The Use of Game-based Learning to Support Intrinsic Motivation in English Vocabulary Learning: A Case Study of Pre-Engineering Vocational Students in Thailand

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Abstract

Motivation is a significant factor in English vocabulary learning. EFL teachers need to motivate students to learn English vocabulary. The use of card games has been identified as a promising method to encourage learners' interest. This research was a quasi-experimental study aimed at investigating the effectiveness of game-based learning. The control group studied with a traditional teaching approach, while the experimental group studied with the use of card games. This research was based on self-determination theory and used a mixed-methods research approach. This theory focuses on social contexts affecting human motivation. There were three data collection methods. The first one was a quantitative methodology using a questionnaire to measure intrinsic motivation. The second and third methods were qualitative methodologies using open-ended questions and interviews to explore the students' motivation, opinions, and feelings toward each teaching strategy. The quantitative findings showed that the English vocabulary post-test results of both groups were higher than the pre-test results. However, there was no significant difference in the post-test results. The qualitative findings showed that the experimental group perceived intrinsic motivation, whereas the control group perceived extrinsic motivation as identified regulation. The use of card games can increase intrinsic motivation. Finally, most students from both the experimental and control groups expressed a preference for EFL teachers to use game-based learning in the classroom.

Keywords: Motivation, Self-Determination Theory, Vocabulary, Game-based Learning

1. Introduction

Learner motivation is an important factor for second language (L2) learning success (Dörnyei, 1998). Motivation has been defined as "the internal processes that give behavior its energy and direction" (Reeve, 1996). Highly motivated students are also likely to perform highly in English proficiency (Cahya, 2017). EFL teachers should play a greater role in engaging and maintaining learners' motivation (Renandya, 2015). However, there are some factors that decrease learners' motivation. Some studies revealed that teaching methods and teaching materials lacking learner engagement are factors which reduce Thai EFL university students' motivation (Phukanchana, 2018; Boonchuayrod & Getkham, 2019).

These studies showed that teaching methodology could be the main problem of language learners' motivation.

Teaching style is vital for English language learning (Dörnyei & Csizer, 1998). Teachers should create an atmosphere to make the students enjoy their learning. The teacher-centered approach is boring and not interesting (Chanaroke & Niemprapan, 2020). The 1999 National Education Act encourages EFL teachers to change their teaching style from a teacher-centered approach to a student-centered approach for life-long learning focusing on learners' needs and interests (Office of the National Education Commission, 1999). It is important that EFL teachers are able to apply various teaching methods to motivate and increase positive attitudes in learners toward English (Woothiwongsa, 2014). However, there are some obstacles that Thai EFL teachers face. Most of them lack the knowledge and skills to apply a student-centered approach and teaching methods. They tend to take control in the language classroom (Khamkhien, 2010). Sangkapan, Boonprakarn, & Krairiksh (2015) stated that "EFL teachers lack a variety of teaching techniques for example the use of song, conversations, and games" (p.280). Moreover, the study conducted by Noom-ura (2013) showed that EFL teachers in secondary schools strongly attributed problems encountered in teaching English to the teachers themselves; and one of the main problems was that games and songs were not used effectively in English classes.

Vocabulary teaching and learning

A good knowledge of vocabulary is important for language use. The knowledge of vocabulary not only involves knowing the meaning and the spelling of the words but also the context of use (Schmitt, 2007). Vocabulary size is also necessary for expressing spoken and written forms effectively. A study by Lansri & Katenga (2019) found that Thai bachelor degree students are not intrinsically motivated to speak English outside the classroom because of their limited vocabulary size. EFL teachers play a significant role in facilitating their vocabulary. There are many vocabulary teaching strategies in the classroom such as: giving lists of vocabulary to be learned for the lesson, repeating words aloud, and helping students become independent learners (McCarten, 2007). Nation & Waring (1997) advised teachers to use vocabulary cards as effective teaching tools to support students' vocabulary learning.

Game-based learning

According to Plass, Homer, Kinzer (2015), game-based learning can be defined as a "playful learning" which is "an activity by the learner, aimed at the construction of a mental model (a coherent representation of the information in memory), that is designed to include one or more elements of games for the purpose of enhancing the learning process" (p.278). This refers to learning through games by transmitting the lesson contents into games and teachers transform their role to be motivator, content manager, advisor, and facilitator (Intasara, 2019). This learning changes the teachers' role from central knower to learning assistant and the learning experience from passive learning to active learning. Game-based learning is experiential learning that supports knowledge, skill, and attitude, whereas on the other hand, lecture-based traditional learning supports only learners' knowledge (Barbazette, 2006). According

to the learning pyramid model (Figure 1), the lecture method is the least effective teaching method resulting only 5% of retention, while practice by doing is an active teaching method that results in 75% retention.

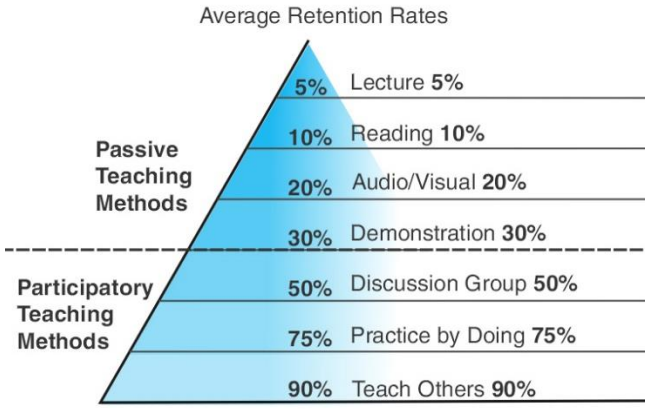

Figure 1 Learning pyramid model

Note: adapted from National Training Laboratories Institute in the early 1960s (https://www.thephuetnews.com/understanding-the-learning-pyramid-40899.php)

Games are active practice by doing methods which can reinforce learners' motivation and encourage them to use the language they are learning (Bakhsh, 2016). Studies also show that game-based learning increases EFL learners' motivation (Ebrahimzadeh & Alavi, 2017; Wichadee & Pattanapichet, 2018; Gamlo, 2019) and increases learners' participation (Correia & Santos, 2017).

Motivation

Motivation has long been recognized as an important factor for second language learning. The theoretical approach adopted for this research is self-determination theory. This theory holds that the social environment impacts on human motivation. There are two kinds of motivation: 1. Intrinsic motivation which refers to the motive caused by internal interest and enjoyment, and 2. Extrinsic motivation which refers to the motive caused by external incentives such as money, reward, and other's acceptance (Ryan & Deci, 2002).

Intrinsic motivation

Intrinsic motivation is important for learning achievement and engagement (Ryan & Deci, 2020). Intrinsic motivation involves three basic psychological needs: competence which is the need to perceive optimal challenge and confidence, relatedness which is the need to perceive a sense of connection with others, and autonomy which is the need to perceive a sense of freedom and volition (Ryan & Deci, 2002). Autonomy is essential for intrinsic motivation. Therefore, the environmental context should facilitate the sense of freedom without control or pressure (Ryan & Deci, 2000). The satisfaction of these three needs increases intrinsic motivation (Ryan & Deci, 2002). There are many benefits of card games which can promote intrinsic motivation. Card games can offer interest, challenge, enjoyment, and

with less stress or pressure (Shellenbarger, 2015). Furthermore, card games support face-to-face social interaction with people (Tremblay, 2019). Card games are fun activities that use vocabulary cards and picture cards and they also make the learning more challenging and active (Depari, Azwandi & Syahrial, 2017).

Extrinsic motivation

Extrinsic motivation is found in a controlling environment (Reeve, 1996). There are four types of extrinsic motivation: external regulation which refers to doing something for external rewards or to avoid punishment, introjected regulation which refers to behaviors which are performed to avoid guilt and to sustain pride or ego, identified regulation which refers to behavior which aligns with one's own goal where one realizes the importance of the activity, and integrated regulation which refers to behavior that aligns with one's belief, value, and needs (Ryan & Deci, 2002). Out of four subtypes of extrinsic motivation, integrated regulation is closest to intrinsic motivation, but integrated regulation is with regard to personal outcome while intrinsic motivation originates from internal interest (Ryan & Deci, 2002).

2. Research Objectives

The objectives of this research were to investigate the effectiveness of the use of card games on learners' English vocabulary learning and to analyze learners' motivation, opinions, and feelings from the two different teaching practices.

Research questions

2.1 What is the effectiveness of the use of card games on learners' English vocabulary learning?

2.2 What are the differences of learners' motivation, opinions, and feelings between game-based and traditional teaching?

3. Methodology

This research used a mixed methods research approach combining quantitative research and qualitative research. This research was quasi-experimental research. The goal of quasi-experimental research is to evaluate the impact of the treatment or intervention (Reichardt, 2009). The quasi-experimental design is a non-random sampling method to control the independent variables and to reduce the effect of extraneous variable (Choochom, 2009). The participants were divided into two groups: a control group and an experimental group. To strengthen the internal validity, the students chosen for the two groups were similar: both groups were pre-engineering students studying the subject "English for Engineering" and were in the same year. The lesson content of this experiment was about mechanical tools and equipment vocabulary and the applications of equipment from English for Industrial Technology, a book for vocational education written by Dr. Saovapak Kallayanamit and Pimporn Namliwan (Kallayanamit & Namliwan, 2019).

Participants

There were two groups:

1. The control group was a group of 20 vocational third year pre-engineering students in the civil engineering stream. 15 students were male, and 5 students were female. The average of students' age was 17. They were interested in English learning to a moderate to high level.

2. The experimental group was a group of 19 vocational third year pre-engineering students in the gifted hands-on stream. The gifted hands-on class is a demonstration class that focuses on learning by doing and student-based learning, but they are not necessarily more gifted (in the sense of ability) than the control group. It is a learning choice based classification. Even though, they may be familiar with active learning which could give them an advantage, the game-based learning approach was first introduced to them in this experiment. 15 students were male, and 4 students were female. The average of students' age was 18. They were also interested in English learning to a moderate to high level.

Ethical issues

This research received ethics approval (Reference Number 001/2563). Potential participants received a research invitation, information, and a consent form. The participants who agreed and signed the consent form were the participants in this project and their personal information was anonymized.

Data collection and data analysis

The pre-test exam consisted of 30 questions involving basic mechanical tool and equipment vocabularies. There were three parts: 1. Filling in the missing letters in the blanks, 2. Matching the pictures with words, and 3. Multiple choice questions. The post-test exam consisted of 30 questions. There were three tests in order to increase the variety of questions so that the students could apply their vocabulary knowledge with each type of question. The format and difficulty level were identical in each test but some items were different. The data of pre-test and post-test exams was analyzed using descriptive statistics, paired samples t-test, and independent sample t-test using SPSS software. The pre-test and post-test exam scores between the experimental group and control group were compared.

Questionnaire

The questionnaire consisted of two parts. The first part was a close-ended questionnaire aimed at measuring learners' intrinsic motivation and perception toward teaching practices. The questionnaire was an adapted and translated into Thai version of the Intrinsic Motivation Inventory (IMI) of self-determination theory (Self-Determination Theory, n.d.). The Likert scale of this survey consisted of seven different answer options, ranging from 'not at all true' (1) to 'very true' (7), and the instrument consisted of 22 statements combining with 4 factors; 1. Intrinsic motivation, 2. Competence 3. Choice and 4. Stress/pressure (Self-Determination Theory, n.d.).

The data analysis of the inventory used descriptive statistics and internal consistency checks using SPSS software in order to examine the reliability of the survey. The Cronbach Alpha values of four subscales showed that 1. Intrinsic motivation (7 items) had .81, 2. Competence (5 items) had .86,

3. Choice (5 items) had .06 and 4. Stress/pressure (5 items) had .81. The Cronbach Alpha values of three factors was more than .80. This showed that the reliability of this survey was acceptable. 5 items of Choice were unacceptable. Finally, the acceptable instrument contained 17 statements combining with 3 factors; 1. Intrinsic motivation, 2. Competence 3. Stress/pressure.

The second part of the questionnaire involved three open-ended questions: 1. How do you feel about the teaching and learning?, 2. Are the teaching and learning methods interesting?, Do they make you feel interested?, and 3. Do you have any suggestions or recommendations to improve and make the teaching and learning more interesting?, How? This part was aimed at exploring learners' motivation toward teaching and learning.

Interview

Interviews were conducted with five students from each group, 10 students in total, to explore in-depth the motivation, opinions and feelings toward teaching and learning in class. The participants in the interview data collection part were those who were willing to participate and who signed in the consent form indicating that they agreed and gave permission to be recorded for voice recording. The interview started with the open-ended questions in the questionnaire and allowing the participants to clarify and explain their answers more deeply. The interview took 15-30 minutes with each participant. The interview conversations were recorded and transcribed. The interviews conducted individually and then they were transcribed. The data were coded and analyzed using thematic analysis. There were two raters to check the reliability of the results. Each students' answer was assigned an alphanumeric tag (A = the control group and B = the experimental group; a number corresponding to the students in the group) and the source of data collection (open-ended questionnaire or interview) – e.g. A5, interview.

Procedure

The duration of the short-term quasi-experimental research was two lessons of two hours, totaling four hours. The same teacher taught both classes. The learners did the pre-test exam in the first class before both groups started the lesson. After that, lessons for the experimental and the control group proceeded as follows:

The experimental group

The experimental group learned mechanical tools and equipment vocabulary and the applications of each equipment with a lesson sheet and PowerPoint slides. Then, they designed and made picture cards by themselves. The word cards were provided. Making picture cards supports their autonomy and creativity. Examples of picture cards and word cards are shown in Figure 2. In the second class, students played the vocabulary card games.

Figure 2 Examples of picture cards and word cards

Students played three different card games. The first card game was a memory game. There were four groups of students. In this game there were two packs of cards of 30 each: one with 15 paired pictures of tools and equipment and the other with 15 words corresponding to the pictures and 15 words which did not. The word cards were placed open on the table for the students to choose from. The picture cards were shuffled and shown one by one. When the second picture of a card that was already shown was shown again, the students had to pick up the correct vocabulary card to name that picture card. If they named the card correctly, they got a point. The second game was a matching game, with students split into four groups. In this game there were 20 pictures of tools and equipment, or 10 pairs of pictures, turned over and the students had to find and match the pairs. Then, they had to write the correct name and the correct application of these pictures to get their scores. The last game was a spelling game, played in two groups. In this game a picture card was shown randomly and one person from each group had to write the correct name of each card on the whiteboard. The student who finished fastest and answered correctly got the points. After the games, the learners did the post-test exam, and completed the research questionnaire.

The control group

In the first class of the control group, the students were given a lesson sheet of mechanical tools and equipment vocabulary and the applications of each equipment. Then, the students were taught by the conventional teacher-centered teaching method using PowerPoint slides to show the pictures and names of tools and equipment and applications. In the second class, the teacher allowed the students extra time to revise and read the vocabulary by themselves. After that, they did the post-test exam and completed the research questionnaire. After that, the pre-test and post-test exams of both groups were marked, and the results were analyzed.

4. Results

This section shows the results of pre-test and post-test scores of the experimental group, the results of pre-test and post-test scores of the control group, the intrinsic motivation and needs' perception scores between two groups, and the qualitative results of open-ended and interview results of both groups. Results of pre-test and post-test exams

Table 1 Results of pre-test and post-test scores of the experimental group

Scores	Lowest score (max 30)	Highest score (max 30)	Mean score (max 30)	t	df	p
Pre-test	3	26	11.94	11.15	18	.000
Post-test	13	30	23.15			

Table 1 shows that the mean score of the pre-test exam was 11.94, while the lowest score was 3 and the highest score was 26. The mean score of the post-test exam was 23.15. The lowest score here was 13 and the highest score was 30. A paired sample t-test of the pre-test and post-test results gave a highly significant p-value, less than 0.001. This indicates a highly statistically significant difference between the test scores showing that the post-test scores can be considered as higher that the pre-test scores.

Table 2 Results of pre-test and post-test scores of the control group

Scores	Lowest score (max 30)	Highest score (max 30)	Mean score (max 30)	t	df	p
Pre-test	2	23	12.05	11.02	19	.000
Post-test	13	28	22.95			

Table 2 shows that the mean score of the pre-test exam was 12.05. The lowest score of was 2 and the highest score was 23. The mean scores of post-test exam was 22.95, while the lowest score was 13 and the highest score was 28. A paired sample t-test of the pre-test and post-test results gave a highly significant p-value, less than 0.001. This indicates a highly statistically significant difference between the test scores showing that the post-test scores can be considered as higher that the pre-test scores.

Table 3 Comparison of scores of pre-test scores of both groups

Scores	Lowest scores (max 30)	Highest scores (max 30)	Mean scores (max 30)	t	df	p
Experimental	3	26	11.94	.06	37	.95
Control	2	23	12.05			

Table 3 shows that the mean score of the pre-test exam of the experimental group was 11.94, while the lowest score was 3 and the highest score was 26. The mean score of the pre-test exam of the control group was 12.05, while the lowest score was 2 and the highest score was 23. The results of pre-test exams between two groups using independent samples t-test showed a p-value (> .05) which did not indicate a statistically significant difference.

Table 4 Comparison of scores of post-test scores of both group

Groups	Lowest scores (max 30)	Highest scores (max 30)	Mean scores (max 30)	t	df	p
Experimental	13	30	23.15	.13	37	.89
Control	13	28	22.95			

Table 4 shows that the mean score of the post-test exam of the experimental group was 23.15, while the lowest score was 13 and the highest score was 30. The mean score of the post-test exam of the control group was 22.95, while the lowest score was 13 and the highest score was 28. The results of post-test exams between two groups using independent samples t-test showed a p-value that was not statistically significant. So, even though the mean score of the experimental group is slightly higher than that of the control group, it cannot be statistically claimed that there is a significant difference between the two groups.

Results of close-ended questionnaire

Table 5 Comparison of scores for intrinsic motivation and other subscales of both groups

Factors	Groups	Mean	SD	Minimum	Maximum	p
1. Intrinsic motivation	Experimental	5.59	.53	4.79	6.11	.00
	Control	5.04	.39	4.65	5.80	
2. Competence	Experimental	4.71	.46	4.05	5.37	.00
	Control	3.82	.64	3.05	4.65	
3. Stress/pressure	Experimental	2.52	.18	2.26	2.79	.20
	Control	2.76	.25	2.40	3.05	

Table 5 shows that the intrinsic motivation mean score of the experimental group was 5.59, while the lowest scores was 4.79 and the highest scores was 6.11. With the control group, the intrinsic motivation mean score was 5.04, while the lowest score was 4.65 and the highest score was 5.80. The competence mean score of the experimental group was 4.71, while the lowest scores was 4.05 and the highest score was 5.37. With the control group, the competence mean score was 3.82, while the lowest score was 3.05 and the highest score was 4.65. The stress/pressure mean score of the experimental group was 2.52, while the lowest score was 2.26 and the highest score was 2.79. With the control group, the stress/pressure mean score was 2.76, while the lowest score was 2.40 and the highest score was 3.05. A paired sample t-test of two factors gave a highly significant p-value, less than 0.05. This indicates a highly statistically significant difference showing that the intrinsic scores of experimental group can be considered as higher than the control group. The competence of experimental group can be considered as higher than the control group. However, the stress/pressure of t-test showed a p-value (> .05) which

did not indicate a statistically significant difference. The results showed that the intrinsic motivation and competence of the experimental group was higher than that of the control group but there was no significant difference concerning the stress or pressure factor.

The results of the open-ended questionnaire based on open-ended questions and interview consisted of three parts.

1. How do you feel about the teaching and learning?

84% of students in the experimental group mentioned that they enjoyed their learning experience, they practiced the activity while interacting with their friends, and they had used their teamwork skills. They said card games also developed their memory skill because games caused them to recall. These points are shown in the following statements:

I enjoyed working with my friends. It was fun. (B6, open-ended questionnaire)

It was enjoyable and I used my teamwork skills. (B12, open-ended questionnaire)

Games help us to memorize the vocabulary better than memorize them by ourselves. My friends helped and we practiced the vocabulary together. It was not boring. (B13, interview)

55% of students in the control group said that they enjoyed the lesson and felt relaxed. Four students mentioned that they enjoyed the lesson because they had acquired new knowledge. Five students said that this teaching and learning gave them more knowledge which was important and necessary for their daily life and future, as shown below:

Some teaching and learning lessons were interesting especially because the content can be applied in daily life such as conversation, vocabulary practice, and necessary life skill vocabulary. (A5, open-ended questionnaire)

Technical vocabulary is important because we will know the English names of the equipment. (A5, interview)

Only 10% said that sometimes the teaching and learning was boring and made them sleepy.

I gained new vocabulary, sometimes I felt bored in some classes but overall I felt good. (A10, open-ended questionnaire)

The classes were fun and relaxed but I felt slightly sleepy. (A13, open-ended questionnaire)

2. Are the teaching and learning methods interesting? Do they make you feel interested?

68% of students in the experimental group said that the teaching and learning was interesting. 13 students said that it was interesting because they enjoyed the games. They mentioned that it was better than the normal or conventional teaching method. They did not feel stressed or bored either. These points are shown in the following statements:

It was more interesting than the normal learning. I was very happy. It increased the excitement of learning and was relaxing. (B1, open-ended questionnaire)

It was interesting because I did not feel bored. I would feel bored in the conventional class. (B19, open-ended questionnaire)

65% of students in the control group mentioned that the teaching and learning were interesting. 13 students said that it was interesting because they gained more knowledge and it was important and necessary for their future career, as the examples below show:

It was interesting because it will be used in the future. (A4, open-ended questionnaire)

It was interesting because the vocabulary involved my field. (A18, open-ended questionnaire)

3. Do you have any suggestions or recommendations to improve and make the teaching and learning more interesting? How?

44% of students in both groups suggested that they would like to have more activities in the classroom and these activities make every student participate and interact with their friends and teachers. The students said that when they practice their learning through activities such as games, they are not stressed, not bored, and not sleepy, as the following statements show:

I would like to have activities in every lessons. Games are fun and everyone can join in and concentrate on the competition. (B13, interview)

There were two students from the control group who suggested using games in the classroom to make students more interested in learning and taking an active part in learning. They said:

Sometimes it was boring, and the use of games will help everyone in trying to answer. Games make students enthusiastic and competitive. It will be fun. (A2, interview)

Playing games makes students pay attention more than listening to lectures. (A6, interview)

5. Discussion

Most of the students from both traditional and game-based teaching said that they would like to have an active English classroom. They said they needed more learning activities in the classroom through which they could participate and interact with their friends and teachers. Game-based learning is one of the active and effective teaching methods for vocabulary learning. Games made the experimental classroom relaxed and fun. With game-based learning, the students felt interested, found it challenging and fun and these feeling of enjoyment and fun supported their intrinsic motivation. The result of this research is similar to Hartt, Hosseini and Mostafapour (2020) that enjoyment and social interaction were found in game-based teaching classroom rather than traditional lecture-style. Therefore, it is imperative that English teachers change their attitude and way of teaching to be more interesting and interactive.

The results of vocabulary learning scores of both groups were similar. The post-test scores were higher than the pre-test scores in both groups. However, there was no statistically significant difference between the post-test scores in both groups. This seems to suggest that that the use of games did not have a sizable positive effect on students' vocabulary learning. The use of conventional teaching resulted in similar test scores for vocabulary learning. However, this does not mean that there was no difference to the learning experience or the learning of the content. In fact, it was found from qualitative research instruments that the use of games did have a positive effect on the students' feeling, interest, and emotions. The experimental group felt greater interest in and enjoyed their vocabulary learning more

than the control group. The control group made an effort because they realized the importance of the lesson. But they also mentioned that sometimes they felt bored and sleepy and therefore, some students suggested adding game activities for them in the class to make it more fun.

The mean score for intrinsic motivation in the experimental group was higher than that of the control group and they also enjoyed the lesson and had fun with the card games. This finding suggests that most students in the experimental group perceived intrinsic motivation. They enjoyed learning with the card games more than lecture-based approach. This corresponds with the findings by Cojocariu, & Boghian (2014) that games can impact intrinsic motivation and encourage learners to desire for such learning experiences. Moreover, the use of card games had a positive effect on the three basic psychological needs which are competence, relatedness, and autonomy. The mean score for competence of the experimental group was higher than the control group. The use of card games also encouraged the students to compete among themselves and so gave them the perception of optimal challenge which increases competence and confidence. In the present study, the students mentioned that the participation in the card games allowed them to interact with their friends. It developed their relationship and increased the use of teamwork skills. Even though, there was no significant difference with the stress/pressure mean scores, the qualitative results showed that the experimental group perceived a sense of autonomy and that they did not feel controlled and pressured. They felt relaxed and happy. The teacher's role here was as a facilitator who supported their learning through the use of card games. The use of card games gave them more autonomy than the conventional teaching method. The use of card games helped them practice their memory skills. Furthermore, card games also could facilitate greater vocabulary retention and increase vocabulary learning enjoyment (Razali, Amin, Kudus & Musa, 2017).

Most of students in the control group perceived identified regulation of extrinsic motivation because they were motivated by their attitude toward the importance of the lessons. Ryan & Deci (2002) explain that identified regulation refers to behavior which aligns with one own goals so one, for that reason, sees the activity mainly in terms of its importance for one's goal. Their intrinsic motivation was lower than the experimental group. The students realized the importance of the lesson because the content of the lesson is relevant to their field of study, and it is essential for their careers in the future. It showed that the attitude toward the learning content is also important for students' motivation. Choosing interesting and relevant lesson content can be one factor that motivates students to learn. Language teaching material should be attractive and connect to students (Renandya, 2015). The perceptions of competence of the control group was lower than the experimental group. The traditional teaching approach seems not to develop the perception of competence in students because it does not challenge and encourage confidence. The teacher played the main role taking control in the classroom. This teaching method could pressure the students to memorize the vocabulary for the test alone. This method may then reduce their autonomy. The perception of relatedness was not mentioned by this

group because the students did not interact or do any activities together. They just only listened and learned from what the teacher said. However, the students said that they would like to have game activities in the classroom indicating that they would like to have the perception of three basic psychological needs. It is clear that the students would like the teacher's support to feel intrinsically motivated and enjoy their learning.

6. Conclusion

This study aimed to investigate the effectiveness of card game use on learners' English vocabulary learning and to analyze learners' motivation, opinions and feelings when experiencing the two different teaching methods, i.e. game-based learning and the traditional or teacher-centered teaching method. Even though it was a short experiment, the card game was introduced to students in the experimental class. This research study shows that the use of card games is effective and beneficial for English learners' intrinsic motivation, memory skills, and teamwork skills. The use of game cards supports learners' intrinsic motivation and their three basic psychological needs: i.e. competence, relatedness, and autonomy. By contrast, the conventional teaching method supports learners' identified regulation which is an aspect of extrinsic motivation. The students do realize the importance of the learning, but it is not from their internal interest. This research sheds light on the importance of game-based learning used in English language classrooms. Traditional EFL teachers need to learn game-based teaching methods, practices, and styles in order to support students' learning, motivation, teamwork and other skills.

7. Limitations and Recommendations

This study has some limitations and recommendations. Firstly, the experiment time period was relatively short. Two weekly sessions of two hours each were scheduled. Therefore, this could explain why there was no statistically significant difference between the post-test scores of both groups. It is likely that this weakness could have affected the results of vocabulary learning between two groups. For future research, it is suggested that the experiment time should be longer at least six weeks is probably needed so that the use of games may show a positive effect on students' vocabulary learning. Secondly, this study used pre-test and post-test exams which involved filling the blanks, matching words with pictures, and multiple choices questions. For future research, the inclusion of a vocabulary dictation test would likely provide a more comprehensive assessment of the students' learning differences. Vocabulary dictation can also show students' English language levels and progress. Thirdly, the choice factor of intrinsic motivation inventory was problematic as the reliability score was unacceptable. This could have been because the statements concerning choice were unclear and ambiguous. Therefore, these statements may need to be revised and rewritten in order to make them clearer for the learners and to relate them to the context. Lastly, it will be interesting and useful for future research that the participants' intrinsic motivation before and after the treatment is measured to check the effectiveness of the treatment.

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