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**The Influence of Mobile-Assisted Language Learning
(MALL) on Emirati Students' Vocabulary Retention in
one of the UAE Federal Universities**

تأثير التعليم بالاجهزة المتنقلة على ذاكرة الطلاب الإماراتيين وقدرتهم على
الاحتفاظ بالمفردات اللغوية في إحدى الجامعات الحكومية بدولة الإمارات العربية
المتحدة

by

SHAYMA EBRAHIM MOHAMED SAEED AL AWADHI

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of the requirements for the degree of
MASTER OF EDUCATION
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at

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**Dr. Emad Abu Ayyash
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Abstract

This dissertation aims to examine how mobile assisted learning can influence the students' vocabulary retention. This includes the use of iPads and its smart mobile applications in classroom and how much students rely on them to retain the previously learned vocabulary. I have also investigated the use of online dictionaries to measure how effective they can be in a student's learning journey. This study has been implemented on a group of students and their teachers in a federal university in the United Arab Emirates. The study was conducted on the English Language Program which offers 4 proficiency levels in a 5-cycles program, each cycle is 7 weeks long. During the research 14 teachers have kindly volunteered to be interviewed anonymously. They have also shared the vocabulary quiz results of their 244 students. Also, a 107 students have volunteered to take our online survey and shared with us their opinions on how did mobile technology and online dictionaries have influenced their vocabulary retention. The results show that mobile assisted devices and mobile applications do not necessarily improve students' vocabulary retention as there are several factors may lead to retention improvement such as student's intrinsic motivation, hard work and working memory. However, mobile devices still have a positive influence to some extent. Both teachers and students agree that online dictionaries do not improve students' retention but they have a positive influence to some extent due to their affordance of Arabic meanings and visuals. Some explained that retention does not rely fully on test scores but it is related to practice and recycling productive language skills.

Keywords: mobile-assisted language learning, MALL, the MALL approach, vocabulary retention, students' retention, vocabulary, retention, iPads, mobile tablets, technology, blended learning, cognitive theory of Multimedia, lexical approach.

الملخص

هذه الرسالة تهدف الى دراسة تأثير التعليم بالأجهزة المتنقلة على قدرة الطلبة على تذكر المفردات اللغوية الإنجليزية. هذه الدراسة تشمل الأبياد وتطبيقاته الذكيه في الموقف التعليمي, سوف ننظر أيضاً الى كمية استخدام الطلاب له وتأثيره على قدرتهم في تذكر ما تعلموه من مفردات. بحثنا كذلك في تأثير المعاجم اللغوية الذكيه على قدرة الطلاب في تذكر وتعلم المفردات الإنجليزية خلال رحلتهم التعليميه. هذه الدراسة طبقت في على مجموعه من الطلاب والمعلمين في إحدى الجامعات الحكومية في دولة الإمارات العربية المتحدة. الدراسة طبقت بالتحديد على برنامج اللغة الانجليزية والتي بدورها تقدم 4 مستويات صعوبة على مدار 5 حلقات تعليميه, كل حلقة تمتد الى 7 أسابيع من الصفوف المنتظمة في اللغة الانجليزية. في كل حلقة تعليميه يجب على الطلاب دراسة مهارات اللغة الانجليزية ويخضعون من خلالها الى عدة تقييمات شهرية وامتحانات تمكنهم من الانتقال الى المستوى الذي يليه. في نهاية السنة الاكاديميه يتوقع من معظم الطلاب إكمال برنامج اللغة الانجليزية والحصول على تقدير ناجح في امتحان القبول لبرنامج البكالوريوس.

خلال مراحل هذه الدراسة تطوع 14 معلم للخضوع للمقابلة الشخصية والتي تهدف الى جمع معلوماتهم وخبراتهم عن استخدام الاجهزة المتنقلة في الصف وبدون مشاركة معلوماتهم الشخصية. أيضاً لقد شاركنا هؤلاء المعلمين نتائج امتحانات المفردات اللغوية لـ 244 طالب. من جهة أخرى شاركنا 107 طالباً في الاستبيان الالكتروني الذي استفهناهم في رأيهم عن مدى مساعدة الأبياد والمعاجم الالكترونيه لهم في استيعاب وحفظ المفردات اللغوية الإنجليزية.

وجدنا بعد هذه الدراسة أن الأجهزة المتنقلة والتطبيقات الذكيه لا تساعد الطلاب بالضرورة على تذكر المفردات اللغوية بسبب وجود عوامل أخرى مؤثره على تطوير قدرة التذكر كالحافز الداخلي للطلاب, عمله الجاد وذاكرته. لكن هناك بعض التأثير الإيجابي لحد ما. على صعيد آخر, وجدنا أن المعاجم اللغوية الالكترونيه لا تساعد أيضاً بالضرورة على تطوير قدرة الطالب على تذكر المفردات ما بإجماع الطلاب والمعلمين ولكنها تقدم تأثير إيجابي بسبب ما تقدمه من معانٍ عربيه ومرئيات. ربط البعض بأنه لا صلة للتذكر والاحتفاظ بالمفردات اللغوية بتقييم الامتحانات ودرجات التقويم بل يتصل أكثر بالممارسة والمهارات اللغوية الإنتاجيه.

الكلمات الرئيسية: الأجهزة المتنقلة في تعليم اللغة الانجليزية, MALL, The MALL Approach, الذاكرة, المفردات الإنجليزية, المفردات, آبياد, أجهزة ذكيه, التعليم الإلكتروني, التعليم الدامج, نظريات لغوية, النظريات اللغوية, تعليم, تربية.

2014201068

Dedication

To the soul of my late team leader and senior colleague: **Catherine Hill**

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Introduction

1 Chapter 1

The topic of this study is originally driven from the need to investigate if mobile learning has an influence on our students or if it is just an extra embedded learning tool in teaching and learning. Many of my colleagues have discussed this newly introduced era of mobile technology in our classrooms. Some teachers thought it would be a useful change as it matches the interest of these generations we are teaching. Others believed it would be a threat to the traditional teaching methods which they think it should not be replaced. Yet, some participants still believe we should stay in between modern and traditional pedagogy as they both complete one another. Although that it would be easier and faster to teach through mobile technology in class. We should also determine how efficient they are and to what extent they influence our students' learning.

On the other hand, we are also witnessing brand new methods in vocabulary teaching where students can find, practice and study vocabulary words on mobile tablets (such as iPads). Many of the teachers at my institution started to implement iPads as a main learning resource to promote vocabulary and other language skills. As our students have to be weekly assessed on their vocabulary teachers have supported their learning with the use of iPads. Students now can surf on mobile applications to find words, meanings and free practice which can be controlled by their teachers. However, I have considered how those mobile tablets can enhance the students' vocabulary retention and to what extent teachers can rely on them as a primary learning resource. I have also considered the traditional vocabulary methods and already asked the teachers' for their opinions about their implementation compared with mobile technology.

There are many authors from all over the world who investigated and examined the mobile assisted language learning (MALL) in classrooms. Many of whom have discussed the MALL influence on students vocabulary and its influence on retention in specific. Wu (2015) have looked at how can the MALL approach (mobile phones in particular) can help the Chinese college students to learn English vocabulary. Also, Ornprapat and Wiwat (2015) examined how can the mobile-assisted vocabulary exercises enhance the Thai students' vocabulary where they compared between a control group and an experimental group. They found that mobile-assisted devices contributed to the students' success and increased their motivation. However, Burston (2015) have discussed 19 different studies which four of them have focused on vocabulary. They reported no major improvement in students' performance at the end of the academic year.

This study is conducted on the English Language Program at a federal university in the UAE. In the vocabulary test results instrument I have received the scores of 244 current students provided by their teachers. Also, in the students' questionnaires I have managed to get a number of 107 responses on the survey monkey as web-based responses. Whereas, for the teachers' interview 14 teachers have volunteered to undertake 30 minutes interview with the researcher. The English Language Program consists of 250 students and 16 teachers including the program supervisor. They offer 4 levels of English proficiency courses where the students have to go through different English language skills, practice and assessments.

1.1 Rational and Statement of the Research topic

This study is attempting to investigate the influence of mobile-assisted language learning on students' vocabulary retention. I am mainly looking at the electronic mobile tablets (iPads) as the primary mobile resource at our university. Students are taking the advantage of iPads in and out of the classrooms as they have the full curriculum available online plus other free mobile

applications. They also use iPads to receive and study vocabulary words because they offer many interactive vocabulary games and platforms provided by the university. I am examining how iPads influence students' vocabulary retention and whether if their influence is positive, negative or neutral. Mall-Amiri and Arabgol (2015) suggest that it is useless for students to remember an amount of words for the short-term memory as it actually has to be for the long term memory. In addition, Douglas (2016) agrees by stating that students' vocabulary retention can be achieved by effective pedagogical methods to guarantee long term retention.

What makes this study different than others is there are not many research papers have been done in our UAE education system that examined the same topic. I have checked online for more resources from the UAE and unfortunately there were not many published. I believe we need to examine the MALL influence ourselves to get to know how valid and reliable the mobile technology is. Especially with the universities spending millions of dirhams on offering mobile tablets and paying the teachers to buy reliable mobile applications. Hsu (2013) confirms that we still need to implement more studies on the MALL approach despite the fact of the wealth of literature on ICT learning in the EFL education. Moreover, I have also considered the influence of online dictionaries as part of MALL on the students' vocabulary retention. I believe that they cannot be separated from the mobile learning as our students use them frequently to translate words into Arabic meaning. Hamdi (2015) emphasizes on the use of online dictionaries as essential learning tools for second language learners as they should be systematically investigated.

I am conducting this study in order to provide reasons for the influence of the MALL approach in language classrooms and if it can be valid enough to trust it. I am also correlating it to the Blended Learning Approach which also offers a mixture of online learning and face-to-face

teaching. Many researchers have indicated the usefulness of blended learning in classroom which gives a great aid to motivate the students and encourages collaborative learning. Zhang and Han (2012) found in their study on college students in China that blended learning could motivate students and enhance their comprehensive language skills.

I have selected this topic of MALL and its influence as it is a recently introduced teaching method. It has been implemented in our university since 2012 and teachers are still considering it in its infancy and thus they cannot rely fully on it. However, students are finding it interesting as they often do not forget to bring it to the classroom where they sometimes leave pen and papers behind in their cars. Here comes the need to examine if iPads are making a difference in classroom and specifically in vocabulary teaching or not. I have mainly focused on how students are using their iPads as an efficient tool to study and retain vocabulary words later in the summative test. I believe that the productive use of words leads us to contribute to a long-term retrieval of meanings as Joe (2010) mentions. I decided it would be more valid to check the test results for numerical evidences and ask both students and teachers of what they have experienced during this academic year.

I am looking at the Cognitive Theory of Multimedia Learning (CTML) through our study. Mayer (2012) believes that CTML is a processing system of words, visuals and audios which lead to active learning through media (or technology). With students using iPads to study and retain vocabulary they might go through this cognitive process to reach activeness with the help of visual, auditory and verbal processing.

Another topic to investigate would be how students retain vocabulary with the Lexical Approach and if it does lead to retention and long term retrieval of vocabulary. Through mobile applications and the vocabulary apps students can practice and learn vocabulary as lexis or

chunk. Xu et al. (2012) affirms Michael Lewis's work on lexical activities to develop students' language proficiency and learner's cognition is taking into account under language teaching and particularly the lexico-semantic classroom.

1.2 Research Questions and Hypothesis

The purpose of this study is to investigate how mobile assisted devices and mobile applications such as iPads influence students' vocabulary retention. I am also investigating how online dictionaries work on students' retention and whether if they have the ability to improve it or vice versa. As teachers we want to know what is best for our students to keep their vocabulary words for long term retrieval. Additionally, I am also looking for the latest modern teaching methods in order to match the new generation interests and keep them motivated to learn. I cannot also deny the traditional methods vital role in vocabulary acquisition and retention. I am also exploring the general interest of mobile devices and technology in vocabulary learning, or whether participants are still prefer to learn through the traditional methods. Lastly, I totally understand all the variations of opinions I might receive from students and teachers as it may differs based on the participants' background, age, gender and experience.

The proposed research questions are suggested to investigate the influence of mobile assisted devices, applications and online dictionaries among Emirati university students:

- *Does the use of smart mobile devices have an influence on the vocabulary retention of Emirati college students?*
- *Do smart mobile applications and online dictionaries help to improve students' vocabulary retention?*

Mobile assisted language learning might have a positive influence on students as I predicted because I assume that young generations to be keener on technology than the old ones. Thus, I expect the acceptance from the students but not the teachers as many colleagues of mine have reported an opposing verbal feedback previously before I have conducted this study. Online dictionaries are still everyone's favorite since we had printed copies until we migrated to mobile technology. I assume that mobile technology have an influence somehow, yet it might differ from a participant to another.

1.3 Structure of the Dissertation

This dissertation is organized in five chapter to outline the whole study. The first chapter you are about to finish is introducing the statement, purpose, questions and the significance of this research. The second chapter will discuss the theoretical framework and the empirical research of 5 different theories and approaches. The third chapter will discuss the methodology and the instruments used in this study along the chosen research method. The fourth chapter presents the major part of our dissertation which are the findings and data analysis. At last, I will conclude with the final chapter to discuss the findings and data analysis. Provide recommendations for the intensive English program and for further future research. And go through the limitations of this study as well.

Literature Review

2 Chapter 2

This chapter will discuss two major aspects of this research, I will discuss the theoretical framework which includes 5 different theories and approaches related to my study. I will go through each theory\approach to summarize its history, beliefs and areas related to my research. In the empirical research I will discuss more specific related areas to the language teaching such as vocabulary retention and intensive in language teaching.

2.1 Theoretical Framework

The theoretical framework is divided to five different components which are 2 theories and 3 approaches. They are all related to this particular field of study and they are organized according to the research process and what is most relevant to the study context. The following figure presents the five selected theories and approaches. They will be discussed later in this chapter.

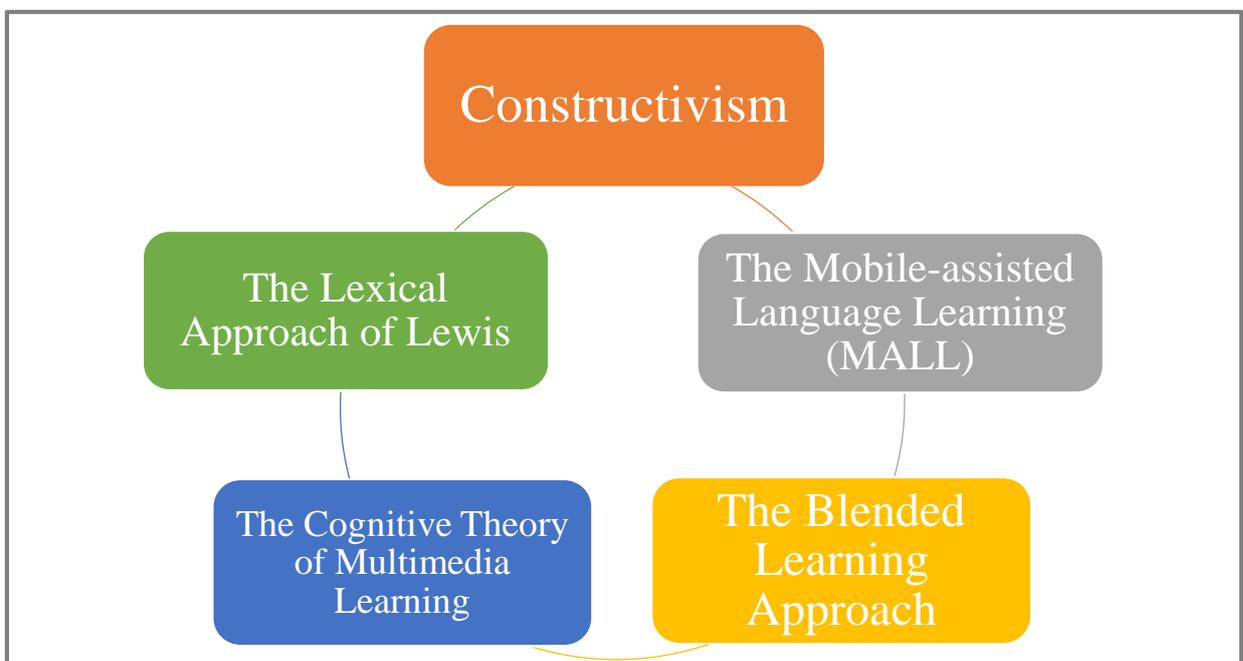


Figure 1: Theoretical Framework of this study

2.1.1 Constructivism

In the past, there were many situations occurred where automatic response is required on demand, yet there were some situations left with no clear explanation. Recently, the word “constructivism” have become a part of the psychological lexicon. Mahoney defines its beginning to the second half of the twentieth century as Pritchard and Woollard (2010) state. Pritchard and Woollard (2010) have narrated the beginning of the Constructivist Learning Theory in the early twentieth century when learning was mainly centered on behaviorist theories, which were developed by famous theorists such as Pavlov and Skinner. Later the constructivist movement has appeared to draw the learning picture of knowledge and understanding being gradually constructed. The beginning of the constructivist approach was the pioneering work of Jean Piaget (1896 - 1980). Piaget work started from the middle of twentieth century to expand the understanding of how does a child constructs his development and learning (Pritchard and Woollard 2010).

The constructivist model of learning suggests that constructive learning differs from an individual to another so it is an individual matter. McPhail (2016) suggests that no matter how the learning experiences are identical, there will be still a difference in every learner’s construction of learning due to his own prior knowledge, experience and understanding. That explains if two students are exposed to the same learning experience, each student will come out with a unique constructed understanding of that experience. Slavin (2009) adds that the constructivist learning is an ultimate reality created by the learner himself to be personal. He also discusses how radical constructivists assert that each individual creates his own reality and learning experience. Also, Slavin (2009) and Pritchard & Woollard (2010) discuss how Lev Vygotsky’s Zone of Proximal Development theory (ZPD) is one example on how learners

construct their learning individually and by the help others. Vygotsky (1896 – 1934) claims that ZPD shows the role of culture, social interaction and language in emerging personal and shared interpretations of one individual. Vygotsky believes that interaction enhances language development as the individual shares his experience and knowledge with others. The individual develops his own interpretations of his surrounding and improves a better language when he socially involve himself in any interactive experience (Slavin 2009: Pritchard & Woollard 2010).

On the other hand, Al Mahmud (2013) clarifies the two major strands of constructivism which are Cognitive Piagetian Constructivism and Social Vygotskian Constructivism. Cognitive constructivism sees students coming to the class with their own ideas, opinions and beliefs that need to be expanded by the teacher who creates dilemmas to challenge the students. When students try to solve those dilemmas they cognitively process the experiences they go through and thus they construct their own learning experience uniquely. Whereas, social constructivism believes that learning happens by sharing knowledge, interaction and the use of language as a blind of learning experience (Al Mahmud 2013).

Through the study I will investigate how the learners are constructing their vocabulary retention through the use of iPads. Every student has his own preferences and learning style so I assume that each student will have a different constructed experience as the constructivist learning theory teaches us (Pritchard and Woollard 2010).

2.1.2 Mobile-assisted Language Learning (MALL)

The Mobile-assisted Language Learning approach which knowns by the MALL Approach is originally born from the CALL Approach which refers to the Compute-assisted Language Learning. According to Duman et al. (2014) in the early 1960 new teaching methods started to

appear beyond the traditional methods in the pedagogic field such as E-Learning and Distance Learning. Those methods were classified under the CALL Approach until the last decade when mobile technology era has appeared. A new technologies have appeared in pedagogy with more capacities, high-speed wireless, graphics and internet connectivity. Therefore, researchers have started to explore the possible implementations of mobile technology to support learning and teaching (Duman et al, 2014).

The MALL approach appeared in the mid-nineties when the spread of mobile dictionaries, CD players, DVDs and mobile phones have been commonly used in many classrooms around the globe. Yang (2013) explains how MALL have been originally investigated under the CALL research to explore the new emerging subdivision technology from CALL into language learning. De la Fuente (2012) describes that in the MALL classroom the teacher can assign his students either the same or different purposed tasks, however the students have the control over the input depends on its selective attention purpose.

Students nowadays are known as Digital Natives who the teachers have to challenge these days to cope with their internet knowledge a new direction of learning (M-learning). M-learning has opened new horizons for new educational sceneries such as Independent Learning, Collaborative Learning and Lifelong Learning. This new era of m-learning also included EFL learning with no exceptions as it originally derived from CALL (computer-assisted Language Learning approach). M-learning refers to Mobile Learning which encourages to teach and learn with mobile technologies such as mobile tablets and mobile phones. In fact, the MALL approach which promotes m-learning has been differentiated from CALL in its portable mobile devices. Those devices emphasize on the spontaneous of access and interaction among different contexts across the language classrooms (Hsu 2012: Duman et al. 2014).

Yang (2013) also explains that MALL approach begun with limited-speed and small-capacity devices which later developed to mobile tablets with bigger screens and 3G connection. Hence those mobile devices were affordable; schools and teachers have started to welcome them in their language classes and embed language skills to be taught under MALL. The MALL classroom context consists of mobile several mobile technology devices such as digital dictionaries and mobile tablets. Their main potential is to aid the language learning as De la Fuente (2012) suggests.

Speaking and listening were the main skills taught under mobile learning in its beginnings. Vocabulary became also common after the development of visuals, audios and e-flashcards (Yang 2013). In the recent studies mentioned by De la Fuente (2012), the benefits of MALL were summarized in its social interactivity, portability and individuality.

Burston (2014) explains the environment of MALL where the first application in L2 started in Japan around the mid-nineties. Students prompted a great popularity of carrying pocket dictionaries so researchers started to investigate them as an English learning tool. Later the wide spread ownership of mobile phones sparked for out-of-class L2 vocabulary acquisition. The portability of mobile devices allowed the increase of out-of-class learning due to its inexpensive prices. After that teachers have started to create alternatives for vocabulary and grammar exercise (Burston, 2014).

Finally, I consider the MALL approach as the main approach of this study where I investigate its influence on the students' ability to retain vocabulary words and meanings. I am mainly focusing on the use of iPads (electronic tablets) as an in-of-class and out-of-class learning tools to enhance students vocabulary retention. However, I am uncertain of this hypothesis as both students and teachers might have different perspective of mobile learning.

2.1.3 The Blended Learning Approach

The Blending Learning Approach has been defined in many ways since it has appeared back in the last decade. Zhang and Han (2012) explain that Blended Learning is not a new approach where it existed in the traditional classroom in a format of face-to-face learning in lectures and labs format. The word blend comes the act of combining two elements in one. Blended Learning is defined as subjects with major portions of online interaction and reduced time in the classroom (Zhang and Han, 2012). One of the main aspects of the Blended Learning is its uniqueness in combining traditional classroom along with the web-based internet learning. This pedagogical approach combines effectiveness and socialization with the technological active learning in an online environment. Moreover, BL enhances self-paced and self-motivated learning by incorporating online learning and traditional face-to-face learning (Zhang and Han, 2012).

Power and St-Jacques (2014) presents BL as a hybrid model which is created to enhance high quality instructions with accessible audience and effective cost. This hybrid model can be implemented by three strategies: (1) excessing teachers' strengths (2) applying relevant technologies and (3) minimizing the cost delivery and design.

On the hand, Wong et al. (2014) have examined the influence of BL on students and what is the majority's preference toward it. The beginning of Blended Learning was introduced first in the eighties with no Information Computer Technology (ICT) such as in labs. Later, the implementation of ICT appeared after the World Wide Web was introduced in 1989. Wong et al. (2009) found that students still prefer to receive their courses in face-to-face classes along with the support of online learning. Most of the students clarified that they would never replace the traditional physical learning wholly by online learning.

Another example of the BL approach was examined in a Japanese university by Lander (2015). Lander (2015) have examined an online learning tool that compromises a blended learning component which is Quizlet. Quizlet was found in 2007 which is a vocabulary-learning web-based tool that allows users to create, combine and collect words lists as individuals or groups. At the end of the study, Lander (2015) concludes that Quizlet had a positive influence on the Japanese college students who reported it is portability and accessibility anywhere they go on their smart devices.

The Blended Learning Approach is contributing to my study through its major connection with the Mobile-assisted Language Learning approach (MALL). Both BL and MALL shares many aspects of online learning and the use of technology in classroom. They share many components of mobility, functionality, accessibility and acceptance by users. Hence the participants of this study have practiced both BL and MALL in parallel with no major difference, I have received a well-constructed feedback toward the use of mobile technology.

2.1.4 The Cognitive Theory of Multimedia Learning

The Cognitive Theory of Multimedia Learning (CTML) was originally popularized by Richard Mayer at the beginning of the 2000s. It is also widely known as Mayer's Cognitive Theory of Multimedia Learning according to Sorden (n.d.). Mayer and other researchers of CTML believe that multimedia learning occurs when we form representations from words and visuals. CTML mainly focuses on how to create multimedia instructional designs in order to apply efficient cognitive strategies for learners in order to learn effectively. In addition, the CTML theory is also supported by other pioneering theories of cognitive researchers such as Paivio's Dual Coding Theory and Sweller's Cognitive Load Theory (Sorden, n.d.).

Mayer (2012) believes that people learn efficiently from words and pictures rather than words alone and this is called the Multimedia Principle. However, adding pictures to words is not enough to improve learning. Here Mayer (2012) categorizes CTML to 3 assumptions that underlies within multimedia learning and cognition. (1) The first assumption is the Dual-Channel Assumption which proposes that people's information process system includes an auditory\visual channel and a visual\pictorial channel. When a picture\audio is shown\played to the person then the he begins to process these pictures\sounds in his auditory\visual\pictorial channels. (2) The second assumption is the Limited Capacity Assumption which summarizes in the limited amount of information that can be processed in each channel at once. (3) The third assumption is the Active Processing Assumption which refers that humans have to involve in active learning to receive relevant incoming information, organize them into coherent mental representations and integrate them the other knowledge. (Mayer, 2012).

On the other hand, Ibrahim (2018) argues one of the main challenges in CTML which is how to guide learners to involve in a relevant cognitive processing experience without congesting the processing capacity of verbal and pictorial channels. Ibrahim (2018) encourages the multimedia instructional designers to (1) Reduce unnecessary processing (2) Manage essential process and (3) Foster generative processing.

The working memory (WM) and long-term memory (LTM) have been both discussed by Ibrahim (2018) and Liew & Tan (2016) as a main component of the CTML theory. According to Ibrahim (2018) LTM is described as the permanent storage in someone's knowledge about their experiences and learning. LTM stores the relevant processed information from the WM in forms of schemata. Schemata is a memory element that structures a large number of information into a unified element as Liew and Tan (2016) mention. The interaction between WM and LTM

enable people to engage in cognitive practices that can start from simple facts to advanced applications, knowledge and advanced skills. Additionally, some researchers indicated that the learners' positive or negative mood can also have a major aspect in the WM as they might cause a distraction during the cognitive process (Liew and Tan 2016).

During this study I have investigated how the CTML integrates the implications of multimedia (mainly refers to smart mobile tablets) and the learners' vocabulary retention. I explored how mobile devices can influence the working memory and long term memory of the students, and how they process vocabulary words better through the use of multimedia devices.

2.1.5 The Lexical Approach of Lewis

The Lexical Approach was found in 1993 by Michael Lewis and it is commonly known as The Lexical Approach of Lewis. Lewis (1997) summarizes his approach of integrating lexical insight in the day-to-day teaching. It also combines theory into practice to focus on the lexical activities in order to develop the students' language proficiency. Also, Lewis (2002) mentions that the lexical approach was welcomed by teachers who believe in lexico-semantic knowledge and prefer lexical teaching methods over the grammar drilling pedagogy.

Xu et al. (2012) clarifies that the lexical approach in L2 classrooms targets the lexis layer which differs from the traditional vocabulary in which teaching vocabulary as individual words resulting from a gap between different meanings. Lewis (1997) thinks that his approach is organic and holistic not atomistic. It means that instructions on chunks are given to develop student's consciousness and enhance their ability to identify and organize chunks. As a result, students' accuracy will increase and they will acquire the native type of the language. Lewis (2002) confirms that such practice we should consider the learners' cognition and ability for more efficient language teaching.

I have relate the lexical approach to my study by investigating how the students are learning their vocabulary words on mobile devices for more efficient retention. If the students are learning the vocabulary words as chunks will it influence their ability to retain more words in order to be saved in their long term memory or not? Lewis's theory is aligning with the students' vocabulary learning on iPads where the instructional chunks are taught on iPads to improve the students' vocabulary long term retrieval.

2.2 Empirical Research

2.2.1 Vocabulary Retention

Learning vocabulary is very essential at the college level where it is necessary for students who finds it challenging to learn vocabulary as a non-native speaker. This challenge require an appropriate acquisition of the vocabulary word and a long term retention of their meanings. Douglas (2016) suggests that students at a higher level must obtain a long term retention of as many meanings as they can due to their status as a higher education students, who are expected to be enrolled in degree programs. In addition Mall-Amiri & Arabgol 2015 and Douglas 2016 believe that vocabulary meaning and retention can be achieved through two main factors: (1) effective pedagogy and (2) independent study that refers to students' own motivation. Usually, the vocabulary words would be introduced at the lower levels and gradually given more exposure at the higher levels. There is still a matter of how this exposure is and who are the characters (Douglas, 2016).

Douglas (2016) asserts on teaching vocabulary in context and in relation to each another to offer more depth of learning. He indicates that some researchers shown that getting students to comprehend the depth of words and meanings will lead to a stronger acquisition and retention.

Douglas (2016) also suggests that students need to be given more explicit instructions of common verbs and should not be left to find the meanings on their own. The more explicit instructions teachers give to their students on their vocabulary acquisition and meaning the more chances are given to retain their vocabulary in a long term period.

Some researchers have emphasized on the importance of vocabulary especially in second language learning. They believe that vocabulary is the basic of language and communication. According to Mall-Amiri and Arabgol (2015) that teachers and researchers have agreed upon learning vocabulary as an essential second language learning tool. However, it is useless for students to learn a lot of vocabulary words without the ability to retain their long term memory. Nowadays, vocabulary retention has been one of the most discussed issues in vocabulary acquisition world. If the students cannot retrieve what they have learnt instantly they will forget what they have learnt very soon (Mall-Amiri & Arabgol 2015; Douglas 2016).

There have been different techniques discussed by the pedagogic researchers to focus on the retention issue. Mall-Amiri and Arabgol (2015) reveal that teachers must be aware of different retention techniques due to multiple students' differences such as the learning styles. They also encourage teachers to contextualize the new words in order to derive the meanings. Also, Douglas (2016) agrees by stating that using visuals is also considered as one of the valid methods to retention.

2.2.2 Intensive English Language Programs

Students in Intensive English Language Programs (IEP) have different characteristics than other students as they have to learn compromised vocabulary words list in a limited time frame. The participants of this study are enrolled in an intensive English program that consists of cycles, each cycle is 7 weeks long. During the first 6 weeks the students have to learn 30 to 40

vocabulary words a week depends on their English proficiency level that means 180 to 240 vocabulary words a cycle. Joe (2010) suggests that learners in intensive language programs do frustrate because of the vocabulary amount they have to learn and retrieve in a short time period.

Joe (2010) illustrates three major factors to vocabulary learning in intensive courses which are quality of input, quality of output and the frequency of vocabulary words occurrence. The quality of input refers to the richness of context that leads to a richer vocabulary growth and faster retrieval of meanings in the long term memory. The quality of output refers to the depth of processing and working memory. It suggests that long term retention is influenced by the process of information at a specific level. The last factor is the frequency of occurrence which encourages extensive amount of words and meaning in order to activate lexical items therefore enhancing word recognition by the learner (Joe, 2010).

The list learning is another major part of vocabulary acquisition and retention. Fitzpatrick et al. (2008) have discussed vocabulary list learning as vital vocabulary tool which assist the students for an efficient retrieval of words. List learning should be presented with the target words along with L1 meaning. They believe that through list-learning students can obtain a fair level of vocabulary words and map written words to meanings in order to develop a solid knowledge of words. In addition, intensive list learning should be valued as a core communicative resource to enrich the vocabulary acquisition and long term retention (Fitzpatrick et al. 2008: Joe 2010).

To conclude, Douglas (2016) advises that intensive English language programs (IEP) in the higher education should have a solid-based vocabulary acquisition and retention scheme. He highlights that students in intensive programs often face the pressure of widening their vocabulary knowledge due to the lecture they attend, presentations they give and the essays they write. Joe (2010) and Douglas (2016) indicate that if IEP courses improve their vocabulary

acquisition strategies and methods then their students will less struggle to retain more vocabulary. They also emphasize on the expose of stress in the IEP programs where students struggle to gain as much vocabulary as they can besides the other requirements such as projects and extracurricular volunteering hours.

2.2.3 Online Dictionary in English Translation

The online dictionaries are becoming popular among the new generations and young learnings. Hamdi (2015) suggests that dictionaries in any type of form enhance students' vocabulary retention. However, dictionary type does not necessarily effect the students' retention and acquisition. Whereas, Asraf and Supian (2017) argue that online dictionaries is trending among youth due to its mobility, accessibility and affordability.

Hamdi (2015) also argues that many teachers do not encourage the constant use of dictionaries in classroom as they believe that dictionaries do not help students to understand the meanings in context and they influence the students' confidence to guess from the context as well. While Zervas et al. (2014) suggest that it is up to the teacher whether he controls the use of dictionary in class or leave the students to overuse them.

Online dictionaries can be very cognitively disruptive as the students' constant checking and overuse may lead to interrupt the retention process as Hamdi (2015) states. Thus, it may also impacts the short term memory. Asraf and Supian (2017) highlight that working memory and information processing should not be distracted if the user is targeting short term and long term memory. Moreover, Ibrahim (2018) discusses the working memory and the long term memory are connected through the short term memory. If we preserve a strong short term memory we will ensure a long memory.

Methodology

3 Chapter 3

This chapter will discuss the implemented methodology of this study. It will highlight the main methodological components carried through this research. It also will highlight the research context, design and what methodological approach I have followed to collect the needful data. It will present the research instruments and the data collection procedure afterwards. The ethical consideration will conclude this chapter by highlighting the main ethical procedures I practiced before and after conducting the instruments.

3.1 Context of the Study

3.1.1 Population

This study was conducted on students and teachers in the introductory English Language Program at a federal university in the UAE. The number of participants have differed in every instrument depends on the availability of volunteers. It also depends on the instrument if it is a web-based tool or if it is conducted as a face-to-face tool which affects the availability of the participants. In the vocabulary test results instrument I received the scores of 244 current students in the English program and were provided by their English teachers. Each teacher had around 17 to 19 students in his class. In the students' questionnaires I managed to receive a 107 responses from both current and former students who have graduated from the English program already. The questionnaire is a web-based instrument so students got the chance to complete it anywhere and anytime in a matter of 15 days. Lastly I have considered the need of teachers' opinions so I have asked the program supervisor if it is possible to send an email to the team

and ask for volunteers. After sending the email to the English faculty 14 teachers have volunteered to do the interviews depending on their class schedules. Due to the short amount of time between classes I have conducted 2 to 3 interviews per day and I managed to complete all the questionnaires within 6 days.

3.1.2 Site

The site of this study is one of the federal universities in the UAE. This university offers several undergraduates program from Computer Information, Business, Applied Media and Engineering. The requirement to those programs is the English entrance exam (EmSat) which is offered by the Ministry of Education. Students have to achieve a minimum of 1100 in the EmSat test in order to join the desired Bachelor program. Thus students have to go through English language courses for a year (or less) to be well trained for the EmSat exam. The English program also offers an intensive English courses consisting of 5 short cycles; each cycle is 7 weeks long. The English Language program consists of 250 students and 16 teachers including the program supervisor. They offer 4 English proficiency courses where students have to purely focus on English language learning and go through different language skills including vocabulary and grammar. Students have a 1 year opportunity to reach the 4th level of English proficiency and pass the EmSat exam in order to join the undergraduate program.

3.2 Research Design

I have selected the Mixed-Method Approach as the main method to design this study. It is been selected because of the solid-based evidence offered by both qualitative and quantitative tools. In this type of study I think it would be valid to provide both statistics and participants' opinions to conclude with more relevant data. Fraenkel and Wallen (2009) indicate that mixed method

approach presents a holistic picture of the phenomenon being studied. I have collected the mixed test results, students' questionnaires and teachers' interviews in a systematic way in order to analyze the results accurately. Creswell (2014) states that mixed method approaches combine both forms of research methods which provides a holistic understanding of the research problem.

According to Fraenkel and Wallen (2009), the mixed method research helps us to analyze and explain the relationship between all the variables in the research. It also allows us to explore the difference between variables in more depth from both qualitative and quantitative aspects. In addition, Fraenkel and Wallen (2009) again emphasize that mixed method approach provides the cross-validate relation between the variables where qualitative and quantitative only provide a single side of the phenomenon.

Before the implementation of the mixed method approach I had to select which data should be collected first, or whether various data should be collected in parallel. I have decided to check the test results first and look at the variables and the limitations they might have. At the end of the semester, I have managed to collect the vocabulary test results of 244 students and analyzed them according to quiz average per individual, quiz average per test, difficulty level per level and quiz average for all the levels. Although the test results provided a clear picture of the students' performance I believe that there are still some limitations. Those limitations controlled the quiz average and students' performance such as the difficulty level, students' exemption from weekly tests and the students' motivation at the end of the cycle. Later I have decided to conduct students' questionnaires online and interview the teachers under the qualitative instrumentation. This mixed method design is known as the Explanatory Sequential Design.

The Explanatory Sequential Design is one of the mixed method designs which helps the researchers to collect his data sequentially in two stages instead of gathering them all at once. It is also named the two-phase model (Creswell (2014)). As Creswell (2014) explains in this design it starts by gathering the quantitative data first followed by the qualitative data to explain the quantitative results.

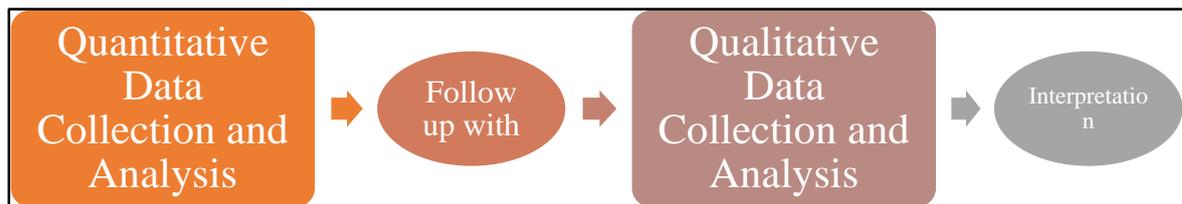


Figure 2: The Explanatory Sequential Design (Creswell 2014, p. 541)

Referring to figure 2 we can see in this design that the researchers have to collect the quantitative data first and give it the major importance of data collection. Later they follow it by the second phase which is the qualitative data collection to support and explain the quantitative analysis. So in the explanatory design the quantitative data is given the precedence in the sequence and the qualitative data is considered as the secondary method in the data collection procedure. .

As mentioned previously, in my research design I have collected the quantitative data first (test results see appendix 1 p. 58) and then I followed it by the qualitative data to refine the test results and explain them according to the participants' feedback (questionnaires and interviews see appendices 2 and 3 pp. 65 - 84). The following section will analyze the data collection tools and procedure.

3.3 Research Tools and Data Collection

The data was collected according to the Explanatory Sequential Design as explained in the previous section. I have selected three research instruments to collect the data according to the

mixed method design which are test results (quantitative), questionnaires (qualitative) and interviews (qualitative). I have started with collecting the students' vocabulary test results from their teachers. At the end of the semester I began to analyze the vocabulary test results and later added the students' questionnaires and teachers' interviews to refine the test results. Some results were not valid or very biased. This is to be discussed later in the study.

Fraenkel and Wallen (2009) confirm that the explanatory design expands the researcher's view on the quantitative data as it is the primary data resource. I have sent web-based questionnaires to the students and managed to conduct one-on-one interviews with the teachers. After the data collection stage I started to analyze the quantitative tools first and later followed it by analyzing the qualitative data (see figure 3). Both quantitative and qualitative tools have completed and refined each other especially the quantitative tool which needed more refinement and explanation due to its vagueness. The following section will discuss the instrumentation of this study and what is employed for data collection purposes in each instrument.

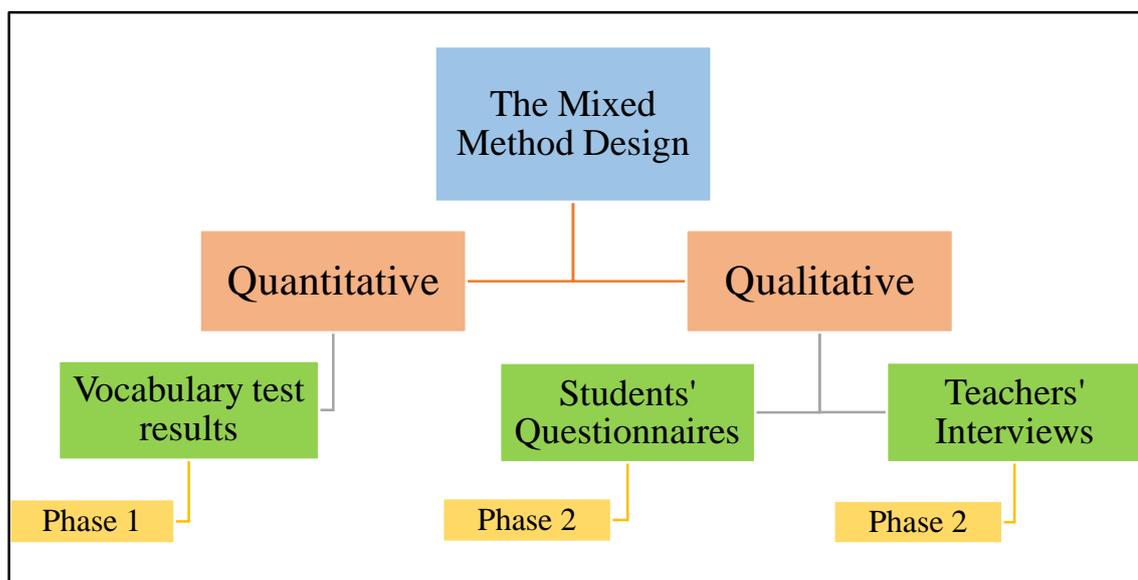


Figure 3: Data Collection Tools

3.4 Instrumentation

3.4.1 Test results

I have asked the teachers to provide us with the vocabulary test results at the end of the semester. They have provided us with percentile scores of 244 students reporting what they have achieved in 6 vocabulary quizzes (see appendix 1 p. 58). Fraenkel and Wallen (2009) explain different forms of reported scores in quantitative research and one of them is percentile ranks, which refers to each individual's percentage scoring at or below a raw score in the test.

I can classify the vocabulary test results data as norm-referenced instrument. This type of instrument often focuses on the derived scores of an individual and compare them to scores of a group. This also emphasizes on how the nature of groups are important. Usually, the target group in this instrument calls the norm group (Fraenkel and Wallen (2009)).

3.4.2 Students' Questionnaire

I designed a Cross-sectional questionnaire to share with the students in order to receive their feedback on their experience with iPads and vocabulary retention. This questionnaire is designed as a Web-Based questionnaire on www.surveymonkey.com as I consider it is easy to share with many students in and outside the campus. This also included former students who have completed their introductory English Language Program. I have designed 15 open and close ended questions to share them with many current and former students, and at the end I have collected a reasonable number of 107 questionnaires (see appendix 2 p. 65).

According to Creswell (2014), the cross-sectional questionnaires help the researcher to collect data at one point in time. They also measure current attitudes and practices to provide more data in a short amount of time. Creswell (2014) also points to the advantages of web-based

questionnaires where they tend to save time and gather extensive data quickly. It is also providing sample forms and questions rather than the need to design them. The limitation about web-based questionnaires is the low response rate due to technological issues and internet junk mails. However, Survey Monkey provides both mailing options and web link access so I have not had any issue with collecting responses.

I have analyzed each question on Survey Monkey and I included 15 samples of questionnaire analysis. Each item includes one question analysis on a bar chart, see figure 4. Question number 11 is the only open ended question so the responses are organized in a table (see appendix 2 p. 65).

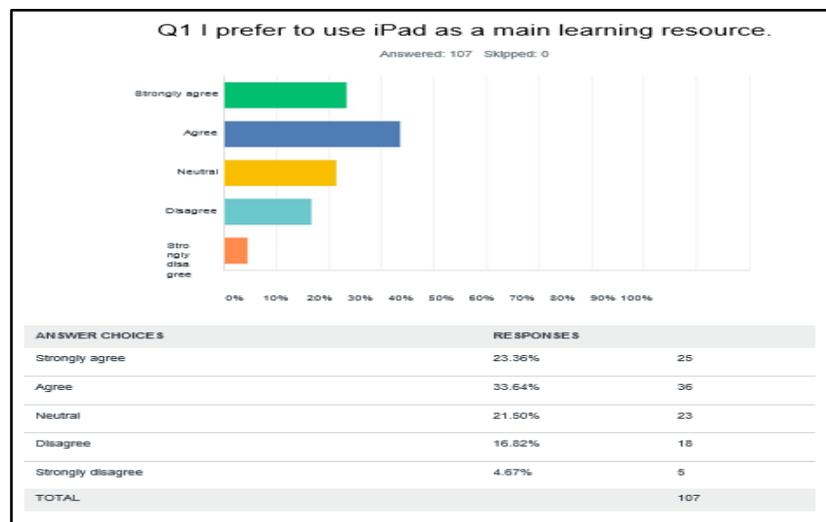


Figure 4: Question 1 analyzed in a bar chart and percentile rank

3.4.3 Teachers' Interview

I have conducted the teachers' interviews individually with 14 teachers who have kindly volunteered to share their experience in implementing iPads to teach vocabulary and how well students retained their vocabulary. Creswell (2014) believes that one-on-one interviews are useful to ask the interviewees sensitive questions and they can provide comments beyond the

initial questions in return. One-on-one interviews often lead to a high response rate as the interviewer arranges for them in advance according to Creswell (2014).

During the interviews each teacher shared his feedback on the use of iPads on his students' vocabulary retention. Most of them showed biasness toward the traditional methods and indicated that they prefer to use iPads as a secondary learning tool. Creswell (2014) defines that as Response Bias which occurs when the responses do not match the sample views and population. Although that teachers represent the minority of this research population, yet it does represent a valid data as they have experienced many pedagogic methods on different groups of students.

I have managed to interview 14 teachers as mentioned previously and they have shared a valid input of their experience. All interview samples are provided including the teachers comment (Appendix 3 p. 73). Table 1 presents the breakdown of my research methodology and how each research question will be answered according to the data tools.

Questions	Method	Instrument	Sample
1- Does the use of smart mobile devices have an influence on the vocabulary retention of Emirati college students?	Quantitative and Qualitative	Test results	244 Students
		Students' Questionnaires	107 Students
		Teachers' Interviews	14 teachers
2- Do smart mobile applications and online dictionaries help to improve students' vocabulary retention?	Qualitative	Students' Questionnaires	107 Students
		Teachers' Interviews	14 teachers

Table 1: Research Tools and Data Collection

3.5 Ethical Consideration

Before conducting the data collection tools I have considered the confidentiality of teachers and students' feedback. Creswell (2014) highlights the importance of individuals' rights before conducting the research. They need to know the purpose, aim of the study, how the results will be used and if they will impact on their lives. They also have the right to refuse participating in the study if they like. When the participants begin their involvement in the research their anonymity must be ensured by the researcher. Also, the participants have the right to gain something from the study. The researcher should look for a way to give back the participants as a gratitude for their participation if possible (Creswell 2014). For example, helping them with their researches, invigilating exams or supervising their students in one occasion.

Some of our colleagues were concerned about their feedback and students' scores being nominally shared. Yet I have assured them of omitting all names and college IDs to keep them anonymously mentioned in the study. I have also shared a copy of the finalized appendices version with teachers to assure them of what we agreed. In addition, my direct line managers are aware of my data collection procedure and they have approved it beforehand (appendix 4 p. 85). Check and Schutt (2017) indicate the every research ethical issues should be covered by 5 guidelines: (1) Subjects protection (2) Participation should be voluntary (3) Identity disclosure (4) Anonymity and confidentiality (5) Outweigh foreseeable risks.

Data Analysis and Findings

4 Chapter 4

This chapter will present the data analysis and the findings of this research. It will summarize what is been shared from the students and teachers. The data analysis will be organized according to the two research questions. I will answer each research question according to the instruments used to collect the data. The two research questions have been split to three parts to help us to understand the questions components clearly. The first answer will present the sample data about mobile-assisted devices influence on students' vocabulary retention in general. The second answer will discuss the mobile applications influence on students' retention based on students and teachers feedback. The third answer will analyze the online dictionaries influence on vocabulary retention based on students and teachers feedback as well. More details will be illustrated by graphs and tables for each finding to provide a clear explanation for the data analysis.

4.1 Mobile-assisted devices influence on vocabulary retention

4.1.1 Test results

The quiz test results were collected from 244 students during a 7-weeks cycle and they were shared by their teachers. The students were tested on weekly basis for 6 weeks before the final exam which comes on the 7th week. The quiz form consists of 30 to 40 questions depends on the students proficiency level. Each question relates to one vocabulary item on the students' vocabulary list (see appendix 5 p. 86). By the end of the cycle the students would be tested on 180 to 240 vocabulary words. At the end of cycle the students also have to be tested on all of

vocabulary words at once, however the final exam templates and answers cannot be shared with the teachers that is why I could not have an access to it. The same applies for the quiz question papers as well. It is also worth to mention that the weekly vocabulary quizzes worth 25% of the students' coursework. At the end of the cycle the students have the right to move to the next proficiency level if they achieved more than 60% as an aggregated score of the final exam and the coursework.

I have gathered 244 students' vocabulary scores from 3 different levels between level 1 to level 3. According to the test analysis 197 out of 244 have passed the weekly quizzes and achieved above 60% in the test average. The results have been calculated in a percentile rank in order to analyze the results easily (see appendix 1 pp. 58). I have analyzed each quiz result in a bar chart first in order to explore how well the students did in every quiz and estimate the quiz difficulty level (see figure 5).

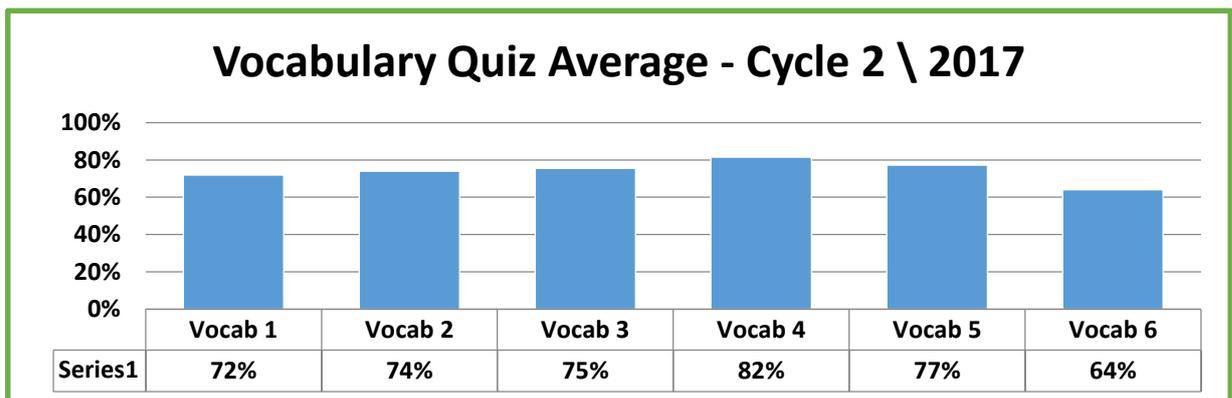


Figure 5: Vocabulary Quiz Average

According to figure 5 the quiz averages seem to be almost close to each other. Most the test averages are in 70s% except vocabulary quiz 5 and vocabulary quiz 6. Students have achieved the highest in the vocab test 4 by 82%. Where they achieved the lowest score 64% in vocabulary quiz 6.

During the cycle the students' scores kept increasing till it reached a peak in vocabulary quiz 4 and later dropped in both vocabulary quiz 5 and quiz 6. I assume that the students' motivation was higher at the beginning of the cycle and the iPads were still considered having a positive influence on them. However, at the end of the cycle I have noticed that students' performance decreased to 64% which is almost 18% difference. I believe it might be due to the quiz difficulty and the students' might be getting tired of being tested on 30 to 40 vocabulary items every week. Adding to the course work they had to submit during the cycle such as projects and homework.

I have also compared each level's performance in each quiz. As the results show that level 1 have scored the highest in all the quizzes by 81%. Where level 2 achieved the lowest in all the quizzes and managed a fairly low percent of 67% as table 2 shows. Level 3 have achieved higher than level 2 although that they are tested on 40 vocabulary items where level 2 are tested on less items.

Levels	Quiz Average for all levels
FND-1016	81%
FND-2016	67%
FND-3016	75%
Grand Total	74%

Table 2: Quiz Average for all levels

Table 3 also shows that level 2 scored the lowest even in both easiest and hardest quizzes. I predict that level 2 quiz items and questions might be the most difficult among the levels. I can also relate it to the students' motivation and hard work during the cycle.

Levels	Average of Vocab 4	Levels	Average of Vocab 6
FND-1016	90%	FND-1016	78%
FND-2016	77%	FND-2016	52%
FND-3016	79%	FND-3016	65%
Grand Total	82%	Grand Total	64%

Table 3: Vocabulary Quiz Averages for Q4 & Q6

I conclude that the vocabulary quiz results showed an improvement in the students' performance along the cycle, however, it dropped slightly in the last 2 quizzes. The results indicated also that level 1 scored the highest of all the levels whereas level 2 scored the lowest. All quiz averages were fairly close to each other with slight gaps between the levels, yet they are mostly scored in the 70s%.

I cannot draw a solid conclusion of the iPads influence on students' vocabulary retention here as the last two quizzes showed a decrease in students' performance. The improvement at the first half of the cycle might refer to high students' motivation and the easy vocabulary assessment. However, around the end of the cycle students' are expected to get ready for the final exam besides handing in projects and completing their volunteering hours. There are varied reasons interfering with this such as the test difficulty, students' exemption from the test, students' volunteering hours during the cycle and low students' motivation at the end of an intensified semester.

4.1.2 Students' questionnaire

The students' questionnaire was conducted as web-based questionnaire on www.surveymonkey.com. I have sent the questionnaire link to teachers in order to share it with their students. Also I have emailed former students who have graduated from the English

language program, I managed to collect 107 responses in a matter of 15 days. The questionnaire consists of 15 questions. I have designed 14 close-ended questions and 1 of them is open-ended.

Through the study I tried to look for students' opinions on the using iPads as a main learning resource to retain more vocabulary. I have asked for the students' learning interests and if whether iPads have developed their vocabulary retention or not. That also includes how well they did in their vocabulary exams after using the iPads to study vocabulary.

The majority of the students indicated that they prefer to use iPads as a main learning resource as 34% of them agreed, whereas 5% have disagreed. Also there was a fairly large number of students agreed that iPads helped them to learn better through accessing more resources. There were 50 students who agreed on that and nearly 8 students only who disagreed. So far the students seems to be biased toward iPads learning in vocabulary acquisition. Also there were more than 50 students agreeing that iPads offer a faster way to study and remember vocabulary (see figure 6).

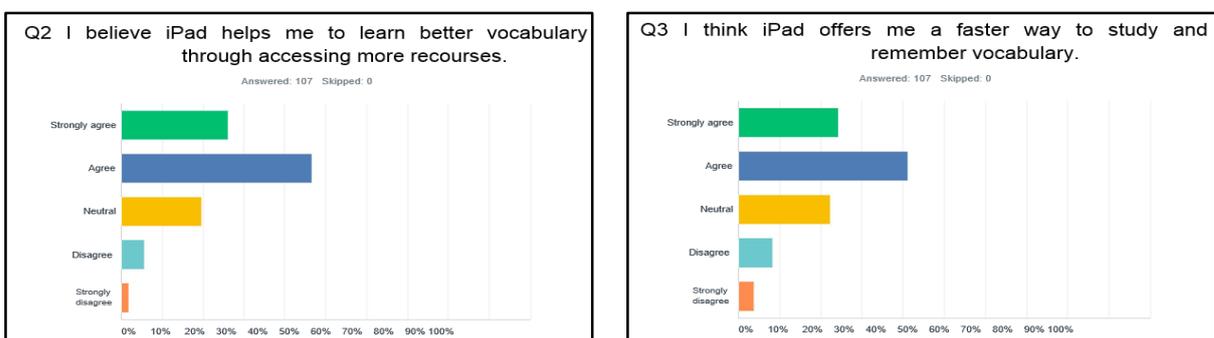


Figure 6: Students' Responses on the use of iPads

Later in the questionnaire the students' responses toward the use of iPads on vocabulary retention have started to change to be more neutral. In question 5 the gaps between students' opinions became closer than the beginning of the questionnaire. In the same question 28 students have expressed that their preference to use iPads over papers to study vocabulary.

Interestingly, the same number of students (23 students) have voted for both strongly agree and neutral (see appendix 2 p. 65).

In question 7 I have asked the students if they started to do well in exams after the use of iPads. The majority of them voted for neutral again, thus we cannot judge the real influence of iPads here. In question 8 the results are still unclear yet. An equal number of 33 students have voted for agree and neutral on whether their vocabulary marks have improved after using iPads (see figure 7).

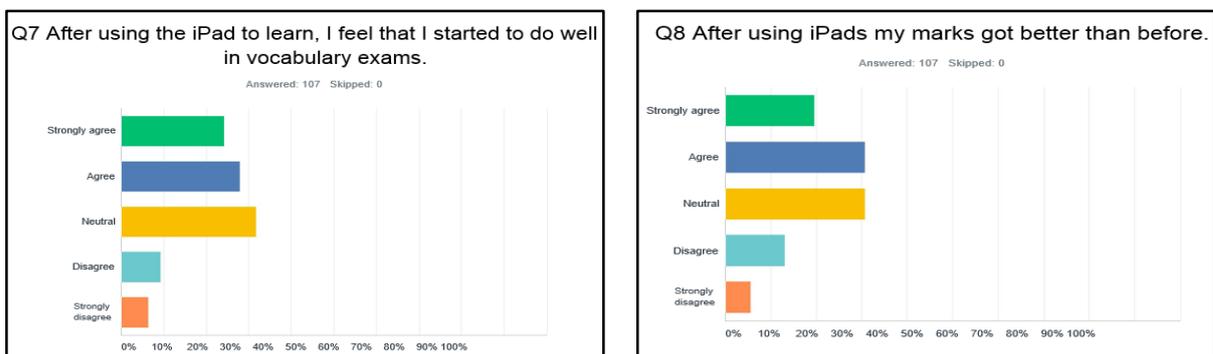


Figure 7: Students' Responses on iPad's influence on their Performance

At the end of the question 1 the students have agreed again that iPads is enhancing their memory and helping them to remember more words and meanings. In questions 9 and 10 there is around 37-38 students who agreed that their memory and ability to recall more words have improved after the use of iPads. They also agreed that their teachers believe iPads can help them to remember more meanings. However, there is a slight gap between agreement and neutral again where the difference is only between 4 to 10 students (see appendix 2 pp. 65 - 72).

Once again we cannot confirm if iPads have a positive influence on students' vocabulary retention according to the students' perspective. At first the students have expressed their agreement on their interest to use iPads to study vocabulary due to its fastness and easiness as

a learning tool. However, the majority was neutral toward the iPads influence on their vocabulary marks, their memory and vocabulary retention.

4.1.3 Teachers' interview

I have conducted 14 interviews with 14 teachers who have volunteered to take a 30 minutes interview. They have shared their opinions and experiences on the iPads implementation in classroom and how did it influence their teaching and their students' performance. I could interpret that some of them are still biased toward the traditional teaching methods, whereas the rest of them preferred to use both modern and traditional methods in parallel. There are 4 from teachers' interview samples included (see appendix 3 p. 73).

When I first asked the teachers whether they prefer to use technology or traditional methods in their classes; most of them answered with both, but with restrictions toward technology. Most of the teachers agreed that mobile devices made their teaching and materials preparation easier. Whereas, other teachers suggested the current intensive curriculum does not help teachers to find more methods to improve vocabulary retention. In the intensive program teachers are restricted to follow specific schemes in order to cover the four language skills within a specific time frame as well. Teachers shared different reasons for implementing mobile devices within their in-class activities, and why some of them still prefer to use a mix of modern and traditional pedagogic methods.

In question 3 (see appendix 3 p. 73) I asked the teachers why they prefer to teach using mobile devices in classroom such as the iPads. Almost all of the teachers agreed that they are affordable and accessible. Some of them also indicated that their students enjoy them and they made teacher's life easier. Nevertheless, there are two teachers who shared more details about their preferences. One teacher believe that using iPads has a positive influence in saving the

environment and cutting less trees. Another colleague opposes mobile devices partially by explaining that he prefers to use the old fashioned methods as they are the best for retention and recycling. He also believes that mobile devices are good for students to practice but not for teachers to depend on wholly.

In questions 4 and 5 the majority of teachers considered relying on mobile devices as risk taking because students are not mature enough to use them responsibly. Their view about technology is still not safe and reliable enough and they always have to prepare plan B whenever they use technological resources. Teachers share based on their experience that students have to be cognitively involved in the learning process and mobile devices puts a distance between their mental engagement and what they are learning. They encourage to use iPads mostly where appropriate depends on the lesson needs.

When I asked the teachers if their students' marks have improved during the semester and if they feel that their students' vocabulary retention have improved. Most of the answers were either neutral or showed disagreement. The teachers think it is because their students are repeating the same vocabulary list-learning process in every cycle that is why their retention has improved. They also refer to students' hard work and intrinsic motivation as the main aspects of their retention development. Teachers emphasized that there are several influential factors as well such as the course structure and syllabus design.

To answer this question I conclude that mobile devices do not necessarily improve students' vocabulary retention, yet they have both a positive and a negative influence on their learning experience to some extent. I believe it depends on the teacher when he implements mobile devices where necessary. And it also depends on the student and how he is using his mobile

device responsibly. We cannot also deny how the students' learning style, motivation and working memory might influence this as well.

4.2 Mobile applications influence on vocabulary retention

4.2.1 Students' questionnaire

I have asked the students on how the use of mobile applications have served their vocabulary retention and what mobile apps they are using in order to achieve more retention goals. These questions are already included in the survey monkey questionnaire as questions 11 and 12 (see appendix 2 p. 65).

Students have listed a variety of mobile applications they are using to improve their vocabulary retention. They have listed vocabulary-specialized learning applications such as Spelling City, Quizlet, Duolingo and other interactive games. However, the majority have mentioned that they are not using any applications and they scored the highest percentage of 31% (see appendix 2 p. 65). I believe that if the majority answered by using "none". That can be an indicator of their biasness toward mobile devices. I also assume that the majority of this sample might be using iPads for other reasons rather than learning vocabulary as long as they indicated that they are not using any.

I have also asked the students why they think that mobile applications help them to recall vocabulary better. A very good number of them have agreed on 3 reasons for them to use mobile applications. Firstly because they include the Arabic meaning such as Quizlet. Also because they are fun and interactive to use compared to the old schooled methods, thus they help students to remember more words and meanings. The Arabic meaning option was the most popular option among the target group. See figure 8.

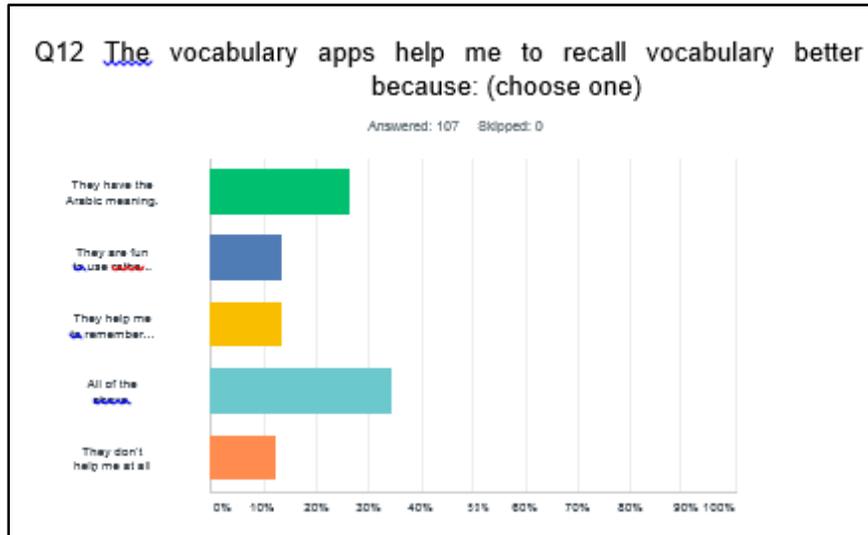


Figure 8: Students' opinion on the use of Mobile Apps

4.2.2 Teachers' interview

The teachers had similar opinions to their students as they mentioned in the interview. Yet, their answers were neutral when it comes to the impact on retention. I have enquired the teachers to share with us their experience with mobile applications and whether they encourage their students to use them or not. Most of the teachers indicated that they encourage their students to use mobile applications to practice vocabulary. Conversely, their opinion were controversial when I asked about students' retention and test improvement.

The teachers clarified that they encourage to use mobile devices in class as they have enhanced their students' vocabulary retention. But they have not fully agreed if the vocabulary test scores have noticeably improved. Most teachers tended to be neutral when I asked about retention and its connection to vocabulary test performance (see appendix 3 p. 73).

Teachers have agreed that mobile applications gained the students interests and improved their retention because they encourage students to become active learners, they are interactive and

fun to use. They also offer Arabic meanings and visuals. On the other hand, the target teachers have not indicate whether mobile devices have led to improve their students' vocabulary scores. Some explained that retention does not rely fully on test scores but it is related to practice and productive language skills.

In conclusion, mobile applications do not necessarily improve students' vocabulary retention but it has a positive influence to some extent. Mobile applications do offer a range of translations, visual aids and interactive practices as the target group reported. On the contrary, hence students and teachers have reported no specific input toward the mobile applications influence on their vocabulary retention we cannot draw a final consensus toward mobile applications influence on vocabulary retention.

4.3 Online dictionary influence on vocabulary retention

4.3.1 Students' questionnaire

I have asked the sample students on how the use of online or electronic dictionaries have supported their vocabulary retention and why they prefer to use them over traditional paper dictionaries. These questions are already included in the survey monkey questionnaire as questions 13 and 14 (see appendix 2 p. 65).

Students have strongly agreed that online dictionaries offer a great help when it comes to studying vocabulary. There were around 90 students voted for online dictionaries as an efficient vocabulary learning resource. In addition, there are around 76 students who prefer to use online dictionaries due to it easy usability and providence of Arabic meanings. They are also keen on electronic dictionaries because they are faster and quick to access compared to the traditional dictionaries.

I can tell that online dictionaries are becoming more popular among students by judging on their high responses toward online dictionaries. Yet, the students have not indicate specifically if online dictionaries have a positive influence on their retention. They just mentioned how useful they are when it comes to studying vocabulary and why they preferred to use them.

On this aspect, I might consider the students' feedback as a secondary opinion since they are still biased toward technology with no major indication of online dictionaries influence on their vocabulary retention. Students have only indicated their preference to us them. Yet, the teachers' view might give us a clearer picture of the online dictionaries use and influence on retention.

4.3.2 Teachers' interview

I have questioned the target teachers to share what they have examined when their students use online dictionaries to learn and study vocabulary. Firstly I have asked if they are implementing them in class and if they noticed any retention improvement in their students' memory. Likewise the mobile applications, I have asked the teachers if they noticed any positive improvement in the test scores after applying the online dictionaries (see appendix 3 p. 73).

Most of the target teachers group pointed to how important the online dictionaries are especially when it comes to list-learning. They are encouraging their students to use them continuously and precisely before the exams. Half of teachers agreed that online dictionaries do influence the vocabulary retention positively whereas the other half stayed neutral. I had the same opinions when I asked them if their students test scores have improved during the past semester but with more bias toward being neutral.

The neutral group expressed that vocabulary retention does not rely fully on online and translation and test scores as they believe. They experienced that some students spent as much time as they could on translating words and meanings, yet their performance was no better than the ones who studies hard and managed to apply the meanings correctly. Teachers also negotiated that the overuse on dictionaries may kill the student's confidence and push him to be more reliable on technology rather than using his cognitive abilities.

To sum up this question, I believe that online dictionaries have a positive influence on students' retention to some extent but it does not necessarily improve it. Teachers suggest that we cannot rely full on using online dictionaries all the time to save the students' cognitive skills. They also suggest that vocabulary retention does not depend on test scores or translation, but it depends on how the students master the words and meanings to use them correctly in context.

4.4 Summary

To conclude this chapter I will summarize the main findings of this study and answer the research questions briefly. At the end of this study, I found that mobile devices and online dictionaries do not necessarily improve the vocabulary retention. They are in fact a double-edged sword that has both negative and positive influence on students' retention. Mobile devices can offer a wide range of visuals, interactions and fun aspects when we teach these young generations. Yet, it still depends on students' maturity level and how they take the responsibility for using such devices. It also relates to the teacher's own beliefs and integrated methods he implements using technology.

According to the teachers' feedback who suggest that mobile technology is still in its infancy and it needs a lot more consideration when it is been applied on a specific age or level. Teachers

believe it should be used to supplement other methods of teaching rather than focusing on it purely. The combination between mobile devices and traditional methods would be ideal for an interactive learning to get benefit from both schools of teaching. In several occasions when those teachers used mobile applications in classroom to teach vocabulary students lost interests and started to flounder in other non-language learning apps; due to their short attention span when it comes to have a mobile device. That is also because those students received less interactive English learning in schools who mainly relied on traditional grammar-translation methods especially the boys.

Mobile devices are beneficial to some extent but students need to be trained on both modern and traditional methods. Some teachers even emphasized on the importance of pen and paper as they affect the memorization and remembrance of vocabulary words. Moreover, some students found them enjoyable and fun to use as a change of old fashioned pen and paper routine. Therefore, it all depends on the teachers' integration of methods and approaches in classroom as they know their students' needs best. Also, the students have to be responsible for using mobile devices in classroom for learning purposes only even at a young age.

Mobile devices and online dictionaries may lead to vocabulary retention and improvement if they integrated deliberately with traditional methods. Technology itself is not sufficient enough to maintain vocabulary retention as the student needs to gain the benefit of both traditional and modern approaches. Also, students' motivation plays a vital role in enhancing their vocabulary retention, so if they have no motivation then no device will improve their retention. Another aspect is recycling. If the vocabulary is not practiced or recycled then it will disappear and won't be reserved for long-term memory.

Discussion, Conclusion, Recommendations and Limitations

5 Chapter 5

This chapter will present the final discussion of this study and provide a rational for the previously presented findings. It will rationalize the previous chapter and explain the answers of the research questions. This chapter will also conclude and summarize the aim of this research. It will provide the researcher's recommendation for the Intensive English Program and the future research. It will also include what limitations the researcher faced since the start of this study.

5.1 Discussion

This section will discuss the findings and the data analysis through the researcher's view and the literature rationale. I will discuss my answers to the research questions in order to provide the previous researchers' views on this topic and what are their conclusion on those implemented theories and approaches.

The first finding was the answer to the first research question "*Does the use of smart mobile devices have an influence on the vocabulary retention of Emirati college students?*" I found that mobile devices and mobile applications may not necessarily improve students' vocabulary retention but they still have a positive influence to some extent. Mobile devices and their applications may have a positive influence on student's vocabulary retention depending on various reasons provided by their teachers.

Students had a different opinion on how iPads helped them to improve their vocabulary retention (or not). They have also provided differed opinions and reasons for using iPads to

study vocabulary. Students might have different learning experience when they encounter any approach of learning. They are self-builders of their learning journey which consists of cognitive process, social interaction and communication (Reich 2007: Al Mahmud 2013). In fact, a good number of students and teachers expressed their preference to keep using traditional methods to learn vocabulary. So, we have found several learning interests between modern, traditional and a mix of the two in this study. Thus we could not draw a solid conclusion of the definite impact of mobile devices on vocabulary retention. According to (Pritchard & Woollard 2010: McPhail 2016) students construct their own views and paths of learning through a mixture of social interaction, cognitive processing and knowledge.

I have discussed previously in the literature review how the MALL approach is becoming common in English Language classrooms due to its affordability of visuals and interactive practices (De la Fuente 2012: Yang, 2013). However, as mentioned that mobile-assisted devices do not seem to improve students' retention but there is still a positive influence somehow on their vocabulary under some circumstance. Liu and Chen (2014) suggest some memory retention strategies to promote in class such as creating mental linkage, applying physical actions and applying the use of visuals. Also, Douglas (2016) adds that achieving the proper level of vocabulary retention relies on two factors: effective pedagogical implementation (which depends on teachers) and independent study by students. So we can assume that vocabulary retention is a mission for both students and teachers to achieve in collaboration.

Mobile devices and applications might have a positive potential on students' vocabulary, also it can be referred to as online learning. Counter wise, traditional methods (or face-to-face) can be also an efficient aid to technology if we implement them deliberately. The Blended Learning approach also supports that that mobile devices is a component of technology that enhances

awareness and improves ability over the time. Also the blended learning approach integrates the advantages of both modern and traditional teaching to boost the students' language skills (Zhang & Han 2012: Lander 2015). In addition (Zhang & Han 2012: Wong et al. 2013) emphasize that blended learning reflects on the student's ability to receive and process information on both online and face to face learning which is a unique design of learning.

One of the findings was also the teachers opinion on how over-relying on mobile devices and online dictionaries might lead to become dependent on technology. They presume that the overuse of mobile technology will impact the students' cognitive process and reduce its ability as we become more reliant on asking the device to think for us. Mayer (2012) and Greer et al. (2013) have driven this aspect from the Cognitive Theory of Multimedia Learning approach (CTML). CTML encourages human beings to learn through technology in order to support cognition. Students construct their working memory by the integration of auditory and visual information with prior knowledge to support their long term memory (Mayer 2012: Greer et al. 2013). However, when we overly rely on technology to take care of cognitive processing and working memory we leave the risk open to put out cognitive abilities to sleep (Mayer 2012: Sorden n.d). Liew and Tan (2016) suggests that the balance is needed so we can encourage our students to use their vocabulary skills to fetch meanings and to let the natural cognition work itself with not interference from other factors. Additionally, Asraf and Supian (2017) suggests that vocabulary learning is a cognitive procedure relies on understanding words and meanings, but we cannot keep excessively using technology to build it rather than using our own brains.

The findings have shown some relation to the Lexical Approach of Lewis where mobile devices offered lexical activities teaching the layer of lexis. Lewis's approach focuses on lexical teaching rather than grammatical drilling in order to improve students' language proficiency

(Lewis 1997: Lewis 2002: Xu et al. 2012). The mobile devices might have succeeded in offering lexical based applications which focus on practicing vocabulary within a special context. The target students have listed some mobile applications that offer such practices.

Another finding showed that vocabulary retention does not relate to test scores, but there are other aspects relate to that. Students' intrinsic motivation, hard work and working memory seems to have a greater rule to develop the vocabulary retention. There is no method or device that can develop student's own language skills with the motivation to work and learn (Fitzpatrick et al. 2008). Students' retention can reach its highest if there is a motivation and encouragement from within. The motivation plays as they key word when it comes to students' readiness and openness to receive any amount of language skills (Hsu 2013: Ornprapat & Wiwat 2015). Greer et al. (2013) have also emphasize on the amount of concentration needs to be given to students' working memory to ensure long term memory and effective retention. This study found that test scores might not be a reliable source on retention as the difficulty level can seriously vary. When investigating retention development there has to be more qualitative data against quantitative due to the different test variances (Splitter 2008: Hsu 2014).

Another aspect of the research findings was the intensive teaching of vocabulary words which did not seem to serve the students retention greatly even with the use of mobile devices. The EFL students have encountered many difficulties in retrieving the old list and combining the new one with it. Intensive vocabulary teaching can be more challenging when it is introduced to EFL college students. Students who are challenged with academic texts feel often irritated to retrieve words and meaning on demand (Fitzpatrick 2008: Joe 2010). The intensive learning of vocabulary needs to be frequently assessed and assisted over a period of time which needs to be merged with rich contextualized tasks as Joe (2010) indicates.

In the second finding I found that online dictionaries have a positive influence on students' retention to some extent but they do not necessarily improve it. Online dictionaries seem to gain the interests of these young generations due to their accessibility and mobility as they can be used everywhere and anytime. Hamdi (2015) and Ibrahim (2018) have argued the popularity of online dictionaries and how beneficial they are in classrooms. Students can select the language, write or even capture the unknown words and immediately find the translated version of it. Some teachers have started to take online dictionaries to consideration in their classrooms due to its availability and less paper wasting (Hamdi 2015: Ibrahim 2018).

On the other hand, teachers have negotiated the overuse of dictionaries as it may kill the student's confidence and turns him to be more reliable on technology rather than using his cognitive abilities. Students' confidence must be maintained in classrooms where the teacher encourages the student to use his own cognitive skills rather than the device. The over use of dictionaries of all types might not be useful enough to support the cognition process for a long term retention (Splitter 2008: Hamdi 2015). Al Mahmud (2013) highlights the importance of having students consuming their cognitive skills to process what they are learning and the technology aid might be applied as the last option.

To conclude this sections, I assume that mobile devices and online dictionaries do not improve vocabulary retention unless they have been used in certain ways. They still have positive and negative influence on students' retention, attitude or memory to some extent. However, it is the teacher's decision to implement it where relevant. It is also the student's level of motivation, hard work and working memory that construct his performance and retention. The Constructivists beliefs highlight the importance of shaping one's learning by his individual experience. Each individual learning experience is shaped by his social interaction, culture and

previous knowledge. We also cannot deny the importance of the working memory which is part of cognitive process of learning. A well-built working memory will lead to longer retention and solid long term memory (Slavin 2009; Pritchard & Woollard 2010). This may suggest that mobile learning and retention can be twined if we consider the mentioned aspects toward more efficient retention.

5.2 Conclusion

This study was conducted on a group of teachers and students in the English Language Program in one of UAE federal universities. This university is offering intensive English language courses through 4 proficiency levels. Students have to take the Bachelor entrance exam after the fourth English level to test their English language proficiency which makes them eligible to join the Bachelor degree. I have implemented the Mixed Method approach in order to collect the needful data for this study where I followed the Explanatory Sequential design under this approach. The sample group consisted of 244 students who shared their vocabulary test results through their teachers. A 107 current and former students who completed the online survey. And 14 teachers who volunteered to be interviewed separately as one-to-one. The sample group of teachers and students joined 3 different data collection instruments test results, students questionnaire and teachers interview.

The participants' attitude have differed between teachers and students where the level of biasness toward mobile devices and vocabulary retention was clear. The majority of students have shown interest toward the use of mobile devices to study vocabulary. They have provided reasons for their preference to use iPads because they offer great visual aids, accessibility and mobility. However, students have not provide any opinion if mobile devices have improved their vocabulary retention. The new generation of learners have applauded mobile learning and

occupied themselves with mobile devices to the extent of losing what they have to learn (Zervas and Sampson, 2014). In contrast, most of the teachers showed their opposition to rely fully on iPads as they do not retain students' vocabulary. Teachers suggest that there is no device will improve students' retention unless they work hard for it. Also, teachers also suggest that mobile devices might influence their students' cognitive skills negatively, so they prefer to balance between traditional and modern methods. Asraf and Supian (2017) suggests that vocabulary learning is a cognitive procedure that relies on understanding words and meanings, but what will happen if we keep excessively using technology to build it rather than using our own brains.

Both teachers and students have agreed on the usefulness of online translation and how does it enhance the students' vocabulary to some extent. The participants agreed that online dictionaries are fast to use, easy to access and provides a great input of Arabic meaning. Though there were not many agreed on its possibility to improve students' retention. Teachers also argued the risk of overusing those dictionaries to make the students very dependent on technology. Hamdi (2015) suggests that the use of dictionaries should come after the failure of efficient strategies. The excessive use of online dictionaries will also reflect negatively on the students' working memory as teachers suggest.

To sum up this study, we can conclude that mobile devices and online dictionaries might influence the students' vocabulary to some extent but not necessarily improving their retention. There are several aspects of their employment in class to succeed such as the teacher's integration of methods, students' needs and learning styles and how to adapt technology in classroom. Any teacher would definitely consider the risk of fully relying on technology and value the traditional methods which some are still valid to this day. According to Liu and Chen (2014) claim that profound learning happen when the students is engaged in productive methods

excluding that fact of those methods age. It all depends on how effective those methods are and how the teacher implements them correctly and relevantly with his students. Liu and Chen (2014) also stress on the importance of contextualizing those teaching methods to create a productive learning environment for the students.

5.3 Recommendations

This section will provide recommendations for the intensive English language program and how should reconsider teaching vocabulary to ensure long term memory. Also this section will suggest recommendations for further research on this particular topic.

5.3.1 Recommendation for the Intensive English Language Program

The understanding of vocabulary acquisition varies from one schools to another where decision makers concise on curriculum and syllabus design for the students. Through this study and the investigation in the intensive vocabulary syllabus I would suggest the following for more efficient outcomes:

- Add more space to practice vocabulary rather than testing. Vocabulary needs more practice and recycling.
- Minimize the target vocabulary words per week as students delete the memory of the previous week list in order to make a space for the new one. 30 – 40 words weekly means struggle to EFL learners who have not received proper English classes in schools especially the boys.
- Contextualize the vocabulary lists per week to familiarize the students with a certain words family within one context.

- Offer more PD sessions on intensive vocabulary teaching and learning as in the UAE teachers were not exposed to this type of system including expats teaching EFL.
- Liaise with a pioneer in EFL intensive language courses to learn more efficient vocabulary teaching strategies.
- Equalize all the language skills in the curriculum rather than focusing on certain skills such as vocabulary and grammar.
- Minimize testing and maximize the use of community involvement through project-based initiatives in English
- Implement best practice in intensive English teaching with adhering to EFL philosophy of teaching and pedagogy.
- Encourage teachers to practice modern and traditional technology to benefit from both schools.
- Host guest speakers from other intensive EFL programs to share their experiences and the best practices in their own classrooms.

5.3.2 Recommendation for future research

In this research I have investigated the influence of mobile devices on students' vocabulary retention within a 7-weeks cycle. Due to the small range of MALL research on English language learning the future researchers can consider other aspects of language as well. Maybe more focus on vocabulary and grammar retention is needed within the MALL context in the UAE. Many Emirati students are mainly struggling with vocabulary and grammar so these two areas may form a very interesting topic to explore.

In addition, the lack of researching the college students' retention in the UAE needs more enriching additions. If the researcher is looking for a broader topic I can suggest investigating

the teachers' input on MALL approach within language teaching. Teachers can be a valid resource through sharing their experience, welcoming observations and asking their students to participate in the research. Particularly the ones who experienced both eras of traditional and mobile technology learning.

Also if the researcher spend more time researching this topic on a larger group for one full year I believe we will gather more data on students' retention improvement before and after the use of mobile devices. A comparative research will be also ideal to compare two control groups from the same context, and test how they perform if one is given mobile devices and the other one follows pure traditional teaching. Later the researcher can follow the data analysis by t-test to compare the two groups on how well the control groups achieved within a specific time limit.

5.4 Limitations

Since the start of implementing this research I have been challenged by several aspects and hindrances. I have managed to solve some and adapt to the rest in order to complete this study. The first issue was accessing the students' results with a prior permission from the senior management. My direct supervisor have proactively solve this by contacting the senior director who approved it immediately on a written document. After that I managed to collect 244 students' vocabulary scores with no major problems.

The teachers' shortage of free time was another problem during my data collection procedure. Some teachers have apologized to be interviewed where 14 teachers agreed to do them, yet we struggled to find the convenient time between classes. So, I have shrunk the interview time to start either in the early morning or late afternoon after classes. I have even interviewed one teacher on Skype at home due to his very busy schedule.

Seeking approvals from the top management to conduct this research took also quite a long time to be approved. As a very sensitive topic toward the program I had to meet with my line manager and confirm to omit all university-related data to keep the confidentiality. At the end I managed to get a signed copy from my supervisor giving me the permission to conduct my research. Thus, all the collected data are kept anonymous as per the supervisor's instructions.

The last limitation was the short amount of time given in the last cycle. As mentioned previously that each cycle is 7-weeks long so it was so stressful to collect three different instruments from 14 teachers and hundreds of students. Luckily, the students were cooperative and their teachers spared no effort to help with data collection. During the cycle I have managed to collect the students test scores on weekly basis with the help from teachers who kept monitoring their progress. The students' questionnaire took around 15 days with sending gentle reminders to teachers in order to remind their students to complete it.

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7 Appendices

7.1 Appendix 1: Test Results

ID	Level	Vocab 1	Vocab 2	Vocab 3	Vocab 4	Vocab 5	Vocab 6	Quiz Average
1	Level 1	100%	88%	90%	87%	87%	97%	92%
2	Level 1	90%	80%	90%	100%	83%	77%	87%
3	Level 1	80%	60%	67%	83%	67%	63%	70%
4	Level 1	97%	84%	93%	90%	93%	100%	93%
5	Level 1	97%	100%	80%	97%	97%	100%	95%
6	Level 1	97%	64%	83%	90%	83%	87%	84%
7	Level 1	70%	100%	0%	100%	67%	90%	71%
8	Level 1	87%	Exempt	90%	97%	80%	97%	90%
9	Level 1	Exempt	72%	63%	97%	100%	97%	86%
10	Level 1	100%	92%	83%	90%	83%	87%	89%
11	Level 1	93%	84%	77%	100%	100%	93%	91%
12	Level 1	93%	96%	100%	100%	100%	100%	98%
13	Level 1	100%	76%	83%	93%	90%	57%	83%
14	Level 1	100%	100%	90%	100%	100%	100%	98%
15	Level 1	100%	100%	93%	100%	100%	87%	97%
16	Level 1	83%	92%	90%	83%	0%	97%	74%
17	Level 1	87%	80%	97%	100%	93%	97%	92%
18	Level 1	90%	76%	73%	80%	77%	83%	80%
19	Level 1	100%	68%	87%	100%	93%	100%	91%
20	Level 1	93%	92%	77%	100%	97%	73%	89%
21	Level 1	93%	72%	63%	93%	93%	73%	81%
22	Level 1	97%	72%	77%	93%	77%	73%	82%
23	Level 1	80%	68%	67%	87%	73%	60%	73%
24	Level 1	93%	100%	63%	100%	87%	87%	88%
25	Level 1	57%	40%	57%	73%	73%	53%	59%
26	Level 1	93%	76%	70%	83%	73%	73%	78%
27	Level 1	90%	68%	60%	90%	77%	73%	76%
28	Level 1	90%	80%	93%	97%	67%	67%	82%
29	Level 1	90%	88%	87%	90%	87%	93%	89%
30	Level 1	100%	68%	67%	87%	73%	67%	77%
31	Level 1	97%	80%	73%	93%	63%	73%	80%
32	Level 1	93%	100%	77%	100%	77%	93%	90%
33	Level 1	97%	68%	80%	90%	87%	83%	84%
34	Level 1	83%	84%	77%	90%	63%	73%	78%
35	Level 1	100%	72%	63%	100%	70%	87%	82%

36	Level 1	93%	92%	80%	100%	100%	83%	91%
37	Level 1	93%	76%	83%	87%	90%	83%	85%
38	Level 1	20%	28%	23%	37%	37%	17%	27%
39	Level 1	93%	72%	63%	100%	73%	67%	78%
40	Level 1	83%	68%	53%	93%	60%	43%	67%
41	Level 1	100%	88%	90%	97%	93%	93%	94%
42	Level 1	57%	36%	33%	57%	50%	47%	47%
43	Level 1	100%	100%	87%	100%	100%	80%	95%
44	Level 1	80%	64%	50%	70%	63%	70%	66%
45	Level 1	Exempt	76%	83%	100%	93%	90%	88%
46	Level 1	70%	48%	43%	53%	40%	20%	46%
47	Level 1	100%	96%	87%	100%	100%	97%	97%
48	Level 1	100%	60%	83%	83%	80%	73%	80%
49	Level 1	87%	60%	80%	80%	83%	73%	77%
50	Level 1	100%	80%	73%	100%	97%	53%	84%
51	Level 1	100%	96%	97%	100%	97%	90%	97%
52	Level 1	90%	68%	87%	100%	100%	87%	89%
53	Level 1	70%	56%	33%	77%	53%	60%	58%
54	Level 1	83%	76%	80%	100%	97%	100%	89%
55	Level 1	43%	40%	57%	73%	63%	43%	53%
56	Level 1	100%	100%	97%	100%	100%	87%	97%
57	Level 1	93%	72%	70%	83%	97%	60%	79%
58	Level 1	90%	96%	87%	77%	80%	90%	87%
59	Level 1	100%	100%	80%	97%	93%	97%	95%
60	Level 1	20%	60%	67%	83%	77%	67%	62%
61	Level 1	100%	80%	90%	97%	87%	93%	91%
62	Level 2	60%	77%	49%	89%	80%	31%	64%
63	Level 2	57%	74%	83%	69%	91%	23%	66%
64	Level 2	60%	63%	51%	66%	49%	34%	54%
65	Level 2	60%	74%	71%	91%	89%	46%	72%
66	Level 2	Exempt	80%	80%	86%	97%	49%	78%
67	Level 2	Exempt	46%	57%	66%	0%	0%	34%
68	Level 2	49%	69%	60%	63%	77%	0%	53%
69	Level 2	23%	49%	40%	83%	43%	40%	46%
70	Level 2	60%	86%	97%	89%	97%	60%	82%
71	Level 2	54%	74%	43%	69%	49%	54%	57%
72	Level 2	69%	69%	63%	66%	71%	49%	65%
73	Level 2	69%	71%	71%	66%	66%	49%	65%
74	Level 2	77%	60%	89%	89%	89%	66%	78%
75	Level 2	60%	63%	60%	43%	43%	34%	51%
76	Level 2	57%	71%	69%	86%	77%	54%	69%
77	Level 2	80%	74%	91%	100%	80%	83%	85%
78	Level 2	66%	63%	63%	74%	86%	49%	67%

79	Level 2	66%	69%	60%	89%	63%	100%	75%
80	Level 2	43%	49%	71%	77%	0%	0%	40%
81	Level 2	49%	54%	46%	51%	46%	43%	48%
82	Level 2	23%	49%	69%	71%	54%	46%	52%
83	Level 2	14%	66%	54%	51%	54%	66%	51%
84	Level 2	31%	74%	63%	77%	66%	49%	60%
85	Level 2	26%	80%	74%	80%	0%	40%	50%
86	Level 2	23%	51%	63%	71%	23%	17%	41%
87	Level 2	11%	51%	74%	80%	63%	49%	55%
88	Level 2	89%	77%	83%	80%	83%	60%	79%
89	Level 2	83%	91%	83%	80%	91%	66%	82%
90	Level 2	71%	89%	83%	80%	80%	51%	76%
91	Level 2	71%	94%	91%	97%	100%	74%	88%
92	Level 2	37%	83%	69%	94%	91%	80%	76%
93	Level 2	80%	77%	60%	94%	66%	37%	69%
94	Level 2	57%	69%	63%	54%	63%	23%	55%
95	Level 2	86%	86%	86%	100%	89%	80%	88%
96	Level 2	Exempt	71%	77%	77%	66%	46%	67%
97	Level 2	37%	63%	63%	60%	37%	17%	46%
98	Level 2	74%	74%	77%	97%	69%	57%	75%
99	Level 2	91%	100%	100%	100%	89%	74%	92%
100	Level 2	63%	51%	71%	66%	57%	37%	58%
101	Level 2	77%	66%	80%	80%	83%	40%	71%
102	Level 2	80%	86%	86%	94%	80%	86%	85%
103	Level 2	60%	74%	91%	80%	83%	43%	72%
104	Level 2	77%	89%	89%	83%	51%	51%	73%
105	Level 2	54%	57%	63%	80%	0%	37%	49%
106	Level 2	34%	80%	80%	83%	60%	66%	67%
107	Level 2	89%	89%	100%	Exempt	100%	63%	88%
108	Level 2	11%	Exempt	23%	26%	14%	14%	18%
109	Level 2	89%	94%	97%	100%	91%	74%	91%
110	Level 2	26%	43%	40%	26%	17%	17%	28%
111	Level 2	40%	74%	77%	74%	77%	20%	60%
112	Level 2	71%	71%	80%	91%	57%	0%	62%
113	Level 2	60%	74%	89%	86%	49%	69%	71%
114	Level 2	51%	89%	97%	94%	89%	71%	82%
115	Level 2	94%	86%	100%	83%	94%	80%	90%
116	Level 2	74%	Exempt	89%	80%	86%	66%	79%
117	Level 2	63%	83%	100%	91%	86%	57%	80%
118	Level 2	60%	66%	46%	83%	46%	40%	57%
119	Level 2	29%	69%	71%	86%	66%	40%	60%
120	Level 2	54%	74%	74%	80%	57%	71%	68%
121	Level 2	49%	Exempt	46%	71%	63%	77%	61%

122	Level 2	89%	77%	100%	97%	94%	91%	91%
123	Level 2	77%	80%	74%	91%	77%	49%	75%
124	Level 2	71%	77%	80%	77%	89%	74%	78%
125	Level 2	69%	80%	91%	86%	83%	74%	81%
126	Level 2	77%	91%	100%	86%	100%	89%	91%
127	Level 2	71%	74%	63%	89%	63%	60%	70%
128	Level 2	17%	71%	57%	66%	60%	29%	50%
129	Level 2	89%	100%	100%	100%	100%	97%	98%
130	Level 2	49%	69%	49%	66%	57%	49%	57%
131	Level 2	26%	17%	9%	17%	9%	20%	16%
132	Level 2	57%	94%	89%	91%	100%	89%	87%
133	Level 2	74%	80%	77%	69%	86%	71%	76%
134	Level 2	60%	89%	74%	57%	63%	51%	66%
135	Level 2	80%	97%	89%	89%	89%	89%	89%
136	Level 2	31%	66%	34%	57%	37%	31%	43%
137	Level 2	63%	74%	77%	80%	80%	63%	73%
138	Level 3	83%	65%	93%	68%	90%	65%	77%
139	Level 3	65%	65%	88%	98%	90%	90%	83%
140	Level 3	65%	70%	83%	98%	88%	78%	80%
141	Level 3	68%	88%	93%	85%	83%	90%	85%
142	Level 3	40%	68%	80%	70%	80%	98%	73%
143	Level 3	78%	83%	93%	88%	95%	73%	85%
144	Level 3	68%	60%	88%	88%	88%	70%	77%
145	Level 3	75%	78%	85%	Exempt	83%	80%	80%
146	Level 3	70%	85%	83%	88%	85%	68%	80%
147	Level 3	65%	50%	68%	58%	65%	45%	59%
148	Level 3	65%	50%	83%	73%	70%	68%	68%
149	Level 3	90%	93%	90%	90%	90%	0%	76%
150	Level 3	85%	75%	90%	60%	68%	65%	74%
151	Level 3	98%	93%	98%	100%	100%	0%	82%
152	Level 3	80%	88%	85%	88%	98%	45%	81%
153	Level 3	75%	85%	68%	83%	90%	58%	77%
154	Level 3	100%	98%	90%	100%	98%	0%	81%
155	Level 3	60%	95%	80%	95%	98%	0%	71%
156	Level 3	70%	53%	55%	35%	53%	50%	53%
157	Level 3	88%	83%	90%	95%	98%	65%	87%
158	Level 3	100%	98%	98%	100%	100%	0%	83%
159	Level 3	95%	93%	95%	98%	100%	0%	80%
160	Level 3	100%	98%	90%	100%	98%	43%	88%
161	Level 3	83%	93%	93%	85%	88%	98%	90%
162	Level 3	58%	55%	43%	43%	75%	40%	52%
163	Level 3	90%	85%	85%	93%	85%	83%	87%
164	Level 3	83%	70%	90%	88%	88%	68%	81%

165	Level 3	80%	55%	58%	63%	0%	50%	51%
166	Level 3	68%	78%	98%	100%	78%	88%	85%
167	Level 3	93%	88%	95%	100%	93%	95%	94%
168	Level 3	90%	85%	95%	100%	85%	83%	90%
169	Level 3	85%	75%	95%	78%	83%	75%	82%
170	Level 3	70%	60%	68%	Exempt	70%	75%	69%
171	Level 3	45%	63%	75%	70%	70%	58%	64%
172	Level 3	83%	53%	0%	90%	85%	63%	62%
173	Level 3	78%	80%	80%	83%	85%	90%	83%
174	Level 3	25%	90%	100%	70%	93%	100%	80%
175	Level 3	23%	28%	60%	55%	53%	40%	43%
176	Level 3	83%	45%	0%	85%	78%	68%	60%
177	Level 3	83%	83%	88%	88%	85%	78%	84%
178	Level 3	90%	95%	100%	93%	85%	90%	92%
179	Level 3	83%	85%	93%	93%	90%	90%	89%
180	Level 3	80%	75%	80%	80%	78%	55%	75%
181	Level 3	Exempt	60%	70%	60%	73%	73%	67%
182	Level 3	55%	Exempt	78%	58%	68%	63%	64%
183	Level 3	80%	63%	80%	38%	83%	50%	66%
184	Level 3	25%	58%	65%	85%	65%	58%	59%
185	Level 3	45%	43%	50%	38%	65%	30%	45%
186	Level 3	98%	90%	98%	93%	90%	90%	93%
187	Level 3	65%	83%	93%	83%	88%	78%	82%
188	Level 3	90%	100%	85%	95%	98%	95%	94%
189	Level 3	28%	60%	63%	68%	78%	53%	58%
190	Level 3	55%	35%	60%	68%	70%	55%	57%
191	Level 3	60%	70%	88%	100%	88%	88%	82%
192	Level 3	75%	70%	78%	60%	75%	63%	70%
193	Level 3	58%	45%	68%	65%	60%	40%	56%
194	Level 3	83%	73%	83%	95%	90%	63%	81%
195	Level 3	75%	70%	95%	98%	88%	68%	82%
196	Level 3	Exempt	78%	78%	75%	88%	78%	79%
197	Level 3	63%	88%	75%	93%	100%	63%	80%
198	Level 3	63%	68%	90%	95%	85%	65%	78%
199	Level 3	85%	65%	80%	90%	90%	78%	81%
200	Level 3	90%	100%	100%	100%	100%	100%	98%
201	Level 3	85%	85%	95%	100%	100%	83%	91%
202	Level 3	85%	73%	88%	93%	80%	73%	82%
203	Level 3	25%	35%	43%	45%	60%	33%	40%
204	Level 3	93%	100%	100%	100%	90%	100%	97%
205	Level 3	75%	65%	88%	53%	80%	63%	71%
206	Level 3	80%	55%	83%	63%	68%	35%	64%
207	Level 3	58%	75%	73%	60%	75%	48%	65%

208	Level 3	83%	70%	78%	Exempt	90%	75%	79%
209	Level 3	68%	90%	80%	75%	73%	78%	77%
210	Level 3	98%	100%	100%	95%	100%	90%	97%
211	Level 3	75%	50%	73%	95%	93%	68%	76%
212	Level 3	98%	80%	90%	100%	93%	73%	89%
213	Level 3	83%	60%	85%	78%	88%	70%	77%
214	Level 3	58%	60%	33%	73%	85%	45%	59%
215	Level 3	90%	73%	75%	90%	93%	90%	85%
216	Level 3	90%	83%	100%	75%	85%	90%	87%
217	Level 3	83%	78%	98%	75%	93%	70%	83%
218	Level 3	100%	100%	100%	100%	88%	100%	98%
219	Level 3	90%	83%	100%	100%	100%	95%	95%
220	Level 3	91%	73%	80%	93%	95%	83%	86%
221	Level 3	93%	83%	90%	88%	90%	88%	89%
222	Level 3	73%	90%	60%	80%	88%	70%	77%
223	Level 3	80%	95%	85%	100%	90%	78%	88%
224	Level 3	73%	70%	70%	80%	95%	70%	76%
225	Level 3	58%	73%	48%	63%	65%	58%	61%
226	Level 3	15%	43%	60%	68%	75%	48%	52%
227	Level 3	60%	50%	53%	63%	85%	63%	62%
228	Level 3	73%	68%	80%	78%	73%	65%	73%
229	Level 3	83%	83%	85%	90%	90%	58%	82%
230	Level 3	65%	73%	100%	100%	90%	90%	86%
231	Level 3	80%	70%	58%	70%	85%	70%	72%
232	Level 3	23%	43%	48%	45%	73%	0%	39%
233	Level 3	90%	60%	65%	73%	78%	68%	72%
234	Level 3	58%	60%	65%	63%	73%	45%	61%
235	Level 3	95%	80%	85%	85%	85%	85%	86%
236	Level 3	33%	68%	63%	50%	58%	45%	53%
237	Level 3	43%	60%	55%	40%	73%	45%	53%
238	Level 3	83%	70%	88%	85%	80%	63%	78%
239	Level 3	75%	80%	100%	90%	100%	80%	88%
240	Level 3	25%	55%	38%	53%	65%	23%	43%
241	Level 3	75%	85%	93%	73%	83%	83%	82%
242	Level 3	48%	70%	73%	65%	58%	50%	61%
243	Level 3	55%	55%	43%	58%	83%	55%	58%
244	Level 3	60%	65%	73%	70%	75%	68%	69%
Average per each		72%	74%	75%	82%	77%	64%	74%

Levels	Average of Vocab 1
FND-1016	88%
FND-2016	58%
FND-3016	72%
Grand Total	72%

Levels	Average of Vocab 4
FND-1016	90%
FND-2016	77%
FND-3016	79%
Grand Total	82%

Levels	Average of Vocab 2
FND-1016	77%
FND-2016	73%
FND-3016	73%
Grand Total	74%

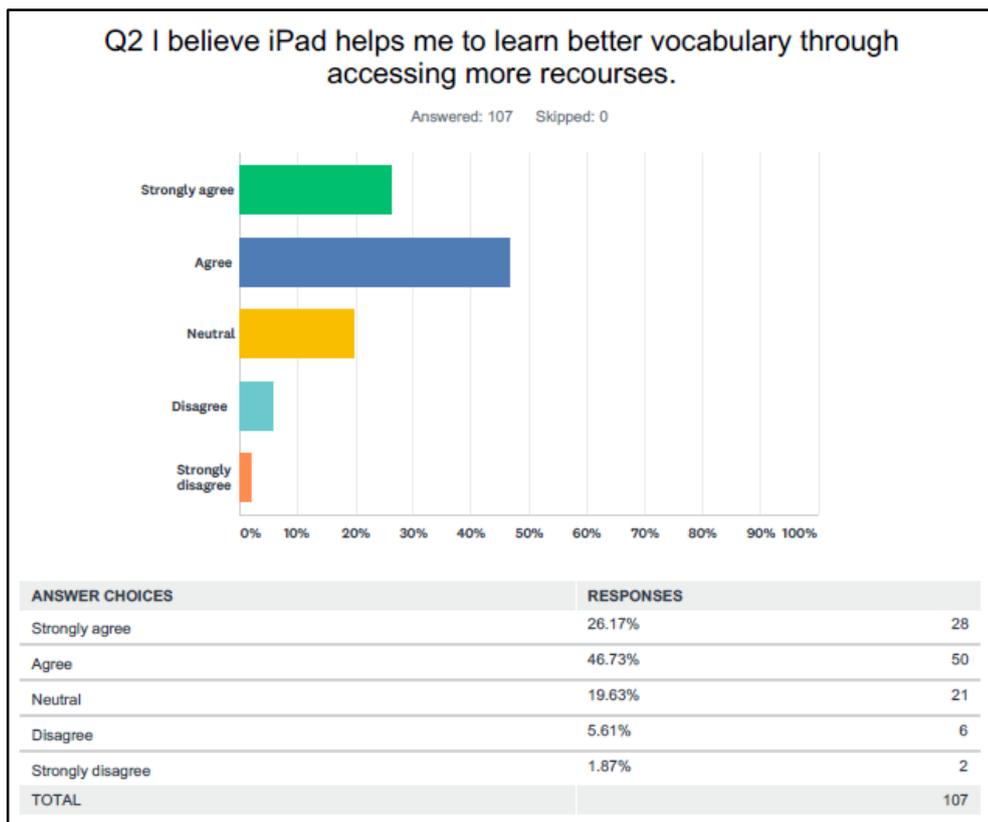
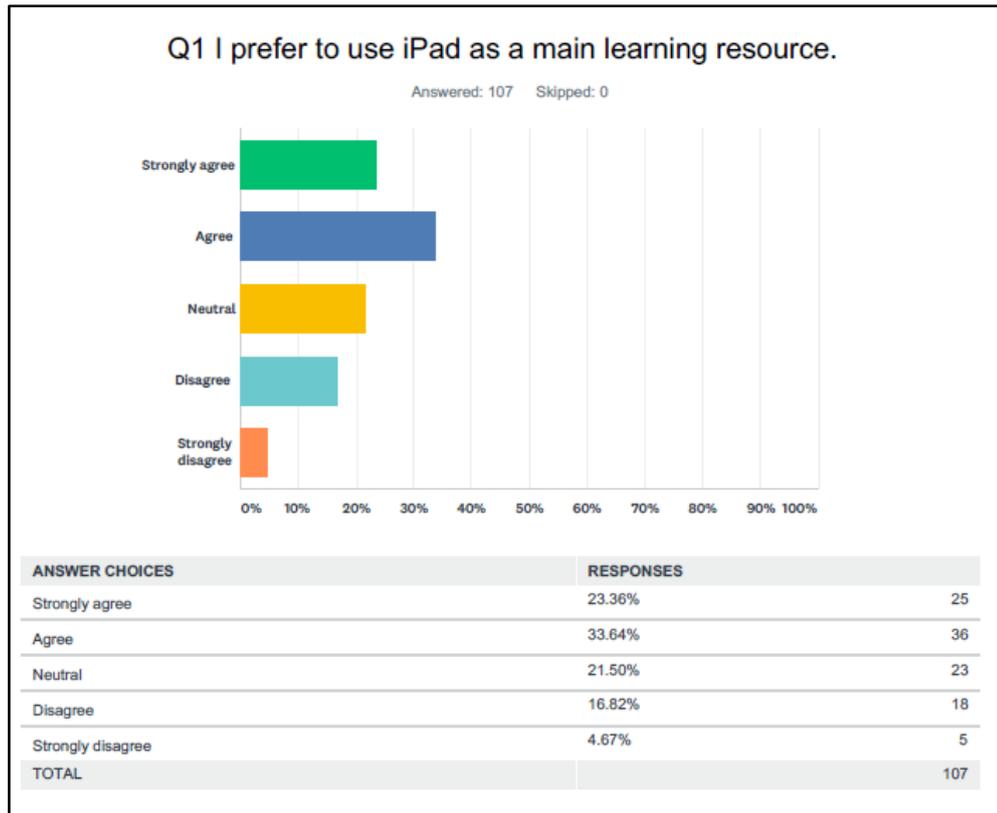
Levels	Average of Vocab 5
FND-1016	81%
FND-2016	67%
FND-3016	83%
Grand Total	77%

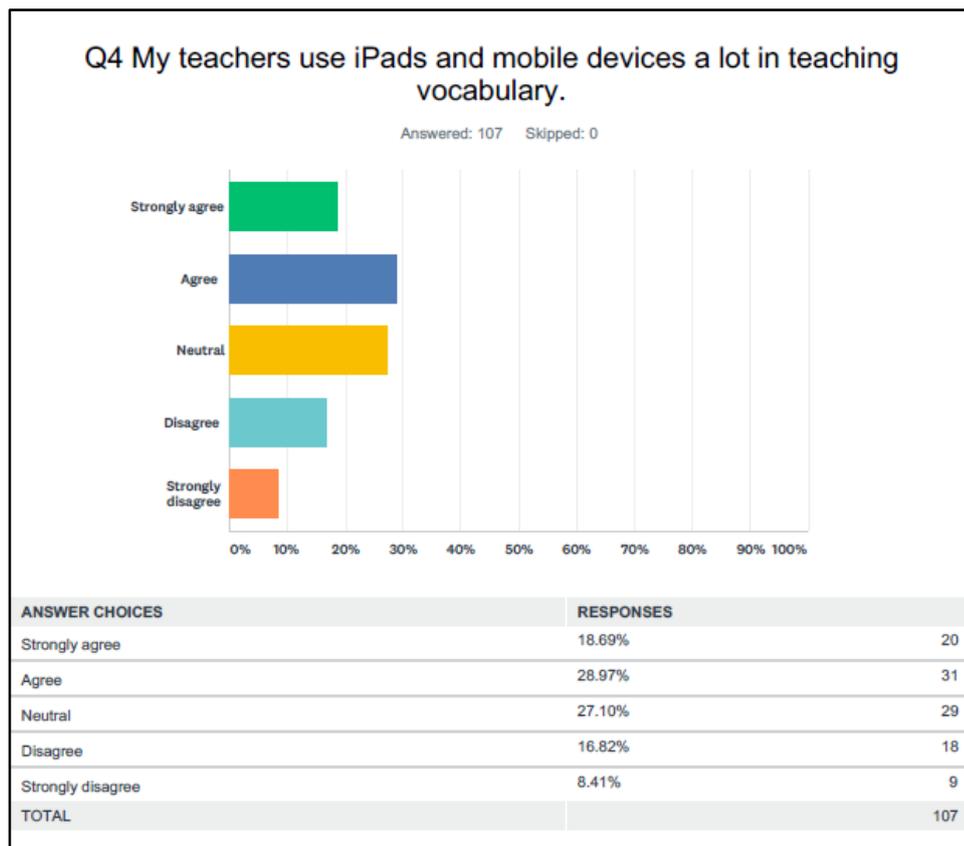
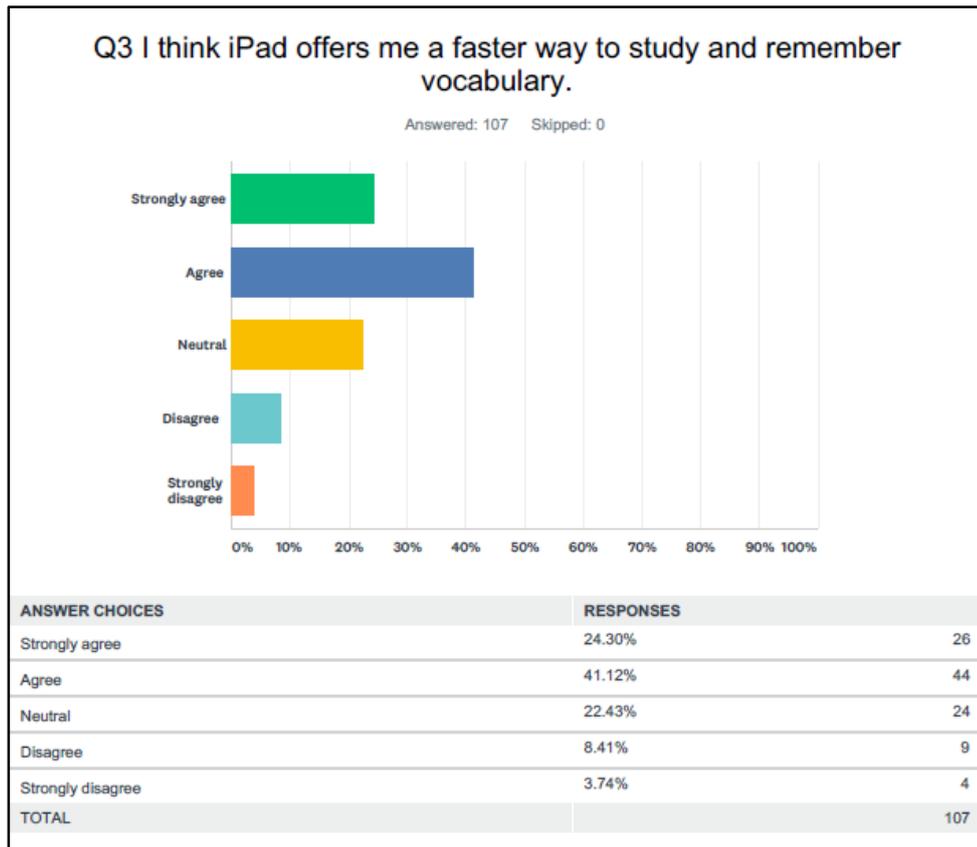
Levels	Average of Vocab 3
FND-1016	74%
FND-2016	72%
FND-3016	78%
Grand Total	75%

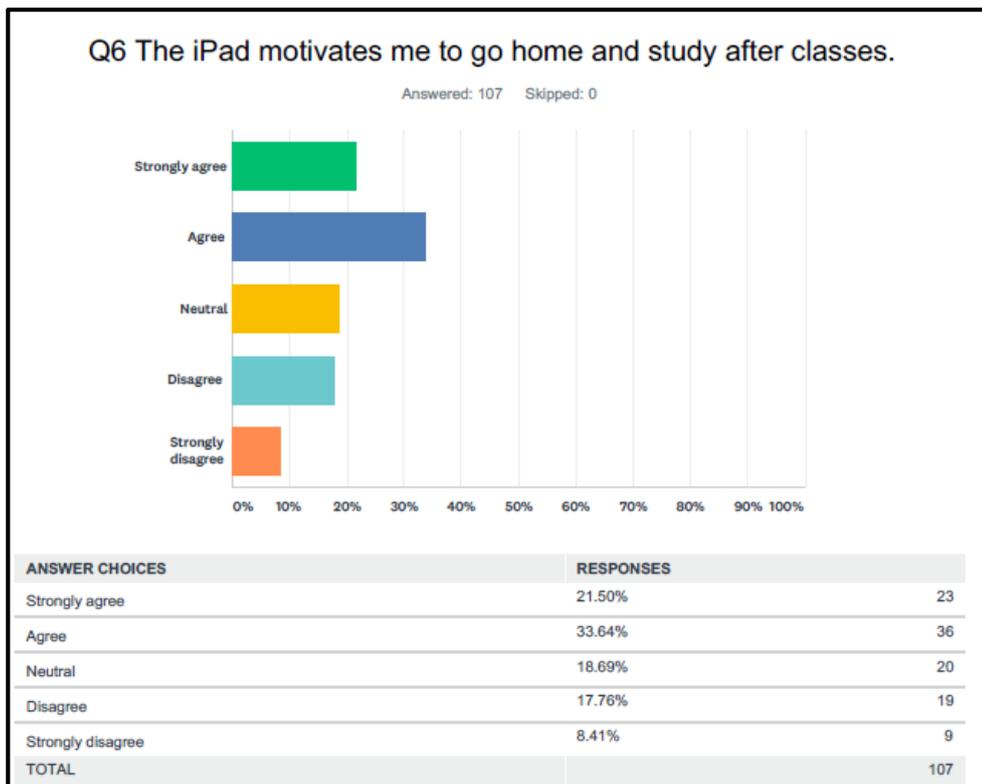
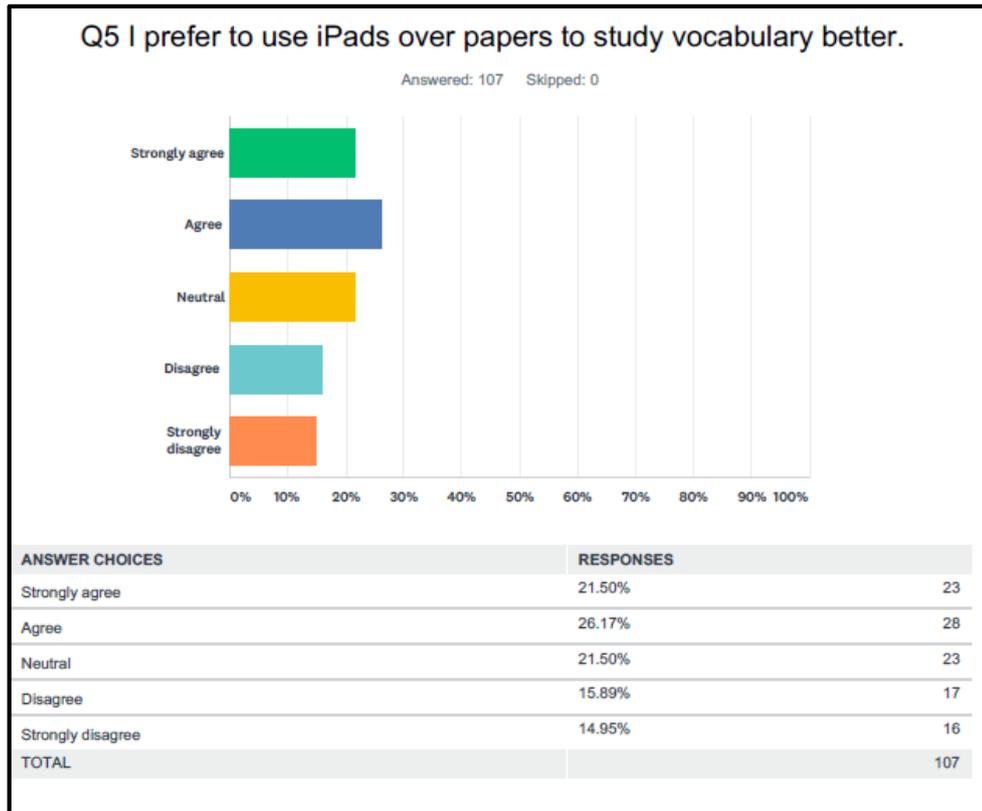
Levels	Average of Vocab 6
FND-1016	78%
FND-2016	52%
FND-3016	65%
Grand Total	64%

Levels	Quiz Average for all levels
FND-1016	81%
FND-2016	67%
FND-3016	75%
Grand Total	74%

7.2 Appendix 2: Students' Questionnaire Samples

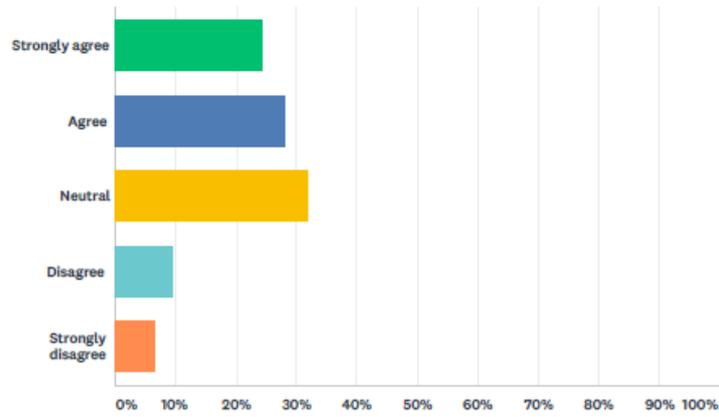






Q7 After using the iPad to learn, I feel that I started to do well in vocabulary exams.

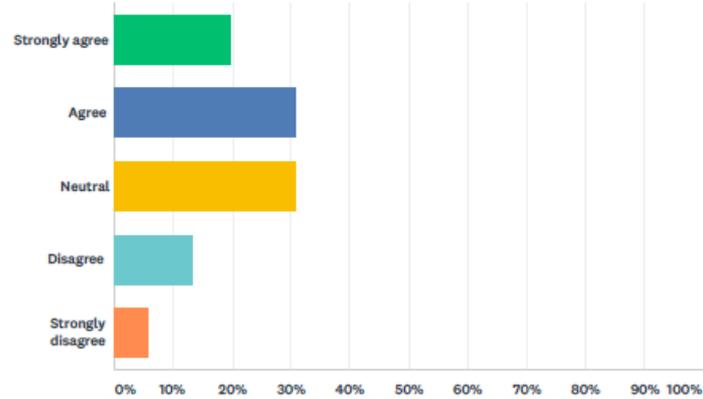
Answered: 107 Skipped: 0



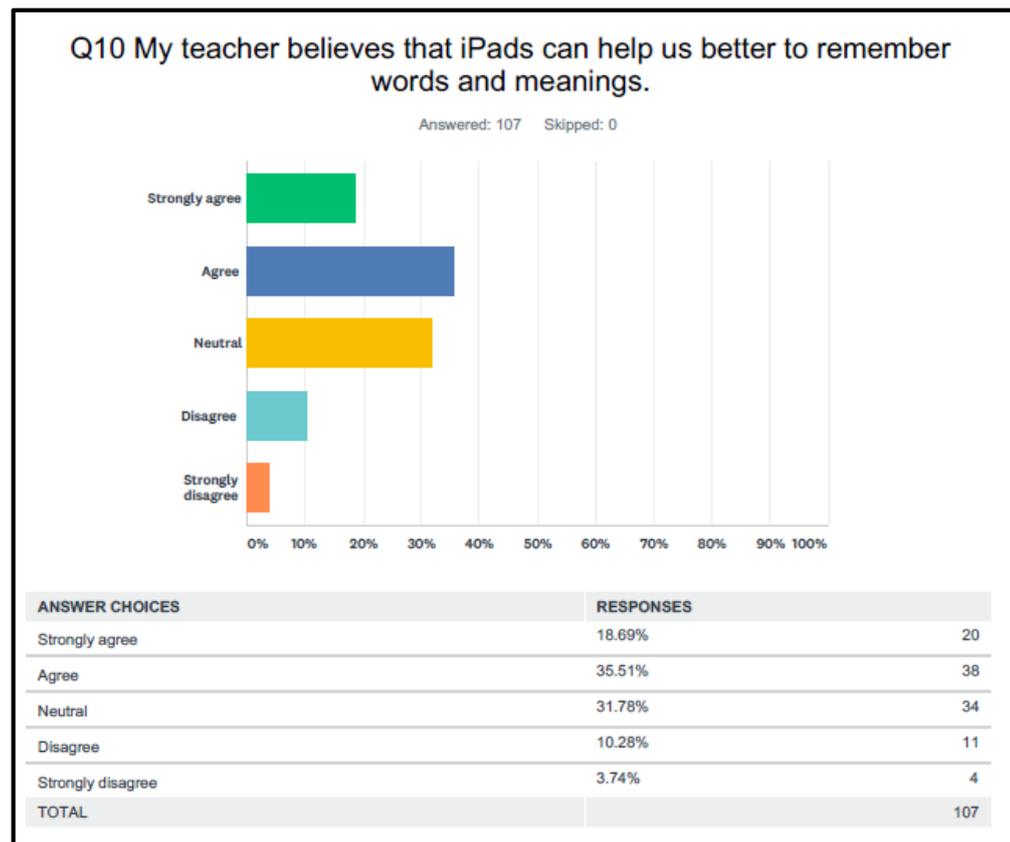
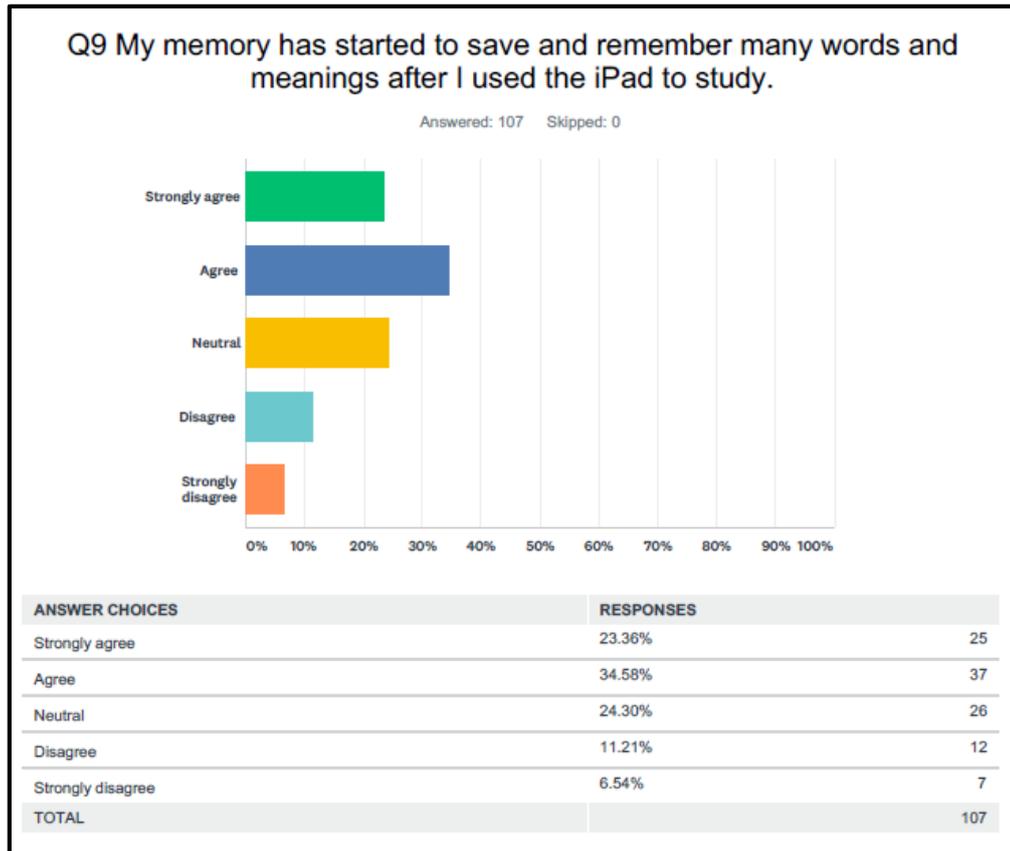
ANSWER CHOICES	RESPONSES	
Strongly agree	24.30%	26
Agree	28.04%	30
Neutral	31.78%	34
Disagree	9.35%	10
Strongly disagree	6.54%	7
TOTAL		107

Q8 After using iPads my marks got better than before.

Answered: 107 Skipped: 0



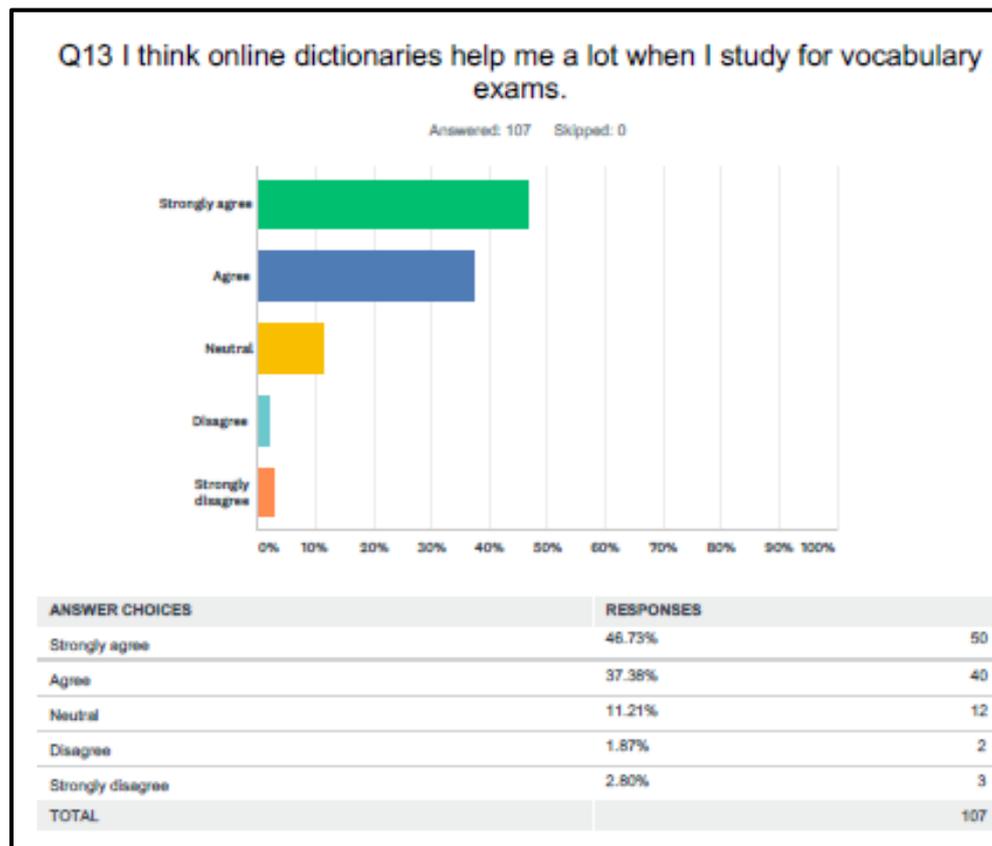
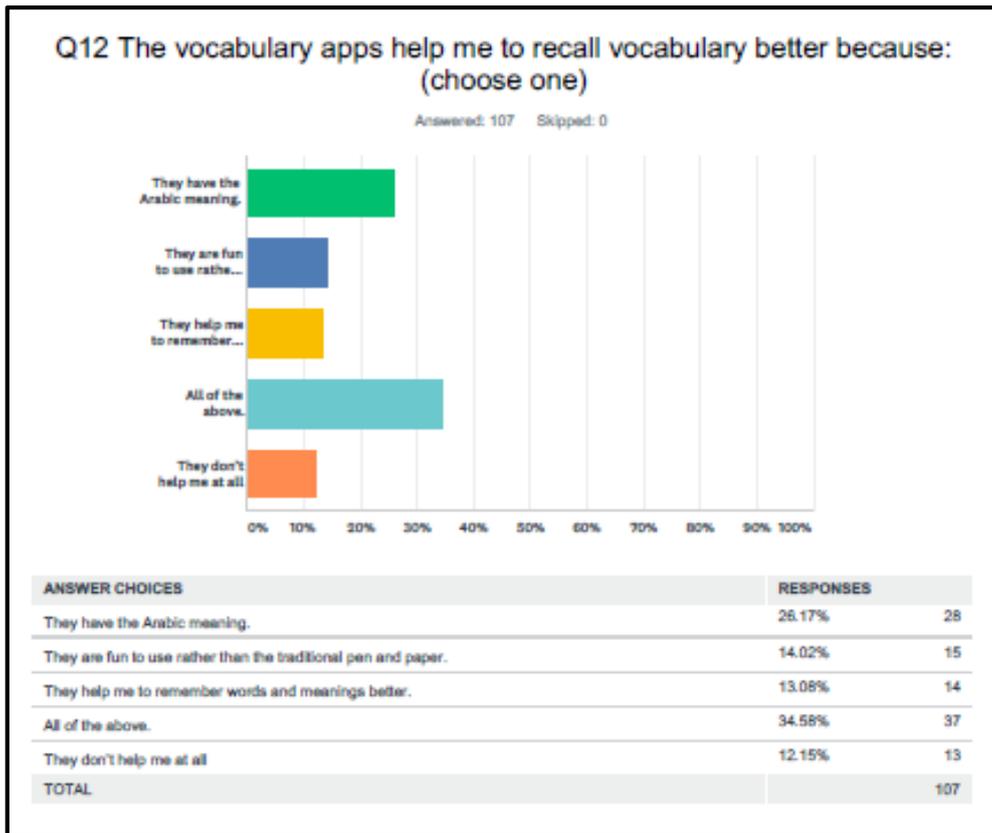
ANSWER CHOICES	RESPONSES	
Strongly agree	19.63%	21
Agree	30.84%	33
Neutral	30.84%	33
Disagree	13.08%	14
Strongly disagree	5.61%	6
TOTAL		107

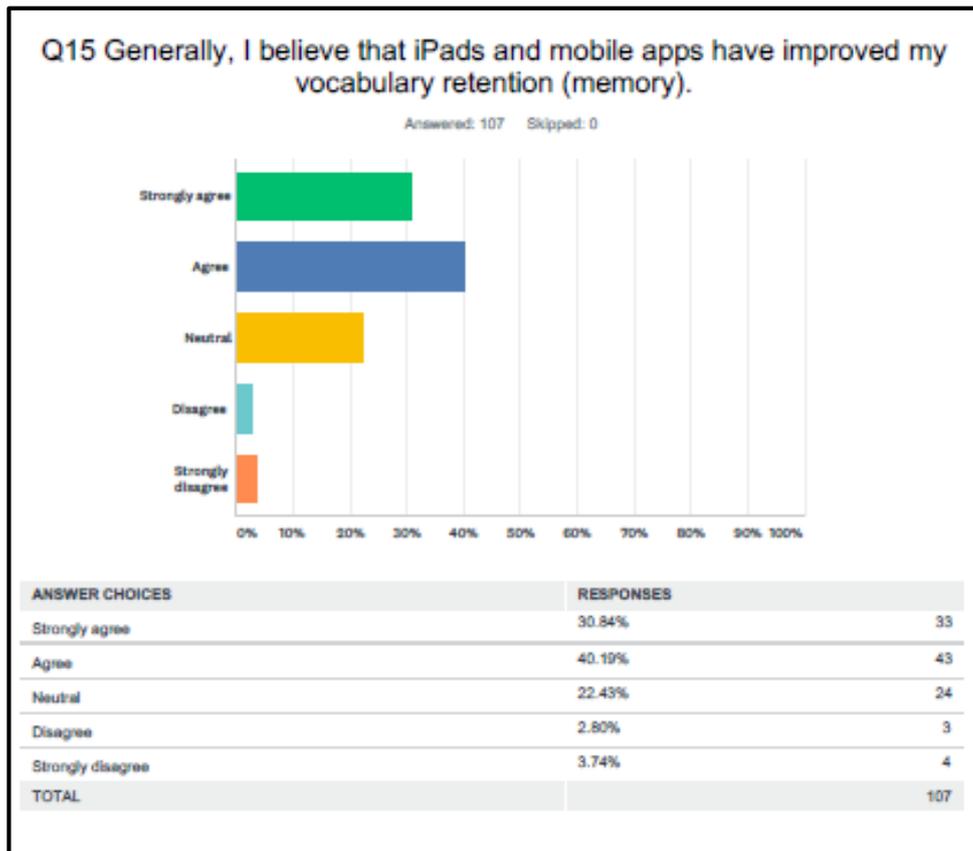
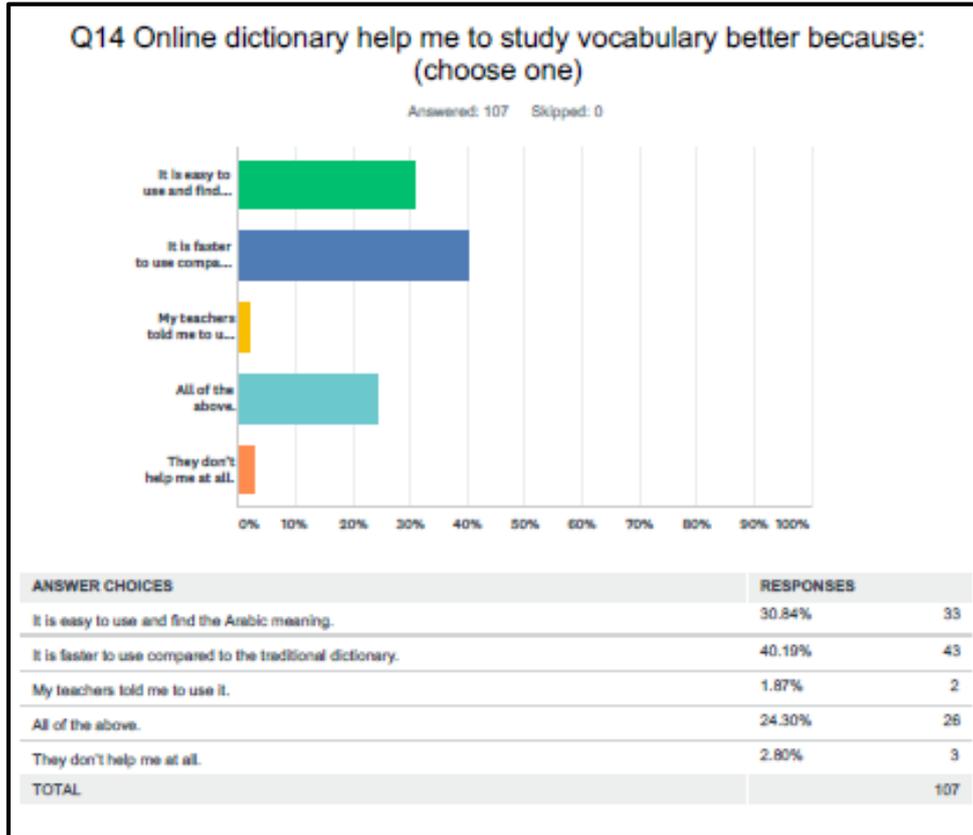


Q11 Name some vocabulary apps you have used before:

Answered: 107 Skipped: 0

#	RESPONSES	DATE
1	Games Drope	2/27/2018 9:54 PM
2	Other apps Google translate Q Dictionary	2/23/2018 6:40 PM
3	Other apps English vocabulary builder	2/23/2018 4:05 PM
4	Quizlet Quizlet	2/23/2018 1:40 PM
5	Online Translation ArabicDictionary	2/23/2018 11:08 AM
6	None None	2/23/2018 12:45 AM
7	Online Translation Oxford dictionary versions	2/22/2018 11:54 PM
8	Online Translation Google translate	2/22/2018 10:08 PM
9	None -	2/22/2018 9:52 PM
10	Online Translation Google translator	2/22/2018 8:07 PM
11	Online Translation Google translate	2/22/2018 8:05 PM
12	None I don't use any apps for learning vocabulary	2/22/2018 7:44 PM
13	None .	2/22/2018 6:21 PM
14	Other apps Ivocab	2/22/2018 5:48 PM
15	Online Translation tranalat	2/22/2018 5:38 PM
16	Online Translation Google Translate	2/22/2018 5:05 PM
17	Games Puzzle	2/22/2018 5:04 PM
18	None NI	2/22/2018 4:39 PM
19	Spelling City Spelling City	2/22/2018 4:20 PM
20	Other apps Vocabulary building	2/22/2018 4:18 PM
21	Other apps Wikipedia	2/22/2018 4:17 PM
22	Other apps Vocab	2/22/2018 4:06 PM
23	Online Translation Google translate	2/22/2018 4:05 PM
24	Other apps Spelling City Spelling city Vocabulary builder Word search	2/22/2018 4:04 PM
25	None None	2/22/2018 4:02 PM
26	Online Translation Google translate English to Arabic translator app	2/22/2018 3:58 PM
27	None -	2/22/2018 3:57 PM
28	Other apps Learning vocab	2/22/2018 3:57 PM
29	Online Translation Online Longman dictionary	2/22/2018 3:57 PM
30	Online Translation Oxford dictionary	2/22/2018 3:54 PM
31	Quizlet Quizlet	2/22/2018 3:50 PM
32	None -	2/22/2018 3:49 PM
33	Online Translation Translate	2/22/2018 3:46 PM
34	Other apps Vocabulary builder	2/22/2018 3:45 PM
35	Other apps Vocabulary hd	2/22/2018 3:42 PM
36	Games Vocabulary builder	2/17/2018 5:37 PM
37	None I don't use any vocabulary app	2/16/2018 7:44 PM
38	Other apps Learn English	2/16/2018 7:31 PM





7.3 Appendix 3: Teachers' Interview Samples

Question no.	Question	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	<p>What is your preference? To teach vocabulary using: (choose one)</p> <ol style="list-style-type: none"> 1. Mobile devices such as iPads and mobile phones 2. Pens and papers 3. Both X 					
2	<p>I believe using mobile devices made my life easier when it comes to vocabulary materials and resources.</p>		X			
3	<p>I prefer to use mobile devices and mobile applications to teach vocabulary because:</p> <ol style="list-style-type: none"> 1. They are accessible and affordable 2. My supervisor has instructed me to use them 3. My students enjoy them and they made my teaching easier 4. I don't use them at all 5. Other: 					
4	<p>I feel that I can't rely on iPads sometimes, a combination between the two is necessary.</p>		X			
5	<p>Why do you think relying fully on mobile devices can be considered as risk-taking?</p> <ol style="list-style-type: none"> 1. I don't believe so 2. I believe it is not trustable, so I always have plan B ready 3. Technology is still not safe and secure enough 4. Other: Students do not know how to use the devices responsibly 					
6	<p>I feel that after implementing mobile devices in teaching vocabulary, my students' retention has improved.</p>			No. Not any more than through other methods		

7	Over the semester I observed that my students' vocabulary marks kept improving.				No	
8	My students' vocabulary retention has improved in the past semester because: <ol style="list-style-type: none"> 1. They have worked hard 2. We have implemented iPads in our teaching and learning 3. The assessments were fairly easy 4. Other: _They've repeated the vocabulary several times and I switched to mixed methods 					
9	Why do you think mobile devices have a positive influence on our students' vocabulary retention? <ol style="list-style-type: none"> 1. I don't believe it has a positive influence on them 2. It matches the new generation's interest 3. Visuals can be a good aid whenever they study meanings 4. Other: 					
10	Why do you think mobile devices have a negative influence on our students' vocabulary retention? <ol style="list-style-type: none"> 1. It is still technology and technology cannot be trusted all the time 2. It can distract the students' attention due to the accessibility of many websites and apps 3. Social media can easily attract their focus rather than studying or paying attention 4. It is not safe and secure especially with teenagers who have no idea about web security 					
11	I always encourage my students to use different mobile applications and online dictionaries			Depends. Sometimes yes, if they are mature, sometimes no because they can't handle the lack of focus		

12	I believe mobile apps and online dictionaries can enhance the students' vocabulary retention			I believe it has the potential.		
13	When I encouraged my students to use mobile apps and online dictionaries, their test scores have improved			Not any more than through other methods		
14	<p>I feel that mobile apps and online dictionaries have a positive influence on students' retention:</p> <ol style="list-style-type: none"> 1. Because they are interactive and fun to use 2. Because they are easily accessible and affordable 3. Because my students find them easier to use especially when they work in groups 4. Because they provide Arabic meanings and visuals 					
15	<p>General feedback and comments:</p> <hr/> <p>Mobile device pedagogy is in its infancy, as are the apps, and the maturity level of the students who use them. I've seen great strides with game based learning, but I've seen student flounder at other apps.</p>					

Question no.	Question	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	What is your preference? To teach vocabulary using: (choose one) 1. Mobile devices such as iPads and mobile phones 2. Pens and papers 3. Both ✓					
2	I believe using mobile devices made my life easier when it comes to vocabulary materials and resources.		✓			
3	I prefer to use mobile devices and mobile applications to teach vocabulary because: 1. They are accessible and affordable 2. My supervisor has instructed me to use them 3. My students enjoy them and they made my teaching easier ✓ 4. I don't use them at all 5. Other:					
4	I feel that I can't rely on iPads sometimes, a combination between the two is necessary.		✓			
5	Why do you think relying fully on mobile devices can be considered as a risk-taking? 1. I don't believe so 2. I believe it is not trustable, so I always have plan B ready 3. Technology is still not safe and secure enough ✓ 4. Other:					
6	I feel that after implementing mobile devices in teaching vocabulary, my students' retention has improved.		✓			

7	Over the semester I observed that my students' vocabulary marks kept improving.		✓			
8	My students' vocabulary retention has improved in the past semester because: <ol style="list-style-type: none"> 1. They have worked hard ✓ 2. We have implemented iPads in our teaching and learning 3. The assessments were fairly easy 4. Other: <hr/> <hr/> 					
9	Why do you think mobile devices have a positive influence on our students' vocabulary retention? <ol style="list-style-type: none"> 1. I don't believe it has a positive influence on them 2. It matches the new generation's interest ✓ 3. Visuals can be a good aid whenever they study meanings 4. Other: 					
10	Why do you think mobile devices have a negative influence on our students' vocabulary retention? <ol style="list-style-type: none"> 1. It is still technology and technology cannot be trusted all the time 2. It can distract the students' attention due to the accessibility of many websites and apps ✓ 3. Social media can easily attract their focus rather than studying or paying attention 4. It is not safe and secure especially with teenagers who have no idea about web security 5. Other: 					
11	I always encourage my students to use different mobile applications and online dictionaries			✓		

12	I believe mobile apps and online dictionaries can enhance the students' vocabulary retention		✓		
13	When I encouraged my students to use mobile apps and online dictionaries, their test scores have improved		✓		
14	I feel that mobile apps and online dictionaries have a positive influence on students' retention: <ol style="list-style-type: none"> 1. Because they are interactive and fun to use 2. Because they are easily accessible and affordable ✓ 3. Because my students find them easier to use especially when they work in groups ✓ 4. Because they provide Arabic meanings and visuals 5. Other: 				
15	General feedback and comments: I feel that mobile apps are really beneficial for the students for some extent, but I think they do need sometimes to use pen and paper as they affect the memorization and remembrance of the newly introduced words.				

Question no.	Question	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	<p>What is your preference? To teach vocabulary using: (choose one)</p> <ol style="list-style-type: none"> 1. Mobile devices such as iPads and mobile phones 2. Pens and papers 3. Both Pen and paper to write meanings from the dictionary and iPads to create lists. 					
2	<p>I believe using mobile devices made my life easier when it comes to vocabulary materials and resources.</p>			X		
3	<p>I prefer to use mobile devices and mobile applications to teach vocabulary because:</p> <ol style="list-style-type: none"> 1. They are accessible and affordable 2. My supervisor has instructed me to use them 3. My students enjoy them and they made my teaching easier 4. I don't use them at all 5. Other: _I teach vocabulary using a practical approach with a lot of discussion and explanations and finally eliciting sentences to gauge understanding. Mobile devices are good for students to practice but not for teachers to depend on wholly. Vocabulary is best taught the old fashioned way for best retention and usage. 					
4	<p>I feel that I can't rely on iPads sometimes, a combination between the two is necessary.</p>	X				
5	<p>Why do you think relying fully on mobile devices can be considered as a risk-taking?</p> <ol style="list-style-type: none"> 1. I don't believe so 2. I believe it is not trustable, so I always have plan B ready 3. Technology is still not safe and secure enough 4. Other: _Students are not responsible enough to stay on task on mobile devices. They have a strong tendency to switch to social media or gaming on their devices. 					
6	<p>I feel that after implementing mobile devices in teaching vocabulary, my students' retention has improved.</p>				X	

7	Over the semester I observed that my students' vocabulary marks kept improving.				X				
8	<p>My students' vocabulary retention has improved in the past semester because:</p> <ol style="list-style-type: none"> 1. They have worked hard 2. We have implemented iPads in our teaching and learning 3. The assessments were fairly easy 4. Other: __Retention cannot be judged from quiz scores. Only when students get into the practice of recycling vocabulary and using them in conversation and writing, and recognizing words and their meanings when encountered in reading and listening, for example, can we say that they have retained what they've learnt. My experience is that students memories word lists, regurgitate them in quizzes and then disgorge them, in readiness for the next list of words – almost as though they have to delete from memory to free up space for what's to come. 								
9	<p>Why do you think mobile devices have a positive influence on our students' vocabulary retention?</p> <ol style="list-style-type: none"> 1. I don't believe it has a positive influence on them 2. It matches the new generation's interest 3. Visuals can be a good aid whenever they study meanings 4. Other: 								
10	<p>Why do you think mobile devices have a negative influence on our students' vocabulary retention?</p> <ol style="list-style-type: none"> 1. It is still technology and technology cannot be trusted all the time 2. It can distract the students' attention due to the accessibility of many websites and apps 3. Social media can easily attract their focus rather than studying or paying attention 4. It is not safe and secure especially with teenagers who have no idea about web security 5. Other: 								
11	I always encourage my students to use different mobile applications and online dictionaries	X							
12	I believe mobile apps and online dictionaries can enhance the students' vocabulary retention			X					

13	When I encouraged my students to use mobile apps and online dictionaries, their test scores have improved			x		
14	<p>I feel that mobile apps and online dictionaries have a positive influence on students' retention:</p> <ol style="list-style-type: none"> 1. Because they are interactive and fun to use 2. Because they are easily accessible and affordable 3. Because my students find them easier to use especially when they work in groups 4. Because they provide Arabic meanings and visuals 5. Other: 					
15	<p>General feedback and comments:</p> <p>When it comes to vocabulary, both traditional and modern (mobile devices) contribute towards effective study and retention. However, ultimately, everything depends on the students' motivation. Without this very significant element, no device can improve vocabulary retention. Our students are in the habit of memorizing a list of words, regurgitating them in quizzes and finally disgorging in readiness for the next group of words. This is the general pattern. Vocabulary is not recycled, used, recognized. Whatever is in the past is well and truly in the past.</p>					

Question no.	Question	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	What is your preference? To teach vocabulary using: (choose one) 1. Mobile devices such as iPads and mobile phones 2. Pens and papers 3. Both					
2	I believe using mobile devices made my life easier when it comes to vocabulary materials and resources.		x			
3	I prefer to use mobile devices and mobile applications to teach vocabulary because: 1. They are accessible and affordable 2. My supervisor has instructed me to use them 3. My students enjoy them and they made my teaching easier 4. I don't use them at all 5. Other: I like the independent learning opportunities that mobile devices provide students					
4	I feel that I can't rely on iPads sometimes, a combination between the two is necessary.			x		
5	Why do you think relying fully on mobile devices can be considered as a risk-taking? 1. I don't believe so 2. I believe it is not trustable, so I always have plan B ready 3. Technology is still not safe and secure enough 4. Other:					
6	I feel that after implementing mobile devices in teaching vocabulary, my students' retention has improved.				x	
7	Over the semester I observed that my students' vocabulary marks kept improving.		x			

8	<p>My students' vocabulary retention has improved in the past semester because:</p> <ol style="list-style-type: none"> 1. They have worked hard 2. We have implemented iPads in our teaching and learning 3. The assessments were fairly easy 4. Other: 					
9	<p>Why do you think mobile devices have a positive influence on our students' vocabulary retention?</p> <ol style="list-style-type: none"> 1. I don't believe it has a positive influence on them 2. It matches the new generation's interest 3. Visuals can be a good aid whenever they study meanings 4. Other: I think ipads engage students and help them become independent learners but I cannot say for sure that they increase vocab retention. 					
10	<p>Why do you think mobile devices have a negative influence on our students' vocabulary retention?</p> <ol style="list-style-type: none"> 1. It is still technology and technology cannot be trusted all the time 2. It can distract the students' attention due to the accessibility of many websites and apps 3. Social media can easily attract their focus rather than studying or paying attention 4. It is not safe and secure especially with teenagers who have no idea about web security 5. Other: 					
11	<p>I always encourage my students to use different mobile applications and online dictionaries</p>	x				
12	<p>I believe mobile apps and online dictionaries can enhance the students' vocabulary retention</p>		x			
13	<p>When I encouraged my students to use mobile apps and online dictionaries, their test scores have improved</p>			x		

14	<p>I feel that mobile apps and online dictionaries have a positive influence on students' retention:</p> <ol style="list-style-type: none"> 1. Because they are interactive and fun to use 2. Because they are easily accessible and affordable 3. Because my students find them easier to use especially when they work in groups 4. Because they provide Arabic meanings and visuals 5. Other: Because depending on how they are used in class, they can encourage the student to become an active learner.
15	<p>General feedback and comments:</p> <p>Ipads are a good resource that encourage students to become active learners.</p> <p>If a student is learning actively, they should be retaining more. However, I cannot say definitely that ipad use has increased my students' vocab retention.</p>

7.4 Appendix 4: Permission letter signed by my supervisor



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11-12-17

To whom it may concern

This is to certify that Ms.Shayma Ebrahim Alawadhi with Student ID number 2014201068 is a registered part-time student in the Master Of Education offered by The British University in Dubai since September 2017.

Ms. Alawadhi is currently collecting data for her dissertation (The influence of mobile-assisted learning on the vocabulary retention of Emirati students).

She is required to gather data through conducting Interviews, surveys and test results that will help her in writing the final dissertation. Your permission to conduct her research in your organisation is hereby requested. Further support provided to her in this regard will be highly appreciated.

Any information given will be used solely for academic purposes.

This letter is issued on Ms.Alawadhi's request.

Yours sincerely,



Dr. Amer Alaya
Head of Academic and Student Administration



Approved

PO Box 345015 • Block 11 Dubai International Academic City Dubai U.A.E • T+971 4 279 1400 • F+971 4 279 1490

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7.5 Appendix 5: A sample of level 1 vocabulary list for one cycle.

Level 1 Vocabulary Quizzes – Cycle 1 & Cycle 3						
#	Quiz 1	Quiz 2	Quiz 3	Quiz 4	Quiz 5	Quiz 6
1	actor/actress	across	activity	air	advice	afraid
2	artist	add	alone	apartment	agree	angry
3	aunt	airport	another	bicycle	bake	arrive
4	autumn	around	bring	build	bowl	break
5	businessman /businesswoman	art	camping	centre	call	careful
6	clear	bridge	everyone /everybody	collect	candy	check
7	cloud/cloudy	busy	everywhere	comfortable	carrot	climb
8	club	become	excellent	company	click	complete
9	cool	capital	fail	cost	dish	correct
10	cousin	chat	fall	dirty	empty	cut
11	dancer	east	fishing	engineer	fork	dead
12	desert	exercise	heart	far	gift	enter
13	dry	follow	hit	fire	grow	exit
14	farmer	front	join	friendly	hate	future
15	fashion	full	move	furniture	keep	happen
16	file	healthy/health	national	grade	neighbor	heavy
17	forest	lake	nature	lift	oil	jump
18	grandfather /grandmother	left	pain	middle	onion	let
19	hobby	library	prize	mirror	pepper	past
20	information	map	race	noisy	pull	petrol
21	island	mountain	rest	nurse	rich	return
22	laugh	north	running	off	sauce	sell
23	manager	opposite	strong	office	share	single
24	match	over	surprise /surprised	photo	sick	sound
25	moon	price	team	pilot	special	stand
26	singer	simple	thin	plastic	spoon	straight
27	sky	south	top	quiet	stomach	twice
28	spring	tourist	true	traffic	thirsty	wash/washing
29	uncle	turn	usually	trip	try	without
30	win	west	winner	way	type	worry/worried