



การใช้เกมโทรศัพท์มือถือเพื่อพัฒนาความรู้ทางด้านคำศัพท์ภาษาอังกฤษ

กรณีศึกษาของพนักงานไทยในบริษัทต่างชาติ

USING MOBILE GAMES TO ENHANCE ENGLISH VOCABULARY KNOWLEDGE:

A CASE STUDY OF THAI EMPLOYEES IN AN INTERNATIONAL WORKPLACE

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THE MASTER'S PROJECT TITLED

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BY

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Vocabulary knowledge is an essential component of English language learning. However, Thai employees have insufficient English vocabulary for speaking and writing. To address the problem, this study was designed to investigate the effects of mobile games on the vocabulary knowledge of Thai employees and their attitudes towards learning vocabulary through mobile games. The participants consisted of twenty-five employees in an international workplace. The research instruments employed in this study included an English vocabulary test and an interview. The quantitative data from both the pretest and posttest were analyzed using mean scores, standard deviation, and *t*-test analysis. The qualitative data from the interview was analyzed using content analysis. The results demonstrated that mobile games had the potential to enhance the vocabulary knowledge of Thai employees. That is, the vocabulary knowledge of the posttest was found to be significantly higher than the pretest. In addition, when looking at the interview response, Thai employees had highly positive attitudes toward learning vocabulary through mobile games. This suggests that they favored learning vocabulary through mobile games. The results of the study indicated that mobile games can be good tools to engage players in learning the English language if used appropriately.

Keyword : Vocabulary Knowledge, Mobile Games, International Workplace

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TABLE OF CONTENTS

	Page
ABSTRACT	D
ACKNOWLEDGEMENTS.....	E
TABLE OF CONTENTS.....	F
LIST OF TABLES.....	H
LIST OF FIGURES	I
CHAPTER 1 INTRODUCTION	1
Background of the Study	1
Purposes of the Study.....	3
Significance of the Study	3
Definition of Terms	4
CHAPTER 2 LITERATURE REVIEW.....	5
Vocabulary Knowledge.....	5
Vocabulary Learning.....	6
Mobile Games and Vocabulary Learning	8
Related Research.....	11
CHAPTER 3 RESEARCH METHODOLOGY	14
Research Design.....	14
Participants	14
Research Instrument.....	15
An English Vocabulary Test	15
Mobile Games	15

A Semi-Structured Interview.....	17
Validity and Reliability	17
Data Collection Procedures	18
Data Analysis	18
CHAPTER 4 RESULTS OF THE STUDY	19
Vocabulary Knowledge.....	19
Thai Employees' Attitudes toward Using Mobile Games to Enhance English	
Vocabulary Knowledge	22
CHAPTER 5 CONCLUSION AND DISCUSSION.....	25
Summary of the Research.....	25
Discussion.....	26
Suggestions	30
Limitations	30
REFERENCES.....	31
APPENDICES.....	36
APPENDIX A An English Vocabulary Test.....	37
APPENDIX B Interview Questions.....	44
REFERENCES.....	45
VITA	46

LIST OF TABLES

	Page
Table 1 The Comparison of the Mean Scores of Pretest and Posttest.....	20
Table 2 The Comparison of the Mean Scores on Pretest and Posttest of Each Aspect..	21



LIST OF FIGURES

	Page
Figure 1 Design of The Study.....	14
Figure 2 Data Collection Procedure.....	18
Figure 3 The Overall Mean Scores and the Mean Scores of Vocabulary Knowledge in Each Aspect.	22



CHAPTER 1

INTRODUCTION

Background of the Study

English dominates the world as the international language for communication. It has been reported that approximately 1.5 billion people speak English (Nordquist, 2019). This is related to the fact that individuals use English to communicate with people of different nationalities all around the world. Nishanthi (2018) pointed out that English is an essential language that connects people at the international level. Moreover, English has been the “main part in several sectors including medicine, engineering, and education” (Nishanthi, 2018, p. 871). Therefore, it is important to learn English in order to obtain advantages from people around the world.

In Thailand, people are more interested in learning English, especially those who work in international companies. This is because Thai employees have to utilize English to communicate with co-workers from different nationalities. Besides, they can also have a chance to be promoted if they have a good knowledge of English language skills.

Unfortunately, the English proficiency of Thai employees is not at a satisfactory level. In general, they primarily specialize in occupational skills required in job descriptions. According to the Education First (2018), the English proficiency of Thai people was ranked 64 out of 88 countries in the world which was far behind China and Japan. Thus, Thai employees should improve their English.

To communicate in English, knowledge of vocabulary is essential. Without sufficient knowledge of vocabulary, English language learners cannot have an effective verbal communication (Min, 2013). For example, received messages with grammatical errors are still comprehensible whereas received messages with inadequate vocabulary knowledge are incomprehensible (Wilkins, 1972, as cited in Caro & Mendinueta, 2017). For this reason, vocabulary knowledge is undoubtedly important for language learners.

Although the knowledge of vocabulary is significantly useful in English language communication, the issue of how English language learners can learn English vocabulary effectively is problematic. Witchaiyutphong (2011) found that Thai employees did not acquire sufficient English words to use for speaking and writing. (Saengpakdeejit, 2014) reported that insufficient vocabulary knowledge was the major problem of Thai employees. The cause was that they could not remember English words. Therefore, Thai employees need a tool to support their English vocabulary learning.

Much research claimed that digital games can support vocabulary learning (Ashraf, Motlagh, & Salami, 2014; Mäki-Kuutti, 2014; Vidlund, 2013; Yip & Kwan, 2006). First, digital games motivate players to learn vocabulary. Unlike watching movies and reading books, digital games have plenty of fun and challenging options (Ashraf et al., 2014; Lund, 2012). Beavis (2017) noticed that digital games comprise unique tools and techniques which can draw engagement from players. The tools and techniques are rooted in game mechanics such as competitive, narration, and quests. Digital games also encourage players to find the meaning of a word to continue playing games (Vidlund, 2013). Regarding game mechanics, players need to know English vocabulary to overcome difficult challenges they have to conquer in games. Therefore, they attempt to know English words. Second, digital games can help learners to memorize words. Digital games consist of pictures and texts. Players can memorize and learn vocabulary by visualizing repeated pictures and texts on the screen (Yip & Kwan, 2006). Third, players are allowed to communicate with others by using voice chat or text messages (Mäki-Kuutti, 2014; Vidlund, 2013). By chatting with other players, they can learn to use unfamiliar words.

However, the use of digital games as a tool to improve vocabulary learning is a challenging task for educators. Currently, criticisms against gaming are still discussed everywhere. Research studies claimed that playing digital games can only result in less academic performance (Anand, 2007; Weis & Cerankosky, 2010). Moreover, playing digital games is time-consuming, which could distract children from

doing other activities after school (Weis & Cerankosky, 2010). In the worst case, spending excessive time playing digital games tends to cause a high tendency in digital game addiction (Skoric, Teo, & Neo, 2009).

As discussed above, the use of digital games in enhancing vocabulary remains questionable. Because there are two sides of perspectives of using digital games in vocabulary learning as discussed above, this study aimed at examining whether digital games enhance vocabulary learning. It focused on investigating the effects of mobile games, digital games played on handheld devices, on vocabulary knowledge of employees working in an international company in Thailand.

Purposes of the Study

The purposes of this study are:

1. To investigate the effects of mobile games on the vocabulary knowledge of Thai employees.
2. To investigate the attitudes of Thai employees towards vocabulary acquisition through mobile games.

Significance of the Study

The findings of this study can benefit employees in international companies who want to improve their English, especially vocabulary knowledge. In addition, the results of this study can be advantageous for language learners to consider using mobile games to enhance their vocabulary knowledge. For researchers, this study can be a guideline for further studies.

Definition of Terms

The terms used in this investigation are defined as follows:

Mobile Games refer to digital games played on handheld devices such as smartphones and tablets. Mobile games range from puzzle games to 3D adventure games downloaded from applications on mobile devices.

Vocabulary Knowledge refers to the knowledge of form, meaning, and use of vocabulary in the contexts appropriately.

Vocabulary Learning refers to the process of learning vocabulary when language learners hear and view words through mobile games.



CHAPTER 2

LITERATURE REVIEW

The study mainly investigates how the vocabulary knowledge of Thai employees can be developed through mobile gaming. Prior to understanding the proper information of this research, it is essential to assess vocabulary knowledge and vocabulary learning. Next, mobile games and vocabulary learning are reviewed. Finally, the related research on using mobile games to enhance language learning are also presented.

Vocabulary Knowledge

Educators defined the meaning of vocabulary in both general and in more specific terms. Vocabulary refers to “single words, or sets of words, that have a specific meaning” (Albery, 2012, p. 5). Vocabulary can be defined as “words that a reader recognizes in print” (Beck, McKeown, & Kucan, 2008). Vocabulary also refers to “all the words in a language, the entire vocabulary of a language” (Barcroft, Schmitt, & Sunderman, 2011, p. 571). It can be concluded that vocabulary is all words used in a language.

To study vocabulary in depth, it is vital to understand vocabulary knowledge. Vocabulary knowledge means “how well words are known” (Webb, 2012). In vocabulary learning, vocabulary knowledge is also known as understanding words in depth. According to Qian (2002), vocabulary knowledge can be described as learning particular words with in-depth meaning. It can be concluded that vocabulary knowledge refers to the knowledge of various aspects of words; as well as how well language learners know each word.

Vocabulary knowledge contains several aspects. According to Nation (2001), the knowledge of vocabulary includes forms, meaning and use of words. Each aspect of vocabulary knowledge represents the vocabulary depth. First, the form of words refers to word pronunciation, spelling, and word parts. Second, the meaning of words includes concepts of words in a sentence and word association. Third, the use of

words consists of the role of words in the context, collocations, and constraints of using each word.

Vocabulary knowledge is significant for language learners. It is the baseline to improve language skills. According to (Nation, 2001), vocabulary knowledge is one of the key components which plays an important role in language skills, namely listening, speaking, reading, and writing. Nation and Waring (1997) also mentioned the importance of vocabulary knowledge as it “enables language use, language use enables the increase of vocabulary knowledge, knowledge of the world enables the increase of vocabulary knowledge and language use and so on” (p. 6). This implies that if the language learners know the vocabulary, they could certainly control the use of a foreign language.

The vocabulary knowledge can be divided into productive and receptive vocabulary. According to Goulden, Nation, and Read (1990), productive vocabulary or active vocabulary is the knowledge which has recalled to speak or write appropriately. On the contrary, the receptive vocabulary or passive vocabulary is acquired by perceiving the form of words from listening and reading (Nation, 2001). Haycraft (as cited in Hatch & Brown, 1995) defined the meaning of productive and receptive vocabulary in a similar way; that is, productive vocabulary is appropriate words which language learners recall to speak and write. On the contrary, receptive vocabulary, or passive vocabulary is acquired by perceiving the form of words in a context which language learners can recall when they listen and read.

Vocabulary Learning

The process of learning vocabulary comprises several components. According to Hulstijn and Laufer (as cited in Schmitt, 2008), there are three components which involve vocabulary learning: need, search, and evaluation. Need is the demand of language to complete a particular task, such as the need to understand some words in a sentence to complete a task. Search refers to finding the meaning of words. Evaluation is to identify whether the meaning found is suitable to use in a context. From the three processes of acquiring vocabulary, it seems that English

language learners have to find appropriate ways to be competent in vocabulary knowledge.

Much research has suggested a number of ways which may be useful to assist language learners to learn vocabulary. D. F. Clark and Nation (1980) proposed the five steps of learning vocabulary. These steps include 1) observing the part of speech of a word; 2) roughly looking at the context of a word; 3) studying a word with broader context (usually from sentences that comes before and after the word); 4) guess the meaning of a word and check it; 5) check if the meaning of a word is the same as guessing. However, these steps are effective or not depend on the strategies which language learners used.

The common strategies to learn vocabulary are discovery strategies and consolidation strategies. According to Schmitt (1997), discovery strategies are ways that people employ to look for the meaning of words, whereas consolidation strategies are the way that people learn, practice, and memorize vocabulary. Those two strategies can be categorized into five sub-categories: determination strategies, social strategies, memory strategies, cognitive strategies, and metacognitive strategies. In determination strategies, people may guess the meaning of a word by context clues and word structure. In social strategies: people may ask for the meaning of words from their teacher or peers. In the third one, people may retain vocabulary by linking their background knowledge of vocabulary to a new word. Cognitive strategies are strategies related to the practice of using vocabulary. Finally, metacognitive strategies are the evaluation of one's progress to monitor and make decisions to use a word. Schmitt's vocabulary learning strategies can be supportive for language learners to discover new words that allow them to practice and use words to interact in conversations to widen their English vocabulary.

In addition, According to Sanaoui (1995), there are two types of vocabulary learning: unstructured learning, and structured learning. Language learners in an unstructured group only learn from textbooks. Moreover, they rarely have a chance to review the vocabulary knowledge they have learned without an assignment. While in

structured learning, language learners manage their own study of vocabulary learning strategies to acquire and memorize vocabulary without considering what language course provided. They might employ some of the recreational activities, such as watching movies, reading novels, and playing digital games to learn vocabulary knowledge. Sanaoui also pointed out that learning vocabulary from media is more effective than learning vocabulary only from textbooks in classrooms because they can control their own way of vocabulary learning. In addition, Sanaoui suggested that media can assist language learners in vocabulary learning—they can manage their own time of study from various contents based on their preference.

In summary, there have been many vocabulary learning techniques proposed by many educators.

Mobile Games and Vocabulary Learning

To understand mobile games in depth, it is useful to understand digital games—an umbrella term used to cover mobile games. This term has been defined by various authors in different ways. According to D. B. Clark et al. (2013), the digital game is “a set of challenging and/or novel experiences, scenarios, or decisions, structured by rules and/or goals, and mediated by a digital electronic device.” Alternatively, Karasavvidis (2018) defined a digital game as kind of games played on digital devices such as a game console, a personal computer, and a smartphone or tablet” (p. 3295). In sum, digital games are kind of games played on electronic devices equipped with stories or stimulations for players to achieve their goals.

There have been many academic educators who reviewed the effects of digital games integrated into learning. Currently, the use of digital games can be implemented in various teaching methods. Whitton (2009) pointed out that characteristics of digital games could be underlying to good learning. In terms of digital game-based pedagogy, Whitton suggested that the concept could be related to active learning and constructivism, experiential learning, collaborative learning, and problem-based learning. Moreover, it was found that the use of digital games in educational context creates a motivating learning environment. Griffiths (2002)

claimed that “video games can provide elements of interactivity that may stimulate learning.” He also indicated that the outcomes of games for educational purposes should be clarified to teachers and students; that is, it is important to set the goal of gaming, otherwise playing games for pleasure and educational purpose might not be different.

With the advance of technology, digital game resources are increasingly developed for learning. One of these resources is mobile games, which are small forms of digital games. Mobile games are defined similarly by various researchers. According to (Pannu & Tomar, 2010), mobile games refer to digital games played by using technologies within mobile devices. Mobile games are also video games played on a mobile phone (Petrova, 2010). Therefore, mobile games simply refer to any type of digital game which can be played on mobile devices.

Mobile Games categories are similar to digital games played on computer and video games consoles. First, action games refer to physically challenging games, such as shooter games. Second, adventure games encompass exploration and puzzle-solving. Third, puzzle games include games that attract players with puzzles. Fourth, role-playing or long story games provide players with an immersive experience as a character in a particular situation. Fifth, simulation games are the type of games which mimics the real-world situation. Sixth, strategy games refer to problem-solving games (Grace, 2005).

Mobile games have been implemented into teaching and learning when there was a global technology boom. (Prensky, 2001) stated that during the particular period, teenagers of the last 20th century were fascinated by digital music and devices. He also asserted that digital games, including mobile games have become one of the significant materials in learning, especially language learning.

Many scholars support the benefits of mobile games in learning (Ashraf et al., 2014; Ranalli, 2008; Yip & Kwan, 2006). They could be introduced as alternate tools to assist language learners because of the three main reasons. First, mobile games enhance language learners' motivation to learn. Yip and Kwan (2006) pointed out that

learning vocabulary face-to-face in classrooms or reading from textbooks may not engage student's attention in the digital age. Instead, people nowadays gradually prefer to play games as one of their recreational activities to enhance their English skills. Unlike television, books and other media, games can moderate players' intensity in learning by interaction (Lund, 2012). In other words, television and books only engage audiences/readers' attention passively; on the other hand, mobile game players have a variety of challenging tasks which could encourage players' interaction and excitement. Moreover, Ashraf et al. (2014) also claimed that digital games, including mobile games can encourage learners with fun, interactive content, sound, and pictures which make players enjoy while playing. Nowadays, digital games contain internal lore or a variety of systems which can encourage interaction from players. Mobile games help players develop motivating, engaging, and anxiety free learning experience. According to Rudis and Svetozar (2016) it is important for players to know English words in order to overcome the difficult challenges they have to conquer. In this way, mobile games players need to find the meaning of those unfamiliar words and terms without being forced by any instructors. In sum, mobile games make players feel more engaged and more immersed in learning vocabulary.

Mobile games enhance language learning. digital games, including mobile games, with a complex scenario can be seen in adventure games, role-playing games, and platform games. English Subtitles are usually provided for English language learners to view unfamiliar words during gameplay. Rasti and Dehaan (2018) explained that while playing, players are immersed into a virtual world, mostly in a fantasy setting. Players can both listen to characters and watch the scenario at the same time. When a game task/quest appears, it usually comes in a form of text that players have to focus on, as well as audiovisual components. In addition, mobile games offer an immersive environment in which the target language is used. To accomplish in a game, players need to use a specific language to interact with game options and other players. For instance, players face various situations which they have to use different kinds of language use, such as asking for help and meaning of

unfamiliar words. This means that they are using language in authentic and meaningful ways.

Finally, mobile games can help players' the maintenance of their language knowledge. Yip and Kwan (2006) pointed out that exposing to mobile games, players are able to memorize words in the long term. Frequently of input is vital for language acquisition (Schmitt, 2010). Words and sentences appear repeatedly on mobile screens. Repetition is essential for vocabulary learning (Nation, 2001). For mobile games, there are repetition of words in three distinctive ways: 1), frequent repetition or frequent exposure with the words; 2), visual repetition: the image of the word or the sequence of actions related to the meaning of words are exposed frequently; 3) associative repetition: relevant words are exposed. In addition, players have chances to use the target language to communicate with other players. In addition, players have chances to use the target language to communicate with other players. In order to reach the goal, players need to discuss the situation with their team (Mäki-Kuutti, 2014). By doing so, language learners have an opportunity to practice the target language while gaming. This helps players be able to memorize words, phrases, or sentences in a long period. Social interaction is essential for language learners' language proficiency. Without social interaction, players feel a lack of motivation, opportunities for practicing target language skills, and immediate feedback; all three components are crucial if language learners desire to increase their communicative abilities in the target language (Cabreja, 2016; Mäki-Kuutti, 2014; Rudis & Svetozar, 2016; Vidlund, 2013). By doing so, language learners have an opportunity to acquire English vocabulary and practice their English while gaming.

Related Research

Presently, there has been much research done by educators on examining the use of mobile games to enhance English proficiency in the mobile era. Numerous researchers have reported positive feedback on the use of several kinds of mobile games and English language enhancement for young people. However, a little

research was conducted to investigate the effect of using mobile games to enhance English skills for employees.

Casual mobile games are proved to be advantageous in vocabulary learning for young people. Musa (2015) investigated the use of 2 casual mobile games to add new vocabulary for a number of 20 participants. The study employed observation and think-aloud technique methods. Each of the participants were being observed individually. During gameplay, they were asked about the meaning of each word which appeared on screen. The study reported that there are two groups of vocabulary that the participants obtain while playing casual mobile games. The general meaning is "the group of vocabulary that found outside the virtual game environment" (Musa, 2015, p. 448). These words are used for game setting options. While the other group is "a vocabulary with the situated meaning" (Musa, 2015, p. 448). Players might notice these words while they continue playing a game. However, the participants reported that they can only predict the meaning of words from pictures instead of defining the actual meaning.

Another study supporting the use of casual mobile games to enhance English vocabulary focused on motivation and learning performance of young people was conducted by Huang, Chang, and Wu (2017). They explored 100 university students using a game-based learning application in a bilingual setting. The application is equipped with 8000 academic English words. In order to accomplish each level in the game, the participants need to complete a mission by answering each question within 10 seconds. Even though the students were asked to play the game only 2 weeks, the results revealed that the use of casual mobile games could motivate a large group of young people to learn new words and improve their English vocabulary knowledge.

Narrative mobile games were also proved to be effective in vocabulary learning, especially for children. Dore et al. (2019) investigated the effect of how narrative mobile games could supplement students' basic vocabulary. The mobile game specifically designed for the study comprised of 10 target vocabulary. In the game, students felt immersed into a space mission and learn the target vocabulary in

meaningful context. The result from receptive vocabulary measure reported that students could answer most of the questions regarding the target vocabulary correctly.

Additionally, massive multiplayer online role-playing games (MMORPGs) are able to assist young people in vocabulary knowledge. Jack and Muhammad (2017) investigated mobile languages in Maple Story and Raknarok Online of the players. With the on-going process of the gameplay, the study found that most players used abbreviations and acronyms to communicate with other players online. In addition to learning new words from teammates, players reported that they also learned English vocabulary from Non-Player Character (NPC). Jack and Muhammad suggested that mobile games should be implemented as a learning tool in classroom.

In summary, many study found that mobile games supported language learners in vocabulary learning (Huang et al., 2017; Jack & Muhammad, 2017; Musa, 2015). All of the studies showed the positive effects on students and used mobile games an educational tool; however, the research on the impact of mobile games on employees have not been found yet.

CHAPTER 3

RESEARCH METHODOLOGY

The research methodology of this study includes the research design, selection of participants, research instruments, the procedure of data collection, and data analysis.

Research Design

The research study is a mixed method combining quantitative and qualitative approaches in order to ensure that the conclusion is accurate and reliable. The quantitative data included pretest and posttest scores. The qualitative data was obtained from an interview for information in depth. The research design is shown in Figure 1.



Figure 1 Design of The Study

Participants

The participants were 25 employees from a full-service animatic company located in Bangkok, Thailand. they were 25-35 years of age. The participants were selected by using purposive sampling which is based on the objective of this study. The reason for choosing these participants for the study was that although they worked for an international company, but their English proficiency was not at the satisfactory level. They specialized in computer graphic skills rather than English namely, video compositors, 3D background and characters modelers, and animators and need a tool to support their vocabulary knowledge in order to communicate with their co-workers from other branches overseas. Aiming to see the progress of vocabulary learning, the participants of this study were only including employees who

have a lower intermediate level of English proficiency. Second, all of them were willing to participate in the full study in order to improve their English vocabulary knowledge.

Research Instrument

The research instruments used in this study were an English vocabulary test, three mobile games with English voice announcer and subtitles, and semi-structured interview.

Process of developing the research instruments were as follows:

Step 1: Determine the criteria for selecting the research instruments.

Step 2: Conduct the first draft of the research instruments.

Step 3: Examine the content validity and reliability.

Step 4: Improve the evaluated research instruments.

Step 5: Conduct the final draft of research instruments.

An English Vocabulary Test

In order to compare the level of participants' vocabulary knowledge before and after the treatment, an English vocabulary test was developed by the researcher to use for both pretest and posttest. The test was used for both pretest and posttest, which consists of 20 multiple choice items. Three types of target vocabulary covered commanding, communication, and in-game objects. The questions included the definition of words, spelling, and using words effectively.

Criteria for selecting the words to use in an English vocabulary test were:

1. Vocabulary items were appropriate for enhancing the participants' English proficiency level.
2. Vocabulary items were repeatedly appeared in the three selected mobile games.
3. Vocabulary items were unfamiliar to the participants.

Mobile Games

In selecting appropriate mobile games as the tools to enhance English vocabulary, the researcher searched for free popular mobile games available on App Store and Google Play store; they could attract the participants and free of charge. Then, the researcher read game descriptions to see whether the games were suitable

for vocabulary learning. That is, the games need to include target vocabulary included commanding, communication, and in-game objects. Next, the researcher downloaded each game to play on a mobile device. After playing several mobile games, the researcher eliminated mobile games which were difficult to control with a few English words. All things considered, the criteria for choosing the three mobile games were:

1. The three mobile games were free to play.
2. The three games were categorized as popular games on mobile devices.
3. English vocabulary in the three mobile games covered the target vocabulary.

Selected Mobile Games

Three mobile games which were selected as a treatment of this study included *Life is Strange*, *Dead Island*, and *Iron Blade*.

1. *Life is Strange* is a story-based choice mobile game. One has to control the main protagonist of the story: Max Caulfield, a woman with a special power to rewind time. With her power, she can save her friend and discover new things without realizing that this will damage the future. Based on the concept of choice selection, a player is allowed to experiences an exclusive story based on their interactions with the story world.

In *Life is Strange*, English vocabulary is presented in subtitles, choice selection, and voice-over of characters. Besides, English vocabulary can be found on in-game objects which players can tap on for collecting clues to complete missions of the game.

2. *Dead Island* is considered to be a strategy mobile game. In each game, a player role as a selected survivor in an Island surrounded by zombies. To win each mission of the game, a player needs to control the position of cannons and attack zombies for obstructing them from approaching the main gate.

In *Dead Island*, players can learn English vocabulary by listening to in-game dialogues. Moreover, players are able to read descriptions of each weapons in English. This way, they can acquire new words and learn vocabulary in context.

3. *Iron Blade* is an action role-playing mobile game. The content of this game is about fighting against soldiers, zombies, and other monsters in the medieval era. To defeat those characters, players need to craft their weapons to be powerful enough to slash them.

In *Iron Blade*, English vocabulary in can be found in weaponize crafting, dialogue of the story, and during the fight. Despite the old words during the ancient time from the dialogue, a player can view many useful words to use in their daily lives. For instance, there is a word 'fusion' when a player decided to combine two items together. Apart from that, a player can perceive some words during the fight, such as exhausted, critical, and target.

A Semi-Structured Interview

A semi-structured interview was employed to investigate the attitudes toward vocabulary learning through mobile games. The interview included five open-ended questions. The participants were able to express freely about their attitudes toward learning English vocabulary through mobile games.

Validity and Reliability

The researcher had English teaching experts to inspect content validity of all research instruments and the appropriateness of language using IOC (The Index of Item Objective Congruence). The experts were three English instructors of a university. Three of the experts reviewed an English vocabulary test whether the questions are suitable for the English proficiency level of participants of this study.

In addition, a pilot study was conducted to determine the reliability. Thai employees with the same characteristics as the participants were asked to complete an English vocabulary test. All of them were not included as the participants of this study. The test was analyzed using the reliability Cronbach's coefficient alpha. The reliability of an English vocabulary test was 0.78, indicating that the test was effective

enough to evaluate Thai employees' vocabulary knowledge as the Cronbach's alpha value was over 7.

Data Collection Procedures

This research study lasted six weeks. At the beginning of the process, the participants who agreed to participate were asked to sign a consent form. In the first week, the researcher presented the plan for gaming for an educational purpose. After that, the participants were asked to complete the English vocabulary pretest. In the second week, they were asked to install *Life is Strange* in their smartphones at home and play it after work for two times (30 minutes per day). To control the activity, the participants were observed by the researcher while gaming. In the third and fourth weeks, they did the same with the other two games, namely *Dead Island*, and *Iron Blade*. In the fifth week, the participants were asked to take a posttest. Finally, five participants were randomly selected for an interview after completing a posttest.

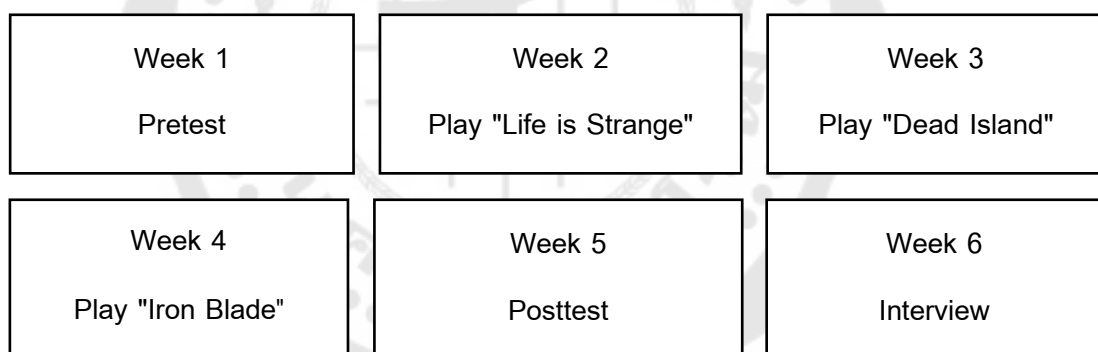


Figure 2 Data Collection Procedure

Data Analysis

The data from the pretest and posttest were analyzed by comparison of mean scores, standard deviations, and using the *t*-test analysis. Dependent *t*-test analysis was used to determine whether there were any differences between the vocabulary knowledge mean score of the participants before and after the treatment. The data from the interview was analyzed by content analysis.

CHAPTER 4

RESULTS OF THE STUDY

This study employed mixed methods in order to investigate the effect of mobile games on Thai employees' vocabulary knowledge and the attitude of Thai employees towards vocabulary learning through mobile games. This section presents the results of the study.

In the first part, the effect of mobile games on Thai employees' vocabulary knowledge is presented. The results of statistical data collected from pretest and posttest scores are presented in tables providing mean scores and standard deviation.

Additionally, the data is presented with explanations and interpretations in the form of descriptive statistics.

Second, the Thai employees' attitudes toward learning vocabulary through mobile games are reported. The data is discussed by using content analysis from a semi-structured interview.

Vocabulary Knowledge

The effect of using mobile games to enhance English vocabulary knowledge for Thai employees in an international workplace.

During an experiment, the data from pretest and posttest scores were collected to measure the effect of using mobile games to enhance English vocabulary knowledge for Thai employees in an international workplace. Mean scores, standard deviations, and the *t*-test analysis were employed to analyze data, and the results which are presented in Table 1.

Table 1 The Comparison of the Mean Scores of Pretest and Posttest

Experimental group	n	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i> -value
Pretest	25	4.39	1.749	11.163*	0.000*
Posttest	25	7.39	1.524		

*Significance at the 0.001 level ($p < 0.001$)

Table 1 shows that there was a significant difference in the scores for pretest and posttest ($p < .001$). The mean score of the posttest ($M = 7.39$, $SD = 1.524$) was higher than the mean score of the pretest ($M = 4.39$, $SD = 1.749$), indicating that the use of three mobile games had a positive impact on Thai employees' English vocabulary knowledge.

The improvements of each aspect of vocabulary knowledge, including spelling, meaning and use of one group pretest posttest design are revealed in Table 2.

The differences between pretest and posttest mean scores on vocabulary knowledge in each aspect: spelling, meaning, and use.

Vocabulary knowledge was investigated through the knowledge of spelling, meaning, and using vocabulary in context. The *t*-test analysis was employed in order to analyze the trends of vocabulary improvement in each aspect. The findings are shown in Table 2.

Table 2 The Comparison of the Mean Scores on Pretest and Posttest of Each Aspect

Vocabulary Learning	<i>n</i>	<i>Pretest</i>		<i>Posttest</i>		<i>t</i>	<i>p-value</i>
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Spelling	25	3.80	2.739	7.40	2.141	7.856*	0.000*
Meaning	25	6.44	1.895	8.72	1.400	7.975*	0.000*
Use	25	2.92	2.253	6.04	1.989	8.407*	0.000*

*Significance at the 0.001 level ($p < 0.01$)

Table 2 shows that mobile games were effective in improving the knowledge of every aspect. For spelling aspect, the mean score of the posttest ($M = 7.40$, $SD = 2.141$) was higher than the mean score of the pretest ($M = 3.80$, $SD = 2.739$), indicating that the use of mobile games was effective in developing knowledge of words form.

For the meaning aspect, the results reveal that there was a significant difference of pretest mean score and posttest mean score. The mean score for the pretest was 6.44; whilst the score of the posttest was 8.72, revealing that the use of mobile games was effective in improving the knowledge of vocabulary meaning.

Finally, for the use of vocabulary aspect, the posttest mean score was significantly higher than pretest mean score. Before the experiment, the pretest mean score was 2.92; while after the experiment, the posttest score was 6.04. This means that players improved their use of the vocabulary used in context.

The results of overall scores and vocabulary knowledge scores in each aspect of one group pretest and posttest design is shown in figure 3.

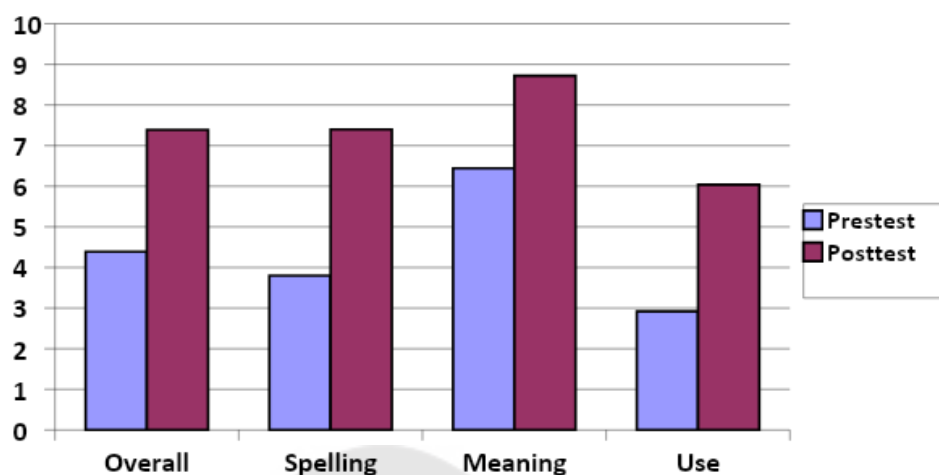


Figure 3 The Overall Mean Scores and the Mean Scores of Vocabulary Knowledge in Each Aspect.

Thai Employees' Attitudes toward Using Mobile Games to Enhance English Vocabulary Knowledge

To examine the attitudes toward using mobile games to enhance English vocabulary knowledge of Thai employees, the data was collected by using semi-structured interviews.

It was found that the results of the interview supported the results of English vocabulary test. The participants reported that they were satisfied with learning vocabulary through mobile games and they believed that mobile games supported their vocabulary knowledge.

The results reveal that mobiles games had potential to enhance vocabulary knowledge. From the interview session, all interviewees (100%) agreed that mobile games support the knowledge of spelling. Five interviewees asserted that they can remember and spell unfamiliar words correctly from playing three games. They reported that in-game options and instructions are all in English, and these options could help them to memorize English words. For example, in *Life is Strange*, participants reported that the word 'timetable' frequently appeared with an image as an option for players to select in the main protagonist room. In *Dead Island*, four participants mentioned the word 'suitcase' which always appears on the right bottom of the frame for them to press and collect items.

It was found that they could learn the meaning of words through playing games. Four interviewees (80%) also claimed that mobile games help them to learn the word meaning. Two participants reported that “mostly we could know the meaning of unfamiliar words by looking at images of objects on screen without using translating programs.” apart from learning vocabulary from visual elements, two players also said that they used an online dictionary to help them understand each word. In addition, one interviewee added that in mobile games, there were many words that they could use in daily lives. She pointed out, “when I read designers’ briefs for work, I know the meaning of several words obtained from playing three mobile games, and this could help me complete my job easier. I do not have to waste my time looking for particular words in the dictionary as I could remember the meaning of words from playing mobile games.”

The participant also learned how to use vocabulary in the contexts appropriately. Three interviewees (60%) reported that they learned form of words by playing mobile games. One interviewee pointed out, “I have already known some words in games, but playing these three games can help me understand the words I have already known in different contexts.” Three interviewees pointed out that they have to understand words in a specific context written in descriptions in order to complete game tasks.

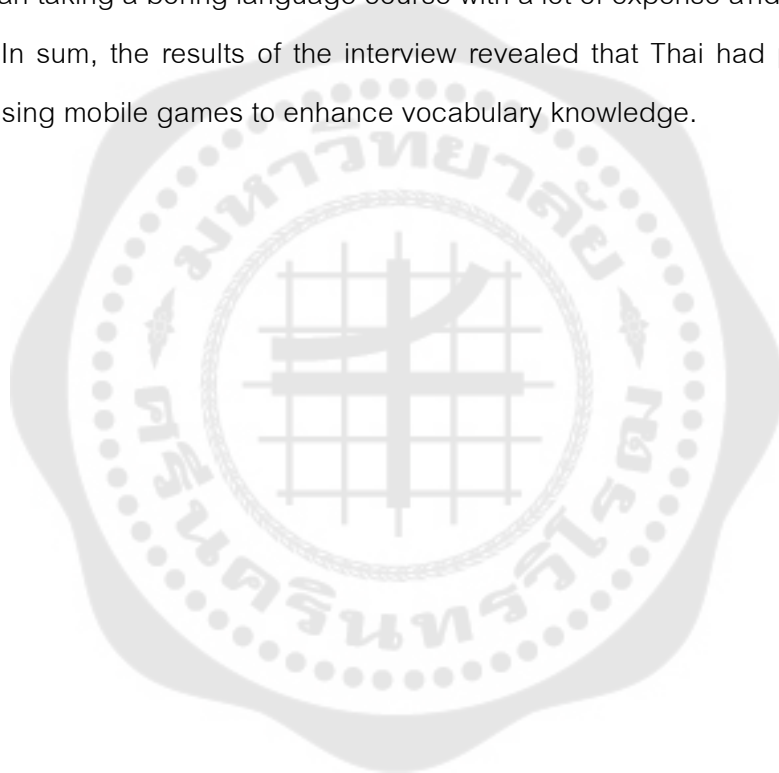
It also found that mobile games stimulated participants to use English. They had chances to interact with other players and used English to communicate. For example, two of the interviewees (40%) reported that they discussed with other players in the online community. Another interviewee said that she accessed *reddit.com* to ask the inquiry regarding the achievements of the game in English.

In addition, it was found that mobile games content could encourage players to learn with fun. Three participants added that sound and pictures on screen motivated them to learn English vocabulary with excitement at the same time.

There were additional comments apart from the positive attitudes towards using mobile games to enhance vocabulary knowledge above. Three participants

added that sound and pictures on screen motivated them to learn English vocabulary with excitement. All of the employees said that mobile games were portable and accessible than other digital game devices, such as computer and *PlayStation*. They asserted that “I can play digital games when I was on my way to the office and went out for lunch”. Four of the interviewees also suggested that the time of playing each game should be longer to support them with retaining unfamiliar words. Finally, all of the interviewees claimed that using mobile games to enhance English vocabulary is better than taking a boring language course with a lot of expense and time consuming.

In sum, the results of the interview revealed that Thai had positive attitudes toward using mobile games to enhance vocabulary knowledge.



CHAPTER 5

CONCLUSION AND DISCUSSION

The aim of the study was to investigate the effects of using mobile games on Thai Employee' s English vocabulary knowledge. In addition, the study examined the attitudes of Thai employees toward using mobile games to enhance English vocabulary knowledge. This chapter provides summary of the research, discussion, implications, limitation of the study, and further suggestions for the future studies.

Summary of the Research

This study aimed (a) to investigate the effect of mobile games on Thai employees' vocabulary knowledge. (b) to investigate the attitude of Thai employees towards vocabulary learning through mobile games. Twenty-five Thai employees working in an international workplace were selected as participants from purposive sampling. This study lasted for six weeks.

In this study, all of the participants were asked to play three mobile games as a treatment namely, *Life is Strange*, *Iron Blade*, and *Dead Island*. The research instruments employed in this study included of an English vocabulary test and a semi-structured interview.

At the beginning of the process, the participants were asked to sign a consent form. In the first week, the researcher presented the plan for gaming for an educational purpose. After that, the participants were asked to complete an English vocabulary pretest. The English vocabulary test aimed to assess the knowledge of participants on the spelling, meaning, and use of vocabulary in the contexts appropriately. All of the participants were asked to play the three mobile games for three weeks.

After three weeks of playing the three mobile games, participants were asked to complete the posttest to examine whether the knowledge of vocabulary had improved or not. A week after the posttest, the five volunteer participants were interviewed to study about attitudes towards using mobile games to enhance English

vocabulary. Data from an English vocabulary test was analyzed by using mean scores (*M*), standard deviations (*SD*), and *t*-test analyses.

The results of the study revealed that using mobile games to enhance Thai employees' working in an international workplace was effective. First, it can be concluded that mobile games helped to enhance Thai employees' vocabulary knowledge. In addition, the attitudes of Thai employees toward using mobile games to enhance English vocabulary were highly positive, indicating that Thai employees favored the use of mobile games to learn English vocabulary.

Discussion

It was found that mobile games had positive effects on Thai employees' English vocabulary knowledge and attitudes. After the experiment, the participants reported that they were satisfied using mobile games to enhance vocabulary knowledge. First, game content were important factors to motivate Thai employees to learn English vocabulary. In this study, motivation from the characteristics of mobile games was significant for Thai employees to learn English vocabulary. Al Othman and Shuqair (2013) pointed out, "motivation is one of the primary forces influencing second language learning" (p.126). Like the idea of Griffiths (2002), mobile games could create a motivating learning environment for players. During the process of gaming, the participants were motivated by the motion of pictures, in-game sound, content, and dialogue. As shown in the interview, the participants reported that these elements made them feel excited and motivated them to learn vocabulary at the same time. Like the idea of Huang et al. (2017), the participants in this study were motivated to learn vocabulary from in-game content as shown in the result of the interview. To this extent, all of the participants informed that it was one of the reasons why they preferred using mobile games to learn English vocabulary to studying from printed text.

Second, the challenging tasks in mobile games were also the major factor which could attract players to learn vocabulary. Similar to the study of Lund (2012), mobile games in this study consisted options of challenging tasks; this feature

stimulated players' interaction which was beneficial for vocabulary learning. For instance, in *Dead Island*, participants had to find a way to defeat zombies to win the game. Therefore, players learned English words with fun as they were attracted by achievements in the three mobile games.

Third, the three mobile games allowed the participants to learn freely. Similar to the idea of Sanaoui (1995), in this study, players could manage their own way of learning vocabulary. For example, the participants did not know some words in a sentence of a challenging task; in order to proceed, they asked peers, and looked for the meaning of words in the dictionary. After that, they evaluated the meaning that they looked for whether it was suitable to the context. This indicated that mobile games allowed players to learn freely in a meaningful context. Similar to the finding of Dore et al. (2019), the participants in this study could learn the target vocabulary, including commanding, communication, and in-game objects.

In addition, the portability of mobile games was one of the factors which was favored by the participants. That is to say, players could enhance vocabulary knowledge anytime and anywhere. Two participants reported that they could play mobile games everywhere—even on a bus or a train. Compared to other digital game platforms, mobile games were found to be suitable for language learners who do not have much time to learn English vocabulary.

These advantages made the participants favored learning vocabulary through mobile games. As shown in the interview, all of the interviewees asserted that they preferred to learn vocabulary from mobile games to textbooks. Similar to the ideas of Yip and Kwan (2006), learning English vocabulary from textbooks hardly engage students' attention in the new media era.

It was found that mobile games had a positive potential to enhance the vocabulary knowledge. The knowledge of each aspect of vocabulary knowledge—spelling, meaning, and vocabulary use was developed. There were several reasons to explain this result. To begin with, mobile games supported the participants to memorize English words and phrases. The repeated words and sentences played a

significant role in assisting the participants to remember words. While playing games, words and sentences on screen were repeated several times. The participants in this study employed the behaviorist learning strategy proposed by Lyster, Lightbown, and Spada (1999) to memorize words on screen as in-game options appeared repeatedly. From the behaviorist view point, learning vocabulary could be accomplished by viewing words repeatedly. It was in agreement with Vidlund (2013), repetition of words in the three mobile games helped participants to remember words. Moreover, the participants reported that they could remember several words from the three mobile games, even though they had not played the games for a week. This suggests that they had potential in vocabulary maintenance. This finding was similar to Yip and Kwan (2006) the three mobile games helped them to remember words in a longer period.

Apart from remembering words, mobile games encouraged players to communicate with peers, and this led to the improvement of their vocabulary knowledge in spelling, meaning and vocabulary use. For example, two participants applied social strategies proposed by Schmitt (1997) to find the meaning of some words; that is, they asked for the meaning of words from peers. Similar to the finding of Jack and Muhammad (2017), the participants communicated with other players while gaming, and this conversation helped them To learn and practice using some unfamiliar words. Their vocabulary knowledge was used and practice in real-life situations. In the interview session, one participant reported that they could use some words in mobile games to communicate with players from different nationalities on the internet.

In addition, the visual elements and texts in mobile games also helped the participants to guess meaning from context clues. All of the participants stated that they could guess the meaning of several words in *Live is Strange* by looking at pictures below English words on screen, such as leaflet, timetable, and blinds. Description of in-game objects and dialogue provided meaning of words in a form of context clues as well. For example, one participant reported that they guessed the

meaning of “defense” from a context clue that a character needed something to secure the area.

More importantly, the motivational factors discussed in the previous paragraph is essential to explain why the participants improved their vocabulary knowledge. It was similar to many studies which concluded that positive attitudes towards the target language are vital to the participants’ success and their efforts in learning vocabulary (Alves-Martins, Peixoto, Gouveia-Pereira, Amaral, & Pedro, 2002; Mantle-Bromley, 1995; Oroujlou & Vahedi, 2011; Sölpük, 2017). Based on the idea of Ajzen and Fishbein (2005), positive attitudes from the participants indicated that they had a positive reaction toward mobile games. In this study, both the productive and receptive vocabulary knowledge derived from the positive attitudes of the participants toward using mobile games to improve their vocabulary knowledge as well. Regarding the components of attitude proposed by Petty, Fabrigar, and Wegener (2003), the three mobile games resulted in positive attitudes in three components: affective factor, cognitive factor, and behavior factor. In affective factor, the participants had positive feelings toward the three mobile games. In cognitive factor, the participants believe that mobile games enhanced vocabulary knowledge. In behavior factor, the participants had an intention to learn English vocabulary by using the three mobile games. These were the factors which influenced the results in English vocabulary tests—the achievement of developing English vocabulary knowledge.

In summary, mobile games were effective in enhancing vocabulary knowledge. By using mobile games, Thai employees learned more vocabulary and memorized words in a longer period. This study evidenced that mobile games can be used as tools to enhance English vocabulary. Contrary to many criticisms against mobile games proposed by (Anand, 2007; Skoric et al., 2009; Weis & Cerankosky, 2010), the results of this study proved that mobile games can be powerful tools to enhance language learners’ engagement and achievement if used as learning tools in a meaningful context. Finally, the characteristics of mobile games—especially the

portability and visual elements—made players favored to learn English vocabulary and motivated them to learn with excitement as well.

Suggestions

The study of using mobile games to enhance English vocabulary proved that using mobile games was effective for Thai employees. Not only in an international company, English language learners of all nations can use mobile games as tools to enhance vocabulary knowledge. In addition, using mobile games to enhance language skills can be implemented as a teaching tool as well. The findings suggested that mobile games can make language learners be more active. Students can enjoy learning English vocabulary during the process of acquiring vocabulary. Therefore, it can be an alternative way to enhance language learning in classrooms.

This project studied the use of mobile games to enhance English vocabulary knowledge in a short period of time. In future studies, it will be better if the treatment is examined through a longer period of time. By extending the duration of the study, it can be confirmed that English language learners still use mobile games to enhance language learning.

Furthermore, it will be interesting to study the effects of using other categories of mobile games to enhance other English language skills: reading, writing, speaking, and listening.

Limitations

The findings of the study may not confirm that all types of mobile games can support English language learners on improving English vocabulary as it was conducted by using only three sample mobile games. Besides, the results of this study may not generalize to a large number of people in other companies. The participants were restricted to a group of twenty-five participants. It was only a particular group of Thai employees who were willing to improve their English vocabulary knowledge.

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APPENDICES





English Vocabulary Test

Name

Department

Total Score

30

Part 1 Vocabulary Knowledge: Spelling (10 items / 10 marks)

Look at the pictures and fill in the missing letters of each word.



1. L _ _ f _ e _



2. S _ a t _



3. C _ m _ _ i _ e



4. S _ _ c _ s _



5. Fa _ c _ _



6. B _ n _ s

	9.00-10.00	10.00-11.00	11.00-12.00	12.00-13.00	13.00-14.00
Monday	Korean I	English I	Break	German I	Chinese I
Tuesday	French I	Japanese I		French I	Korean III
Wednesday	Japanese II	German II		Chinese II	German II
Thursday	English III	Korean II		English III	Chinese III
Friday	German III	French III		Japanese III	English

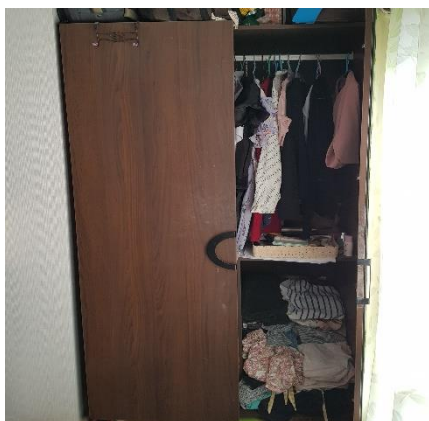
7. _i_e__b__



8. __a_e__



9. __n_i__ M_c__n__



10. _l__e t

Part 2 Vocabulary Knowledge: Meaning (10 items / 10 marks)

Circle the word/phrase which has a similar meaning to the underlined word in each sentence.

1. She is exhausted after a long day at work.

irritated	tired	energetic	relieved
-----------	-------	-----------	----------

2. She removes makeup on her face to reveal her bare skin.

conceal	refresh	hide	show
---------	---------	------	------

3. The new staff cannot adjust to living in a crowded city.

advance	advise	adapt	attach
---------	--------	-------	--------

4. A businessman was trapped inside an elevator for half an hour.

stuck	tripped	frightened	caught
-------	---------	------------	--------

5. The new character design of this hero looks awful.

awesome	powerful	wonderful	terrible
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6. You can find a large amount of animation resources to support your work online.

resolution	outsources	assets	invention
------------	------------	--------	-----------

7. This animatic film perfectly showed the fusion of eastern and western culture.

mixing	description	distinction	revolution
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8. The animator has difficulty doing her work because of the bad environment.

a problem	possibility in	a choice for	an anger
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9. The manager offered him a uniform.

sent	gave	took	left
------	------	------	------

10. You can claim your rewards within two days.

take	buy	return	top up
------	-----	--------	--------

Part 3 Vocabulary Knowledge: Use (10 items / 10 marks)

Complete the sentences with the words below.

unable	consumable	potential	expand	obtain
supply	essential	regular	activate	equipment

1. You can use office _____, including staplers and paper folders for free.
2. The upcoming project is about a _____ product used for an all-purpose cleaner which will be distributed by Reckitt Benckiser.
3. The water _____ of the city is derived from Chao Phraya River.
4. The workload of each person during this holiday is _____.

5. Our company is planning to _____ services by recruiting more staff in the new department.
6. You can ask the technician to help you _____ Microsoft Office account.
7. I can get all of my work done during _____ office hours.
8. He was promoted to manager this year because of his high _____.
9. Honesty is an _____ characteristic of a business.
10. Our company often _____ positive feedbacks from clients.



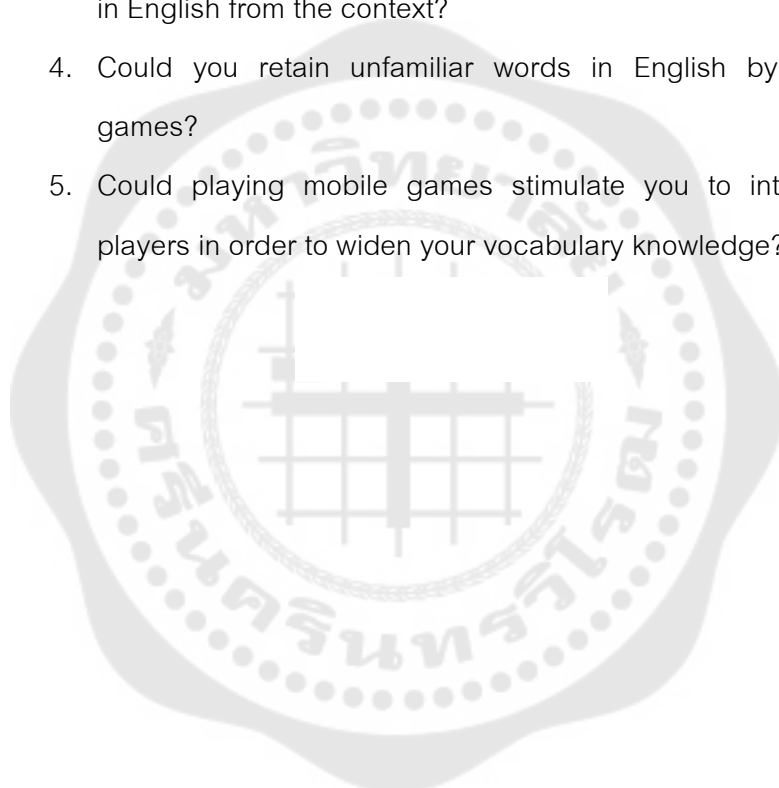


APPENDIX B
Interview Questions

Interview Questions

Were the three mobile games difficult to play?

1. How did you manage to understand the difficult vocabulary you have seen or heard from the three games?
2. Have you noticed any progress in your English vocabulary knowledge while gaming?
3. Could playing mobile games encourage you to learn unfamiliar words in English from the context?
4. Could you retain unfamiliar words in English by playing mobile games?
5. Could playing mobile games stimulate you to interact with other players in order to widen your vocabulary knowledge?



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