doi:10.1111/weng.12073

Marzban, A., & Kamalian, K. I. M. I. A. (2013). Effects of implicit versus explicit vocabulary instruction on intermediate EFL learners' vocabulary knowledge. *ELT Voice*, *3*(6), 84-95. doi:2321-7170.ELTVoices

Mastropieri, M. A., & Scruggs, T. E. (2017). *The inclusive classroom: Strategies for effective differentiated instruction* (6th ed.). South Carolina, USA: Pearson Education.

Mathews-Aydinli, J., & Elaziz, F. (2010). Turkish students' and teachers' attitudes toward the use of interactive whiteboards in EFL classrooms. *Computer Assisted Language Learning*, *23*(3), 235-252. doi:org/10.1080/09588221003776781

Maurisa, S. (2013). Using Guessing as a word-solving strategy in Handling: The unknown words to improve students' vocabulary interpretation of a text. *Jurnal Pendidikan Humaniora*, *1*(1), 93-101. doi:org/10.17977/jph.v1i1.3982

Maxwell, J. A. (2012). *Qualitative research design: An interactive approach: An interactive approach* (3rd ed.). California, USA: Thousands Oak, CA: SAGE Publications.

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation* (4th ed.). San Francisco, USA: John Wiley & Sons.

Miller, D., & Glover, D. (2002). The interactive whiteboard as a force for pedagogic change: The experience of five elementary schools in an English education authority. *Information Technology in Childhood Education Annual*, *2002*(1), 5-19. doi:dl.acm.org/citation.1522-8185

Ministry of Education (MoE) (2002). *General directorate of curricula (2002): English for Saudi Arabia.* Jeddah: Saudi Arabia: Almadina Almunawara Press.

Ministry of Finance (2015). Kingdom of Saudi Arabia. Recent economic developments and highlights of fiscal years 1435/1436 (2014) & 1436/1437 (2015) .The actual outcome of Fiscal Year (FY) 1435/1436 (2014), the 1435/1436 (2014) budget, and recent economic developments in the Kingdom of Saudi Arabia. The Ministry of Finance in Saudi Arabia.

Mirzaii, M. (2012). Implicit vs. explicit vocabulary learning: Which approach serves long-term recall better? *3L: Language, Linguistics, Literature*, *18*(2).1-12

Mitchell, B., & Alfuraih, A. (2017). English language teaching in the Kingdom of Saudi Arabia: Past, present and beyond. *Mediterranean Journal of Social Sciences*, *8*(2), 317. doi:org/10/5901/mjss.2017.v8n2p317

Mitchell, R., Myles, F., & Marsden, E. (2013). *Second language learning theories* (2nd ed.). London, UK: Routledge.

Mizumoto, A., & Takeuchi, O. (2009). Examining the effectiveness of explicit instruction of vocabulary learning strategies with Japanese EFL university

students. *Language   Teaching   Research*, *13*(4),   425-449.
doi:10.1177/1362168809341511

Mok, W. E. (1994). Reflecting on reflections: A case study of experienced and inexperienced ESL teachers. *System ScienceDirect*, *22*(1), 93−111. doi:10.1016/0346-251X(94)90043-4

Moore, M., & Hofman, J. E. (1988). Professional identity in institutions of higher learning in Israel. Higher Education, 17(1), 69–79.

Morgan, D. L. (1998). Practical strategies for combining qualitative and quantitative methods: Applications to health research. *Qualitative Health Research*, *8*(3), 362-376. doi:10.1177/104973239800800307

Mustafina, A. (2016). Teachers' attitudes toward technology integration in a Kazakhstani secondary school. *International Journal of Research in Education and Science*, *2*(2), 322-332. doi:IJRES.2148-9955

Nakahama, Y., Tyler, A., & Van Lier, L. (2001). Negotiation of meaning in conversational and information gap activities: A comparative discourse analysis. *TESOL quarterly*, *35*(3), 377-405. doi:org/10.2307/3588028

Nassaji, H. (2007). Schema theory and knowledge-based processes in second language reading comprehension: A need for alternative perspectives. *Language Learning*, *57*, 79-113. doi:10.1111/0023-8333.00189

Nation, I. S. (2001). *Learning vocabulary in another language*. Cambridge, UK: Cambridge University Press.

Nation, I. S. P. (1990). *Teaching and learning vocabulary.* New York, NY, US: Newbury House.

Nation, I. S. P. (2013). *Learning vocabulary in another language* (2nd ed.). Cambridge, UK: Cambridge University Press.

Nation, I. S. P., & Coady, J. (1988). *Vocabulary and language teaching*. London, UK: Routledge.

Nation, I. S. P., & Wang, K. (1999). Graded readers and vocabulary. *Reading in A Foreign Language, 12*(2), 355–380. doi:victoria.ac.nz-Graded-reader

Nation, I. S. P., & Webb, S. (2011). Content-based instruction and vocabulary learning. *Handbook of Research in Second Language Teaching and Learning, 2*(11), 631-644. doi:Routledge.978-0-203-83650-2

Nation, P., & Newton, J. (1997). Teaching vocabulary. In M. H. Long & J. C. Richards & J. Coady & T. Huckin (Eds.), *Second language vocabulary acquisition. The Cambridge applied linguistics series.* (pp. 238–254). New York: Cambridge University Press.

Nattinger, J. R., & DeCarrico, J. S. (1992). *Lexical phrases and language teaching.* Oxford UK: Oxford University Press.

Niblock, T. (2006). *Saudi Arabia: Power, legitimacy, and survival.* New York, NY, US: Routledge.

Nikmah, U. H. (2018). Teaching vocabulary using realia and using word card to the tenth grade students of MA AL- Faizin Bangsri Jepara. *ETERNAL (English Teaching Journal)*, *5*(2).

Nunan, D. (1992). The teacher as decision-maker. In J. Flowerdew, M. Brock & S. Hsia (Eds.), *Perspectives on second language teacher education* (pp. 135−65). Hong Kong: City Polytechnic.

Nunan, D. (1999). *Second language teaching and learning.* Michigan, US: Heinle & Heinle Publishers.

Nural, S. (2014). *EAP teachers 'cognitions and practices in teaching lexis in two Turkish private universities: an exploratory qualitative study* (Doctoral dissertation, University of Leicester). Retrieved from https://lra.le.ac.uk/handle/2381/28574

Oancea, A. (2014). Teachers' professional knowledge and state-funded teacher education: A (hi) story of critiques and silences. *Oxford Review of Education*, *40*(4), 497-519. doi: org/10.1080/03054985.2014.939413

Olson, D. R., & Bruner, J. S. (1996). Folk psychology and folk pedagogy. In D. R. Olson & N. Torrance (Eds.), *The handbook of education and human development: New models of learning, teaching and schooling* (pp. 9-27). Cambridge, UK: Blackwell.

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.* (Doctoral of philosophy PhD Thesis, University of Exeter). Retrieved from https://ore.exeter.ac.uk/reppository/handle/10036/69537

Öz, H. (2014). Teachers' and students' perceptions of interactive whiteboards in the English as a foreign language classroom. *Turkish Online Journal of Educational Technology-TOJET*, *13*(3), 156-177. doi:files.eric.ed.gov/fulltext/EJ134243

Pallant, J. (2013). *SPSS survival manual* (5th ed.). Maidenhead, UK: McGraw-Hill Education.

Paltridge, B., & Phakiti, A. (2015). *Research methods in applied linguistics: A practical resource*. London, UK: Bloomsbury Publishing.

Pashler, H., McDaniel, M., Rohrer, D., & Bjork, R. (2008). Learning styles: Concepts and evidence. *Psychological Science in the Public Interest*, *9*(3), 105-119. doi:10.1111/j.1539-6053.2009.01038.x

Patton, M. Q. (2002). Qualitative research & evaluation methods. Thousand Oaks, CA: Sage Publications, Incorporated. Retrieved from http://www.google.com.ep.fjernadgang.kb.dk/books?hl=da&lr=&id=FjBw2oi8EI4C&oi=fnd&pg=PP23&dq=Patton,+M.+2002.+Qualitative+research+and+evaluation+methods.+3rd+ed.+Thousand+Oaks,+CA:+Sage.&ots=buq1iGODyJ&sig=FxOz35ErI8iLajHj2AQ43Sgbnr Q

Peacock, M. (2001). Match or mismatch? Learning styles and teaching styles in EFL. *International Journal of Applied Linguistics*, *11*(1), 1-20. doi:10.1111/1473-4192.00001

Phipps, S., & Borg, S. (2007). Exploring the relationship between teachers' beliefs and their classroom practice. *The Teacher Trainer, 21*(3), 17-19. doi:10.1016/j.tate.2012.01.011

Pica, T., Kang, H. S., & Sauro, S. (2006). Information gap tasks: Their multiple roles and contributions to interaction research methodology. *Studies in Second Language Acquisition*, *28*(2), 301-338. doi:10.1017/S027226310606013X

Piribabadi, A., & Rahmany, R. (2014). The Effect of the keyword method and word-list method instruction on ESP vocabulary learning. *Journal of Language Teaching and Research,5*(5). doi:10.4304/jltr.5.5.1110-111.

Poland, B. D. (2002). Transcription quality. In J.F. Gubrium & J.A. Holstein (Eds.), *Handbook of interview research: Context and method. Inside interviewing: New lenses, new concerns* (pp.267-287). London, UK: SAGE Publications.

Pratt, D. (1988). Andragogy as a relational construct. Adult Education Quarterly, 38(3),160-181.

Punch, K. (2005). *Introduction to social research: Quantitative and qualitative approaches* (2ⁿᵈ ed.). London, UK: SAGE Publications.

Punch, K. F. (2013). *Introduction to social research: Quantitative and qualitative approaches* (3ʳᵈ ed.). London, UK: SAGE Publications.

Ramalingam, S. (2012). The use of ICT among English language teachers at a selected secondary school. *The Second International Congress on Interdisciplinary Research and Development at Bangkok, Thailand.*

Raman, K., & Yamat, H. (2014). Barriers teachers face in integrating ICT during English lessons: A case study. *Malaysian Online Journal of Educational Technology*, *2*(3), 11-19. doi: files.eric.ed.gov/fulltext/EJ1086402

Redouane, R. (2011). Assessing instructional methods in L2 French vocabulary acquisition: Guessing-from-context method versus a word-list method. *Economics, Management and Financial Markets*, *6*(2). doi:1938-212X

Richards, J. C. (1998). *Beyond training: Perspectives on language teacher education*. Cambridge, UK: Cambridge University Press.

Richards, J. C., & Lockhart, C. (1994). *Reflective teaching in second language classrooms*. Cambridge, UK: Cambridge University Press.

Richards, K. (2003). *Qualitative inquiry in TESOL*. New York, NY, US: Springer.

Robson, C. (2002). *Real world research: A resource for social scientists and practitioner-researchers* (2nd ed.). Oxford, UK: Blackwell Publishers.

Rosa, E., & O'Neill, M. D. (1999). Explicitness, intake, and the issue of awareness: Another piece to the puzzle. *Studies in Second Language Acquisition*, *21*(4), 511-556. doi:org/10.1017/S0272263199004015

Rosenbaum, C. (2001). A word map for middle school: A tool for effective vocabulary instruction. *Journal of Adolescent* and *Adult Literacy*, *45*(1), 44-49. doi:jstor.org/stable/40007630

Rubin, J., & Thompson, I. (1994). *How to be a more successful language learner: Toward learner autonomy* (2nd ed.). Boston, MA: Heinle & Heinle.

Russell, M., O'Dwyer, L., Bebell, D., & Tao, W. (2007). How teachers' uses of technology vary by tenure and longevity. *Journal of Educational Computing Research, 37*(4), 393-417. doi:org/10.2190/EC.37.4.d

Sachs, J. (2005). Teacher education and the development of professional identity: Learning to be a teacher. In *Connecting policy and practice: Challenges for teaching and learning in schools and universities* (pp. 5-21). Routledge, Taylor and Francis Group.

Saltan, F., Arslan, K., & Gök, A. (2010). Teachers' acceptance of interactive white boards: A case study. *Society for Information Technology & Teacher Education International Conference, 10*(5) 2360-2365.doi:10.1111/J.1467-8535.2007.00700

Sapsford, J., & Abbott, P. (1996). *Ethics, politics and research* (2nd ed.). London: SAGE Publications.

Savin-Baden, M. (2013). Spaces in between us: A qualitative study into the impact of spatial practice when learning in Second Life. *London Review of Education*, *11*(1), 59-75. doi:org/10.1080/14748460.2012.761820

Sawyer, L. M. (2017). *Perceptions and practice: The relationship between teacher perceptions of technology use and level of classroom technology integration.* (Doctoral of philosophy PhD Thesis, Southeastern University). Retrieved from https://firescholars.seu.edu/cgi/viewcontent.cgi?referer=https://scholar.google .co.uk/scholar?hl=en&as_sdt=0%2C5&q=Percept

Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics, 11*(2),129- 158. doi:org/10.1093/1applin/11.2.129

Schmitt, N. (2008). Review article: Instructed second language vocabulary learning. *Language Teaching Research, 12*(3),329-363. doi:10.1177/1362168808089921

Schwartzman, H. B. (1993). *Ethnography in organizations*. London, UK: SAGE Publications.

Shehdeh, F. S. (2010). Challenges of teaching English in the Arab world: Why can't EFL programs deliver as expected? *Procedia Social and Behavioural Sciences, 2*(2), 3600-3604. doi:org/10.1016/j.sbspro.2010.03.559

Shifflet, R., & Weilbacher, G. (2015). Teacher beliefs and their influence on technology use: A case study. *Contemporary Issues in Technology and Teacher Education*, *15*(3), 368-394. doi:learntechlib.org/primary/p/147400/

Silverman, D. (1993). *Interpreting qualitative data: Methods for analysing talk, text, and interaction* (2nd ed.). London, UK: SAGE Publications.

Silverman, D. (2010). *Doing qualitative research: A practical handbook*. London, UK: SAGE Publications.

Smith, A. E., & Humphreys, M. S. (2006). Evaluation of unsupervised semantic mapping of natural language with Leximancer concept mapping. *Behaviour Research Methods, 38*(2), 262-279. doi:103758/BF03192778

Smith, H. J., Higgins, S., Wall, K., & Miller, J. (2005). Interactive whiteboards: Boon or bandwagon? A critical review of the literature. *Journal of Computer Assisted Learning, 21*(2), 91-101. doi:101111/j.1365-2729.2005.00117.x

Soleimani, H., & Esmaeili, M. M. (2012). The effect of explicit instruction of clustering new words on vocabulary learning of Iranian intermediate EFL learners through hyperlinks. *International Journal of Applied Linguistics and English Literature, 1*(2), 71-89. doi:10.7575/ijalcl.v.ln.2p.112

Spradley, J. P. (1979). The ethnographic interview. New York: Holt, Rhinehart & Winston. *LeCompte, MD (2000). Analyzing Qualitative Data. Theory into Practice, 39*(3), 146-156.

Stahl, S. A. (1999). Different strokes for different folks? A critique of learning styles. *American Educator, 23*(3), 27-31. doi:files.eric.ed.gov/fulltext/EJ598437

Stahl, S. A., & Vancil, S. J. (1986). Discussion is what makes semantic maps work in vocabulary instruction. *The Reading Teacher, 40*(1), 62-67. doi:jstor.org/stable/2019306

Sternberg, R. J., & Grigorenko, E. L. (2008). A capsule history of theory and research on styles. *Perspectives on Thinking, Learning, and Cognitive Styles,1*(1)1-21. doi:org.10.4324/9781410605986

Stone, C. A. (1998). The metaphor of scaffolding: Its utility for the field of learning disabilities. *Journal of Learning Disabilities*, *31*(4), 344-364. doi:org/10.11777/002221949803100404

Storkel, H. L., & Hoover, J. R. (2011). The influence of part-word phonotactic probability/neighborhood density on word learning by preschool children varying in expressive vocabulary. *Journal of Child Language*, *38*(3), 628-643. doi:10.1017/S0305000910000176

Taasoobshirazi, G., & Carr, M. (2009). A structural equation model of expertise in college physics. *Journal of Educational Psychology,101*(3),630–643. doi:psycnet.apa.org/search

Taiwo, S. (2009). Teachers' perception of the role of media in classroom teaching in secondary schools. *The Turkish Online Journal of Educational Technology*, *8*(1),1-9. doi:1059/7069/aace.org/pubs/jtate/default.htm

Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches*. London, UK: Thousand Oaks, SAGE Publications.

Tashakkori, A., & Teddlie, C. (2010). *Sage handbook of mixed methods in social & behavioural research* (2nd ed.). London, UK: Thousand Oaks, SAGE Publications.

Thomas, G. (2013). *How to do your research project: A guide for students in education and applied social sciences* (2nd ed.). London, UK: Thousand Oaks, SAGE Publications.

Ting, Y. L., Tai, Y., & Lin, H. Y. (2015). The Use of interactive whiteboard in English vocabulary acquisition and learning effect on students with different proficiency Level. *International Journal of Information and Communication Technology Education (IJICTE)*, *11*(2), 41-56. doi:4018/ijicte.2015040104

Toghyani Khorasgani, A., & Khanehgir, M. (2017). Teaching new vocabulary to Iranian young FL learners: Using two methods total physical response and keyword

method. *International Journal of Languages' Education and Teaching*, *5*(1), 90-100. doi:1018298/ijlet.1729

Tudor, I. (1998). Rationality and rationalities in language teaching. *System SienceDirect ELSEVIER*, *26*(3), 319-334. doi:org.10.1016/S0346/251X(98)00021/9

Türel, (2010). An interactive whiteboard student survey: Development, validity and reliability. *Computers and Education*, *57*(4), 2441-2450. doi:org/10.1016/j.compedu.2011.07.005

Türel, Y. K., & Demirli, C. (2010). Instructional interactive whiteboard materials: Designers' perspectives. *Procedia-Social and Behavioural Sciences*, *9*(10), 1437-1442. doi:10.1016/j.sbspro.2010.12.346

Türel, Y. K., & Johnson, T. E. (2012). Teachers' belief and use of interactive whiteboards for teaching and learning. *Educational Technology and Society*, *15* (1), 381–394. doi:1463/4522/j-ets.net/

Unal, S., & Ozturk, I. H. (2012). Barriers to ITC integration into teachers' classroom practices: Lessons from a case study on social studies teachers in Turkey. *World Applied Sciences Journal*, *18*(7), 939-944. doi:10.5829/idosi.wasj.2012.18.071243

UrRahman, M. M., & Alhaisoni, E. (2013). Teaching English in Saudi Arabia: Prospects and challenges. *Academic Research International*, *4*(1), 112. doi:2223/9944/journals.savap.org.pk

VanPatten, B., & Williams, J. (2014). *Theories in second language acquisition: An introduction* (2nd ed.). New York , USA: Routledge.

Verenikina, I., Wrona, K., Jones, P., & Kervin, L. (2010). Interactive whiteboards: Interactivity, activity and literacy teaching. *World Conference on Educational Media and Technology,* 2605-2614. doi:978-1-880094-81-5/LearnTechLib

Vygotsky, L. (1978). Interaction between learning and development. *Readings on the Development of Children*, *23*(3), 34-41. doi:oerafrica.org/sites/default/files/

Walliman, S. R. (2005). *Your Research project: A step-by-step guide for the first-time researcher* (2nd ed.). London, UK: SAGE Publications.

Walters, J. (2004). Teaching the use of context to infer meaning: A longitudinal survey of L1 and L2 vocabulary research. *Language Teaching*, *37*(4), 243-252. doi:10.1017/s0261444805002491

Wei, Z. (2014). Does teaching mnemonics for vocabulary learning make a difference? Putting the keyword method and the word part technique to the test. *Language Teaching,19*(1),43-69.doi:org/10.1177/1362168814541734

Wellington, J. J. (2000). *Educational research: Contemporary issues and practical approaches* (2nd ed.). London, UK: Bloomsbury.

Wenger, E. (1998). Communities of practice: Learning, meaning, and identity. Cambridge: Cambridge University Press.

Wertsch, J. (1985). *Culture, communication, and cognition: Vygotskian perspectives*. Cambridge, UK: Cambridge University Press.

Williams, L. A., Atkinson, L. C., Cate, J. M., & O'Hair, M. J. (2008). Mutual support between learning community development and technology integration: Impact on school practices and student achievement. *Theory Into Practice*, *47*(4), 294-302. doi:10.1080/00405840802329219

Williams, R. (1985). Teaching vocabulary recognition strategies in ESP reading. *The ESP Journal*, *4*(2), 121-131. doi:org/10.1016/02272-2380(85)90015-0

Willingham, D. T. (2005). Do visual, auditory, and kinaesthetic learners need visual, auditory, and kinaesthetic instruction. *American Educator*, *29*(2), 31-35. doi:10.1038/npjscilearn.13.6

Wiseman, A. W., Alromi, N. H., & Alshumrani, S. A. (2014). *Education for a knowledge society in Arabian Gulf countries*. Bingley, UK: Emerald Group Publishing.

Wood, D., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry*, *17*(2), 89-100. doi.org/10.1111/j.1469-7610.1976.tb00381.x

Woods, D. (1996). *Teacher cognition in language teaching: Beliefs, decision-making and classroom practice*. Cambridge, UK: Cambridge University Press.

Wozney, L., Venkatesh, V., & Abrami, P. (2006). Implementing computer technologies: Teachers' perceptions and practices. *Journal of Technology and Teacher Education*, *14*(1), 173-207. doi:1059/7069/aace.org/pubs/jtate/default.htm

Wray, A. (2005). *Formulaic language and the lexicon*. Cambridge, UK: Cambridge University Press.

Yaghoubi, S. T., & Seyyedi, F. (2017). The effect of explicit and implicit teaching vocabulary on Iranian EFL learners vocabulary. *Studies in English Language and Education*, *4*(1), 15-25. doi:org/1024815/siele.v4i1.7001

Yin, R. K. (2013). Validity and generalization in future case stud evaluations. *Sage Journal*, *19*(3), 321-332. doi:org/10.1177/1356389013497081

Yin, Y. (2009). *Case study research: Design and methods* (4th ed.). California, USA: SAGE Publications.

Yoell, S. (2000). Investigating autonomy: A cultural consideration of learner training. URL: http://www.yoell.fsnet.co.uk/SLA%20ESSAY.htm [accessed March 12, 2006].

Yudt, K., & Columba, L. (2011). Interactive Whiteboards: A Tool for Enhancing Teaching and Learning. *National Teacher Education Journal*, *4*(2).

Zheng, S. (2012). Studies and suggestions on English vocabulary teaching and learning. *English Language Teaching*, *5*(5), 129-137. doi:org/10.5539/elt.v5n5p129

Zimmerman, C. B. (1997). Historical trends in second language vocabulary instruction. *Second language vocabulary acquisition*, 5-19.

Zuhur, S. (2011). *Saudi Arabia*. California, USA: ABC-CLIO, LLC.

Teacher information sheet

Research Project: Investigating Saudi English Teachers' Use and Perceptions of IWB when teaching vocabulary as a Foreign Language in English Classrooms at Saudi Primary Schools (aged 11 and 12 years old) – Jeddah, Saudi Arabia
Project supervisors: Professor Andy Goodwyn (a.c.goodwyn@reading.ac.uk) and Dr Maria Kambouri (m.kambouri@reading.ac.uk)
Project researcher: Mohammed Alshaikhi (m.h.i.alshaikhi@pgr.reading.ac.uk)

Dear teacher

I am writing to invite you to take part in a research study investigating the use of IWB (Interactive Whiteboards) from Saudi teachers when teaching English vocabulary to children aged between 11 and 12 years old. This study is of my doctoral studies at the Institute of Education, University of Reading (U.K.). The study will help us understand what the benefits of IWB and how to be used effectively when teaching vocabulary.

Why have I been chosen to take part?
You have been chosen to take part because you teach English in grade 5th and 6th in a primary school which is the age focus for this study. The Ministry of Education in Saudi Arabia and the Directorate of Education in Jeddah have already contacted your Head Teacher to get his consent for the school's participation. The parents and children will also be informed about the aim and the processes of the study aiming to gain their consent as well.

Do I have to take part?
It is entirely up to you whether you give permission to participate. You may also withdraw your consent to participation at any time during the project, without any repercussions, by contacting me through at m.h.i.alshaikhi@pgr.reading.ac.uk.

What will happen if I take part?
After receiving a consent letter from you, you will first be invited to complete an online or print questionnaire. I would then like visit your classroom to observe six different English lessons. This will happen during a period of eight weeks, between the 17th October and 28th December 2016. These observations will be audio and video recorded to support the data collection and analysis process. In addition, I would also like to conduct a face-to-face interview with you to allow us to discuss your perspectives regarding the use of IWB when teaching English vocabulary and your ideas of the best way to teach vocabulary. The interview will last approximately thirty-five minutes and will also be audio recorded to help the data analysis.

What are the risks and benefits of taking part?
The information given by participants in the study will remain confidential and will only be seen by the research team listed at the start of this letter. Neither you, the pupils, nor the school will be identifiable in any published report resulting from the study.

We anticipate that the findings of the study will be useful for understanding the ways in which teachers in Saudi employ IWBs when teaching English vocabulary and the strategies they use in the classroom when doing so. An electronic summary of the findings of the study can be made available to you by contacting me at m.h.i.alshaikhi@pgr.reading.ac.uk.

What will happen to the data?

Any data collected will be held in strict confidence and no real names will be used in this study or in any subsequent publications. The records of this study will be kept private. No identifiers linking you, the pupils or the school to the study will be included in any sort of report that might be published. Participants will be assigned a pseudonym which will be used at all times and in all records and reports. Research records will be stored securely in a locked filing cabinet and on a password-protected computer and only the research team will have access to the records. The data will be destroyed securely once the findings of the study are written up, after five years.

The anonymised results of the study will be presented at national and international conferences, and in written articles. If you are interested in reading the publications, I would be glad to share these with you if you provide me with your email contact.

What happens if I change my mind?

You can change your mind at any time without any repercussions by contacting me at m.h.i.alshaikhi@pgr.reading.ac.uk. If you change your mind after data collection has ended, the data obtained will not be used.

Who has reviewed the study?

This project has been reviewed following the procedures of the University Research Ethics Committee and has been given a favourable ethical opinion for conduct. The University has the appropriate insurances in place. Full details are available on request.
What happens if something goes wrong?

In the unlikely case of concern or complaint, you can contact me at or my supervisors.

Where can I get more information?

Please contact me if you would like any further information, by e-mailing me at:
m.h.i.alshaikhi@pgr.reading.ac.uk.

What do I do next?

We do hope that you will agree to your participation in the study. If you are happy to take part, please return the attached consent form to me as soon as possible.

Thank you for your cooperation and time.

Kind regards,
Mohammed Alshaikhi

Project: Investigating Saudi English Teachers' Use and Perceptions of IWB when teaching vocabulary as a Foreign Language in English Classrooms at Saudi Primary Schools (aged 11 and 12 years old) – Jeddah, Saudi Arabia

Teacher Consent Form

I have read the Information Sheet about the project and received a copy of it.
I understand what the purpose of the project is and what is required of me. All my questions have been answered.

Name of teacher: _____
Name of school: _____

Please tick as appropriate:

I consent to completing an online questionnaire   ☐
I consent to the observation of four English lessons taught by me   ☐
I consent to do a face-to-face recorded interview   ☐

Signed: _____

Date: _____

Thank you for your cooperation and time.

Yours sincerely,

Mohammed Alshaikhi

University of READING

Parent/carer information sheet

Research Project: Investigating Saudi English Teachers' Use and Perceptions of IWB when teaching vocabulary as a Foreign Language in English Classrooms at Saudi Primary Schools (aged 11 and 12 years old) – Jeddah, Saudi Arabia

Project supervisors: Professor Andy Goodwyn (a.c.goodwyn@reading.ac.uk) and Dr Maria Kambouri (m.kambouri@reading.ac.uk)

Project researcher: Mohammed Alshaikhi (m.h.i.alshaikhi@pgr.reading.ac.uk)

We would like to invite your child to take part in a research study about teaching English vocabulary to children aged between 11 and 12 years old.

What is the study?
The study is being conducted by the University of Reading and is funded by the Ministry of Education in Saudi Arabia and Saudi Cultural Bureau in London. The study aims to explore teachers' perspectives towards the use of IWB when teaching English vocabulary. It hopes to make recommendations regarding how we can best help learners to make progress in the early years of language learning. It will also help us understand what the benefits of IWB and how to be used effectively when teaching vocabulary.

Why has my child been chosen to take part?
The researcher will use audio and video recordings during the classroom observations and the focus will be on the teachers only. Children will only be involved when I explain the research to avoid causing any discomfort when I visit the classrooms.

Does my child have to take part?
It is entirely up to you whether your child participates. You may also withdraw your consent to participation at any time during the project, without any repercussions to you or your child, by contacting me through at m.h.i.alshaikhi@pgr.reading.ac.uk

What will happen if my child takes part?
Your child will not get involved but I will use audio and video recordings and your child's reaction and interaction during the lessons may be recorded, with your consent. The observations will take place during school time

If you agree to this, we will contact you again to arrange this.

What are the risks and benefits of taking part?
The information you and your child give will remain confidential and will only be seen by the research team listed at the start of this letter. Neither you, your child nor the school will be identifiable in any published report resulting from the study. Taking part will in no way influence the grades your child receives at school. Information about individuals will not be shared with the school.

We anticipate that the findings of the study will be useful for teachers in planning how they teach English. An electronic copy of the published findings of the study can be made available to you by contacting the Principal Researcher.

What will happen to the data?

        Any data collected will be held in strict confidence and no real names will be used in this study or in any subsequent publications. The records of this study will be kept private. No identifiers linking you, your child or the school to the study will be included in any sort of report that might be published. We will transcribe the recordings and anonymise them before analysing the results. Teachers will be assigned a number and will be referred to by that number for all recordings. Research records will be stored securely in a locked filing cabinet and on a password-protected computer and only the research team will have access to the records. The data will be destroyed securely once the findings of the study are written up, after five years. The results of the study will be presented at national and international conferences, and in written reports and articles.

Who has reviewed the study?

This project has been reviewed following the procedures of the University Research Ethics Committee and has been given a favourable ethical opinion for conduct. The University has the appropriate insurances in place. Full details are available on request.

What happens if I/ my child change our mind?

You/your child can change your mind at any time without any repercussions. During the research, your child can stop completing the activities at any time. If you change your mind after data collection has ended, we will discard your/your child's data.

What happens if something goes wrong?

In the unlikely case of concern or complaint, you can contact me at m.h.i.alshaikhi@pgr.reading.ac.uk or my supervisor Professor Andy Goodwyn (a.c.goodwyn@reading.ac.uk). If you change your mind after data collection has ended, the data obtained will not be used.

Where can I get more information?

If you would like more information, please contact me at m.h.i.alshaikhi@pgr.reading.ac.uk. We do hope that you will agree to your child's participation in the study and to your involvement in it. If you do, please complete the attached consent form and return it, sealed, in the envelope provided, to your child's English teacher.

  Thank you for your time.

Research Project: Investigating Saudi English Teachers' Use and Perceptions of IWB when teaching vocabulary as a Foreign Language in English Classrooms at Saudi Primary Schools (aged 11 and 12 years old) – Jeddah, Saudi Arabia

Parent/Carer Consent Form
I have read the Information Sheet about the project and received a copy of it.
I understand what the purpose of the project is and what is required of my child and me. All my questions have been answered.

Name of child: _____

Name of primary school: _____

Please tick as appropriate:

I consent to allow teachers to conduct the audio and video recordings of my child's class. ☐

Name of parent/carer: _____

Parent/carer postal address:
_____
_____
_____

Parent/carer telephone number (mobile preferred): _____

Signed: _____

Date: _____

Appendix (C): Children's Consent

Project

Information Sheet

Investigating Saudi English Teachers' Use and Perceptions of IWB when teaching vocabulary as a Foreign Language in English Classrooms at Saudi Primary Schools (aged 11 and 12 years old) – Jeddah, Saudi Arabia

This is a project that will help us understand the teachers' perspectives towers the use of Interactive Whiteboard (IWB) in teaching English vocabulary strategies, where your teacher can help you improve your vocabulary in English! We would like you to help us with the project by participating in the lesson as usual. We already have permission from your parents and the head teacher.

Researcher

Mohammed Alshaikhi
M.H.I.Alshaikhi@pgr.reading.ac.uk

Why have I been invited to take part?

Research Supervisors

Professor Andy Goodwyn
a.c.goodwyn@reading.ac.uk

Dr Maria Kambouri
m.kambouri@reading.ac.uk

University of Reading

You have been invited to take part because you are Attending the English lessons regularly and you are in the right age group (11-12). We think that you will enjoy the experience!

What happens next?

Your parents have been given a letter asking for their permission for you to take part in this project.

We will check with you before we do the observations to make sure that you are happy to help us with our project.

If you have any questions please speak to your English teacher.

Now that you know what we are planning to do would you like to take part at this study?

YES ☐

NO ☐

RE: Permission to Conduct Research Study

Dear Head teacher,

I am writing to request permission to conduct a research study at your institution. The study is entitled Investigating Saudi English Teachers' Use and Perceptions of IWB for teaching vocabulary in English as a Foreign Language Classrooms in Saudi Primary Schools (aged 11 and 12 years old) – Jeddah, Saudi Arabia , and the aim is to explore teachers' perspectives towards the use of the IWB when teaching English vocabulary.

I hope that you will allow me to recruit six male English language teachers who teach grade 5th and 6th from six schools to anonymously complete an online 4-page questionnaire and to be observed in six different English lessons, including audio and video recordings. This will happen during a period of eight weeks, between 17th October and 28th December2016. In addition, I would also like to conduct a face-to-face interview with the six teachers to allow us to discuss the usefulness of using the IWB when teaching English vocabulary, and your ideas of the best way to teach vocabulary. The interview will last approximately thirty-five minutes and will also be audio recorded to help the data analysis. Interested staff members, who volunteer to participate, will be given an information sheet and a consent form to be signed and returned to me at the beginning of the survey process.

If approval is granted, participants will complete the survey, and then they will be observed and interviewed in their own time and no costs will be incurred by either your school or the individual participants. All information collected will be kept strictly confidential (subject to legal limitations). In order to protect the anonymity of each participant, pseudonyms will be used to ensure participants cannot be identified and individual school names will not be used. All electronic data will be held securely in password protected files on a non-shared PC and all paper documentation will be held in locked cabinets in a locked office. In line with University policy, data generated by the study will be kept securely in paper or electronic form for a period of five years after the completion of the research project. This data may be used in future publications in appropriate academic journals and/or books. All participants will be able to have access to a copy of the published research on request.

Your approval to conduct this study will be greatly appreciated. If you agree, kindly reply to this email acknowledging your consent and permission for me to conduct this survey/study at your institution.

Yours sincerely,

Mohammed Alshaikhi

University of Reading
Institute of Education
Ethical Approval Form A (version May 2015)

Tick one:
Staff project: _____   PhD _✓ EdD _____

Name of applicant (s): Mohammed Hassan Alshaikhi

Title of project: Investigating Saudi English Teachers' Use and Perceptions of IWB when teaching vocabulary as a Foreign Language in English Classrooms at Saudi Primary Schools (aged 11 and 12 years old) – Jeddah, Saudi Arabia

Name of supervisor (for student projects): Pro Andy Goodwyn and Dr Maria Kambouri

Please complete the form below including relevant sections overleaf.

	YES	NO
Have you prepared an Information Sheet for participants and/or their parents/carers that:		
a) explains the purpose(s) of the project	YES	
b) explains how they have been selected as potential participants	YES	
c) gives a full, fair and clear account of what will be asked of them and how the information that they provide will be used	YES	
d) makes clear that participation in the project is voluntary	YES	
e) explains the arrangements to allow participants to withdraw at any stage if they wish	YES	
f) explains the arrangements to ensure the confidentiality of any material collected during the project, including secure arrangements for its storage, retention and disposal	YES	
g) explains the arrangements for publishing the research results and, if confidentiality might be affected, for obtaining written consent for this	YES	
h) explains the arrangements for providing participants with the research results if they wish to have them	YES	
i) gives the name and designation of the member of staff with responsibility for the project together with contact details, including email . If any of the project investigators are students at the IoE, then this information must be included and their name provided	YES	
k) explains, where applicable, the arrangements for expenses and other payments to be made to the participants	N/A	
j) includes a standard statement indicating the process of ethical review at the University undergone by the project, as follows:	YES	

221

'This project has been reviewed following the procedures of the University Research Ethics Committee and has been given a favourable ethical opinion for conduct'.			
k)includes a standard statement regarding insurance: "The University has the appropriate insurances in place. Full details are available on request".	YES		
Please answer the following questions			
1) Will you provide participants involved in your research with all the information necessary to ensure that they are fully informed and not in any way deceived or misled as to the purpose(s) and nature of the research? (Please use the subheadings used in the example information sheets on blackboard to ensure this).	YES		
2) Will you seek written or other formal consent from all participants, if they are able to provide it, in addition to (1)?	YES		
3) Is there any risk that participants may experience physical or psychological distress in taking part in your research?	NO		
4) Have you taken the online training modules in data protection and information security (which can be found here: http://www.reading.ac.uk/internal/imps/Staffpages/imps-training.aspx)?	YES		
5) Have you read the Health and Safety booklet (available on Blackboard) and completed a Risk Assessment Form to be included with this ethics application?	YES		
6) Does your research comply with the University's Code of Good Practice in Research?	YES		
	YES	NO	N.A.
7) If your research is taking place in a school, have you prepared an information sheet and consent form to gain the permission in writing of the head teacher or other relevant supervisory professional?	YES		
8) Has the data collector obtained satisfactory DBS clearance?			/
9) If your research involves working with children under the age of 16 (or those whose special educational needs mean they are unable to give informed consent), have you prepared an information sheet and consent form for parents/carers to seek permission in writing, or to give parents/carers the opportunity to decline consent?	YES		
10) If your research involves processing sensitive personal data[1], or if it involves audio/video recordings, have you obtained the explicit consent of participants/parents?	YES		
11) If you are using a data processor to subcontract any part of your research, have you got a written contract with that contractor which (a) specifies that the contractor is required to act only on			/

---

[1] Sensitive personal data consists of information relating to the racial or ethnic origin of a data subject, their political opinions, religious beliefs, trade union membership, sexual life, physical or mental health or condition, or criminal offences or record.

your instructions, and (b) provides for appropriate technical and organisational security measures to protect the data?			
12a) Does your research involve data collection outside the UK?	YES		
12b) If the answer to question 12a is "yes", does your research comply with the legal and ethical requirements for doing research in that country?	YES		
13a) Does your research involve collecting data in a language other than English?	YES		
13b) If the answer to question 13a is "yes", please confirm that information sheets, consent forms, and research instruments, where appropriate, have been directly translated from the English versions submitted with this application.	YES		
14a. Does the proposed research involve children under the age of 5?	NO		
14b. If the answer to question 14a is "yes": My Head of School (or authorised Head of Department) has given details of the proposed research to the University's insurance officer, and the research will not proceed until I have confirmation that insurance cover is in place.			
If you have answered YES to Question 3, please complete Section B below			

Please complete **either** Section A **or** Section B and provide the details required in support of your application. Sign the form (Section C) then submit it with all relevant attachments (e.g. information sheets, consent forms, tests, questionnaires, interview schedules) to the Institute's Ethics Committee for consideration. Any missing information will result in the form being returned to you.

A: My research goes beyond the 'accepted custom and practice of teaching' but I consider that this project has **no** significant ethical implications. (Please tick the box.)	/
Please state the total number of participants that will be involved in the project and give a breakdown of how many there are in each category e.g. teachers, parents, pupils etc. 500 teachers will receive the questionnaire; around 300 replies anticipated. 6 teachers will be interviewed and observed. 	
Give a brief description of the aims and the methods (participants, instruments and procedures) of the project in up to 200 words noting: 1. title of project 2. purpose of project and its academic rationale 3. brief description of methods and measurements 4. participants: recruitment methods, number, age, gender, exclusion/inclusion criteria	

5. consent and participant information arrangements, debriefing (attach forms where necessary)
6. a clear and concise statement of the ethical considerations raised by the project and how you intend to deal with then.
7. estimated start date and duration of project

Investigating Saudi English Teachers' Use and Perceptions of IWB when teaching vocabulary as a Foreign Language in English Classrooms at Saudi Primary Schools (aged 11 and 12 years old) – Jeddah, Saudi Arabia

This study aims to explore Saudi English Language primary teachers' attitudes towards the use of the Interactive Whiteboard (IWB) and to examine the different vocabulary strategies that are being used through the IWB. To these ends, the following research questions will be examined.

4. How do teachers perceive the IWB in terms of teaching English vocabulary?
   a. What are teachers' perceptions, and stated use, of the IWB?
   b. How is the IWB actually used in teaching?
   c. How much training/support have Saudi primary teachers received in the use of the IWB?
5. What is the relationship between teacher variables (IT skills, ICT training courses, IELTS levels, qualifications and teachers' experiences) and their perceptions and stated use of the IWB?

A mixed method approach will be employed to answer the research questions, including a survey of male English Language teachers (provided in electronic and paper format and distributed to around 500 teachers via a link emailed by primary school supervisory teachers, with additional hard copies delivered by the researcher as a follow-up), four classroom observations and semi-structured interviews with six teachers at three private and three state primary schools (teaching learners aged 11-12 years, and selected as volunteers through a final question on the questionnaire asking for interview participants). Interviews will be audio-recorded. Lesson observations will be supplemented with video/sound recording of the teacher only; the camera will focus only on the teachers, not the learners. Informed consent will be gained from the teachers, the parents of the pupils in each class, and the pupils themselves (please see Information Sheets).

The project will start in June 2016. Data collection will take around 3 months.

B: I consider that this project **may** have ethical implications that should be brought before the Institute's Ethics Committee.	No

Please state the total number of participants that will be involved in the project and give a breakdown of how many there are in each category e.g. teachers, parents, pupils etc.

Give a brief description of the aims and the methods (participants, instruments and procedures) of the project in up to 200 words.
1. title of project
2. purpose of project and its academic rationale
3. brief description of methods and measurements
4. participants: recruitment methods, number, age, gender, exclusion/inclusion criteria
5. consent and participant information arrangements, debriefing (attach forms where necessary)
6. a clear and concise statement of the ethical considerations raised by the project and how you intend to deal with then.
7. estimated start date and duration of project

C: SIGNATURE OF APPLICANT:

Note: a signature is required. Typed names are not acceptable.

I have declared all relevant information regarding my proposed project and confirm that ethical good practice will be followed within the project.

Signed: ███████████   Print Name Mohammed Hassan Alshaikhi
Date……23/05/2016…….

STATEMENT OF ETHICAL APPROVAL FOR PROPOSALS SUBMITTED TO THE INSTITUTE ETHICS COMMITTEE

This project has been considered using agreed Institute procedures and is now approved.

Signed: …███████   Print Name: Dr Karen Jones   Date: 20/3/19
        (IoE Research Ethics Committee representative)*

* A decision to allow a project to proceed is not an expert assessment of its content or of the possible risks involved in the investigation, nor does it detract in any way from the ultimate responsibility which students/investigators must themselves have for these matters. Approval is granted on the basis of the information declared by the applicant.

Introduction:

This questionnaire is designed for male English language teachers who teach fifth and sixth grades. The purpose of the questionnaire is to explore teachers' perceptions of using the Interactive WhiteBoard (IWB) in teaching English vocabulary and to identify the different teaching strategies that teachers tend to use with the IWB to teach English vocabulary.

Section A: General Information

The questions below are designed to explore your education experiences, qualifications and the frequency of using the IWB when teaching English vocabulary. In responding to the questions, please mark the appropriate box that best represent your current status.

1. How many years of teaching experiences do you have in primary schools?

☐ 0-1 year   ☐ 2-6   ☐ 7-15   ☐ 16+

2. Which teaching group grade(s) do you currently teach?

☐ Grade 5   ☐ Grade 6   ☐ Grade 5 & 6   ☐ All the grades

3. Types of schools?

☐ State   ☐ Private   ☐ International   ☐ others

4. What is your highest qualification?

☐ Bachelor   ☐ Pedagogical Bachelor   ☐ Master   ☐ PhD

5. With which IELTS score do you consider your English level to be equivalent?

☐ Good (4.5-50)   ☐ Very Good (5.5-6)   ☐ Excellent (6.5-7.5)   ☐ Expert (8-9)

6. How confident do you feel using English during teaching?

☐ Unconfident   ☐ Less confident   ☐ Confident   ☐ Very confident

7. How would you rate your ICT skills?

☐ Limited   ☐ Novice   ☐ Competent   ☐ Expert

8. How many ICT training classes have you attended so far over the past 2 years?

☐ None   ☐ 1-2   ☐ 3-4   ☐ 5 or more

9. On average, how many times per week do you use the IWB to teach English vocabulary?

☐ Zero to three times   ☐ Four to six times   ☐ Seven to ten times   ☐ Eleven to fifteen times

10. On average, for how long do you use the IWB when teaching English vocabulary in one single lesson?

☐ Not at all   ☐ 1-5 minutes   ☐ 6-10 minutes   ☐ 11 minutes-above

Section B: Using the IWB and the competence of using IWB when teaching English vocabulary
The questions, below, are designed to explore your perceptions of the advantages and disadvantages of using the IWB and its features (e.g. highlighting, surfing online, access online dictionaries, presenting audio and video clips, saving data etc.) when teaching English vocabulary. In responding to the questions, please mark the box that best represents your current status/belief. Please read each statement before you answer.

No	Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	I use the IWB to help me as a teacher use online dictionary' resources in classrooms.					
2	The IWB helps me catch my students' attention in classrooms.					
3	the IWB helps my lessons be more interactive					
4	The IWB is a good tool for interaction between me and my students.					
5	The IWB improves my teaching and learning environment.					
6	The introduction of the IWB has affected and changed my teaching practice of English vocabulary.					
7	I feel the IWB is a useful tool for teaching different vocabulary strategies.					
8	When I use IWB's features wisely, it makes my lessons interesting.					
9	The IWB with diverse features allows me to teach vocabulary effectively.					
10	To use the IWB you need to have excellent IT skills.					
11	I think the IWB is easy to use in the classroom.					
12	I think IWB is difficult to use.					
13	The IWB can be a time-consuming.					
14	IWB is a distractive tool for students.					
15	I do not use the IWB because I do not know how to use it (I do not have the skills.)					

Section C: Teaching Vocabulary Strategies
Put (√) in the box to indicate how much you use the strategy mentioned to teach English vocabulary using the IWB.

No	Statements	Never use it	Seldom use it	Sometimes use it	Often use it	Always use it
1	I use the semantic mapping through IWB to develop my students' vocabulary retention.					
2	I use IWB to present collocations					
3	I use IWB to teach prefixes, suffixes and word roots.					
4	I use the mnemonic technique through IWB to increase my students' vocabulary retention.					
5	I ask my students to use the IWB to do some classroom tasks.					
6	Please name other teaching strategies that you use which are not mentioned above:					
	a.					
	b.					
	c.					

*Semantic mapping: refers to maps or webs of words.
**Mnemonic technique: it is a memory aid by linking the new word to a familiar one to be easy to recall.

Open questions:
Q1. Is there anything you wish to add with regards to the use of IWB in teaching vocabulary and activities?

Q2. Following the table's questions above, in your typical teaching, which are the most important teaching strategies you use and why?

-More comments:
-Please add your email contact address if you would like to be contacted for the classroom observations and the interviews:

☺ *Thank you very much for your time and cooperation.* ☺

Location: **English lesson/ Vocabulary**

Date: **Lesson**   **Time:**

Teacher   **School**   **Grade**

Teacher is:	0-10 minutes	10-20 minutes	20-30 minutes	30-40 minutes	40-45 minutes	General/ Additional Comments
Use of IWB – note time in minutes	☐	☐	☐	☐	☐	
Interaction between teachers & students	☐	☐	☐	☐	☐	
Questioning: 1) Close	☐	☐	☐	☐	☐	
2)Open	☐	☐	☐	☐	☐	
Kinds of teaching approaches: 1) Direct Teaching 2) Indirect Teaching 3) Codeswitching						
	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	
Kinds of the IWB features usage: 1) Drag video & audio clips 2) Present images	☐	☐	☐	☐	☐	
3) Connect interaction	☐	☐	☐	☐	☐	
4) Save data	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	
Doing peer tasks (students)	☐	☐	☐	☐	☐	
Teachers' talk	☐	☐	☐	☐	☐	
Students' talk	☐	☐	☐	☐	☐	
Classroom activities	☐	☐	☐	☐	☐	
Teaching aids	☐	☐	☐	☐	☐	
Other 1	☐	☐	☐	☐	☐	
Other 2	☐	☐	☐	☐	☐	
Other 3	☐	☐	☐	☐	☐	

Teacher: Grade: School:

Q.1. The IWB effect on teaching practice
The interviewer
Has the introduction of the IWB affected or changed your teaching practice of English vocabulary? If, so, how and why?
Q.2. Teachers' views regarding the IWB

The interviewer
What do you feel about using the IWB when teaching vocabulary?
Q.3. Benefits and challenges of the IWB

The interviewer
 What do you think about the use of the IWB? Can it provide any benefits and challenges to teaching vocabulary, and if so, what kind of benefits and challenges, and how?
Q.4. Two benefits and challenges regarding the IWB
The interviewer
Name two benefits and two challenges that you face when you used the IWB for teaching vocabulary?
Q.5. The IWB connection to different teaching strategies

The interviewer
Do you think the IWB can link the varying teaching vocabulary strategies that you use in your lessons?
Q.6. The IWB's teaching assistance
The interviewer
How could the IWB assist you to teach a specific teaching vocabulary strategy?
Q.7. Difference between teaching with the IWB and whiteboard
The interviewer
Do you think there is any difference between teaching vocabulary using the IWB and the traditional way such as the whiteboard? If so, what is it?
Q.8. Pronunciation's correction
The interviewer
During the observation, I found that you corrected the students' pronunciation while they were answering. Do you think stopping a student to correct him during the participation is a suitable way and worth doing?
Q.9. Participation on the board
The interviewer
Why did you ask the students to participate physically on the board to explain a specific point and pronounce a sentence, why did you do that?
Q.10. Pronunciation's repetition
The interviewer
What did you ask the students to repeat the pronunciation many times and repeat after one of their peers? Do you think this technique has efficient effect based on your teaching experience?

The interviewer
Do you have any training sessions regarding the IWB, if so, how many are they, if not, then why you do not have?
Q.12. Students' corrections
The interviewer
What is the stimulation and the goal from asking some students to correct their classmates?
Do you think if the chosen students made mistakes during the participation in front of their classmates would it lift or shake their confidence?
Q.13. Use certain strategies
The interviewer
Why did not you use some strategies such as homograph and homophones?

A. Survey: Pilot Study Sample

Introduction

This questionnaire is designed for English language teachers who teach fifth and sixth grades using the Interactive WhiteBoard (IWB) in teaching English vocabulary. The purpose of the questionnaire is to explore male English language teachers' perspectives regarding the use of the IWB when teaching vocabulary and how the IWB can be a significant tool to teach English vocabulary. Your thoughts and participations are highly valued, and your cooperation genuinely appreciated. If you are interested in reading the results of this survey, please do not hesitate to leave your e-mail address at the end. A copy of the results will be sent to you afterwards.

Section A: General Information

The questions, below, are designed to explore, your education experiences, qualifications and the frequency of using the IWB in teaching. In responding to the questions, please mark the appropriate box. Please read each statement before you answer.

1. Age:

☐   ☐   ☐   ☐
23-35   36-45   46-55   Above

2. Teaching experiences in primary schools (years):

☐   ☐   ☐   ☐
First year   2-6   7-15   16+

3. Teaching group grades in primary schools?

☐   ☐   ☐   ☐
Grade 5   Grade 6   Grade 5 & 6   All the grades

4. What is your highest qualification?

☐   ☐   ☐   ☐
Bachelor   Pedagogical Bachelor   Master   Others

If you have a Master or PhD degree, please specify the area?

5. Do you consider your English level to equivalent to IELTS exam?

☐   ☐   ☐   ☐
Expert (8-9)   Excellent (6.5-7.5)   Very Good (5.5-6)   Good (4.5-5)

6. How confident do you think using English in classrooms?

☐   ☐   ☐   ☐
Very confident   Confident   Less confident   Unconfident

7. How would you rate your ICT skills?

☐   ☐   ☐   ☐
Expert   Competent   Novice   Limited

8. In how many of your lessons each week do you use the IWB in teaching vocabulary?

☐   ☐   ☐   ☐
One time   Two times   Three times   Four times

9. On average how much time of the class time do you use the IWB when teaching vocabulary during one lesson?

☐   ☐   ☐   ☐
10-14 minutes   15-24 minutes   25-35 minutes   36-45 minutes

Section B: Using the IWB for Teaching English Vocabulary
The questions, below, are designed to explore the advantage and disadvantage of using the IWB and its features in teaching English vocabulary. In responding to the questions, please mark the appropriate box. Please read each statement before you answer.

No	Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Using the IWB helps teachers use online dictionaries' resources in classrooms.					
2	The IWB helps teachers to draws students' attention and facilitates discussions on the content in classrooms.					
3	The IWB helps my lessons be more interactive					
4	The IWB is a good tool for interaction between teachers and students.					
5	The IWB improves the teaching and learning environment.					
6	IWB is a distractive tool for students.					
7	Using IWB's features wisely makes lessons interesting.					
8	The IWB is a useful tool for teaching different vocabulary strategies.					
9	The IWB with diverse features allows teachers to teach vocabulary effectively.					
10	Using the IWB by novice teachers has a negative impact on students' learning and motivation.					
11	To use the IWB you need to have excellent IT skills.					
12	I think the IWB is easy to use in the classroom.					
13	I think IWB is difficult to use.					
14	The IWB can be a waste of time.					
15	Using the IWB is very frustrating for me as a teacher					
16	Has the introduction of the IWB affected and changed your teaching practice of English vocabulary?					

Optional questions:

Q1. Is there anything you wish to add with regards to the use of the IWB in teaching vocabulary? If so, what is it?

Q2. What kinds of tasks (activities) do you think as teachers relate to the IWB when teaching English vocabulary?

Adding more comments:

Section C: Teaching Vocabulary Strategies
The questions, below, are designed to find out the usefulness of using a varied range of
teaching English vocabulary strategies. Please mark the appropriate box to respond to the
questions. Please read each statement before you answer.

o	Statements	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
1	Using different teaching approaches help teachers develop students' vocabulary.					
2	Teaching definitions of words and collocations increase students' vocabulary learning.					
3	Explicit (direct) vocabulary teaching is the most useful way to teach vocabulary.					
4	Implicit (indirect) vocabulary teaching is the most useful way to teach vocabulary.					
5	Code-Switching between English (L2) and Arabic (L1) is a useful strategy for increasing vocabulary.					
6	Using semantic mappings help teachers teach part of speech, synonyms and antonyms.					

Semantic mapping: refers to maps or webs of words.

Optional questions:

Q3. After giving response to the above questions, if you consider certain useful strategies in class which have not been mentioned, please write them down.

Q4. What do you think the most useful teaching vocabulary strategy is? And why?

Q5. Is there anything you wish to add with regards to the use of teaching different vocabulary?

Adding more comments:

Please add your email contact address if you would like to take part at the interview, or if you would like to receive a summary of the results:

☺ Thank you very much for your time and cooperation. ☺

B. Observation Schedule: Pilot Study Sample

Teacher: English lesson/ Vocabulary
Date: Time:
Lesson / observation No.   School: Grade

Lesson / observation No.   School: Grade

Teacher is:	Time	General/ Additional Comments
Use of IWB – note time in minutes		
Questioning: 1) Closed 2) Open		
Types of teaching approaches: 1) Direct teaching: a. Semantic mapping b. Mnemonic technique c. Words parts 2) Indirect teaching: a. collaborative work b. Guessing from the context 3) Code-Switching: a. Floor-holding b. Negotiation of meaning		
Other teaching strategies: a. missing words b. socialising CS c. d.		
Types of IWB features used: 1) Connect to the internet a) Present audio/video clips b) Access to an online dictionary c) Present images/ pictures 2) Content information: online activities 3) Audience engagement 4) Save data: a) highlight texts b) save data		
Doing group or pair tasks (students)		

Teachers' talk (monologue)		
Teaching aids (e.g. posters, models etc.)		
Other 1		
Other 2		
Other 3		

C. Interview Matrix: Pilot Study Sample

QUESTIONS	Teacher1	Teacher2	Teacher3	Teacher4	Teacher5	Teacher6
What do you think of the use IWB						
Why do use specific teaching strategies?						
What is your opinion of using other teaching aids beside the IWB in classroom?						
What do you feel about using the IWB when teaching vocabulary?						
Has the introduction of the IWB affected or changed your teaching practice of English vocabulary? If, so, how and why?						
What do you think about the use of the IWB? Can it provide any benefits and challenges to teaching vocabulary, and if so, what kind of benefits challenges, and how?						
Do you think there is any difference between teaching vocabulary using the IWB and traditional way such as whiteboard? If so, what is it?						

Appendix (K): Framework Analysis Sample

Theme	Teachers' attitudes towards the use of the IWB and their views on pedagogy			
	Subthemes **This asterisk * indicates to the usage of the subthemes below**			
Teachers	a/ Learning styles methods	b/ Teaching vocabulary strategies	c/ Fun and problem-solving in learning	d/ The positive use of the plain whiteboard within pedagogy
Sami	*	*	*	*
Tariq	*	*	*	
Waleed	*	*	*	
Naser	*	*		
Mazen	*	*		
Majed	*	*		

241

Appendix (L): Actions and Teaching Strategies with the Use of the IWB

Stage of lessons/ observations	Strategies and activities	Private teachers (Grade taught)			State teachers (Grade taught)		
Introduction		Sami (5&6)	Tariq (6)	Waleed (5)	Naser (6)	Mazen (6)	Majed (6)
	Memory methods:						
	Realia		x		x		
	Word part technique		x	x			
	Mnemonic technique		x	x			
	Role play	x	x	x	x	x	x
	Repetition	x	x	x	x	x	x
	Semantic mapping	x	x	x	x	x	x
	Teaching techniques	x	x	x	x	x	x
	Vocabulary involvement	x	x	x	x	x	x
	Collocations					x	
	Classroom activities and vocabulary engagement:						
	Extensive reading	x	x	x	x	x	x
	Elicitation	x	x	x			
	Guessing from context	x	x	x	x	x	x
	Gaps-filling	x	x	x	x	x	x
	Word games	x	x	x	x	x	x
Observation 1	Rearrange sentences	x	x	x	x	x	x
	Matching words	x	x	x	x	x	x
	Clarifying meanings:						
	Questions:						
	Open	20 mins	17	20	20	10	10
	Closed	10 mins	15	18	20	10	10
	Scaffolding	x	x	x	x	x	x
	Monitoring learning	x			x		
	Cooperative work	x	x	x	x	x	x
	Information gap activities	x	x	x	x	x	x
	Translation	x	x	x	x	x	x
	Codeswitching L1 (Arabic) & L2 (English) and vice versa:	x	x	x	x	x	x
	a. Floor holding	x	x	x	x	x	x
	b. Negotiation of meaning	x	x	x		x	x
	Teachers' pedagogy:						
	a. Teacher-centred	x	x	x	x	x	x
	b. Student-centred		x				
	Teaching aids:						
	a. Small whiteboard	x					
	b. Poster	x					
	c. Countdown clock		x	x			
	d. A CD player				x	x	x

Stage of lessons/ observations	Strategies and activities	Private teachers (Grade taught)			State teachers (Grade taught)		
Introduction		Sami (5&6)	Tariq (6)	Waleed (5)	Naser (6)	Mazen (6)	Majed (6)
	Memory methods:						
	Realia		x		x		
	Word part technique			x			
	Mnemonic technique		x				
	Role play	x	x	x	x	x	x
	Repetition	x	x	x	x	x	x
	Semantic mapping	x	x	x	x	x	x
	Teaching techniques	x	x	x	x	x	x
	Vocabulary involvement	x	x	x	x	x	x
	Collocations						
	Classroom activities and vocabulary engagement:						
	Extensive reading		x	x	x	x	x
	Elicitation	x	x	x	x	x	x
	Guessing from context	x	x	x	x	x	x
	Gaps-filling	x	x	x	x	x	x
	Multiple choice		x	x	x	x	x
Observation 2	Word games	x	x	x	x	x	x
	Rearrange sentences	x	x	x	x	x	x
	Matching words		x	x	x	x	x
	Clarifying meanings:						
	Questions:						
	Open	20 mins	20	15	20	15	15
	Closed	10 mins	15	15	15	20	15
	Scaffolding	x	x	x	x	x	x
	Monitoring learning	x	x	x	x		
	Cooperative work	x	x	x	x	x	x
	Information gap activities	x	x	x	x	x	x
	Translation	x	x	x	x	x	x
	Codeswitching L1 (Arabic) & L2 (English) and vice versa:	x	x	x	x	x	x
	a. Floor holding	x	x	x	x	x	x
	b. Negotiation of meaning	x					
	Teachers' pedagogy:						
	a. Teacher-centred	x	x	x		x	x
	b. Student-centred		x	x	x		
	Teaching aids:						
	a. Small whiteboard	X					
	b. Poster						
	c. Countdown clock	x	x	x			
	d. A CD player				x	x	x
Stage of lessons/ observations	**Strategies and activities**	**Private teachers (Grade taught)**			**State teachers (Grade taught)**		
Introduction		Sami (5&6)	Tariq (6)	Waleed (5)	Naser (6)	Mazen (6)	Majed (6)

Stage of lessons/ observations	Strategies and activities						

Observation 3

Memory methods:

	Sami	Tariq	Waleed	Naser	Mazen	Majed
Realia		x		x		
Word part technique						
Mnemonic technique			x			
Role play	x	x	x	x	x	x
Repetition	x	x	x	x	x	x
Semantic mapping	x	x	x	x	x	x
Teaching techniques	x	x	x	x	x	x
Vocabulary involvement	x	x	x	x	x	x
Collocations						

Classroom activities and vocabulary engagement:

Extensive reading	x	x	x	x	x	x
Elicitation	x	x	x	x	x	x
Guessing from context	x	x	x	x	x	x
Gaps-filling	x	x	x	x	x	x
Multiple choice	x	x	x	x	x	x
Word games	x	x	x	x	x	x
Rearrange sentences	x	x	x	x	x	x
Matching words	x	x	x	x	x	x

Clarifying meanings:

Questions:

Open	22 mins	25	17	26	15	18
Closed	15 mins	8	14	13	16	14
Scaffolding	x	x	x	x	x	x
Monitoring learning		x	x	x		
Cooperative work	x	x	x	x	x	x
Information gap activities		x	x		x	x
Translation	x	x	x	x	x	x
Codeswitching L1 (Arabic) & L2 (English) and vice versa:	x	x	x	x	x	x
a. Floor holding	x	x	x	x	x	x
b. Negotiation of meaning	x	x	x	x	x	x

Teachers' pedagogy:

a. Teacher-centred	x	x	x		x	x
b. Student-centred		x	x	x		

Teaching aids:

a. Small whiteboard	x					
b. Poster	x					
c. Countdown clock	x	x	x			
d. A CD player		x	x	x	x	x

Stage of lessons/ observations	Strategies and activities	Private teachers (Grade taught)			State teachers (Grade taught)		
Introduction		Sami (5&6)	Tariq (6)	Waleed (5)	Naser (6)	Mazen (6)	Majed (6)

Memory methods:

Realia		x		x		
Word part technique		x				
Mnemonic technique						
Role play	x	x	x	x	x	x
Repetition	x	x	x	x	x	x

	Semantic mapping	x	x	x	x	x	x
	Teaching techniques	x	x	x	x	x	x
	Vocabulary involvement	x	x	x	x	x	x
	Collocations			x			
	Classroom activities and vocabulary engagement:						
	Extensive reading	x	x	x	x	x	x
	Elicitation	x	x	x	x	x	x
	Guessing from context	x	x	x	x	x	x
	Gaps-filling	x	x	x	x	x	x
	Multiple choice		x	x	x	x	x
Observation 4	Word games	x	x	x	x	x	x
	Rearrange sentences	x	x	x	x	x	x
	Matching words	x	x	x	x	x	x
	Clarifying meanings:						
	Questions:						
	Open	23 mins	21	20	20	17	20
	Closed	14 mins	11	10	10	17	12
	Scaffolding	x	x	x	x	x	x
	Monitoring learning		x	x	x		
	Cooperative work	x	x	x	x	x	x
	Information gap activities		x	x		x	x
	Translation				x	x	x
	Codeswitching L1 (Arabic) & L2 (English) and vice versa:	x	x	x	x	x	x
	a. Floor holding	x	x	x	x	x	x
	b. Negotiation of meaning	x	x	x	x	x	x
	Teachers' pedagogy:						
	a. Teacher-centred	x	x	x	x	x	x
	b. Student-centred			x			
	Teaching aids:						
	a. Small whiteboard	x					
	b. Poster						
	c. Countdown timer	x	x				
	d. A CD player			x	x	x	x