USING QUIZLET IN VOCABULARY LEARNING: EXPERIENCES FROM THAI HIGH SCHOOL STUDENTS

BY

NIPATHORN SANGTUPTIM

AN INDEPENDENT STUDY IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN
ENGLISH LANGUAGE TEACHING
LANGUAGE INSTITUTE
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INDEPENDENT STUDY PAPER

BY

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ENTITLED

USING QUIZLET IN VOCABULARY LEARNING: EXPERIENCES FROM THAI
HIGH SCHOOL STUDENTS

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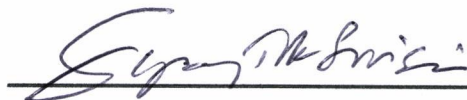
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ABSTRACT

This study explored a group of sixty two high school students' opinions about the use of *Quizlet*, a learning application providing study and games features (e.g., electronic flashcards). The frequency of usage, benefits, and challenges that they experienced when using each feature of the application were also examined. Data from questionnaires and semi-structured interviews illustrated that the students (*N=62)* were satisfied (*M=5, SD=0.94)* with the use of *Quizlet* for their vocabulary learning. There were no signs that this application was distracting and interrupting their learning. In particular, *Match* was the most popular feature. Most of the participants revealed that this feature helped them to remember new vocabulary effectively with lesser time. However, the same participants mentioned the difficulties faced during the use of such an application. They shared the opinion that the *Write* feature was not helpful since it required them to spell the vocabulary according to the definition generated by the application. This paper further encourages more homogenous study on implementing *Quizlet* into teaching and learning in wider contexts.

Keyword: Computer-assisted language learning, CALL, Mobile-assisted language learning. MALL. Quizlet

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Ms. Nipathorn Sangtuptim

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CHAPTER 1

BACKGROUND OF STUDY

1.1 Background

Vocabulary, which has been the object of several studies (Baptis, 2018; Komachali, 2012; Nikoour & Kazemi, 2014), is a key component of language learning. Accordingly, vocabulary learning is considered to be the main part of language learning and usage (Laufer, 2017). Several researchers agree that there is not sufficient research carried out in the field of vocabulary learning in L2 (Folse, 2004; Hunt & Beglar, 2005) while plenty of effective meanings of vocabulary that they have studied remain unclear (De Groot, 2006)

The English language becomes the global Lingual Franca (Abed, Saeed & Al-Zayed, 2018). There have been a large number of English language learners, or ELL, around the world struggling under the circumstances in which they need support in their language learning process. This leads to the reason why English language teachers need to teach vocabulary as the first skill for their students (Metha, 2009).

There are many traditional techniques and methods that can help such as memorization, definitions, self-defining context, antonyms and synonyms (Metha, 2009). In addition to traditional techniques and methods, the twenty-first century offers more powerful sources to teachers and students when it comes to learning a language. The development of technology has drawn from several fields in the past decades and it has a major impact on the process of teaching and learning (Pavlik, 2015). Computer and mobile phones nowadays are used by millions of people and they offer massive benefits to their users in every aspect of life. Smartphones particularly have become even more significant in people's lives today as they can open new doors in terms of accessibility and portability (Sara & Seferoglu, 2010). Moreover, mobile technology has expanded rapidly in the past few years and technology provides multiple new resources, including interactive applications (Pachler et all, 2010).

Since there are many new technology tools, the teacher should use these tools to help their students to learn vocabulary. Plenty of software has been developed to make language learning more efficient for both teacher and students. Also, it can be concluded that the mobile phone is easier to use than the computer since most teachers and students always have them available.

There are several types of mobile phone application that can help teachers and students learn better. The mobile applications can be categorized into groups such as a dictionary, concordance, translation, language practice, flashcard, conjugation and listening comprehension (Nino, 2017). In addition, there are other applications and websites that provide other different techniques with similar educational objectives. However, following L2 research, applications with vocabulary learning systems turn out to receive relatively less attention when compared with the applications with vocabulary learning systems such as Anki and Word Engine (Dizon, 2016). The primary aim of this study, therefore, is to investigate *Quizlet*, a mobile and web-based educational application that allows students to study information via learning tools and games. The application has become popular around the world since the application itself is user-friendly, and it has approximately forty million users. It also allows the users to make a set of vocabulary by themselves (Quizlet, 2016).

Several published studies focus on a mobile application designed for language learning (Kim, 2017; Abdollapou & Maleki, 2012; Baptist, 2018). On the other hand, this study aimed to focus on high school students who attend tutorial school during their summer break. They will be encouraged to use *Quizlet*, a flash card application on mobile phones, as a tool to learn vocabulary outside the classroom. The study will review previous research related to this field before reporting on the design, content, and objectives of the current study. Finally, the data, results, and conclusions, will be presented.

1.2 Scope and objectives

This study aimed to investigate the opinion of Thai high school students (*N=62*) regarding the use of *Quizlet* in their vocabulary learning. The study also focuses on the frequency of features used by the students and each feature's benefit and challenges.

The primary objectives of this study were to explore the extent of the specific group of Thai high school students satisfied with using *Quizlet* to learn vocabulary. The second objective was to determine the features that the students use the most frequently in their vocabulary learning. The final objective was to clarify the benefits and challenges of using *Quizlet* that the students experienced when using each *Quizlet* feature.

1.3 Research questions.

The research questions examined in this study are:

1) To what extent are a specific group of Thai male high school students, who attended a summer course in a tutorial school, satisfied with using *Quizlet* to learn vocabulary?

2) Which *Quizlet* features do the students use the most frequently?

3) What are the benefits and challenges the students experienced when using each *Quizlet* feature?

1.4 Definition of Terms

- Flashcard is a card consisting of a word, a sentence or a simple picture. It must be visible and large enough so the users can see it from a distance. Both sides of a flashcard should be utilized to teach vocabulary. Flashcards are useful for drilling new letters, syllables, words and other information. (Komachali, 2012)

- Mobile-assisted language learning (MALL) is an approach to use personal, portable devices that enable new ways of learning, emphasizing continuity or spontaneity of access and interaction across different contexts of use (Kukulska-Hulme & Shield, 2008; Chinnery, 2016).

- Paired-associate learning is a technique focusing on one associative memory which requires memorizing relationships between the items such as a pair of words. Moreover, memorizing newly associated pairs comprises of what is called a double process (Pengyun, Juan, Huijie, & Shouzi (2013).

- Quizlet is a mobile and web-based study application that allows students to study information via learning tools and games. It was created in October 2005, and released in January 2007. It trains students via flashcards, tests and various games.

1.5 Significance of the Study

The students' opinions towards the use of Quizlet as a tool to study vocabulary will be revealed, therefore, teachers may appropriately scaffold their students to use this program as an alternative self-study tool. In particular, students' opinions about each mode of Quizlet will also be illustrated. The information is expected to assist teachers or fellow researchers to learn about the advantages and disadvantages of each mode so they can specifically choose the mode that is the most appropriate and efficient for their students. In addition to that, the findings will also reveal difficulties faced by the students while using the application, which can be helpful for software developers and teachers to develop the application or to better assist the students.

1.6 Limitations

The results of this study are only those obtained from this specific Thai group of participating students. Therefore, the generalizability of the study is limited by the characteristics of the participants.

1.7 Organization of the Study

This study is divided into five chapters. Chapter one consists of the study's introduction, background, scope, research questions, objectives, a definition of terms, significance and limitations. Chapter two contains the study's literature review, which includes the theory of computer-assisted language learning, mobile-assisted language learning, and flashcards. Chapter three describes the methodology used to examine the students' opinions towards the use of Quizlet to learn vocabulary. It includes selections of participants, instruments, procedures, research design, data collection, and data analysis. Chapter four provides the results of the study. Chapter five presents the study's conclusions, discussion, and recommendations for further research.
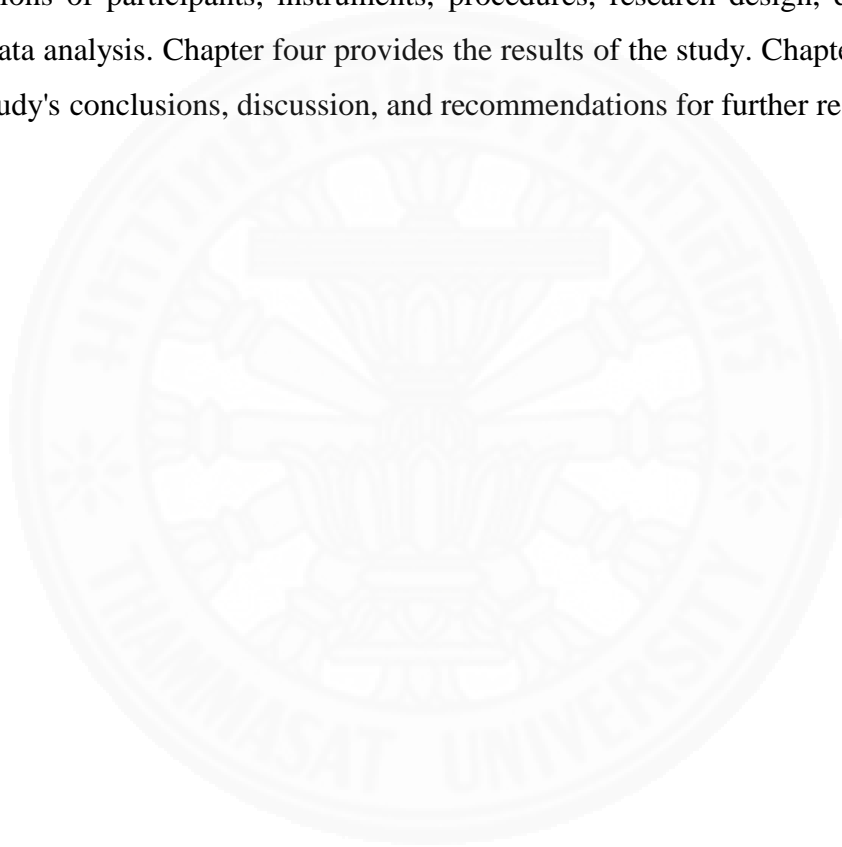
CHAPTER 2

LITERATURE REVIEW

Vocabulary is considered to be the most challenging skill and some students are not able to comprehend well enough (Baptist, 2018). They are unable to read without sufficient vocabulary knowledge (Fisher & Frey, 2015; Baptist, 2018). Accordingly, it can be claimed that acquiring vocabulary is the most important component of learning a foreign language (Beglar & Hunt, 2005; Dizon, 2016). Hence, both teachers and students should focus on vocabulary teaching and learning (Beglar & Hunt, 2005). There are several ways of both teaching and learning vocabulary which help both teachers and learnersto acquire vocabulary (Dizon, 2016). With the advantage of powerful new technology, various modern tools have been incorporated into traditional educational settings. In attempts to adapt to this expeditious development and to add impetus to the traditional language classroom, teachers and researchers have begun to apply that powerful technology into their settings (Kim, 2017).

In order to explore the student opinion toward using *Quizlet* as their tool in vocabulary learning, this chapter reviews published research and also the definition of the relevant terms, such as computer-assisted language learning (CALL) and mobile-assisted language learning (MALL). The following section contains some reviews of information about software for learning vocabulary in a foreign language, the "Quizlet" application in particular. This chapter ends with a review of empirical studies relating to this research.

2.1 Theoretical framework

The present study was grounded in theories and works of research in the field of computer-assisted language learning (CALL), mobile-assisted language learning (MALL), foreign language flashcard vocabulary learning, and Quizlet applications.

2.1.1 Computer-Assisted Language Learning (CALL)

Computer-Assisted Language Learning or CALL is a method by which learners can improve their language skill through a computer (Knight, 1997;

Mackintosh, 1998). It has been one of the technology approaches for both teaching and learning a language, offering an enriched context for learning (Lomicka, 1998). CALL became one of the methods to help the teacher in utilizing language teaching and also improve student's autonomy (Warchuer, 1996). In terms of students, CALL offered opportunities for them to develop their skills by participating in interactive learning. Particularly, some computer software offered tools which allowed students to have a chance to improve their skills by themselves (Kenning, 1990). It could be concluded that CALL incorporated various information and technology systems, such as cell phones and computers, into learning.

CALL represents the computer-based methods for language teaching which appeared in the early 1980s (Dudeney & Hocky, 2007). The period of using CALL could be divided into three main phrases: behaviorist CALL, communicative CALL, and integrative CALL (Underwood, 1984; Abdollapour & Maleki, 2012). The first phase of CALL was implemented in the 1960s and 1970s. In this phase, focus was on developing teaching structures. The language itself was considered to prescribe the structure and forms. The second phrase emerged in the 1970s and 1980s. This phrase had been developed from the first phrase. It focused on more than just using the structures. So there was various software platforms for the communicative approach occurred in this period (Underwood, 1984). The last phrase of CALL started from the 1990s. This phrase occurred during a flourishing period of computer development. Therefore, many teachers tried to adapt CALL to using authentic language in their classrooms (Jones, 2002; Warchaus, 1998).

In conclusion, CALL has developed over a long time. It was developed until the software was nearly close to authentic situations in the actual world. Thus, both teachers and students could control the pace and path of their teaching and learning (Davies, 2002).

2.1.2 Mobile-Assisted Language Learning (MALL)

In the past, language learning was based on sitting in traditional classrooms and both teacher and learners had a limited time and place to teach and study. From time to time, the 21st century has offered a powerful new technology that

could help the teacher and learner to be free from these limitations of time and place. So it could be implied that this century could contribute greatly to the existing technology and make it efficient and more practical to use. The evolution from Computer-assisted language learning to Mobile-assisted language learning or MALL could prove that the above statement is true. In the years of rapid progress, technology has been shrunk from the large scale of the desktop computer to mobile devices that are small but multifunctional and wirelessly networked. CALL was empowered by the evolution of MALL at the beginning of the 2000s. There were several applications developers or companies who launched a free or paid mobile application to their customers (Kormarz, 2010; Bouzidi, 2015). However, MALL was not defined as a fully independent field. In addition, it has been claimed that MALL is just a subset of CALL and mobile learning (Hubbard & Stockwell, 2013).

Although MALL may be considered as a subset of CALL, it is easier to use than CALL. The advantages of MALL could be summarized by the following:

The first advantage is portability. Since mobile devices are light and easy to carry, MALL can be taken together with the users anywhere and anytime. So, it is more practical and provides more opportunity in using technology. The second advantage is "Everywhere and Every time". It could be claimed that MALL, compared to CALL, could be used anywhere and anytime. Users can carry the devices with them and use them at the time that they were available. The third one is the cost. Compared to a personal computer, MALL is cheaper than PCs or laptops because the learners can afford to learn through mobile phones. The fourth one is motivation and collaboration. For motivation, MALL can make learners feel secure and spontaneous since MALL provides the experiences through their own devices. For collaboration, there is plenty of applications or programs that learners can use, studying or sharing the information with their friends at the same time. For example, learners in different places could attend the same activity or class at the same time (Bouzidi, 2015; Melidipour & Zerehkafi, 2013; Kulkulska – Hulme, 2012).

In conclusion, although MALL was derived from the principles of CALL, it has become a big part of education. It has the capacity of providing learners with the opportunities for independent and targeted skills and immediate corrective feedback

as had been done through CALL (Arani, 2010). Several kinds of MALL application in both IOS and Android system operations could confirm the statement above that learners have a choice to choose which skills that they want to improve.

2.1.3 Mobile-assisted vocabulary learning software: Electronic flashcard

This study aimed to focus on the Quizlet application which is a mobile version of the flash card, and pieces of literature regarding mobile-based flash cards have been reviewed. Mobile flashcard application had been developed from the traditional and computer one. This new format of flashcard could encourage students to study in a paired-associate format (Nakata, 2012) through a mobile phone's screen (Bryson, 2012). This format could help students remember new words in a very short time through flashcards. It also helps them to maintain their memories over several years (Nakata, 2012). Pair associative learning process, in this case, focuses on the relation between two or more items such as a pair of words (Corona, 2012). This learning method is also called a double process. The double process is divided into two steps as in the following; the first step, learners had to acquire the vocabulary that they hadn't learned before. The second step, learners started combining the vocabulary that they had learned with the information such as their meaning (Pengyun, 2013). In addition, learning vocabulary from electronic flashcards can be fun. It is a colorful and could be a creative way to aid in memory and boost up retention of words. Besides, flash cards could help learners learn both inside and outside the classroom. The purpose of using flashcards is to look at the word or definition on one side, and test learners themselves to see whether they could remember the answer on the other side or not.

The effects of mobile-based flashcards could help students to develop their vocabulary learning (Althiner, 2011; McLean et a., 2013). Furthermore, this vocabulary learning format is considered more efficient than paper-based and computer-based ones (Bussel, 1994). This is because it can keep track of student's performance and can also boost up student's learning motivation (Alum, 2004). For instance, Lu (2008) looked into vocabulary learning via mobile phones and short message service (SMS) with her participants who were high school students learning

English as a second language. The results were positive with the learners viewing the method as convenient and interesting.

Most of the mobile-based flash cards not only help in teaching reading and writing, but there is the research also showing that it also helped in teaching vocabulary (Wright, 1990). In addition, there are several types of mobile application flashcards which are available on both IOS and Android operation that could help to teach vocabulary. For example, Anki (http://ankisrs.net/), Memorylifter (http://www.memorylifter.com/), studyblue or Quizlet. Those applications allow learners to create their own flashcards by importing word lists from files, using other flashcard sets, or print-out flashcards (Nation, 2009; Bryson, 2012). Both traditional and on-app flashcards could be used to aid learners in memorizing the information, especially vocabulary and their meanings.

2.1.3.1 Computer-based flashcards creation

There are two types of computer-based flashcard. The first one is the ready-made flashcard. For this one, the vocabulary was picked by the frequency of use in which some users picked and created a set of flashcards based on the vocabulary list in that section or situation. The second one is customarily created by a particular learner. This demonstrates the ideal - flash cards which allow learners to create by themselves. These kind of flashcards are based on learner's actual needs and learning style. They can create technical vocabulary or low frequently occurring words which are not seen in ordinary vocabulary lists (Boklke (2002), Burton (2007) and Foster (2009). Computer-based flashcards also have a multilingual support feature, a flashcard program which allows learners to create both target vocabulary and their translation in their own language. The multilingual support feature provides a lot of benefits because of the following:

First, it provides various non-alphabet-based language. Learners would face the vocabulary without alphabet order. Second, it helps learners facilitate their own learning vocabulary. It could enable learners of any first language background to manage their first translation. Third, it is very helpful for learners who are low-level

learners, the ones who do not know a variety of vocabulary. Those learners cancreate their own flashcard to help themselves improving vocabulary storage.

 Nakara (2012) indicated 13 programs which have multilingual support which is available for learning vocabulary. The criteria for choosing the programs were these following; first, the program had to be flashcard based and a pair associated format.

Name of application	Window	Macintosh	Android	IOS
Anki	√	√	√	√
Brainscape	√	√	√	√
Cobocards	-	-	√	√
Cram	-	-	-	√
Cram.com	-	-	√	√
Duolingo	-	-	√	√
Fresh Memory	√	-	-	-
Mnemosyne	√ (as a web browser)	√ (as a web browser)	√	-
Opencards	√	√	-	-
Pleco	-	-	√	√
Quizlet	√ (as a web browser)	√ (as a web browser)	√	√
Supermemo	√	√ (as a web browser)	√	√

Figure 1 Name of the software and thier ability in operation

Second, the program had to be commercially available or free. Third, the program had to be able to operate on both Windows or McIntosh computer, and for mobile phones, it should be able to operate on both IOS and Android. Figure 1 presents the names of the software that Nakata indicated. However, there are some applications are not compatible with both Android and IOS operation.

2.1.4 Quizlet

Quizlet was started by Andrew Sutherland in 2005 for a high school French class. It was created at first as a web-based vocabulary learning application. Nowadays, there are more than 40 million sets of vocabulary that users have created. Quizlet provides two kinds of vocabulary set. The first one, ready-made flashcards, allows students to use other's set of flashcards. The second one, their own flashcards, allows users to create technical terms or professional English. So, users could learn the vocabulary that they prefer. Users also can upload the data from an Excel or .csv file and when the file is uploaded, the system also checks whether the data has any conversion errors.

The features of Quizlet are demonstrated in Figure 2. It is divided into two big parts which are study and play. For study features, it can be divided into four features, and play features can be divided into two features (Quizlet, 2006; Baptise 2008). The detail of each mode is provided in the instrument section of Chapter 3.
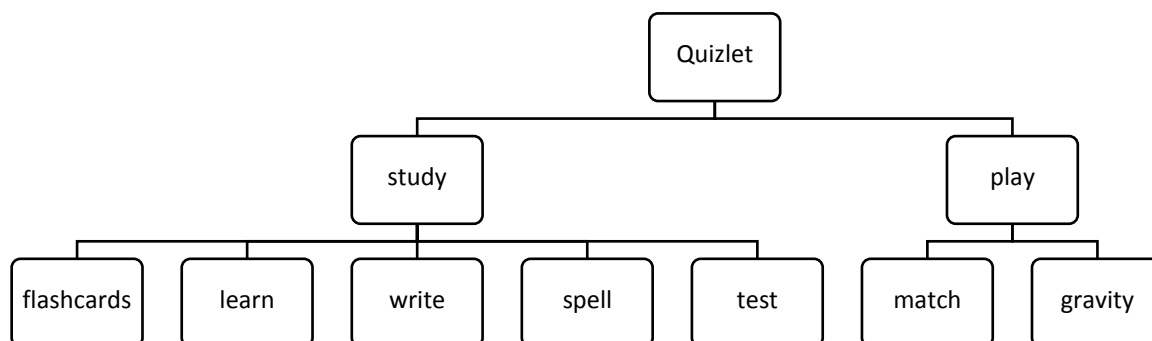
Figure 2 Quizlet site map

All study features provide feedback and error corrections that make students learning by themselves highly effective. Moreover, the users also have more options of how to use each feature, such as answering with terms or definitions, playing audio or not, and studying all the terms or specifics ones (Sanosi, 2018). The main advantages of Quizlet are presented in its simplicity to use and configure, its efficiency for self-learning through many learning features, and the various features which are available in a free version (Chein, 2005; Jackson, 2015; Dizon, 2016).

2.2 Previous studies on Quizlet

There have been several studies conducted about using Quizlet as a tool in teaching and learning vocabulary. They were reviewed in order to gain insights into the research trends. This section also provides the readers with studies related to Quizlet applications.

Baptise (2018) studied the performance of disability students and non-disability students whenusing Quizlet in learning vocabulary. The participants, 11th-grade students, were divided into two groups. The first group was taught by using

index cards, a traditional approach for vocabulary. The second group was taught by using Quizlet as a tool of learning and mastering vocabulary. The period of study time was approximately nine weeks. The instrument which the researcher used wasa post-test. The test was employed each week of treatment. The findings of this study showed that the participants had a positive perception with Quizlet which helped them to master vocabulary much more than the traditional ways.

Dizon (2016) examined the efficacy of using Quizlet to develop the English vocabulary of Japanese university students. The participants used Quizlet as a tool in learning Coxhead's (2001) vocabulary list over the course of 10 weeks. The instruments were pre- and post-tests which revealed that the participants were able to make statistically significant gains. After both tests, the questionnaire was employed to gather the participants' perceptions. The findings showed that the participants had positive perceptions of using Quizlet in learning vocabulary.

CHAPTER 3

METHODOLOGY

This chapter discusses the methodology of this study. The first section presents the definition of case study research. The research questions and the data collections which contain the instruments used in this research are then presented. The next section describes the data analysis and the ethical concerns, together with the procedures.

3.1 Participants and settings

The participants of this study were sixty-two students, aged 16-17 years, whose native language was Thai. They were students in a Math-Science program in a private high school in Nonthaburi province in Thailand. The students attended a summer course in the tutorial school for 35 days. The participants learned about doing the test for their examination. In the 35 days of the course, the participants learned seven subjects: English, Mathematics, Physics, Chemistry, Biology, Thai and Society. In English class, the students were taught to do the test for their target schools only. The test contained four skills: speaking (situation completion), reading, structure and vocabulary. Vocabulary in the settings came from the previous test of their target school. The English department of the tutorial school had combined and listed up the set of vocabulary for each student. The students were trained at the first and second class in how to use *Quizlet* and also installed the application on their mobile phone. The researcher was the one who trained and helped them. However, the students were not allowed to use a mobile phone in the classroom. They would use it in their free time only. So the students were not forced to use the application.

3.1.1 Research questions

The research questions examined in this study are:

1) To what extent are a specific group of Thai male high school students, who attended a summer course in a tutorial school, satisfied with using *Quizlet* to learn vocabulary?

2) Which *Quizlet* features do the students use the most frequently?

3) What are the benefits and challenges the students experienced when using each *Quizlet* feature?

3.2 Data collection tools

The purpose of this section was to describe the tools employed in the data collecting process. Data collection instruments used in this study were a set of questionnaires and a semi-structured interview. Both of them were employed to illustrate the student's opinion toward the use of Quizlet in vocabulary learning. The development of these aforementioned tools is discussed in the following sections.

3.2.1 Questionnaire

A questionnaire was created in Thai since the participants were not used to academic language. It was employed to elicit the student's opinion towards the use of Quizlet and the frequency and opinion about each feature they experienced in using the application. It consisted of both closed-ended and open-ended question items. The five-point Likert scale was used to answer each questionnaire item.

To collect the data of student's opinion, an online five-section questionnaire was administered (Pegnate, 2018; Lawrence, Batanieh & Hatch, 2018). The online questionnaire was divided into nine sections. Each section contained different ranges for the five-point Likert scale, according to the nature of the questionnaire items. These different types of five-point Likert scares were:

1= Very dissatisfied, 2 = Dissatisfied, 3 = Neutral, 4 = Satisfied and 5 = Very satisfied.

1 = once in two weeks, 2 = once a week, 3 = once a day, 4 = twice a day and 5 = more than 2 times a day

1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree and 5 = strongly agree

Section one collected demographic information: level of education, the previous experience toward *Quizlet* application. Section two was shown only for the participants who had previous experience of *Quizlet*. It asked about the frequency of using *Quizlet* in their learning. Section three was the satisfaction of using *Quizlet*. In this section, the participants were asked to rate their level of satisfaction in using *Quizlet*. Sections four to eight were about the frequency of using and satisfaction towards each feature. The second question asked about the opinion towards the feature. Section nine was open-ended questions. There were two questions. The first question asked about the benefit of using *Quizlet* in vocabulary learning. The second one asked about the challenges that the participants experienced in using *Quizlet* in their vocabulary learning. The consistency between the items and the research questions were checked by the supervisor of this study.

To check for the reliability, the researcher decided to use the SPSS program to calculate for Crobach's alpha coefficient of the questionnaire. Cronbach's alpha could measure the reliability or internal consistency of a set of scale or test items (Goforth, 2015). The coefficient ranges in value from 0 to 1. The higher the score, the more reliable the generated scale is. The range of 0.7 gives an acceptable reliability coefficient (Cronbach & Sehvelson, 2004). The Cronbach's alpha coefficient score of this study was 0.79 which was still acceptable.

3.2.2 Interview

Semi-structured interviews were employed in this research. This interview approach was mostly a guided conversation between the researcher and the participants (Kruher & Casey, 2000; Dusitnanond, 2007). This interview didn't have a

rigid structure. It provided opportunity for the researcher to be able to explore topics with the participants for more information. The results by using this structure were flexibility. Moreover, this structure could help the researcher find out the participants' thoughts, feelings, and opinions. In this study, an interview was conducted with participants who were the users of *Quizlet*. The questions were asked based on the participants' experience using *Quizlet*.

3.3 Quizlet

Figure 3 to 10 are samples of all possible instructional features of Quizlet. Students could use this multifaceted application as an instructional tool to memorize new vocabulary. The participants were encouraged to use this multifaceted application as a self-study tool.

Figure 3 shows Quizlet's "home screen" where students could choose the features based on the participants' needs to work on their vocabulary. They could complete any features as long and as many times as they would like.

Figure 3 Quizlet "Home screen" - students can choose which features they would like

to work on first

Figure 4 and 5 were the "Learn" option where the participants could match the vocabulary with its correct definition using multiple choices, or they could answer the questions. The participants could adjust the option of learning and also could set the date of testing to let the application adapt the sessions to get the participant to prepare in time.
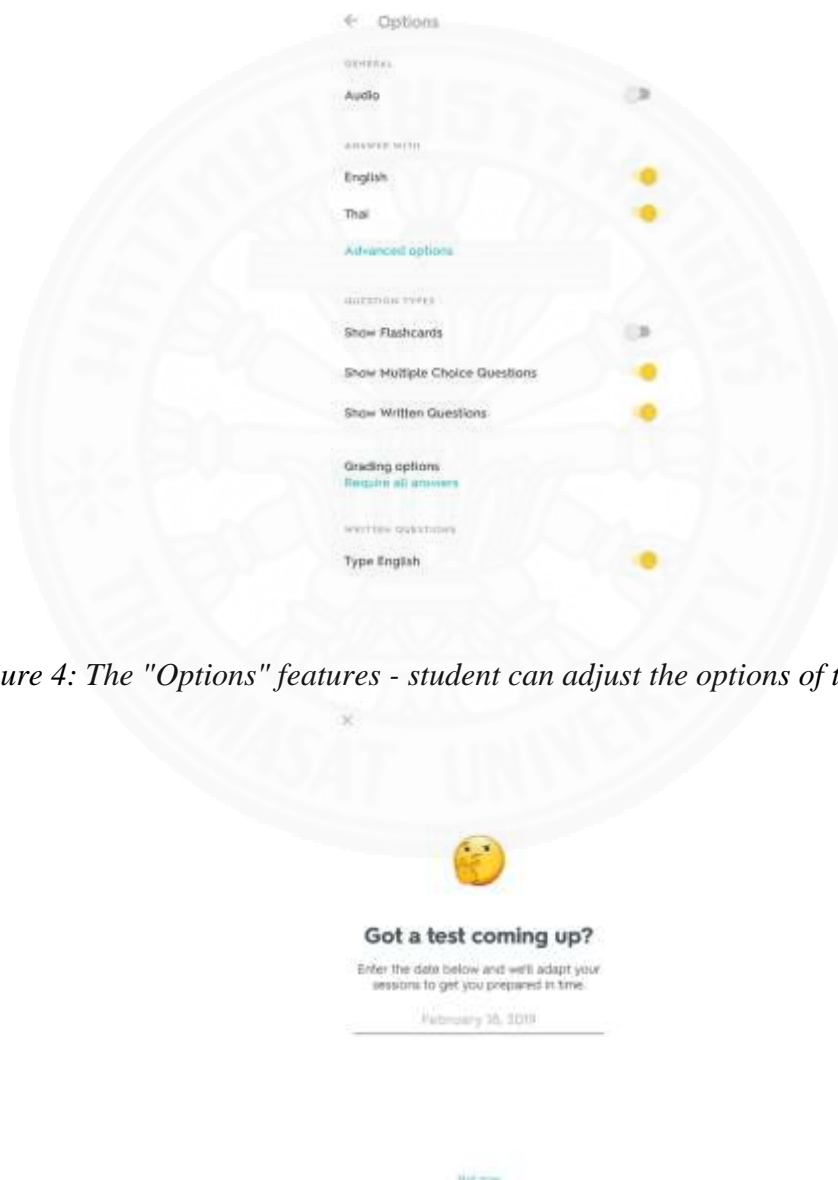
Figure 4: The "Options" features - student can adjust the options of their learning

Figure 5: The "Learn" feature can help the student to be prepared for their upcoming test

Figure 6 shows the "Flashcard" feature where the participants could acquire their vocabulary through digital flashcards to view the other side of the digital page. They could click to flip the card themselves.

Figure 6: the "Flashcard" feature - students can flip the vocabulary cards to see the meaning of the word.

Figure 7 is the "Write" feature where the participants must correctly identify and type in the vocabulary word based on the definition. The participants had to spell the vocabulary word correctly in order to receive "credit" for their answer.

Figure 7: The "Write" feature - students can type the identification of each word

Figure 8 shows the "Match" feature. The participants could match a vocabulary word with its definition in the shortest time by touching the word or definition. In this feature, the participants and teacher could see other classmates' times to see who had the fastest time.

Figure 8: The "Match" feature - students can match the definition of the word in the shortest time

Figures 9 and 10 are "Test" features where the participants could assess knowledge of vocabulary definitions that they had learned in each set. In this feature, the participants could choose to assess themselves through matching, multiple choice, true or false, and written examples by identifying the correct vocabulary word and its corresponding definition. These settings could be changed based on the student's skill level.
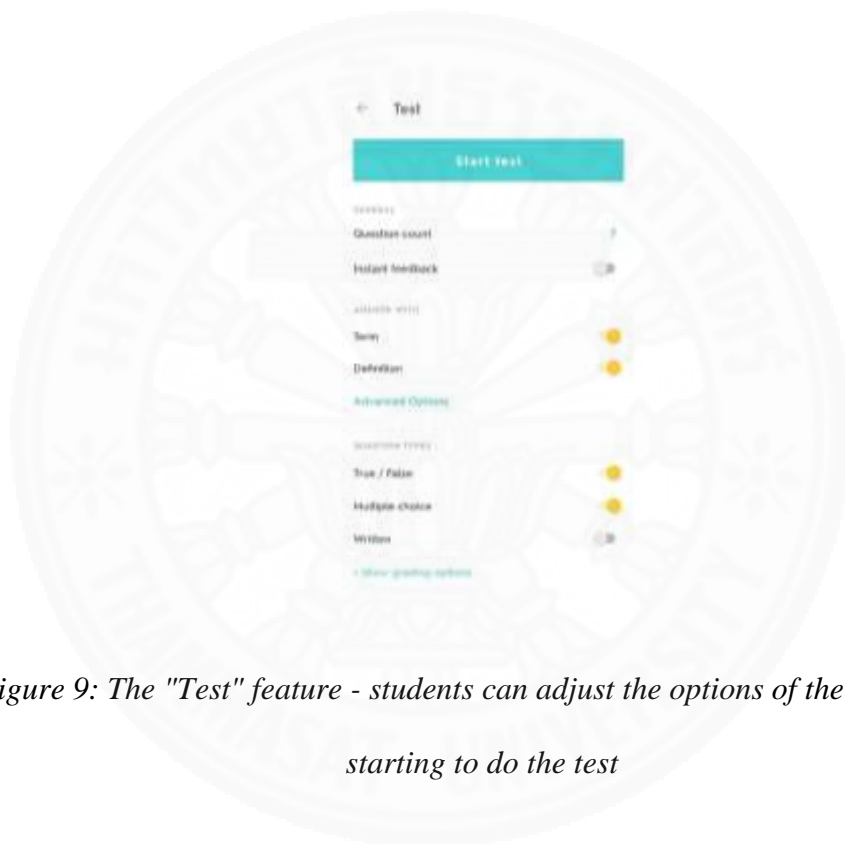
Figure 9: The "Test" feature - students can adjust the options of the test before starting to do the test

Figure 10: The "Test" feature - after adjusting the options of the test. students can do the test based on their adjustment

3.4 Data analysis

The data from the questionnaire was analyzed by SPSS, a statistical program. The results provided percentage of frequency in using each feature and also the standard deviation and mean score. The data from interview were transcribed after interview sessions before they were cross-checked against the audio recording. The results from the interview are presented by narrative writing.

3.5 Ethical concerns

The researcher of this study obtained a research permit from the school principal and the participants. Both of these were assured about the confidentiality of

data, anonymity and their privacy. Their physical and emotional safety would be observed and maintained. Following the agreement for the researcher to conduct the study, the researcher gained access to archival data indicating the participants' opinions toward using Quizlet. The data was stored in a secure location with the encrypted password the whole period of the study. No description of the school or the names of students were included in the findings. The identity of the research site or the participants wouldn't be revealed. At the end of the research, the data would be stored for a maximum of 5 years in the researcher's personal external disk encrypted and then destroyed.

3.6 Data collection procedure

The data collection was taken between March 1, 2019 and April 5, 2019. The first procedure was sending the consent form to the school principal. Previously the researcher had informed the school principal by having a meeting together. Also, the participants were given a consent form before attending the study. Secondly, the information about Quizlet was introduced to the participants in the first and second class of the course, which was on March 3-4, 2019. The participants were encouraged to use Quizlet on their mobile phones for 30 days. Moreover, some of them were helped to install the application on their mobile phones. These participants were required to practice 500 vocabulary items which had occurred in the previous examination paper through the application.

Since the course was held from March 1, 2019 to March 31, 2019, the participants stayed at the tutorial school. They lived in the tutorial school for 24 hours. The researcher encouraged the participants to use Quizlet as much as they could. In the

application, each set provided the vocabulary word, part of speech, definition. From March 31- April 5, 2019, the participants were asked to complete the questionnaire. The questionnaire was about their opinions concerning the use of Quizlet in their vocabulary learning and also responses to the frequency feature they had used for 30 days. Moreover, some of them were interviewed to describe their satisfaction when using Quizlet, and the benefits and challenges that they had experienced for 30 days in each feature. This procedure was summarized in Figure 11.

Consent letter sent to the school

Consent letter sent to the student

Introduction of Quizlet to the participants

30 days of Quizlet Implementation

Questionnaire

Semi-structured interview.
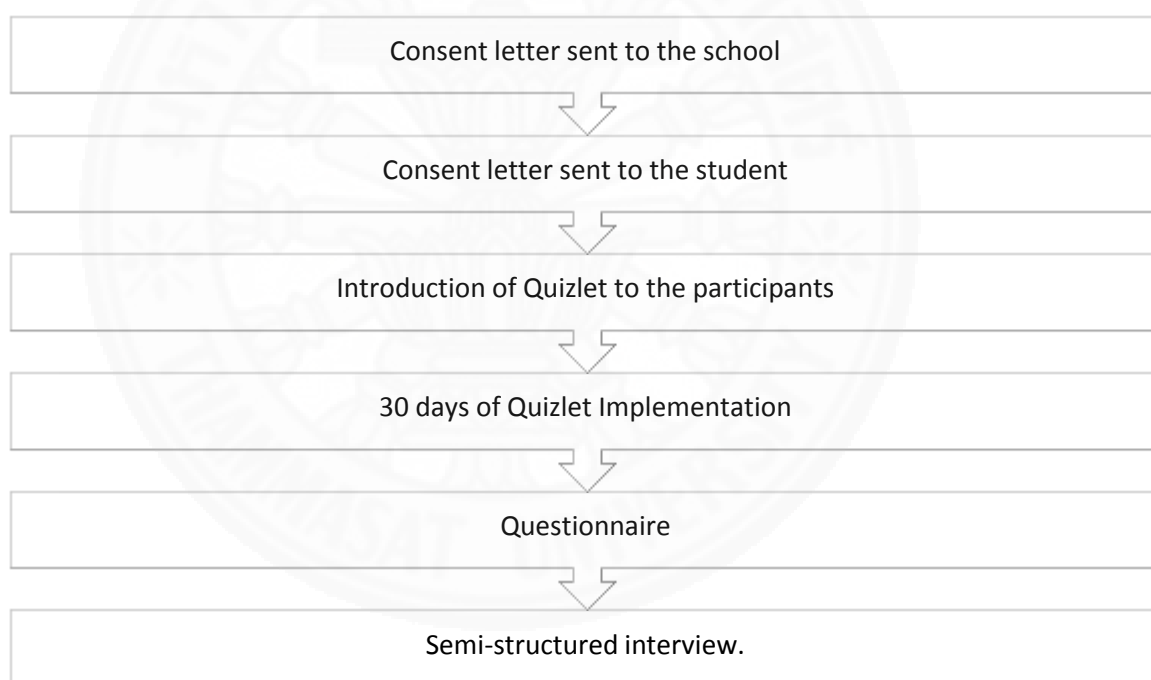
Figure 11: The data collection procedure

This chapter has shown the research methodology employed in this study including data collection tools, participants, data analysis, and data analysis procedures. In order to get the results, the data from the questionnaire and semi-structured interview were

recorded and coded according to the focus of the research questions. The findings from these mixed methods will be presented in the next chapter.

CHAPTER 4

FINDINGS AND DISCUSSION

The previous chapter described the background information of the participants of this study, the research instruments, data collection, and data analysis. This chapter provides the quantitative results, which includes responses to twelve close-ended questionnaire items analyzed using SPSS, the statistical package for social science software, for each item. In addition, results from an open-ended questionnaire item, together with interviews, are presented and discussed in relation to the three research questions.

4.1 Background information of the participants (Demographic)

Background information of the participants: three groups of the participants (*N*=62), based on their level in the school, and also the participants who had experience in using *Quizlet*, are categorized as follows:

Level of participants	Number	Number of the participants who had experience	Percentage %	Percentage of the participants who had experience
Grade 10 (Mattayom 4)	20	7	32.3	4.3
Grade 11 (Mattayom 5)	22	8	35.5	4.9
Grade 12 (Mattayom 6)	20	6	32.3	3.7
Total	62	21	100	8.6

Figure 12 Background information of the participants

Figure 1 shows that the total number of participants was sixty-two. The participants were divided into three groups based on their level in their own school. The number of Grade 10 (Mattayom 4) and Grade 12 (Mattayom 6) participants was equal, withtwenty (32.3%) in each group. The highest number was in Grade 11 (Mattayom 5) with twenty-two (35.5%). In addition to these numbers, Figure 1 also shows the total number of participants was sixty-two. The participants were divided into three groups based on their level in their own school. Moreover, there are some participants who had prior experience using *Quizlet* for their vocabulary learning. As illustrated in Figure 5, there are twenty-one people, or 8.6 percent from the total number of people (62), that had used *Quizlet* before.

4.2 Participants' satisfaction towards the use of Quizlet

This section aims to answer the first research question, which is "To what extent are the students satisfied with the use of *Quizlet*?". The participants were asked to respond with their answers in question number 4 of the questionnaire in the first section (See Appendix 1). The mean score, including the percentage, was calculated through SPSS software and divided into five ranges of satisfaction as shown in figure 3:

Range of satisfaction					Mean	S.D.
Very dissatisfied (1)	Dissatisfied (2)	Neutral (3)	Satisfied (4)	Very satisfied (5)		
-	-	5 (8%)	19 (31%)	38 (61%)	4.53	0.646

Figure 13 To what extent are the participants satisfied with the use of Quizlet

The results showed that most the participants were satisfied with using *Quizlet* as their tool in learning vocabulary (*M = 4.53; SD = 0.24)*. The results from the interviews showed similar findings to the ones from the questionnaire. That is, most of the participants were satisfied with using the application since it was flexible to use.

I really like this application since it could be used on my own mobile phone. I don't have to carry a list of vocabulary which can be torn apart."

ผมชอบแอปนี้เพราะว่าผมสามารถใช้ได้เลยบนมือถือ ผมไม่ต้องถือลิสต์คำศัพท์ที่เป็นกระดาษ ไม่ต้องกังวลว่ามันจะขาดอีกต่อไป

(นักเรียนคนที่ 1, สัมภาษณ์ปี 2562)

(S1, interview 2019)

I always use it. It is very easy for me to use. I can use it in the night time. Cause the institute doesn't allow me to use it in the classroom. So, I decided to use it when I am done with other things. It's quite useful for me.

ผมใช้แอพที่พี่บอกตลอดเลย มันใช้ง่ายมากครับ ผมเอาไว้ใช้เล่นตอนกลางคืนเพราะว่าที่โรงเรียน ไม่อนุญาตให้ผมตอนกลางวัน ผมก็เลยใช้ตอนที่ผมมีเวลา มันมีประโยชน์กับผมมากเลยครับ

(นักเรียนคนที่ 2, สัมภาษณ์ปี 2562)

(S2, interview 2019)

Some of the participants also claimed that they were satisfied with using the application because it helped them enlarge their vocabulary recall.

This application helps me to remember vocabulary. Overall, I really like this application. I can remember the vocabulary better than the past from normal vocabulary list.

<div align="center">

(S3, interview 2019)

</div>

แอพพลิเคชั่นอันนี้ช่วยผมในการจำศัพท์มากครับ โดยรวมผม ชอบแอพพลิเคชั่นนี้นะครับ ผมจำศัพท์ได้เยอะขึ้นกว่าแต่ก่อน เยอะมาก แล้วจำได้ดีกว่าตอนใช้แบบกระดาษด้วยครับ

<div align="center">

(นักเรียนคนที่ 3, สัมภาษณ์ปี 2562)

</div>

In addition, the participants found that this application provided them with a positive attitude since they could use or play the application instead of playing their games:

Normally, I always play ROV when I have free time. But since you introduced me to 0the application, so I try to use this instead of playing a game. I feel that I enjoy it so much. Actually, I don't feel like learning. I feel like playing. Then, I can beat my friends whether who got a high score.

<div align="center">

(S4, interview 2019)

</div>

ปกติผมจะเล่น *ROV* ตอนเวลาว่างๆ แต่พอพี่แนะนำให้ผม ใช้ ผมก็เลยลองใช้แอพนี้ดูแทนที่จะเล่นเกมส์ ผมชอบมันมาก พี่ สนุกมาก ผมไม่เหมือนเรียนคำศัพท์ แต่เหมือนเล่นเกมส์ มากกว่า ผมแข่งกับเพื่อนได้ ว่าใครได้คะแนนเยอะกว่ากัน

<div align="center">

(นักเรียนคนที่ 4, สัมภาษณ์ปี 2562)

</div>

Moreover, the variety and flexibility of the flashcard categories allowed them to choose the sets that they preferred to play or learn first.

Other friends start with vocabulary set 1 first. But I don't like it because that test is too hard for me and some of the vocabulary in the list I have never seen. So, I decided to start with the vocabulary set 10 first. I get used to this vocabulary."

(S5, interview 2019)

เพื่อนคนอื่นเริ่มจากคำศัพท์ชุดที่ 1 ก่อน แต่ผมไม่ชอบชุดนั้น ผมว่ามันยากไปสำหรับผมแล้วบางคำผมไม่เคยเจอมาก่อน ผมก็เลยไปเริ่มจากคำศัพท์ชุดที่ 10 ก่อนครับ

(นักเรียนคนที่ 5, สัมภาษณ์ปี 2562)

According to the interview results, it can be seen that most of the participants had positive opinions towards the use of *Quizlet* as their tool in vocabulary learning. They shared that *Quizlet* helped them improving their vocabulary skill and recall at the same time.

4.3 Participants favorite features

This section discusses the results according to the second research question that is "Which Quizlet feature do the students use most frequently? "

As illustrated in figure 7, the questionnaire data showed that, among five features, the students preferred the *Match* feature the most.

Features	Mean	S.D	Mode	Level of frequency
Match	4.45	0.92	5	Twice a day
Learn	4.21	0.91	5	Twice a day
Test	4.18	1.10	5	Twice a day
Flashcard	3.68	1.40	5	Once a day
Write	3.45	1.38	4	Once a day

Figure 14 The frequency of using each feature for thier vocabulary learning

According to figure 7, it was noticeable that the most frequently used feature of *Quizlet* among this group of students was *Match*. The statistical data shows that *Match* had a level of using of "Twice a day" (*M=4.45; SD = 0.92*). On the other hand, there were three other features, *Learn*, *Test, and Flashcard,* that also rated as "Twice a day" respectively.

There are two features that had a level of using of "Once a day", *Flashcard (M=3.68; SD = 1.40)* and *Write (M=3.45; SD=1.38)*. In addition, there were the results from the interviews which were related to the findings from the questionnaire that the participants preferred using *Match* most in their vocabulary learning, as evidenced by the following interview sample.

I always use Match. Actually, I use it every day or maybe every free time that I have. I like it because it is like playing the game. And I also can beat my friends.

ผมใช้ *Match* ตลอดครับ เอาจริงๆ ผมใช้ทุกวันทุกครั้งที่มีเวลาว่าง ผมชอบนะ ผมสนุกกับการใช้มันมาก ผมเอาไว้ใช้แข่งกับเพื่อนด้วยครับ

(S6, interview 2019)

(นักเรียนคนที่ 6, สัมภาษณ์ปี 2562)

Moreover, some students pointed out that using *Match* helps them to remember vocabulary more since they have to race against the limited time given. Accordingly, they must recognize it as fast as possible.

I think I can remember more vocabulary when they have to race against the clock. It seems like my brain needs time to help. So, I really like Match. It helps me a lot to remember the vocabulary in those sets.

ผมคิดว่าผมจำคำศัพท์ได้มากกว่าเดิมถ้ามีการจำกัดเวลาเข้ามา มันเหมือนว่าสมองต้องการเวลาครับพี่ สมองต้องใช้เวลามาทำให้ผมจำ ดังนั้นการใช้ *Match* คือสิ่งที่ผมชอบมากครับ มันช่วยผมในการจำได้ดีมาก

(S7, interview 2019)

(นักเรียนคนที่ 7, สัมภาษณ์ปี 2562)

I really like using Match. I like pairing the meaning and the word. It is funny, excited when you have to race against the clock. My heart beats so fast to win my friends.''

<div align="center">*(S8, interview 2019)*</div>

ผมชอบใช้ Match มากครับ ผมชอบจับคู่คำศัพท์กับความหมายของมันครับ มันสนุกดี ตื่นเต้นดีเวลามีเวลาจำกัด ใจเต้นแรงดีครับ ฮ่าๆ

<div align="right">*(นักเรียนคนที่ 8, สัมภาษณ์ปี 2562)*</div>

However, the *Write* feature seems to be the least popular. From figure 7, it can be concluded that *Write* was the one of the two features that had a level of frequency "Once a week". A similar view of this feature was also noticeable in the interview data. In addition to that, the participants also described why they did not very much appreciate this feature, as the reader can see in the following. For example:

I don't like using Write because I don't know how to spell those words. It requested me to spell the vocabulary. I can only remember its meaning, but I can't spell it properly. So, I gave up with this feature. I just quit.

<div align="center">*(S9, interview 2019)*</div>

ผมไม่ชอบใช้ Write เลยครับพี่ เพราะว่าผมไม่รู้ว่าผมจะสะกดคำนั้นยังไง คือตัวแอพมันให้ผมต้องสะกดคำไงพี่ ผมจำได้ว่าคำนี้หมายความว่ายังไง แต่ให้ผมสะกด ผมไปไม่ถูกนะพี่ พอเปิดเจอปุ๊บนะ เลิก ไม่ทำ

<div align="right">*(นักเรียนคนที่ 9, สัมภาษณ์ปี 2562)*</div>

Write feature seems to be the hardest feature for me. Usually, I just paired the definition and the vocab together.

ผมว่า *Write* มันยากที่สุดละพี่ ปกติผมใช้วิธีการจับคู่คำศัพท์กับความหมายของมันครับ

(S10, interview 2019)

(นักเรียนคนที่ 10, สัมภาษณ์ปี 2562)

According to figure 7, it can be concluded that the participants preferred using *Match* in their vocabulary learning because the feature gave them an enjoyable experience it gave them a sense of gamification ,*the application of gaming metaphors to daily life tasks to influence behavior, improve motivation and enhance engagement*, (Marczewski, 2012). It also provided them the score to beat with their friends. Meanwhile, the participants didn't prefer using *Write* in their vocabulary learning since it was hard for them to spell or write each word down in the application.

4.4 Benefits and challenges the students experience using *Quizlet* features

This section aims to answer the third research question; that is "what are the benefits and challenges the students experienced in each feature of *Quizlet*?" The results are presented by dividing responses into two main parts, benefits and challenges, as following:

4.4.1 Benefits

According to the interview findings, most of the participants pointed out that the main benefits of *Quizlet* lay in its "everywhereness" as the application enables learners to learn through their devices whenever and wherever.

I can use this application whenever and wherever I want. So, I think this is one of the good things about this application.

(S11, interview 2019)

ผมสามารถเจ้าแอพนี้ได้ตลอดเวลาตอนไหนก็ได้ครับ ผมว่ามันดีตรงนี้และ

(นักเรียนคนที่ 11, สัมภาษณ์ปี 2562)

In addition to that, *Quizlet* allowed the participants to create their own list of words. Accordingly, they were comfortable with the list they created.

Since you [the instructor] had shown me the vocabulary, I couldn't remember all of those vocabulary in the list. So, I decided to cut and make a new set of vocabulary which have less words. It was easy for me to remember in the less quantity.

(S12, interview 2019)

พอพี่แนะนำผมมาใช่ไหมครับ ผมจำไม่ได้หรอก เอาจริงๆนะ ในชุดหนึ่งมีเยอะมาก ผมเลยตัดสินใจแยกคำออก ทำชุดคำศัพท์ใหม่ของผมเอง ปริมาณของคำศัพท์ลดลงต่อหนึ่งชุด ทำให้ผมจำง่ายขึ้น

(นักเรียนคนที่ 12, สัมภาษณ์ปี 2562)

I cut your list Teacher. Well, your vocabulary lists are too much for me. To be honest, I couldn't remember all of it even I tried so many times. So, I created my own by shortening the number of words. That made me feel enjoyable.

ผมตัดลิสต์คำศัพท์ของพี่ออกมาครับ ก็ลิสต์ที่พี่ให้มันเยอะมากเลย ผมจำไม่ไหว ผมก็เลยเอาลิสต์คำศัพท์พี่มาย่อยให้จำนวนคำมันน้อยลง ที่นี้ผมก็จำง่ายหน่อย

(นักเรียนคนที่ 13, สัมภาษณ์ปี 2562)

(S13, interview 2019)

However, there are some participants who pointed out each feature's benefit that can help them learning vocabulary. The results from interviewing can be reported by feature as follows.

4.4.1.1 Learn

The participants stated that *Learn* feature helped them by repeating the vocabulary that they hadn't been sure of yet. Also, the participants could adjust the options of the feature based on their needs.

Learn helps me learning vocabulary a lot. It showed me the vocabulary that I couldn't remember over and over until I could remember it. It also divided the vocabulary into sections for one set. This feature tried to make sure that I could remember all the vocabulary in each set.

(S14, interview 2019)

Learn ช่วยผมได้เยอะเลยพี่ มันจะโชว์คำศัพท์ที่ผมยัง ตอบมันไม่ได้นะ โชว์จนกว่าผมจะจำได้ แล้วมันแบ่งให้ ด้วยนะพี่ ว่าทำไปเท่านี้ ให้พัก เอาจริงๆ มันย้ำจนผมจำ ได้

(นักเรียนคนที่ 14, สัมภาษณ์ปี 2562)

Learn is like teacher without complaining. It taught me the word based on the options that I choose. Compared to other features, Learn gave me more knowledge.

(S15, interview 2019)

ใช้ *Learn* เหมือนได้เรียนแต่ไม่ต้องโดนครูดุครับพี่ คือ มันสอนผม โดยที่ผมเลือกได้เลยอยากได้แบบไหน เลือก จาก *option* อะพี่ ถ้าถามผม กับอันอื่น *Learn* ให้ ความรู้กับผมมากกว่าครับ

(นักเรียนคนที่ 15, สัมภาษณ์ปี 2562)

I think Learn is combined from other features.

I can choose their option like a flashcard,

multiple choice questions, and written

questions. So, I don't have to use another

feature; only learn is enough for me.

(S16, interview 2019)

ผมคิดว่า *Learn* มันคือการรวมทุกอย่างเข้าด้วยกันครับ

พี่ ผมสามารถเลือกจาก *option* ได้เลยว่า จะเอาเป็น

flashcard, multiple choice หรือจะเอาแบบ

พิมพ์สะกด ผมก็เลยคิดว่า *Learn* มันเพียงพอสำหรับผม

ละ

(นักเรียนคนที่ 16, สัมภาษณ์ปี 2562)

4.4.1.2 Match

For the *Match* feature, most of the participants enjoyed using this feature. Most of them pointed out that this feature provided not only vocabulary recall but also a challenging moment for them to try to beat their friends.

For me, Match is my favorite feature. I have to

tell you first that I love playing game. So, Match

gave an experience like playing the game. I can

beat my friends. It helps me increase my

vocabulary storage. I can recognize the

vocabulary right away when I saw it.

(S17, interview 2019)

สำหรับผมนะพี่ *Match* คือใช่มากสำหรับ คืองี้ ผมอะ

ชอบเล่นเกมส์พี่ พอใช้ *Match* มันก็เหมือนเล่นเกมส์เป๊ะๆ

ผมแข่งกับเพื่อนได้ คือมันช่วยผมในเรื่องของการจำคำศัพท์

ผมจำศัพท์ได้เยอะขึ้น จำแบบจำได้ทันทีที่เห็นเลย

(นักเรียนคนที่ 17, สัมภาษณ์ปี 2562)

In addition, *Match* could help the participants distinguish the description and the word. The participants could find the meaning and the word. Then, they could pair them together.

Match helps me in distinguishing the vocabulary. In the test, I have to recognize which word belongs to that synonym or their meaning. So, I learn from Match.

(S18, interview 2019)

Match ช่วยให้ผมแยกคำศัพท์ได้ถูกต้องครับพี่ คืออย่าง ใน *Tests* อะ ผมต้องแยกให้ออกว่าคำไหนคือคำไหน คำ ไหนความหมายว่ายังไง ผมก็เลยเรียนมาจาก *Match* นี่ และ

(นักเรียนคนที่ 18, สัมภาษณ์ปี 2562)

Moreover, the participants used *Match* for doing a review. After using other features, they used *Match* to make sure that they could remember the vocabulary.

I use Learn and Match together. After using Learn, I used Match to sum up my memory.

(S19, interview 2019)

ผมใช้ *Learn* กับ *Match* ด้วยกันครับพี่ หลังจากใช้ *Learn* ผมก็มาใช้ *Match* เนี่ยและ เพื่อจะเอาไว้ดูว่าที่ เรียนๆมา จำได้จริงๆหรือเปล่า

(นักเรียนคนที่ 19, สัมภาษณ์ปี 2562)

4.4.1.3 Test

For the option *Test,* most of the participants had a similar experience - that *Test* helped them to summarize after using other features. Some of the students used it every day after using another feature. Some used it once a week.

I used Test once a week after the whole week with Learn and Match. It helped me checking my memory whether I can remember the vocabulary or not.

<div align="center">

(S20, interview 2019)

</div>

ผมใช้ *Test* อาทิตย์ละครั้งหลังจากใช้ตัวอื่นอย่าง *Learn* กับ *Match* ครับพี่ มันช่วยผมเช็คว่าจำได้หรือเปล่า

<div align="right">

(นักเรียนคนที่ 20, สัมภาษณ์ปี 2562)

</div>

After using all features, I used Test. It was like using Test to test as the name of it means. I checked how much I could remember vocabulary.

<div align="center">

(S21, interview 2019)

</div>

หลังจากใช้ทุกตัวแล้ว ผมใช้ *Test* เพื่อเป็นการวัดผลว่าผมจำคำศัพท์ได้มากน้อยเท่าไหร่ครับ

<div align="right">

(นักเรียนคนที่ 21, สัมภาษณ์ปี 2562)

</div>

Test helped me a lot. I used it every night after
I used the feature for a whole day. Then, I took
a test in the nighttime to make sure that I can
pass this set and move on to another set of
vocabulary.

Test ช่วยผมมากครับพี่ ผมใช้มันทุกคืนเลยหลังจากที่ใช้
อันอื่นมาทั้งวัน ที่ใช้ตอนกลาคืนเพื่อที่จะได้รู้ว่าผมจะไป
ชุดอื่นได้หรือยังครับ

(S22, interview 2019)

(นักเรียนคนที่ 22, สัมภาษณ์ปี 2562)

4.4.2 Challenges

In addition, the interview results not only show the benefit of *Quizlet* but also the challenges of using *Quizlet* as the tool of vocabulary learning. This section is divided into two parts; the challenges of the whole application and the challenges of each feature that the participants have experienced by using the applications as their tool in learning vocabulary. There are some participants who suggested that the whole application should have been developed in some particular aspects, as follow.

Quizlet should have a set of parts of speech
ready to use. I found that it was a bit
confusing for me sometimes to find out which
parts of speech that the application gave
belonging to the word. I typed for example
"Mind". I was not sure whether it should be
"noun"or"verb"

ผมว่า *Quizlet* ควรจะมี *parts of speech* ให้ผม
เลือกใช้ได้เลยอะครับพี่ คือผมค่อนข้างจะสับสนว่าคำที่
ผมพิมพ์ลงไป มันเป็นอันไหน อย่างเช่น *mind* ผมก็ไม่
แน่ว่าจะเป็น คำนาม หรือ ว่าเป็นกริยา ตัวแอพน่าจะมีให้
ผมเลือกไปเลยว่าจะเอาอันไหน

(นักเรียนคนที่ 23, สัมภาษณ์ปี 2562)

(S23, interview 2019)

I think it would be better if Quizlet provided more features like searching for meaning or dictionary in itself. Because some words I really don't know what does it mean and even if it showed the choice for me, I was still not sure whether it was correct or not. So, I think it should add dictionary section more.

ผมคิดว่า Quizlet น่าจะมีพวกส่วนที่หาคำศัพท์เหมือนพจนานุกรมในตัวมันเองครับ เพราะบางคำผมไม่รู้คำศัพท์จริงๆครับ แล้วถึงแม้ว่าจะมีตัวเลือกให้ผมมา ผมก็ไม่มั่นใจว่าที่ให้มาถูกหรือเปล่า ดังนั้น

(นักเรียนคนที่ 24, สัมภาษณ์ปี 2562)

(S24, interview 2019)

According to the interview results, it can be concluded that the participants felt that the application was still lacking some information, such as an option for correct choices of parts of speech. Since some words come with many possible meanings and parts of speech, the participants could find it confused. Also, they wanted the application to have more features for searching both the meaning and synonyms, the same as a standard dictionary did.

Moreover, there were some participants who mentioned the challenges they experienced while using each *Quizlet* feature as follows.

4.4.2.1 Write

Most participants had the same challenges through using it as their tool invocabulary learning. The interview results confirmed the finding that the participants don't like using the *Write* feature since the feature itself required the participants to spell the words.

I found that Write feature was quite hard. If I had a chance to adjust the application, I would adjust Write feature to be easier to use. For example, I will give some hints that allow the users to guess rather than letting the learner find out how to spell that word. Look like we are playing hangman.

ผมพบว่า Write มันยากสำหรับผมนะ ถ้ามีโอกาสที่จะแก้ไขได้ ผมน่าจะแก้ให้มันง่ายกว่านี้ อย่างเช่น ผมจะให้มันมีคำใบ้ให้เราลองเดาหาคำมาใส่ หรือ พิมพ์คำใส่เหมือนเล่นเกมส์ hangman ครับ

(นักเรียนคนที่ 25, สัมภาษณ์ปี 2562)

(S25, interview 2019)

Moreover, *Write* feature requested the participants to write all the information which showed on the list. It means that they needed to give all the answers to the vocabulary, such as parts of speech, a hyphen, etc.

I had to write down every single thing. For example, "son-in-law (n.)" I couldn't even miss the period in the bracket. This is crazy.

ผมต้องเติมทุกอย่างของคำศัพท์ลงไป เช่น son-in-law อะครับพี่ ผมต้องใส่หมด พวกตัวอักษร ในวงเล็บก็ต้องใส่ ผมว่ามันบ้ามาก ผิดตัวหนึ่งก็ไม่ได้เลย

(S26, interview 2019)

(นักเรียนคนที่ 26, สัมภาษณ์ปี 2562)

4.2.2.2 Flashcard

Most participants pointed out the *Flashcard* feature should have more information or pictures in a free version to help them understand the word more.

If I had a chance to develop the application, I would add space for flashcard to have a picture or VDO to let me or users understand the word.

(S27, interview 2019)

ถ้าผมมีโอกาสที่จะพัฒนาแอพ ผมอยากจะเพิ่มพื้นที่ของ flashcard ให้ใส่รูปได้ หรือไม่ก็วิดีโอได้ เพื่อที่จะให้ผม หรือเพื่อนๆคนอื่น เข้าใจในความหมายของคำนั้นครับ

(นักเรียนคนที่ 27, สัมภาษณ์ปี 2562)

I think adding some pictures on Flashcard would make me or other friends understand the word more. For example, you had us do phrasal verb set, I think it would be easier to show us what that phrasal verb means in action.

(S28, interview 2019)

ผมคิดว่าถ้าใส่รูปภาพลงในไป *Flashcard* มันน่าจะทำ ให้ผมและเพื่อนเข้าใจมากกว่านี้ อย่างเช่น ถ้าในชุดของ *phrasal verb* ถ้ามีรูปภาพว่า คำนี้หมายถึงการกระทำ แบบไหนน่าจะเข้าใจง่ายมากกว่า

(นักเรียนคนที่ 28, สัมภาษณ์ปี 2562)

4.5 Discussion and conclusion

The findings of this study came from Thai male high school students who were in grade 10, 11 and 12 respectively. All of them studied in a Math-Science program in a private school in Nonthaburi province. Some of them had experience using *Quizlet* before. So those students helped the researcher teach other students to install the application, helping the ones who didn't have any experience with the application.

According to the participants 'satisfaction level towards the use of the application, the participants were satisfied with using *Quizlet* as their tool in vocabulary learning (*M=4.53; SD=0.24*). The results from the research correlate with the findings of Lu (2008) who revealed the benefits of using MMS (multimedia message service) in learning. Lu (2008)'s findings indicated that the post-test scores of the participants in the study were significantly higher up. They reported that the students had a positive attitude toward using MMS in vocabulary learning. In addition to that, the results from Thornton and Houser's (2005) study further suggested that mobile devices such as phones and PDAs gave a positive attitude to the students. Moreover, the participants of this research reported that *Quizlet* provide them a chance to learn whenever and wherever. This piece of findings is similar to Metcalf (2006) who illustrated that the success of mobile assisted language learning (MALL) is due to the raising consciousness of the importance of 'anywhere, anytime' learning.

Concerning the participants' most favorite features, the results obtained from the questionnaire showed this group of students preferred the *Match* feature. The reason the *Match* feature became the highest frequency feature could be supported by the

interview results - that participants used this feature as a game, in particular the pairing game. Accordingly, they could challenge their friends. This result relates to "Gamification", the application of game elements in non-gaming situations. Deterding et al (2001) illustrated that the aim of gamification is increasing the motivational level of learners. It would help learners by expanding extrinsic motivation when external rewards not related to the task itself drive the user to take an action. On the other hand, *Write* was the least frequently used (*M=3.45; SD=1.38)* feature due to the participants' limited spelling ability.

For the benefits of *Quizlet*, the participants shared that they were able to use the pre-made set of vocabulary or they could create their own set based on the pre-made option. It means that *Quizlet* provided a chance to shorten or lengthen the number of vocabulary items in one list by themselves. This showed that *Quizlet* is flexible and customizable for individual use. The students could adjust the information as they preferred. In addition to that, the interviewed findings illustrated that the benefits of using *Quizlet* are 'everywhereness'. This relates to the notion of "anywhere, anytime" (Metcalf , 2006). Metcalf pointed out that mobile-assisted language learning is convenience since it is operated on mobile device which is easy for the users to carry. This learning can then happen in any places at any time. The students also pointed out the benefits of *Quizlet* in each feature, such as *Learn,* which helped them remembering the vocabulary in the list by repeating the vocabulary in the list until they could remember the definition of the words. According to repeating of the application, Bryson (2012) and Nakata (2012) also illustrated that repeating could help students remember the words in a very short time and it helped students to maintain their memories.

Moreover, *Quizlet* provided the students the motivation in using the application since the *Match* feature gave them an experience of gamification which Hoogeveen (1995) pointed out has several benefits in use, especially that learners responded to multimedia or games in a complex way which gives them the feeling of experiencing information instead of simple acquiring the lesson and learning. Thus it becomes an enjoyable experience. After using other features, *Quizlet* also provided a chance for evaluating through the *Test* feature. The students showed that they used *Test* in evaluating their achievement after using other features.

In a different perspective, this application also had challenges. The participants suggested that the application should have added more certain choices of parts of speech to choose from. Also, it should have added another feature which could work like a dictionary inside the application itself. Moreover, the participants claimed that *Quizlet* required them to fill in too much information about vocabulary in the *Write* feature, such as parts of speech and definition. Additionally, some participants suggested that *Quizlet* should have added pictures or video in the *Flashcard* feature. This could help them remembering more vocabulary.

This results relate to the findings of Nakata (2012) who also concluded that pair associative learning process could help learners creating ways to aid in memory and boost up retention of words.

CHAPTER 5

CONCLUSIONS

The previous chapter presents the findings and the discussion on the participants' attitudes towards the use of Quizlet as their vocabulary learning tool, the most frequently used features, and the benefits and challenges of each feature in Quizlet. This chapter provides (1) Limitations of the research. (2) Conclusions and (3) Recommendations, based on the findings discussed earlier in Chapter four.

5.1 Limitations of the research

The limitation of this study was the time constraint since the length of the participants' class was limited. It was essential that the data collection period of this study must be finished within 30 days since the length of the class was 35 days. The researcher had to allow the participants to use the application for 30 days then gather the information within 5 days by giving them a questionnaire and interviewing.

Moreover, the variety of the participants' demographics was the one of the limitations. The participants in this study were only males. Mindful of these limitations, practitioners and researchers in the field should apply the findings into specific contexts with caution.

5.2 Summary

In this section, the reader can find a summary of each topic by following: (1) summary of objective of the study (2) summary of the subject, methodology, data collection, and data analysis, and (3) summary of findings.

5.2.1 Summary of the objectives of the study.

The objectives of this study were to find out the satisfaction levels of using *Quizlet* as a student vocabulary learning tool and also the features that the participants used the most. Another aim was to find out the benefits and challenges of using *Quizlet* as a vocabulary learning tool during the time that the participants used it.

5.2.2 Summary of subject, methodology, data collection and data analysis.

The participants in this study were sixty-two male students aged 16-17 years whose native language was Thai. They were students in a Math-Science program in a private high school. These participants were asked to complete a questionnaire and to be interviewed. The questionnaire was employed to elicit the student's opinions towards the use of *Quizlet* and to identify the most frequent feature that they used. In addition, open-ended questions and a semi-structured interview were conducted to find out the benefits and challenges of *Quizlet* and significant features of this vocabulary learning tool.

The data from the questionnaire was analyzed through the SPSS statistics program. The data was frequencies, percentage, means, and standard deviations. The

data from interviewing was transcribed and cross-checked against the audio recording. Afterward, it was presented in the form of narrative.

5.2.3 Summary of the findings.

The first set of findings from this study was the opinion of the participants (*N=62)* toward the use of *Quizlet* as their vocabulary learning tool. The interview and the questionnaire data similarly indicated that the participants preferred using *Quizlet* as their tool. Another main finding was that the *Match* feature was the most favorite feature. This was because the feature provided them with a chance to challenge their friends. On the other hand, the *Write* feature was the least favorite. It was used only once a day for each student. The third finding was regarding the benefits and challenges that the participants had experienced. The participants pointed out that *Quizlet*'s benefits were 'everywhereness' and anytime use. Since *Quizlet* was on their mobile phone it was easy to use through the participants' mobile devices and also they could use it repeatedly over and over again. Moreover, *Quizlet* provided a gamification experience to the participants and also the participants could evaluate themselves through the application by using the *Test* feature. However, there were some challenges have also been reported. The participants commented that *Quizlet* should have added pictures or videos in the *Flashcard* feature so they could understand the vocabulary more easily. And also, the *Write* feature should have adjusted some criteria - not requiring so much information about the vocabulary to be filled in.

5.3 Conclusion

Since vocabulary learning is considered to be the main part of language learning (Baptist, 2018), this study aimed to find out two main things: participants' opinion toward using *Quizlet* and the challenges and benefits of particular features in the application. The participants reported that they were satisfied with using *Quizlet* since it was easy to use through their own devices; they could carry it everywhere and use it every time as they preferred. Additionally, the results indicated that *Match* was

the most frequent employed feature, one that they used since it gave them an experience of gamification which gave them a motivation to learn the vocabulary. On the other hand, *Write* was used the least satisfied since the feature itself required the participants to fill in too much information. For the benefits and challenges of *Quizlet*, the participants pointed out that *Quizlet* provided them an "anywhere and anytime" consciousness. The participants could use the program wherever and also could use it as many times as they preferred. Moreover, an experience of gamification was enjoyed by the participants since the *Match* feature provided them a chance to beat their friends. Additionally, the participants could evaluate themselves through the *Test* feature. However, there were some challenges pointed out by the participants. Adding pictures or video was stated by the participants as an enhancement. The application developers should have added in pictures or video on the *Flashcard* feature, with a free version to help the users understand the vocabulary more.

5.4 Recommendations

According to the aforementioned findings, future studies can advance the fields of education and language leaning by testing and comparing the effects of different learning applications. There are currently available programs such as Anki, Brainscape, Diolingo etc. each with separate advantages and disadvantages to consider when implementing them into instructions. Moreover, future studies could also compare the effectiveness of applications based on the gender of the participants, investigating differences between male and female since they might provide different responses and opinions. Specifically, researcher and teachers who are interested in this field of CALL and MALL may consider investigating the use of technology among students with specific learning approaches to focus on areas such as conversation, reading or grammar learning.

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APPENCDICES

Appendix 1: Questionnaire

Thai version

แบบสอบภามความพึงพอใจต่อการใช้ Quizlet ในการเรียนรู้คำศัพท์

1. ระดับการศึกษา

◯ มัธยมศึกษาปีที่ 4 หรือเทียบเท่า

◯ มัธยมศึกษาปีที่ 5 หรือเทียบเท่า

◯ มัธยมศึกษาปีที่ 6 หรือเทียบเท่า

2. นักเรียนเคยใช้ แอพพลิเคชั่น Quizlet มาก่อนหรือไม่

◯ ไม่เคย (ข้ามไปทำข้อที่ 4)   ◯ เคย (ทำข้อ 3 ต่อ)

3. นักเรียนใช้ Quizlet บ่อยมากเพียงใด

◯ 1 ครั้งต่อ 2 สัปดาห์   ◯ 1 ครั้งต่อวัน

◯ 1 ครั้งต่อสัปดาห์   ◯ 2 ครั้งต่อวัน

◯ มากกว่า 2 ครั้งต่อวัน

ความพึงพอใจต่อการใช้ Quizlet ในการเรียนรู้คำศัพท์	ไม่พึงพอใจเป็นอย่างมาก (1)	ไม่พึงพอใจ (2)	เฉยๆ (3)	พึงพอใจ (4)	พึงพอใจเป็นอย่างมาก (5)
4. นักเรียนมีความพึงพอใจกับการใช้ Quizlet ในการเรียนรู้คำศัพท์ มากน้อยเพียงใด					
5. ความถี่ในการใช้ของแต่ละ feature	1 ครั้งใน 2 อาทิตย์	อาทิตย์ละครั้ง	วันละครั้ง	วันละ 2 ครั้ง	มากกว่า 2 ครั้งต่อวัน
5.1 นักเรียนใช้ Learn ในการเรียนรู้คำศัพท์มากน้อยเพียงใด					
5.2 นักเรียนใช้ Match ในการเรียนรู้คำศัพท์มากน้อยเพียงใด					
5.3 นักเรียนใช้ Flashcard ในการเรียนรู้คำศัพท์มากน้อยเพียงใด					

	ไม่เห็นด้วยอย่างยิ่ง (1)	ไม่เห็นด้วย (2)	เฉยๆ (3)	เห็นด้วย (4)	เห็นด้วยอย่างยิ่ง (5)
5.4 นักเรียนใช้ Test ในการเรียนรู้คำศัพท์มากน้อยเพียงใด					
5.5 นักเรียนใช้ Write ในการเรียนรู้คำศัพท์มากน้อยเพียงใด					
6. ความพึงพอใจในการใช้แต่ละ feature	ไม่เห็นด้วยอย่างยิ่ง (1)	ไม่เห็นด้วย (2)	เฉยๆ (3)	เห็นด้วย (4)	เห็นด้วยอย่างยิ่ง (5)
6.1 ความพึงพอใจในการใช้ Learn ในการเรียนรู้คำศัพท์					
6.2 ความพึงพอใจในการใช้ Match ในการเรียนรู้คำศัพท์					
6.3 ความพึงพอใจในการใช้ Flashcard ในการเรียนรู้คำศัพท์					

6.4 ความพึงพอใจในการใช้ Test ในการเรียนรู้คำศัพท์					
6.5 ความพึงพอใจในการใช้ Write ในการเรียนรู้คำศัพท์					

ความพึงพอใจต่อการใช้ Quizlet ในการเรียนรู้คำศัพท์ คำถามปลายเปิด

1. นักเรียนพบประโยคในการใช้ Quizlet ใดบ้าง โปรดอธิบาย

_____

_____

2. นักเรียนพบปัญหาในการใช้ Quizlet ใดบ้าง โปรดอธิบาย

_____

_____

English version

Satisfaction of using Quizlet as vocabulary learning questionnaire

1. Education level

◯ Grade 10

◯ Grade 11

◯ Grade 12

2. Have you ever used *Quizlet* before?

◯ Never (skip to item 4)   ◯ Ever (continue to item 3)

3. How frequency you have used *Quizlet?*

◯ One time in two we◯ Once a day

◯ Once a week   ◯ Twice a day

◯ More than twice a day

| Satisfaction of using *Quizlet* as vocabulary learning tool	Very dissatisfied (1)	Dissatisfied (2)	Neural (3)	Satisfied (4)	Very satisfied (5)
4. You are satisfied with					

6. Satisfaction of using each feature in vocabulary learning	Strongly disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Stongly agree (5)
6.1 I am satisfied with using *Learn* as a vocabuarly learning tool.					
6.2 I am satisfied with using *Match* as a vocabuarly learning tool.					
6.3 I am satisfied with using *Test* as a vocabuarly learning tool.					
6.4 I am satisfied with using *Flashcard* as a vocabuarly learning tool.					
6.5 I am satisfied with using *Write* as a vocabuarly learning tool.					

Satisfaction in using *Quizlet* in vocabulary learning (opened-ended question)

1. What are the benefits that you have experienced through using *Quizlet* as your tool in vocabulary learning?

_____

_____

2. What are the challenges that you have experienced through using *Quizlet* as your tool in vocabulary learning?

_____

_____
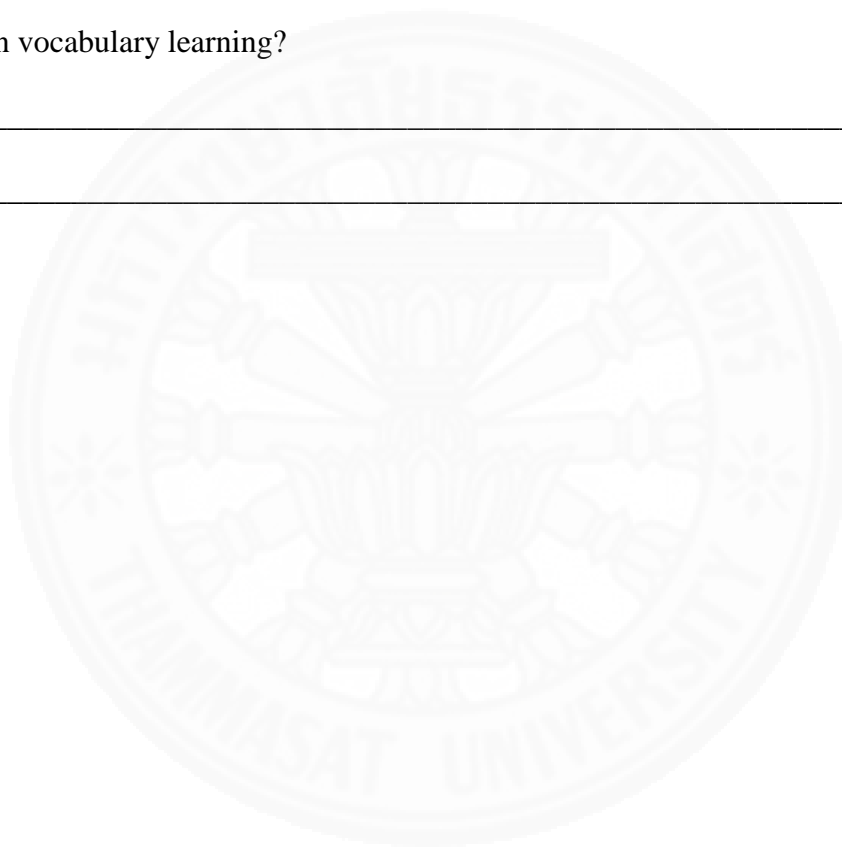
Appendix 3: Consent form for participants.

Consent form for Participants

Thammasat University

12 Prachan Road, Bangkok 10200 Thailand.

Consent to Participate in Research Study

STUDY TITLE: The Use of Quizlet in Vocabulary Learning: Experiences from a Specific Group of Thai High School Students.

INVESTIGATOR: Nipathorn Sangtuptim

I confirm that the researcher has explained the elements of informed consents to the participant.

The subject (participant) knows that their participation is voluntary and that they do not need to answer all questions. The purpose of the research, as well as the risks and benefits, have been explained. The procedures, as well as the time commitment, have been outlined. The participant understands the issue of confidentiality.

Participant Signature: _____

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