

การพัฒนาความสามารถด้านการเรียนรู้คำศัพท์ภาษาอังกฤษ โดยใช้เกมมิฟิเคชั่นของนักเรียนชั้นประถมศึกษาปีที่ 6

Using Gamification to Improve English Vocabulary Learning Ability of Prathomsuksa 6 Students

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาและเปรียบเทียบความสามารถด้านการเรียนรู้คำศัพท์ภาษาอังกฤษโดยใช้เกมมิฟิเคชั่นของนักเรียนชั้นประถมศึกษาปีที่ 6 ก่อนและหลังเรียน และเพื่อศึกษาเจตคติต่อการสอนคำศัพท์ภาษาอังกฤษโดยใช้เกมมิฟิเคชั่นของนักเรียนชั้นประถมศึกษาปีที่ 6 กลุ่มตัวอย่างในการวิจัยครั้งนี้คือ นักเรียนชั้นประถมศึกษาปีที่ 6 โรงเรียนบ้านอีเลียน อำเภอเมือง จังหวัดอุดรธานี ลังกัดสำนักงานเขตพื้นที่การศึกษาประถมศึกษาอุดรธานี เขต 1 ภาคเรียนที่ 1 ปีการศึกษา 2565 จำนวนนักเรียนทั้งสิ้น 27 คน เลือกโดยใช้วิธีการสุ่มแบบกลุ่ม แบบแผนการวิจัยเป็นการวิจัยเชิงทดลองแบบกลุ่มเดียวทดสอบก่อนเรียนและหลังเรียน เครื่องมือที่ใช้ในการวิจัยประกอบด้วย แผนการจัดการเรียนรู้จำนวน 12 แผน แบบทดสอบวัดความสามารถด้านการเรียนรู้คำศัพท์ภาษาอังกฤษ และแบบวัดเจตคติต่อการสอนคำศัพท์ภาษาอังกฤษโดยใช้เกมมิฟิเคชั่น การดำเนินการทดลองใช้ระยะเวลา 12 สัปดาห์ สัปดาห์ละ 2 ชั่วโมง รวมทั้งหมด 24 ชั่วโมง สถิติที่ใช้ในการวิเคราะห์ข้อมูลได้แก่ ค่าเฉลี่ย ร้อยละ ส่วนเบี่ยงเบนมาตรฐาน การทดสอบที่แบบกลุ่มเดียวและการทดสอบที่แบบไม่มีส่วนร่วม ผลการวิจัยสรุปได้ว่า นักเรียนมีคะแนนความสามารถในการเรียนรู้คำศัพท์ภาษาอังกฤษ คะแนนก่อนเรียนมีค่าเฉลี่ยเท่ากับ 3.59 คิดเป็นร้อยละ 8.98 และคะแนนหลังเรียนมีค่าเฉลี่ยเท่ากับ 30.40 คิดเป็นร้อยละ

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76.02 ซึ่งมีคะแนนหลังเรียนสูงกว่าเกณฑ์อยู่ละ 70 และเมื่อทดสอบความแตกต่างของค่าเฉลี่ยพบร้า นักเรียนมีความสามารถด้านการเรียนรู้คำศัพท์ภาษาอังกฤษหลังเรียนสูงกว่าก่อนเรียนและนักเรียนมีความสามารถจำคำศัพท์ภาษาอังกฤษโดยใช้เกมมิพิเคชันอยู่ในระดับดี

คำสำคัญ: เกมมิพิเคชัน, การสอนคำศัพท์ภาษาอังกฤษ, การเรียนรู้คำศัพท์ภาษาอังกฤษ, ประถมศึกษาปีที่ 6

ABSTRACT

The purposes of this research were to study and compare the English vocabulary learning ability before and after using gamification, and to study students' attitude toward teaching English vocabulary using gamification of Prathomsuksa 6 students. The sample consisted of 27 Prathomsuksa 6 students in the first semester of the academic year 2022 at Ban E-Lean School, under the Office of Udon Thani Primary Education Service Area 1. The students were selected by cluster random sampling. The design of this research was a one group pretest-posttest design. The research instruments included 12 lesson plans, an English vocabulary learning ability test and an attitude questionnaire. The experiment lasted 12 weeks, 2 hours a week, or 24 hours for all. The mean, percentage, standard deviation, one-sample t-test and t-test for Dependent Samples were used for data analysis. The findings of this research indicated that the students' pretest and posttest mean scores on English vocabulary learning ability were 3.59 or 8.98 percent and 30.40 or 76.02 percent respectively. The students' posttest mean score was higher than the set criterion of 70 percent and higher than that of the pretest, and the students' attitude toward teaching English vocabulary using gamification was at a good level.

KEYWORDS: Gamification, Teaching English Vocabulary, English Vocabulary Learning, Prathomsuksa 6

Background

English has become the most frequent and common language used for communication around the world. It is now regarded as a global language which is inevitably essential for people to learn the language. According to Harmer (2015: 1), English already constituted an amalgam of many different language strands, but the developing language did not stay where it had started. As Ahmad (2006: 478) states that English plays a crucial role to weave the world into a single thread, and it has a status of a second language in almost all the countries represented as acknowledged passport to better education and employment opportunities.

According to the Ministry of Education (2008: 252), learning foreign languages is very important and essential to daily life. The foreign language has been regarded as basic learning content that is prescribed for the entire basic education core curriculum, which is focused on listening, speaking, reading, and writing skills for exchanging data and information, expressing feelings and opinions, interpreting, presenting data, concepts and views on various matters, and creating interpersonal relationships appropriately. As Wilkins (1972: 111) suggests that without grammar very little can be conveyed, without vocabulary nothing can be conveyed. It means that even someone has good grammar, but it will be useless if they do not know vocabulary. In addition, it is supported by Ur (1996: 60) that vocabulary is one of important things to be taught in learning a foreign language because it will be impossible to speak up without a variety of words. Those statements demonstrate how vocabulary is necessary for language learning.

According to the Thai educational system, English is a compulsory subject from the primary school onwards. Although most of Thai students spend many years to learn English, the results are still questionable. As Kongkerd (2013: 4) states that current pedagogical approaches to English teaching in Thailand are not able to help learners become competent English users. In addition, Wangkangwan (2007) discovered that the cause of Thai students' difficulty in learning the English language was the students' insufficient knowledge of vocabulary. Obviously, vocabulary is one of the major problems in teaching and learning a language. Based on the problem of learning English as a foreign language of Ban E-Lean School, according to the English achievement of Prathomsuksa 6 students in the previous year,

the average GPA score of academic year 2021 is 2.30 or 54 percent which is lower than the expected outcome that students should pass the evaluation 70 percent. According to the assessment, it shows that the students encounter with English vocabulary learning problems which is lacking of vocabulary, unable to define in terms of English vocabulary learning ability and vocabulary retention which are involved pronunciation, spelling, meaning, and word use as Nation (2001: 27) defines the concept of a word in three significant aspects which are form, meaning, and use. Another problem is that they have low motivation which is considered as an important factor in learning English. As a result, English teachers should find the way to develop the students' learning English vocabulary ability. In teaching English as a foreign language, the teachers should be able to manage the classroom well, and be creative and manage the classroom with interesting technique.

In this study, the gamification refers to the concepts of gamification development which are identify learning outcomes, choose a big idea, storyboard the game, design learning activities, build teams, and apply game dynamics by MacMeekin (2013) who mentions about the gamification as the process that integrated between game mechanic and education. The reward such as points, badges, levels are stimulating the students reach the goal and the learning objective. In addition, online games such as Kahoot!, Vonder Go, and Wordwall which are an internet system that the students can respond to game-like pre-made or impromptu quizzes, discussions and surveys. The players can answer questions by using their own devices. The players who can answer questions faster and correctly get more points. Considering the previous explanation, the researchers would like to apply gamification to improve the English vocabulary learning ability of Prathomksa 6 students of Ban E-Lean school. The researcher would like to explore whether gamification could improve the students' English vocabulary learning ability after the instruction, and would like to study students' attitudes toward teaching English vocabulary using gamification and retention of vocabulary learning ability. The results of this study might be the key to improve an effective way for teaching English vocabulary successfully.

Objectives

1. To study and compare English vocabulary learning ability of Prathomsuksa 6 students before and after the instruction of English vocabulary learning using gamification,
2. To study the students' attitude toward teaching English vocabulary using gamification of Prathomsuksa 6 students.

Hypotheses of the Study

The hypotheses of the study were as follows:

1. The students' English vocabulary learning ability after learning English vocabulary using gamification was higher than the pretest.
2. The students' vocabulary learning ability after learning English vocabulary using gamification was not less than the set criterion of 70 percent.

Methodology

Research Design

This study was experimental research with a one-group pretest-posttest design. It was a quantitative research design (Campbell & Stanley, 1963).

	T ₁	X	T ₂
T ₁	means	Pretest	
T ₂	means	Posttest	
X	means	Teaching English vocabulary using gamification	

Population

The sample in this study was 27 Prathomsuksa 6 students studying in the first semester of the academic year 2022 at Ban E-Lean school, Mueang, Udon Thani, under the Office of Udon Thani Primary Educational Service Area 1. The students were selected by cluster random sampling.

Research Instruments

Three research instruments were employed as follows:

1. Lesson plans were focused on English vocabulary learning using gamification which consisted of 12 units with 2 hours a unit, 12 weeks, 2 hours a week and 24 hours in total. The value of the Index of Item Objective Congruence (IOC) was 1.00 for every item.

2. An English vocabulary learning ability test was conducted in 2 parts.

Part 1: It was assessed the pronunciation which contained 10 test items. The value of the Index of Item Objective Congruence (IOC) was 1.00 for every item. The reliability of the three raters on scoring students' pronunciation using Scott's formula was 0.95.

Part 2: It contained 30 test items from part 1, 10 spelling test items, 10 meaning test items and 10 word use test items. The second part was conducted in multiple choice type. In addition, the test was used as the pretest and the posttest. The value of the Index of Item Objective Congruence (IOC) was 1.00 for every item. The difficulty value of the items was between 0.67–0.80 and the discrimination value was between 0.25–0.45. The reliability of the test was 0.83.

3. An attitude questionnaire toward teaching English vocabulary using gamification. The questionnaire was improved into Thai version based on the five-point of Likert's rating scales which consisted of 20 items. The value of the Index of Item Objective Congruence (IOC) was 1.00 for every item.

Data Collection

This research was conducted in order to investigate results of teaching English vocabulary using gamification. All designed research instruments were employed to collect both quantitative and qualitative data to collect data concerning effects of gamification on students' development of English vocabulary learning ability. Data from Prathomksa 6 students were collected in the first semester of the academic year 2022 with the following steps.

1. The researcher tested the students before studying English vocabulary using gamification, using the designed test of English vocabulary learning ability pretest with 40 items, consisting of the following parts:

Part 1: English pronunciation section, 10 items, 10 scores, with the duration of the test of 1 hour 30 minutes

Part 2: Multiple choice section containing 30 items, 30 scores: 10 items of spelling, 10 items of vocabulary meanings, and 10 items of vocabulary use.

2. The teaching experiment was conducted using gamification. Learning and teaching activities were based on the 12 lesson plans of 12 weeks, 24 hours in total.

3. The researcher tested the students after the teaching process using gamification completed, using the English vocabulary learning ability posttest with similar content.

4. The researcher employed the attitude questionnaire to examine the students' attitude toward teaching English vocabulary using gamification.

5. The collected scores from the pretest, posttest, and the attitude questionnaire were statistically analyzed and summarized later.

Data Analysis

The data were statistically analyzed as follows:

1. The mean (\bar{X}), percentage, and standard deviation (S.D.) were used for analyzing the scores of the pretest and posttest.

2. The statistics used for evaluation of the quality of the instruments included the Index of Item Objective Congruence (IOC), reliability of three raters based on Scott's formula (1955:323) and reliability based on KR-20 by Kuder-Richardson. The IOC was used for evaluating the quality of the instruments assessed by three experts. Reliability of the three raters based on Scott's formula (1955:323) was used for evaluating the English vocabulary ability test part 1. Reliability based on KR-20 by (Kuder-Richardson) was used for evaluating the English vocabulary part 2.

3. The statistics used for hypothesis testing included one sample t-test and t-test for dependent samples. The first hypothesis was tested using one sample t-test analyzed by Statistical Packages for the Social Sciences (SPSS) for Windows to compare student's posttest scores with the 70 percent criterion, and the second hypothesis was tested using the dependent sample t-test analyzed by SPSS for Windows to compare between students' pretest and posttest scores.

Results

Results of the study and comparison of scores on English vocabulary learning ability before and after teaching English Vocabulary using gamification were as follows:

Table 1 Results of the comparison of English vocabulary learning ability of Prathomsuksa 6 students' posttest score after using gamification and a set of criterion of 70 percent.

Test	n	\bar{X}	S.D.	70%	t
Posttest	27	30.40	2.10	76.02	5.96*

* $p \leq .01$

Table 1 shows the students' posttest mean score on English learning ability which was 30.40, and it was significantly different at the 0.01 level. The posttest score of 76.02 percent was significantly higher than a set criterion of 70 percent, supporting the first hypothesis that the students' English vocabulary learning ability after studying English vocabulary using gamification is not less than the set criterion of 70 percent.

Table 2 The results of the comparison of English vocabulary learning Prathomsuksa 6 students before and after using gamification

Test	n	\bar{X}	S.D.	Percentage	t
Pretest	27	3.59	2.06	8.98	94.877**
Posttest	27	30.40	2.10	76.02	

** $p \leq .01$

From Table 2, the mean score of English vocabulary learning ability of 27 Prathomsuksa 6 students before learning English vocabulary using gamification was 3.59 with a standard deviation of 2.06, and the mean score of English vocabulary learning ability of 27 Prathomsuksa

6 students after learning English vocabulary using gamification was 30.40 with a standard deviation of 2.10. After testing the difference of the mean scores, it showed that the students' mean score was significantly higher than that of the pretest at the 0.01 level.

Table 3 The results of the investigation of attitude of Prathomksa 6 students toward teaching English vocabulary using gamification

Questionnaire	n	\bar{X}	S.D.	Interpretation
Students' attitude toward teaching				
English vocabulary using gamification	27	4.33	0.48	Good

Table 3 shows a good level of students' attitude towards teaching English vocabulary using gamification with the mean score of 4.33 and the standard deviation of 0.48. The results presented above indicate students' positive attitudes towards gamification that encourages them to learn English vocabulary.

Conclusion

The results of the study can be summarized as follows:

In this research, the results can be summarized based on the study and comparison of English vocabulary learning ability of 27 Prathomksa 6 students from Ban E-Lan school before and after using gamification, the investigation of students' attitudes towards learning English vocabulary using gamification as follows:

1. The students' pretest mean score on English vocabulary learning ability was 3.59 out of 40, accounting for 8.98 percent, whereas the students' posttest mean score was 30.40, accounting for 76.02 percent, showing a statistically significant increase in students' English vocabulary learning ability at the .01 level. It could be concluded that the students achieved higher scores than the set criterion of 70 percent on English vocabulary learning ability after

implementing gamification into teaching English vocabulary. These findings were in accordance with the hypotheses.

2. The mean score on the students' attitude questionnaire toward learning English vocabulary using gamification was 4.3, interpreted as "good", revealing that all students had positive attitude toward learning English vocabulary using gamification.

Discussion

The results of the study can be discussed as follows:

1. The results of the study and comparison of English vocabulary learning ability showed that students had the pretest mean score of 3.59 or 8.98 percent and the posttest mean score of 30.40 or 76.02 percent. It revealed that the posttest mean score was higher than the set criterion of 70 percent which is in accordance with the first hypothesis. Also, when comparing between the pretest and the posttest mean scores, it indicated that the mean score in the posttest was higher than that in the pretest which is in line with the second hypothesis due to the following reasons.

Firstly, teaching English vocabulary using gamification is a teaching method to improve English vocabulary learning ability especially at the primary school level. According to MacMeekin (2013), the gamification is the process that integrated between game mechanic and education. The reward such as the point, the badge, the levels are stimulating the players reach the goal and the learning objective. Thus, the development of gamification with 6 steps are: identify learning outcome, choose a big idea, storyboard the game, design learning activities, build teams, and apply game dynamics. In this study, gamification based on MacMeekin's concept of development of gamification was used as a method to develop English vocabulary learning ability of Prathom suksa 6 students. The study results correlated with Meejaitam & U-nakarin (2021) who studied about the development of English language learning achievement using gamification techniques or the fifth grade students in the second semester of school year 2019 at Banthunghong school, Bueng Narang district, Phichit province. The results of this research indicated as follows: the students' posttest score after the gamification instruction was significantly higher than pretest score at .05 level and the students' satisfaction toward gamification technique was at the high level ($\bar{X} = 3.65$, S.D. = 0.24).

Secondly, to instruct teaching English vocabulary using gamification, the researcher integrated gamification with steps of teaching English vocabulary based on Cross (2001: 11–13). The steps of teaching English vocabulary proposed by Cross consists of three steps: presentation, practice, and production. In the presentation stage, the first stage, the teachers can use various techniques to teach vocabulary. After the students learn the vocabulary, they should respond to the prompt: who did what, to/ for whom, and when, where, how, and why? In the practice stage, the first stage, the teacher gives exercises to the students in order for them to practice the subject items that they are studying, by completing sentences, matching words with definitions, and classifying words, etc. In the production stage, the last stage, the students are expected to apply the newly learned vocabulary through speaking and/or writing activities. The success of learning a foreign language is assessed in terms of the ability to communicate by using English. After the steps of teaching vocabulary suggested by Cross were adapted to and implemented into teaching English vocabulary using gamification, the experimental results showed that in the presentation stage, students learnt new vocabulary and how to pronounce and spell English words through pictures as a natural way of learning English vocabulary, making students enjoy learning English vocabulary while developing their English pronunciation. In addition, the students learnt how to use vocabulary for communication in the form of dialogue or reading text. In the practice stage, the students practiced what they learnt from the first stage, for example, pronunciation, spelling, telling meanings and use of vocabulary, repetition, and practice of what they learnt allowed the English vocabulary more effectively. In the production stage, students practiced pronunciation and spelling, learnt vocabulary meanings, and set of vocabulary in the new context. The students did the quiz through the online games such as Kahoot, Vonder Go, and Word wall, and checked answers of their assignments with the teacher and then concluded the vocabulary that they learned together. In this stage, the students were able to apply English language correctly in a variety of circumstances through practicing conversations, writing, etc, which was related to the communicative language teaching that focuses on the value of communication and of using the language in the correct situation. Therefore, gamification integrated with the 3 steps of teaching English vocabulary adapted from Cross (2001: 11–13) could develop students' English

vocabulary learning ability. As a result, the students achieved higher scores in the posttest than those in the pretest.

Thirdly, the students learning English vocabulary through gamification provided students active activity. In this study, the researcher selected gamification activity which was related to the elements of gamification of Kapp (2012: 10) which are goals, rules, conflict, times, reward, feedback, and levels. The students also learned English vocabulary in the gamification activities including challenging, collecting points, and motivating students to fully participate in the classroom. The gamification activities also allowed students to work in pairs or groups. Moreover, the students worked in pairs or groups and had plenty of time to study words in causing understanding about vocabulary meanings, how to use English, how to use them in sentences, and how to guess meanings of English words in contexts. As a result, students achieved higher scores in the vocabulary use section.

2. The result of the students' attitude toward learning English vocabulary using gamification, it was found that students' attitude was at good level. It can be seen from the items from the questionnaire that teaching English vocabulary using gamification helps students be able to spell, pronounce, giving meaning and employed the vocabulary with confidence. The group work increased the students' confidence in participating in the activities. In addition, the activity helps good teamwork and also the reward can help motivating the students to learn English. Besides the students are eager to express themselves that students are proud to perform the various activities including doing presentation in front of the class. In addition, Sheiderman (2004: 21) emphasizes on the use of games which can increase students' motivation because when facing with a challenging task, they will become fully engaged. Moreover, the students also have opportunity to use the new educational application in English vocabulary learning activity that give them satisfaction in the learning activity. As MacMeekin (2013) states that developing using gamification is the integration of the game into students' learning by using rewards to motivate them to learn. This is consistent with Meejaitam & U-nakarin's study (2021) who studies an achievement of learning English using gamification with the Prathom suksa 5 students. The results showed that the students were satisfied with the leaning activities using gamification.

Recommendations

1. Recommendations from the Study

1.1 Based on the study results, teaching English vocabulary using gamification to the classroom can raise students' interest and motivation since it helped students enjoy and actively participate in learning and the teaching activity.

1.2 The study results showed that teaching English vocabulary using gamification was a teaching technique which students could do interesting activity rather than listen to a lecture, for example, playing games, and online games. Applying gamification built a good learning environment making students enjoy learning English vocabulary and not feel stressed. As a result, they had better attitude towards learning English vocabulary.

1.3 The study results revealed that teaching English vocabulary using gamification resulted in better retention of English vocabulary. Therefore, it should be applied in learning and teaching activities.

2. Recommendations for Further Study

2.1 It is recommended that researcher study development of English vocabulary learning through gamification of students at different ages or grades.

2.2 It is recommended that future researchers investigate students' other English language skills, for example, listening, speaking, and writing through the use of gamification since gamification and the used 3 stages of teaching–presentation, practice, and production–involves students in practicing various English skills.

2.3 There should be research on teaching English vocabulary using gamification by using two groups of study: control and experimental.

2.4 Using various research instruments for data collection, for example, a survey of ranking activities or teaching methods that students like in order of importance, and parental involvement in their children's development of English learning at home can provide significant study results concerning gamification.

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