

## Developing English vocabularies mastery and teamwork skill using flashcard game for public health student

### การพัฒนาคำศัพท์ภาษาอังกฤษและการทำงานเป็นทีมโดยเกมบัตรคำศัพท์ของนักศึกษา คณะสาธารณสุขศาสตร์

กิตติธิตา วัฒนกรณ์พิศาล<sup>1</sup>, สมปรารถนา รัตนกุล<sup>2</sup>, ยูวดี ธีรรัตตล<sup>3</sup>, ยศศิริ ยศธรรม<sup>4</sup>  
Kitthitar Wattanakornpisarn<sup>1</sup>, Sompratana Ratanakul<sup>2</sup>, Yuwadee Tirataradol<sup>3</sup>, Yossiri Yossatorn<sup>4</sup>  
มหาวิทยาลัยมหิดล<sup>1</sup>, มหาวิทยาลัยศิลปากร<sup>2</sup>, มหาวิทยาลัยมหิดล<sup>3</sup>, มหาวิทยาลัยนวมินทราธิราช<sup>4</sup>  
Mahidol University<sup>1</sup>, Silpakom University<sup>2</sup>, Mahidol University<sup>3</sup>, Navamindradhiraj University<sup>4</sup>  
kitthitar.w@gmail.com<sup>1</sup>, sompratana.r@hotmail.com<sup>2</sup>, yuwadee.tir@mahidol.edu<sup>3</sup>, yossiri@nmu.ac.th<sup>4</sup>

#### Abstract

The aims of this research were: to explore the effectiveness of the use of a flashcard game to enhance students' English vocabularies, study students' teamwork interaction, and find satisfaction of students after playing the flashcard game. This study used one-group pre-test post-test research design. The participants were 30 public health students. Three instruments were used: pre-test and post-test, questionnaires, and interview. The results were: (1) Students' post-test mean score was significantly higher than pre-test. (2) Students rated their teamwork interaction at the highest level. (3) During an interview, students felt that the flashcards game make the learning process more exciting and interesting. (4) Students enjoyed playing this game and felt that it helped them to able to remember vocabulary better. The results of this study may help instructors to use this game to develop students' vocabulary knowledge.

**Keywords:** Game, Flashcards, Vocabulary, Vocabulary teaching, Teamwork skill

#### บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์ เพื่อศึกษาประสิทธิภาพของการใช้เกมบัตรคำศัพท์ เพื่อช่วยในการพัฒนาความรู้ทางด้านคำศัพท์ภาษาอังกฤษ, การทำงานเป็นทีม และหาระดับความพึงพอใจของนักศึกษาที่มีหลังเล่นเกม โดยใช้การทดลองแบบกึ่งทดลองแบบ One-Group Pretest Posttest Design กลุ่มตัวอย่าง คือ นักศึกษาคณะสาธารณสุขศาสตร์ จำนวน 30 คน โดยใช้เครื่องมือได้แก่ แบบทดสอบก่อนและหลังการทดลอง, แบบสอบถาม, และการสัมภาษณ์ จากผลการวิจัยพบว่า คะแนนด้านการเรียนรู้คำศัพท์ของนักศึกษาหลังจากการเรียนรู้โดยใช้เกมบัตรคำศัพท์สูงกว่าก่อนการทดลองอย่างมีนัยสำคัญ, นักศึกษาให้คะแนนการทำงานเป็นทีมอยู่ที่ระดับสูงสุด, จากการสัมภาษณ์เกมบัตรคำศัพท์ทำให้การเรียนรู้ดีขึ้นและน่าสนใจมากขึ้น, นักศึกษาได้รับความเพลิดเพลินและรู้สึกว่าการใช้เกมนี้ช่วยให้พวกเขาสามารถจำคำศัพท์ได้ดียิ่งขึ้น ผลการวิจัยแสดงครั้งนี้อาจมีส่วนช่วยให้ผู้สอนใช้เกมนี้เพื่อพัฒนาคำศัพท์ของนักเรียนได้

**คำสำคัญ:** เกม, บัตรคำศัพท์, คำศัพท์, การสอนคำศัพท์, การทำงานเป็นทีม

## Introduction

Vocabulary is a significant tool for second language learners. Cameron (2001, as cited in Alqahtani, 2015) mentioned that “vocabulary, as one of the knowledge areas in language, plays a great role for learners in acquiring a language.” Besides grammar structure and clear pronunciation, learners have to know the vocabulary to express things out. Many researchers illustrated the importance of vocabulary. This is because vocabulary is needed to convey meaning. Santos (1988) suggested that nonnative-speaking students should focus on improving their vocabulary and lexical selection. Hsueh-chao and Nation (2000) claimed that learners should understand 98% of the vocabulary in the reading fiction text in order for them to gain unassisted comprehension. It means that with a little knowledge of vocabulary, learners will not be able to understand the context. Laufer, B. (2010) concluded that knowing more vocabulary helps reading comprehension of learners. Second language learners rely on vocabulary knowledge heavily. Without an expanded vocabulary, learners will not be able to use the structures and functions they have studied. Thus, vocabulary is an essential aspect of learning a language.

### Statement of problem

Office of the Basic Education Commission (OBEC, 2008), under the restricted direction of the Basic Education Commission Board, the Ministry of Education decided to implement “Basic Education Core Curriculum 2008” to improve the standard of English education of Thai school curriculum. This reform mainly focuses on English education whereas other language learning like French or German had been left out. In the past decade, we know that Thai teachers seem to be more control in the class. In other words, the teaching style has reflected the hierarchical nature of Thai culture, a top-down educational system designed to create respectful learners (Ahuja, 2011). Educator at Ministry of Education claimed that reason that Thai students cannot speak English because teaching English in Thailand focused more on grammar resulting in English language reforming policy (Prasongporn, 2016). Teachers are free to select their own textbooks and learning material. More activities in the classroom are also needed. Since the English class is often associated with grammar structures. Consequently, the emphasis was on grammar, few words were presented and focused.

Vocabulary is a significant component in language. Laufer, B. (2010) However, one of the main problems that Thai students encounter is that their vocabulary knowledge is below the sufficient vocabulary size. Nation and Meara (2002), found high relationship between language abilities and vocabulary comprehension. Nirattisai (2014) found that students’ vocabulary knowledge is below the needed vocabulary size for effective communication. Students are not able to listen, read, and write effectively due to the lack of sufficient vocabulary knowledge. The finding of Somsai and Intaraprasert (2011) show that students have difficulty in communication because they are lacking linguistic knowledge. Moreover, researcher had found from observed and talking to students that they learned new vocabulary by underline the vocabulary, translated the meaning, and try to memorize it. This process was found difficult for learners and boring. The second-year Public Health students at Mahidol University have to use “English for Nursing and Health Care” (Bradley, 2004) as their course material. This book contains a lot of vocabularies about daily life, medical term, diseases, and anatomy. There are many vocabularies that students are not familiar with. It caused students difficulty in understanding the content. Teachers also assigned many activities and tasks to students to work together. However, learners sometimes have problem collaboration between members. Furthermore, Voulgari and Komis (2011) proposed that collaboration is necessary for the investigation of content and development.

To respond the problem which students struggle with their English vocabulary knowledge and cooperation, many methods have been created in order to promote English vocabulary and

collaboration to students. One of interesting method is adjusting gamification and stimulation into English Language Learning. One of the interesting games that can be used in the classroom is a Flashcards game. Students have to work as a team in order to win the game. In addition, flashcards game is easy to use anywhere and made learning English more enjoyable (Aliponga & Johnston, 2013). Besides, Chien (2015) concluded that flashcards game creates positive attitudes of students toward learning and be able to improve their vocabulary abilities. By using this game, it made researchers were able to adjust the vocabulary to match the content in the participants classroom. A Flashcards game can be used to explore students' learning performance, interaction, and fulfillment because for beginner flashcards game can gain students' vocabulary knowledge (Honarmand, Rostampour, & Abdorahimzadeh, 2015). Therefore, researcher decided to use flash cards game to help Public Health students aiming to help them broaden the vocabulary knowledge and see the important of teamwork. This research seeks to answer the following questions:

1. Does the flash cards game help EFL students learn English vocabularies effectively?
2. Does the flash cards game help EFL students' teamwork?
3. What learning experiences did students gain after learning English vocabularies by Flashcards game?
4. How were students satisfied after learning English vocabularies by Flashcards game?

## Literature Review

### Vocabulary learning

Vocabulary is fundamental to language learning. Words appear in every skill and activity language learners and teachers are engaged with (Taylor, 1992). Rubin and Thompson (1994) mention that "one cannot speak, understand, read, or write a foreign language without knowing a lot of words so, vocabulary learning is at the heart of mastering a foreign language" (p.79). That is, sufficient vocabulary can assist learners to learn, comprehend, and communicate in a target language efficiently (Yaacob, Shapii, Alobaisy, Al-Rahmi, Al-Dheleai, Yahaya, & Alamri, 2019).

Vocabulary is used in every skill in order to express intentional meaning. Language learners with insufficient vocabulary will encounter difficulties in using, understanding, and acquiring novel lexicons. Such problematic issues are prevalent regardless of how advanced learners are (Meara, 1982). This might due to the lack of knowledge and strategies to autonomously manage the problems (Akin & Seferoglu, 2004). Despite available techniques, employing flashcards is pervasively practiced among students and teachers (Basoglu & Akdemir, 2010).

### Vocabulary teaching

Divjak and Tomic (2011) recommended that it is necessary to make educational process more creative. Schmitt (2000, as cited in Alqahtani, 2015) emphasizes that "lexical knowledge is central to communicative competence and to the acquisition of a second language" (p. 55). In order to develop students' second language knowledge, increasing vocabulary is one of the important factors. Atkinson (1975) suggested one technique to increase learners' ability to memorize L2 vocabulary. The technique is to illustrate the keyword method in order to recall the vocabulary. Simplicio (2000) proposed that teachers should use a variety of materials in the classroom including innovative textbooks and games. Using games for teaching vocabulary has been popular for decades (Derakshan & Khatir, 2015). The game is considered to be one of the most effective tools. Besides, game can improve students' learning performance (Hwang, Chiu, & Chen, 2015). Learners will be more exciting and motivated. Akdogan (2017) stated that "some institutions realize that using game is one of the methods that can help students when students are engaged in playing with other students." Learners can retain words better by keep practicing them. Besides, teachers can use games to guide students to understand

vocabularies better and improve their communicative skills. Games can make classrooms more interesting (Azar, 2012). Students will have a chance to use the target language to communicate with each other in order to complete the task.

#### **Visual aids**

The teacher is recommended to have various resources in the classroom to support students' learning process. The English language has an endless vocabulary. Students have to know many vocabularies as much as possible. However, it is difficult for learners to remember all of that. Thus, instructors should find a way to help students remember vocabulary easier and more interesting (Rahadianto, 2013). Visuals aids is recommended to be one of the tools of effective foreign language teaching (Brinton, 2013). Teachers can use it to make students more participated in the classroom. Sometimes, learners may switch back to use their mother tongue language when faced to a difficult word that they do not understand. However, visual aids make the vocabulary easy to understand. Thus, this can make students use less of their first language and apply more of the target language to communicate more effectively.

#### **Teamwork**

Pair work and groupwork become more remarkably popular in language teaching. It creates interpersonal dynamic among students. Further, teamwork is an essential 21st-century skill, and it can improve collaborative tendencies. Preparing people at a young age for collaborative work is beneficial. Furthermore, cooperation is a cooperative method that enables people to achieve remarkable outcomes (Loparev, 2016). Excellent team working collectively can perform a great result. Teamwork can also maximize opportunities for learners to learn from others. Moreover, Guhaita, Lei, and Tews (2015) conducted a study to evaluate the influence of taskwork learning and teamwork experience on team satisfaction and performance. They concluded that when shared collaboration culture is high in the organizations, everyone is expected to engage in the team. Collaboration tasks in the school can help lift students and every member of the team accomplish the goal. When collaboration occurs essentially, the advantages are enormous on many levels. Chiocchio, Forgues, Paradis, and Iordanova (2011) discovered that without teamwork, trust and conflict have no relationship on students' production. Plass et al. (2013) concluded that learners have more collaboration after play the game. Therefore, it is recommended for students to have goal oriented and share emotion between each other to push their actions. Thus, increasing students' interaction is every bit as important for students to complete group work.

#### **Flashcards Game**

Rivers (1970) stated that it would be difficult to acquire a new language without knowing the vocabulary. One of the enjoyable games that can be utilized as a tool to teach students' vocabulary is the flashcards game. Flashcards game be used for various purposes such as teaching sound, new vocabularies, and expressions (Heron, Heward, Cooke, & Hill, 1983; Olenick & Pear, 1980; Young, Hecimovic, & Salzberg, 1983). Learners are recommended to use the most effective way to convey meaning. It was found by Kornell (2009) that by using flashcards students' vocabulary knowledge is best accomplished through spaced repetition. As the intention of using flashcards is to speedily and efficiently learn the meaning of second language vocabularies. Flashcards was discovered to be a powerful memory tool to enhance learners' educational performance and develop learners' vocabulary knowledge (Mamengko, Pelenkahu, & Rettob 2018). Students can use the cards to help them memories and review vocabulary promptly.

Many researchers implemented Flashcards in teaching vocabulary. Insaniyah (2008) used an experimental research to study on using flashcards as a tool to teach English vocabulary. It was found to be an efficient way in students' learning vocabulary method. Wahyuni and Yulaida (2016) had use

flashcards as a tool to increase EFL students' accomplishment in a Classroom Action Research, and the results revealed that 84% of the students exceeded the minimum score in the tests of achievement. Saputri (2018) also used a classroom action research and used t-test calculation to examine the improvement of students' vocabulary mastery. The posttest mean score was found significantly increased. Sitompul (2013) conducted a quasi-experimental research design to examine the impact of using flashcards on fifty-grade' students. After learned vocabulary by flashcards, students' vocabulary was developed and able to memories the words quickly. Moreover, Syaifudin (2017) found that flashcards can strengthen the speaking skill of the learners as well.

The flashcards game in this study is a card game with the public health theme. Appendix A illustrates how the researchers were preparing the Flashcards game. The players play the role of guesser and helper, then collect the point by getting the word correct. This game can be used with all language proficiency students with the requirement of teamwork. The advantage of this game is the vocabulary list can be tailor-made to match students' background or specific purpose. This game has three objectives: (1) to enhance students' communicative skill, (2) to increase students' vocabulary knowledge, and (3) to promote teamwork among students.

## **Research Methodology**

### **Participants**

The participants in this study were 30 second year Public Health students enrolling in the second semester of academic year 2018 at Mahidol University.

### **Research instruments**

The instruments used in this study were a Flashcards game, a pre-test and a post-test, a questionnaire, and interview. The pre-test and post-test were used to investigate students' learning vocabulary achievement. Pre-test was given at the beginning of the course while post-test was given to students at the end of the course. The aim of this survey was to explore students' learning experiences in terms of team working. The questionnaires were distributed to students at the end of the course. The questionnaire on team interaction was verified by two experts. The measurement was rated on a 5-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The questions were 12 statements and was translated into Thai to avoid misinterpretation of students (Appendix B). The survey adapted from Dumblekar and Soranastaporn (2019). The Cronbach's alpha reliability efficiency was 0.73. Lastly, an interview was conducted during the debrief session. Go Mic by SAMSON was used as a microphone for recording an interview. The purpose was to understand students' learning experience and satisfaction.

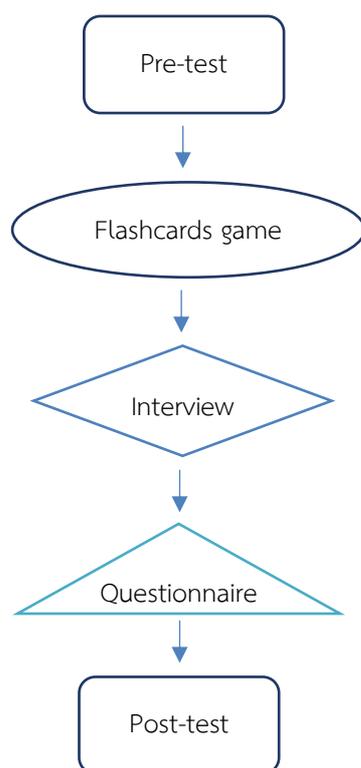
### **Research Design**

The researcher began the lesson plan by making a list of a foreseen new vocabulary; medical term, diseases, anatomy, together with daily life vocabulary that students might expected to be used during the course. The vocabularies were chosen from the course material. Then, the researcher printed the vocabularies on the card purposely for teaching them. They are 100 vocabularies in total. The students were given a pre-test at the beginning of the class. Next, the researcher informed the objective of the Flashcards game to students in the classroom. It was to enhance students' communicative skill, increase students' vocabulary knowledge, and promote teamwork among students. Later, the researcher described the purpose of using the Flashcards game.

Before beginning the game, to avoid players' problem of not knowing the word, researchers go over all the vocabulary and meaning. Then, researcher gave an instruction of how to play the flashcards game in English and translated into Thai to avoid confusion. Toth (1995) concluded that the best way to introduce a new game to students is to explain by through a demonstration. Thus, after

the game were explained, students were asked voluntarily to present the game in front of the classroom.

In order to promote students' communicative skill, players were allowed to use English as a mean to communicate only. Due to the limitation of the space, the class was divided into four groups. During the game, the researcher observed students' response and behavior then written down to gather information. After students finished playing the game, the debrief session was started. The researchers interview students with some questions in order to understand their experience and satisfaction. The answers from students were also written down by the researcher. After that, students were asked to answer the questionnaire. At the end of the course, students were asked to complete the post-test which is same set of question as the pre-test. The research design is shown in Figure 1.



**Figure 1:** Research design

#### **Data analysis:**

The quantitative and qualitative data were analyzed to gather the information for this research. The questionnaire and pre-test and post-test score are quantitative data which analyzed by using SPSS program to calculate for the descriptive statistical values; mean, standard deviation, and t-test. The mean score of pre-test and post-test was compared to examine students' achievement. The questionnaire was used to interpret students' teamwork interaction. The scale interpretation of questionnaire is presented in the table 1.

**Table 1:** Scale of teamwork interpretation

Level	M	Interpretation
5	4.50 – 5.00	Most highest
4	3.50 – 4.49	More higher
3	2.50 – 3.49	Moderate
2	1.50 – 2.49	Less lower
1	1.00 – 1.49	Least lowest

The quantitative data was from the interview of the students during the debriefs session. Students' behavior was observed and written down together with audio record was used to collect students' expression toward their learning experience and satisfaction. The interview was transcribed and Strauss and Corbin's (1998) coding techniques was used to analyze the data.

## Results

The results show that flashcards game is an effective tool that increases students' performance. In addition, students' satisfaction with their learning teamwork processes positively. See details below.

### Learning achievement

After learning by Flashcards game of second-year public health students, one sample t-test was used to calculate the mean score. Post-test mean score ( $M = 9.20$ ,  $SD = 0.66$ ) was higher than the pre-test mean score. ( $M = 6.46$ ,  $SD = 3.05$ ). Table 2 shows the comparison of Pre-test and Post-test mean score before and after learning by Flashcards game of second year public health students. The standard deviation of the post-test score was less than one. There was statistically significant different between pre-test and post-test mean score ( $t = 23.41$ ,  $p = 0.00$ ). Therefore, the Flashcards game had an impact on students' learning achievement.

**Table 2:** The results of Pre-test and Post-test mean score

Test	N	M	SD	t	df	p
Pre-test	30	6.46	3.05	23.41	59	0.00*
Post-test	30	9.20	0.66			

\* $p < .05$ , two-tailed

### Teamwork

The participants rated the overall score about their perception toward teamwork at the highest level ( $M = 4.54$ ,  $SD = 0.59$ ). For the goal orientation factor, it was rated at the highest level ( $M = 4.52$ ,  $SD = 0.57$ ) which is the same as emotive actions factor ( $M = 4.55$ ,  $SD = 0.60$ ). Moreover, the results were statistically significant ( $p=0.001$ ). All the detail show in the table 3. The study was

accounted to be reliable because of the high value of Cronbach  $\alpha$  of 0.73. In order to understand the relationship between the two factors Pearson correlation coefficient ( $r$ ) was calculated and found to be

**Table 3:** The results of descriptive statistics and Cronbach Alphas of team interaction

Test	M	SD	$\alpha$	p
1. Team interaction (12 items)	4.54	0.59	0.73	0.001
- Goal Orientation (6 items)	4.52	0.57		
- Emotive Actions (6 items)	4.55	0.60		

\* $p < .05$ , two-tailed

### Learning experience

After learning English vocabularies by using Flashcards game of the second-year public health students, students gained learning experience in terms of vocabulary meaning, teamwork, and able to gain English skills. Students get to learn new vocabularies with a fun game. "I had fun with this game." "It made the class not boring." "The game makes the vocabulary easily to remember." Every student gets to participate and help the team to win the game. "We help each other." "It is good that everyone can participates in the game." Each student has a chance to perform their role and use the language. "We get to practice using vocabulary." This resulted as students enjoy the game and able to memorize the vocabulary more effectively.

### Satisfaction

After learning English vocabularies by Flashcards game of the second-year public health students, students expressed that they satisfied with the game. Some students stated that "I really like this game." "I am happy." "We cannot wait to play it again." "This game is fun." Students see the importance of teamwork. "Everyone in the team helps each other." "I like to play this game with my friends." Flashcards game makes students understand the technical term better. "It helps me memorize vocabularies better." "It helps me understand vocabularies." "I can use these technical terms when I go to see doctors." The process of the game is easy to follow. "This game is very easy to play."

## Conclusions and Discussion

**Learning achievement:** The mean score of the second-year public health students after learning English vocabularies by Flashcards game was significantly higher than before. It can be concluded that, after playing the Flashcards game, student's performance of vocabulary was increased. This result corresponds to Divjak and Tomic (2011) who concluded that games increase student's motivation and knowledge acquisition. Game also impacts on a positive attitude of learners. Therefore, the Flashcards game can increase learning achievement and motivation of students.

**Teamwork:** In this game, every student gets to participate and contribute to team. For group work, Brinton (2003) recommended teachers to assign students with different role and responsibilities. It creates harmony and students' corroboration in the classroom. The data represented that everyone had the same goal, to win the game. They prefer to work with others than working alone. Every student had a good experience about teamwork after playing the Flashcards game. Dumblekar and Soranastaporn (2019) found that the team interaction was found at the high level which is very similar

to our finding. The level of team interaction was found at the highest level in this study. The results indicated that students had the same goal while interacted with the team members. They feel better when collaborate and get to communicate with one another. Thus, instructors should include activity in their lesson plan to increase students' teamwork.

**Learning experience:** Students found that playing game in the classroom is attractive and enjoyable. They experience in using vocabulary. Furthermore, students feel that the Flashcards game was useful in helping to retain the vocabulary. This result matches with Akdogan (2017) who presumed that game can benefit students' memorization of vocabulary. This can be explained that the Flashcards game provides students with an opportunity to use and practice vocabularies. Besides, students can play this game outside the classroom to practice their vocabularies knowledge as well.

**Students' satisfaction:** From the students' reflection during the debrief session, students really like the Flashcards game. Students get to communicate in English. Student help each other to complete the task. The instructions are very easy to follow. This result parallels to Hwang, Chiu, and Chen (2015) who concluded that game affects students' learning achievement, motivation, and satisfaction. In this study, students feel happy, fun, and wanted to play the game more. It confirms that the Flashcards game helps students learning English vocabularies better. Students get to practice using English while playing the game. Therefore, the Flashcards game helps increase students' learning experience.

To conclude, games can be a pleasant and motivating approach to learn pediatric content, intensified by teamwork, engagement, and entertainment (Sward, Richardson, Kendrick, & Maloney, 2008). Thus, teachers could utilize games to improve students' language proficiency. Students can learn English vocabularies and other skill through games. After teachers plan their lessons, they can choose games to increase students' motivation. Games can be added as learning activities in the classroom to enhance students' ability to use English.

### Suggestions and Recommendations for Further Studies

Some weaknesses of this study should be noted. Due to the time limit, this study was conducted with only one group of participants. This present study is subject to several limitation. For further studies, it is recommended to conduct a true experimental research design to increase the reliability of the study. Moreover, to increase reliability of the next study, research may provide a series of vocabulary games and evaluate students learning achievement both formative and summative so the learning achievement can be compared. Besides, this research should be extended to have an in-depth interview with the students along with questionnaire to have more details of students' learning experience. The study suggested that instructors can use game to teach more effectively. Thereby further study can develop this game as the online version to suit with the targeted students.

### References

- Ahmad, S. R. (2016). Importance of English communication skills. *International Journal of Applied Research*. 2(3): 478-480.
- Ahuja, A. (2011). Education crisis leaves kingdom outclassed. *Spectrum*. 23(4): 6-7.
- Akdogan, E. (2017). Developing vocabulary in game activities and game materials. *Journal of Teaching and Education*. 7(1): 31-66.
- Akin, A., & Seferoglu, G. (2004). Improving learners' vocabulary through strategy training and recycling the target words. *Hacettepe University Journal of Education*. 27: 1-10.

- Aliponga, J., & Johnston, C. C. (2013). Benefits of using vocabulary flash cards in EFL classroom. *研究紀要*.14(1): 1-6.
- Alqahtani, M. (2015). The importance of vocabulary in language learning and how to be taught. *International Journal of Teaching and Education*. 3(3): 21-34.
- Atkinson, R. C. (1975). Mnemotechnics in second-language learning. *American Psychologist*. 30(8): 821 -828.
- Azar, A.S. (2012). The effect of games on EFL learners' vocabulary learning strategies. *International Journal of Basic and Applied Science*. 1(2): 252-256.
- Basoglu, E. B., & Akdemir, O. (2010). A comparison of undergraduate students' English vocabulary learning: using mobile phones and flash cards. *The Turkish Online Journal of Educational Technology*. 9: 1-7.
- Bradley, R. A. (2004). *English for Nursing and Health Care*. Singapore: Mc Graw-Hill.
- Brinton, D. M. (2013). Tools and techniques of effective second/foreign language teaching. In M. Celce-Muria, D. Brinton, & A. Snow (Eds.), *Teaching English as a Second or Foreign Language*. 4<sup>th</sup> ed. (pp. 340-361). Boston, MA: National Geographic Learning/Cengage Learning.
- Cameron, L. (2001). *Teaching languages to young learners*. Cambridge: Cambridge University Press.
- Chien, C. W. (2015). Analysis the effectiveness of three online vocabulary flashcard websites on L2 learners' level of lexical knowledge. *English Language Teaching*. 8(5): 111-121.
- Chiocchio, F., Forgues, D., Paradis, D., & Iordanova, I. (2011). Teamwork in integrated design projects: Understanding the effects of trust, conflict, and collaboration on performance. *Special Issue: Special IRNOP Research Conference*. 42(6): 78-91.
- Derakshan, A., & Khstir, E. D. (2015). The effects of using games on English vocabulary learning. *Journal of Applied Linguistics and Language Research*. 2(3): 39-47.
- Divjak, B., & Tomic, D. (2011). The impact of game-based learning on the achievement of learning goals and motivation for learning mathematics - Literature review. *JIOS*, 35(1), 15-30.
- Dumblekar, V. & Soranastaporn, S. (2019). Salad bowl, a game in teamwork. *The Liberal Arts Journal*. 2(1): 13-17.
- Guhaita, P., Lei, P., & Tews, M. J. (2015). Making teamwork work: Team knowledge for team effectiveness. *The Journal of Psychology: Interdisciplinary and Applied*. 150(3): 1-22.
- Heron, T. E., Heward, W. L., Cooke, N. L., & Hill, D. S. (1983). Evaluation of a classwide peer tutoring system: First graders teach each other sight words. *Education and Treatment of Children*. 6(2): 137-152.
- Honarmand, R., Rostampour, M., & Abdorahimzadeh, S. J. (2015) The effect of game tic tac toe and flash cards on zero beginners' vocabulary learning. *International Journal of Educational Investigations*. 2(3): 27-41.
- Hsueh-chao, M. H., & Nation, P. (2000). Unknown vocabulary density and reading comprehension. *Reading in a Foreign Language*. 13(1): 403-430.
- Hwang, G. J., Chiu, L. Y., & Chen, C. H. (2015). A contextual game-based learning approach to improving students' inquiry based learning performance in social studies courses. *Computers & Education*. 81(1): 13-25.
- Insaniyah (2008). The use of flashcards in teaching English for the sixth year students of SDN 1 Tuntang in the academic year of 2002-2003. *Register*. 2(2): 161-172.
- Kornell, N. (2009). Optimising learning using flashcards: Spacing is more effective than cramming. *Applied Cognitive Psychology*. 23(9): 1297-1317.
- Laufer, B. (2010). Lexical threshold revisited: Lexical text coverage, learners' vocabulary size and reading comprehension. *Reading in a Foreign Language*. 22(1): 15-30.
- Loparev, A. (2016). *The impact of collaborative scaffolding in educational video game on the collaboration support skills of middle school students*. (Doctor of Philosophy Dissertations, University of Rochester).

- Mamengko, M. M., Pelenkahu, N., & Rettob, A. (2018) Improving students' vocabulary mastery by using flashcards at SMP N6 Tondano. *KOMPETENSI Jurnal Ilmiah Bahasa dan Seni*. 5(1): 1-12.
- Meara, P. (1982). Vocabulary acquisition: A neglected aspect of language learning. *Language Teaching and Linguistics*. 13(4): 221-246.
- Nation, P., & Meara, P. (2002). Vocabulary. In N. Schmitt (Ed.), *An introduction to applied linguistics* (pp. 35–54). London: Arnold.
- Nirattisai, S. (2014). *Vocabulary size and vocabulary learning strategies of Thai university students*. (Master of Liberal Arts Thesis, Prince of Songkla University).
- Office of the Basic Education Commission. (2008). *Basic education core curriculum B.E. 2551 (A. D. 2008)*. Bangkok, Thailand: Ministry of Education.
- Olenick, D. L., & Pear, J. J. (1980). Differential reinforcement of correct responses to probes and prompts in picture name training with severely retarded children. *Journal of Applied Behavior Analysis*. 13(1): 77-89.
- Plass et al. (2013). The impact of individual, competitive, and collaborative mathematics game play on learning, performance, and motivation. *Journal of Educational Psychology*. 105(4): 1050-1066.
- Prasongporn, P. (2016). English education at primary level in Thailand. *National Institute for Educational Policy Research (NIER)*. p. 111- 115. Retrieved from [https://www.nier.go.jp/06\\_jigyousymposium/i\\_sympo27/pdf/E03.pdf](https://www.nier.go.jp/06_jigyousymposium/i_sympo27/pdf/E03.pdf)
- Rahadianto, P. (2013). The use of computer game ETS learn vocabulary by picture 1.6 to improve students' vocabulary mastery at the fifth grade of SDN Kalianget Barat I Sumenep. *Language-Edu (Journal of English Teaching and Learning)*. 2(6): 1124-1132.
- Rivers, W. M. (1970). *Teaching Foreign-language Skills*. University of Chicago Press.
- Rubin, H. J., & Thompson, I. (1994). *How to be a more successful language learner: Toward learner autonomy*. 2<sup>nd</sup> ed. Boston, MA: Heinle & Heinle.
- Santos, T. (1988). Professors' reactions to the academic writing of nonnative-speaking students. *TESOL Quarterly*. 22(1): 69-90.
- Saputri, T. (2018). Improving vocabulary mastery through flashcards in Sartika Kindergarden Surabaya. *Atlantis Press*. 145(1): 214-218.
- Simplicio, J. S. C. (2000). Teaching classroom educators how to be more effective and creative teachers. *Education*. 120(4): 675-630.
- Sitompul, E. Y. (2013). Teaching vocabulary using flashcards and word list. *Journal of English and Education*. 1(1): 52-58.
- Somsai, S. & Intaraprasert, C. (2011). Strategies for Coping with Face- to-Face Oral Communication Problems Employed by Thai University Students Majoring in English. *GEMA Online™ Journal of Language Studies*. 11(3): 83-96.
- Strauss, A. and Corbin, J. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* (2nd ed.). California, USA: SAGE Publications Ltd.
- Sward, K. A., Richardson, S., Kendrick, J., & Maloney, C. (2008). *Ambulatory Pediatrics*. 8(6): 354-359.
- Syaifudin, M. (2017). The use of flashcards to enhance students' speaking skill trough vocabulary mastery. *Journal SAINSTECH Politeknik Indonusa Surakarta*. 1(7): 33-38.
- Taylor, L. (1992). *Vocabulary in action*. New York, NY: Prentice Hall.
- Toth, M. (1995). *Children's games: A teacher's resource book of games for young learners of English*. Oxford: Macmillan Heinemann.
- Voulgari, I. & Komis, V. (2011). *On studying collaborative learning interactions in massively multiplayer online games*. Paper present at the Third International Conference on Games and Virtual Worlds for Serious Applications, Greece. Retrieved from DOI: 10.1037/a0032688

- Wahyuni, S. & Yulaida, H. (2016). Flashcards as a means to improve EFL learners' vocabulary mastery. *Journal of English Education and Linguistics Studies*. 1(1): 47-61.
- Yaacob, A., Shapii, A., Alobaisy A. S., Al-Rahmi, W. M., Al-Dheleai, Y. M., Yahaya, N., & Alamri, M. M. (2019). Vocabulary learning strategies through secondary students at Saudi school in Malaysia. *SAGE open*, 9(1): 1-12. <https://doi.org/10.1177/21582440198359>
- Young, C. C., Hecimovic, A., & Salzberg, C. L. (1983). Tutor-tutee behavior of disadvantaged kindergarten children during peer teaching. *Education and Treatment of Children*. 6(2): 123-135.