



A Development of a Word Guessing Game to Enhance Critical Thinking Skills and Learning Motivation for Junior High School Students

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ARTICLE INFO

Article history:

Received Nov 25, 2021

Revised Dec 28, 2021

Accepted Jan 26, 2022

Keywords:

English Learning Games,
Critical Thinking Skills,
Learning Motivation

Conflict of Interest:

None

Funding:

None

ABSTRACT

The objectives of this study were; 1) to develop the “Word Guessing” game which can improve critical thinking skills and learning motivation of the junior high students, and 2) to evaluate the learning satisfaction of the junior high students towards the “Word Guessing” game in terms of critical thinking skills and learning motivation improvement. The research samples were 50 junior high school students of Watphraphutthabath Khaolukchang School (Phiphitphatthanankroh), Phetchaburi Province, Thailand. The sample group was selected by purposive sampling. A questionnaire with the IOC of 0.90 was used for data collection. From the study, it was found that the “Word Guessing” game presented with PowerPoint software consists of 8 questions with 5 clues that require the students playing in teamwork system to think critically in order to give the correct answers under the set of rules and using the game itself motivates them to like learning. The students had a positive attitude in critical thinking skills and learning motivation improvement at a high level ($\bar{X}=3.94 - 4.62$).

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1. Introduction

Learning in the 21st century is challenging for both teachers and learners because the world keeps changing which directly affects the interest of people at every level. Also, people need to learn many skills which are important to their living. Critical thinking skills are considered one of the most important keys to successful learning in the 21st century. Students can definitely improve their critical thinking through many different activities in their class, especially those with questioning that allows the students to build up their systematic problem solving when they are trying to find out the answers of those given questions (Paul, 1993).

In terms of teaching in the 21st century, using teaching techniques, activities, materials, etc., which are not up-to-date may cause an insufficient learning outcome for the learners. As a teacher is one of the most important keys to support the learning achievement of the students, they have to work hard on finding and designing those materials and activities which can be used as the most suitable and effective tools for every single lesson.

However, we can obviously see that some teachers do not feel that they are successful in teaching although they have done their best on teaching preparation for their classes. Perhaps, this is because the students do not pay attention to what they are being taught. A lot of students are likely to lack interest in or motivation for the lessons and activities that the teachers use in class, particularly in English as a second language (ESL) classes. Students do not realize why English is important to them. For this case, teachers have to study hard on related teaching strategies that make the students change their aspect and behaviors toward learning English. In other words, teachers should try to use techniques, activities, and material that can stimulate the students' motivation.

In Thailand, teaching English in junior high school (grade 7-9) is considered an important level because students have learned some basic knowledge and skills of English from the primary level but they need to practice a lot in the junior high level. However, at this time of age, most students are turning from kids to teenagers and they are likely to be shy and afraid of making mistakes in front of their friends. They usually refuse to work or practice alone in class, but they prefer to work with their friends instead. Therefore, teachers should use cooperative learning techniques in order to create some fun activities such as games and adapt them for the students appropriately. Because games can easily attract the student's attention, most teachers like to use games with their students to make them enjoy practicing the lessons in a fun way.

This paper presents a development of a game for critical thinking skills improvement that also allows the students to practice English reading skills. Moreover, this paper also presents the result of the students' attitude toward the use of the game in terms of critical thinking and learning motivation improvement. The game was used in teaching English for junior high school students whose English proficiency is at the level of A2 according to the Common European Framework of Reference for Languages (CEFR).

1.1 Objectives of the Study

- 1) To develop the "Word Guessing" game to improve critical thinking skills and learning motivation of the junior high school students.
- 2) To examine the attitude of the junior high school students towards critical thinking skills and learning motivation improvement instructed with the "Word Guessing" game.

2. Theoretical framework

As Higgins (2014) stated that critical thinking skills are one of the most important keys to achieve learning in the 21st century, teachers have to organize the learning process with many steps including setting up learning objectives, teaching through questioning, practicing before evaluation, reviewing and reflecting feedback, and learning evaluation. Therefore, teachers in the 21st century should promote critical teaching in their classes as it is one of the most effective teaching approaches to improve the students' autonomy and social skills, as well as to enhance the learning motivation (Soleimani, 2020). Although Paul (1993) has pointed out that creative thinking is closely connected to critical thinking, some teachers have misunderstood by using only their imagination and creativity to create different activities without critical thinking reflection. As a result, it could be a set of class activities which are aimless and unorganized (Paul, 1993). Hence, class activities that are designed by creative thinking must meet the critical assessment of critical thinking (Dzan, 2012). To enhance critical thinking in students, teachers should provide activities and materials which can stimulate the students to generate ideas or to solve any problems systematically with reasoning as it is the important element of the thinking system (Seker & Komur, 2008). In fact, critical thinking has been considered a major qualification for learners at all levels for a long time. Teachers have tried to improve their teaching which supports reasoning skills, clarification of concepts, meaning analysis, and creating motivation to make the students keep wondering and seeking for the solutions and truth (Lipman, 1984).

In addition, motivation also plays an important role in teaching as it leads to the willingness to devote a persistent effort toward the goals. Zhou (2011) stated that motivation is one of the key influences on language learning success. It influences learners' autonomy, concentration, diligence, consistency, and their learning achievement, etc. More importantly, Thai EFL learners believe that their motivation in English learning is the key point that directly affect their learning achievement (Koad & Waluyo, 2021). Therefore, it is important that teachers should try their best to design learning processes that can enhance motivation in students. There are many ways to stimulate learners' motivation, for example choosing topics, activities, and materials that best match the requirements of the learners. In addition, teachers should create a positive classroom atmosphere that supports learners' confidence.

According to the studies on English teaching approaches, there are many different teaching techniques and teaching aids which support critical thinking skills and the motivation of the students. Cooperative learning approaches have for a long time attracted the interest of ESL teachers in many different countries as it is not only the way leading to a satisfied learning outcome, but it is also an effective learning process that allows the students to learn and share their ideas and knowledge with others interactively. Additionally, intergroup competition is one of the important factors in promoting cooperative learning; therefore, many teachers use different games in their class by following the concept of cooperative learning (Shih, Hu, & Chen, 2006). However, some teachers prefer not to use games in classroom as they think that games only make student fun without learning (Moayad, 2012).

In fact, gamification is another famous strategy to teaching English as a foreign language (EFL) because it can attract the students' attention and raise their motivation. In other words, it allows the students to practice what they have learned in a fun way since it is known that the games can help learners to enjoy the fun atmosphere,

the spirit of competition, and the massive increasing of motivation (Masruddin, 2019). Also, Ersoz (2005) stated that different games can also develop students' social skills in co-operating with others and build up team spirit. Educational games should be considered as a new approach of teaching language because the students may learn how to get the benefits from such approach to enhance their language learning individually or collaboratively (Nasution, Panah, & Atmojo, 2021). In addition, games also support the learning process with satisfied outcomes (Lander & Callan, 2011). Nevertheless, creating a game for language learning can be challenged for teachers as its time consumption in process. According to Carrier (1990), teachers should first consider the level of language used in the game in order to fit with the students' language skills. Next, the game should also fit the purposes of that class or the content. Furthermore, teachers should consider students' characteristics: ages, learning behavior, and background knowledge. Finally, they should also consider when is the best time to use the game.

In some countries where English is not the official language, most teachers often use game-based learning activities in their class. This is because most learners are likely to have insufficient opportunity to practice their English skills with the real native speakers in their society. According to this situation, using games as a part of teaching, therefore, can be one of the most interesting options for the English teachers who want to create some edutainment activities by giving the students more opportunities to practice their English skills in a fun way.

3. Method

The researcher use R and D Method based on Richey (2007: 7) which is divided into 3 steps: exploring (research), developing (design and development), and evaluation (design research) (Rokhayati, 2016) in order to develop the "Word Guessing" game that can improve the student's critical thinking skills. Later, the researcher also investigated their views on the use of the "Word Guessing" game. The subjects of this study were 50 junior high school students of Watphraphutthabath Khaolukchang School (Phiphitphatthanakroh), Thailand who were purposively chosen. This game focuses on the enhancement of critical thinking skills and learning motivation of the students. The researcher had studied the core-curriculum of English for Mattayom 1-3 level (grade 7-9) as well as the concepts of using the game for education before outlining the statements or clues used in the game and the rules of the game. Once the contents and the rules of the game were completed, the research started designing the game by using the Microsoft PowerPoint software as the instrument for playing the game. When the game is completed, it was validated by 3 English instructors who are the experts in teaching English as a second language (TESOL). After the game was proved its appropriateness by the experts, the researcher used it with 50 junior high school students who joined in the English camp at Watphraphutthabath Khaolukchang School (Phiphitphatthanakroh), Phetchaburi province, Thailand on January 23, 2021. After using the game, the students were required to answer a questionnaire that was used as the instrument for collecting data to investigate the attitude of the junior high school students towards the use of the game in terms of critical thinking skills and learning motivation improvement after playing "Word Guessing" game. The questionnaire consisted of 10 Likert-type items which was partly adapted and modified from Nunan's (2004 as cited in Xhaferi & Xhaferi, 2013) for evaluating the use of the game.

3.1. Instruments for Data Collection

There were 2 instruments used in this study including; 1) Index of Item-Objective Congruence (IOC) which was used as the instrument to analyze the appropriateness of the game by 3 English instructors who are the experts in teaching English as a second language (TESOL), and 2) The questionnaire which consisted of 10 Likert-type items which was partly adapted and modified from Nunan's (2004 cited in Xhaferi & Xhaferi, 2013). The students were asked to complete the questions using a 5 point scale ranging from strongly disagree to strongly agree (5 – strongly agree, 4 – agree, 3 – undecided, 2 – disagree and 1 – strongly disagree).

4. Result and Discussion

4.1. Details of the "Word Guessing" Game

- Lessons

This game was designed to be used as an extra activity that allows the students to improve English reading and critical thinking skills. It can be used with a variety of English lessons. For this study, this game is used for the lesson of "Describing Things" in the part of Improving Reading skill - finding the topic sentence from the text. Students will practice English skill by reading the statements describing about something and they have to guess what it is by using the fact and their background together with reading comprehension, synthesizing and analyzing information, and critical thinking skills. In addition, they are allowed to discuss with their friends in order to figure out the most probable answers.

This game provides both general and specific statements as the clues describing things related to what is familiar to daily life: fruits, animals, things, sports, countries, occupations, and electrical appliances. Students can also learn and practice their English writing skill on how to describe things by using general and specific statements after playing this game.

- Required materials

The materials used with this game include a computer with Microsoft Office PowerPoint software, a projector, a big screen, and some cartoon money as the prize of the game.

- Roles

All students will be divided into small groups. They have to work as a team. There should be 6 – 8 students working together in a team. In each team, students will discuss about the roles before playing the game. It can be described as follows:

- Team players

The players in each team sit together closely in the shape of circle. They help each other by getting the meaning from the clues and guessing the most probable answer. Also, they have to make decisions together in the game.

- Team leader

In each team, all team players have to select a person to act like a team leader. He or she will be in charge of making decisions when the team needs.

- Game rules

This game is suitable for the learners whose English skills are at A2 level. The game is conducted by the teacher and the students are arranged in a few groups of 6 – 8. The game helps learners to improve English reading and critical thinking skills. The prize of the game is “children money”. Here are the rules and how to play this game:

There are 8 questions in this game. Each team takes a turn to play the game starting from selecting the question they want to play. Suppose that team A takes the first turn to play. So, other teams will have to wait until team A is done with the first question. After team A selects the question, they will see the topic word of the answer. In addition, five clues are also provided. Select the number of the clue to see the information describing something and they have to guess what it is by thinking about the information from the clue, but they are allowed to see only 1 clue at a time. After each clue is opened, the players in team A will have 1 minute to discuss. The team leader is the key person to give the response to the teacher (answer or see more clues). They can ask to see more clues if they are still not sure about what the answer is. The important thing is that they should try to use fewer clues to get a bigger prize. However, they will get nothing if their answer is incorrect. The reward depends on the following conditions:

- 1) Get 1,000 Baht if the team can give a correct answer by taking only 1 clue
- 2) Get 800 Baht if the team can give a correct answer by taking 2 clues
- 3) Get 600 Baht if the team can give a correct answer by taking 3 clues
- 4) Get 400 Baht if the team can give a correct answer by taking 4 clues
- 5) Get 200 Baht if the team can give a correct answer by taking all 5 clues

However, if the team gives the wrong answer, they won't get any prize from that question. In addition, other teams can also steal your prize by shouting “STEAL” after the wrong answer is given by the team who is playing.

- Rules of stealing

There is one more thing that all players in every team have to learn before playing the game. Once, the answer is given by any team who is playing, the other teams can steal the prize by shouting “STEAL” if they are quite sure that the answer given by that team is incorrect and they think they can give a better answer. That means they want to challenge the team for the prize. For example, team A has seen 2 clues and they want to give an answer (current reward = 800 Baht). Team B wants to challenge, and they give a different answer. That means team B will be able to steal 800 Baht from team A if their answer is correct. On the other hand, team A will get 800 Baht from the teacher and team B will get nothing if the answer of team A is correct. There is only one team who can steal the prize. So, only the first team who says “STEAL” will have a chance to challenge for the prize.

- How to play this game

This report is showing you how the game is conducted. The process of the game is divided into three parts: before playing the game, during the game, and after the game.

Before playing the game

Before this game is started, the teacher will organize the order of the teams to play this game. There are 8 questions provided in this game. The first team will start the game by selecting a question to play as shown in figure 1:

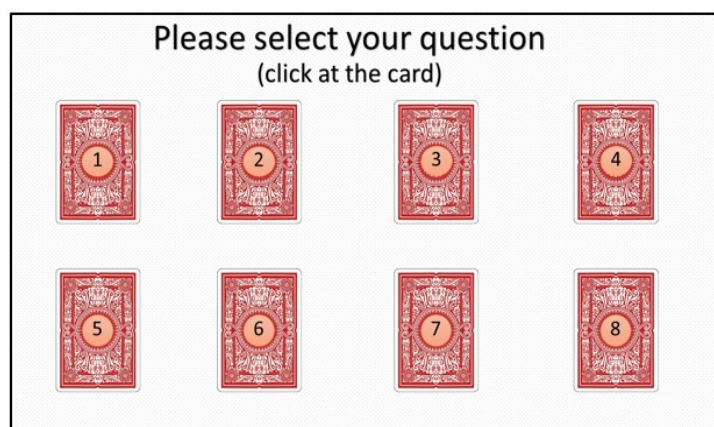


Figure 1: Main page showing 8 questions to be selected

During the game

Once the question is selected by a team, the teacher clicks on the card to go to the question. For example, if the team wants to play question number 4, the teacher will make a click at the number 4 card. After a click, the topic word of the answer is shown on the top right corner of the frame and 5 clue boxes are also provided as shown in figure 2:

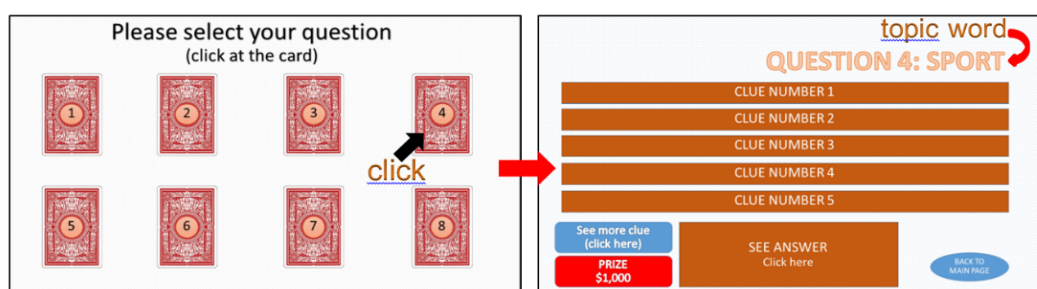


Figure 2: Showing the question slide after selecting the number of the question

According to figure 2, after the teacher makes a click at the card in the main page, the players will see the question slide and the topic word at the top-right corner. Next, the team will select the first clue to see by telling the teacher to click at the clue box to see the statement. After the first clue is selected, the team will see the statement and they have to discuss what the answer is within 1 minute. The teacher is the time keeper of this game. The following figure shows a sample of the question slide when the first clue is selected.

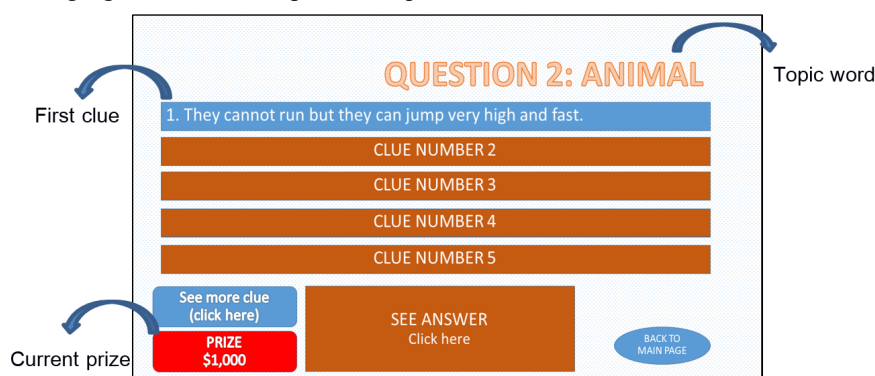


Figure 3: Showing the statement after the first clue is selected by the team

After the first clue is selected by the team, the teacher clicks the clue box number. Then, the team will see the statement and they have to start thinking about all possible answers by group discussion. The teacher will start one-minute timing as soon as the first statement is shown. Within 1 minute, the team can give the answer if they are sure about it. However, they can ask to see more clues if they are not sure about the answer yet. When the time is up, the team has to give a response to the teacher whether they want to “answer” or “see more clues”.

Every time the team asks to see more clues, the teacher has to click the blue button (see another clue) and the prize will be deducted for every extra clue. However, when the answer is given by the team, the teacher can show the answer by making a click at the answer button (see answer).

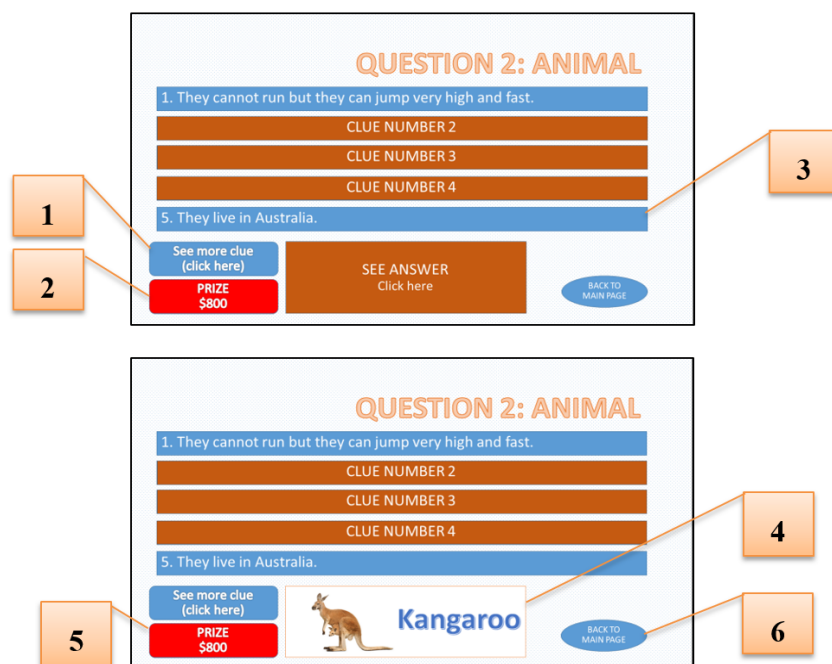


Figure 4: Process of playing the game after the first clue is selected

According to figure 4, it can be described by the following steps:

- After the free first clue is shown to the team and the team wants to see more clues, the teacher will make a click at “see more clue” button and the current prize will be deducted automatically. (see number 1 and 2 in figure 4)
- Ask the team about which clue number they want to see and make a click at the clue box they want. (see number 3 in figure 4)
- If the team still want to see more clues, the teacher will do the same as mentioned in step 1, 2, and 3 above until they want to answer. When the team gives the answer, the teacher will ask other teams if they want to steal the money by giving a different answer or not. If any team wants to steal the prize, the teacher will follow the “rule of stealing” as mentioned before in the section “game rules”.

To complete the question, the teacher will show the answer to all the teams by clicking the “see answer” button and the answer will appear automatically. Then, the teacher will give the prize (cartoon money) to the team that gave the correct answer as it is shown on the “prize” button. (see number 4 and 5 in figure 4)

- After showing the answer, the team will get the money if their answer is correct. However, they will get nothing if their answer is incorrect. The teacher will continue the game by clicking the “back to main page” button and ask the next team to select the next question and start the process over again. (see number 6 in figure 4)

After playing the game

After all teams finish playing the game, the teacher will show all the statements describing things in every single question again in order to wrap up the lesson by showing how a thing is described by giving both general and specific information about it.

4.2. Result of IOC Evaluation Analysis

After the game was developed, it was proposed to the 3 English teaching experts to analyze the congruence in terms of English learning contents and thinking skills by using Index of Item-Objective Congruence (IOC) as a measurement tool (Appendix 1). Later, the researcher received the result of the congruency analysis from the 3 experts. The result is shown in the following table:

Table 1: IOC Evaluation Analysis

No	Issues to analyze	IOC evaluation by 3 experts			Total	IOC
		#1	#2	#3		
English Learning Contents						
1.	English vocabulary knowledge	1	1	1	3	1.0
2.	English grammar knowledge	1	0	1	2	0.67
3.	Appropriateness of language use	1	1	1	3	1.0
4.	English language accuracy	1	1	1	3	1.0
5.	English reading skills improvement	1	1	0	2	0.67
Percentage of English Learning Contents						0.87
Thinking Skills						
6.	Stimulation of problem-solving skills	1	1	1	3	1.0
7.	Stimulation of thinking skills	1	1	1	3	1.0
8.	Stimulation of analysis and synthesis skills	1	1	1	3	1.0
9.	Stimulation of creativity skills	1	0	1	2	0.67
10.	Stimulation of inference skills	1	1	1	3	1.0
Percentage of Thinking Skills						0.93
Overall percentage						0.90

According to the IOC evaluation analyzed by the 3 English teaching experts, it can be concluded that the “Word Guessing” game is appropriate to be used as the teaching material to improve the learners’ proficiency of English language and critical thinking skills. (IOC in overall = 0.90).

4.3. Result Of the Students’ Attitude toward the Use of the “Word Guessing” Game

After the game was used completely, a questionnaire was given to the students in order to find out their attitude toward the game (Appendix 2). The following table shows the results of the questionnaire items in terms of the average mean and standard deviation. If the results come closer to a mean level of 5, it can be described that the students are likely to agree with the statement.

Table 2: Students’ Attitude toward the Use of the “Word Guessing” Game

Questionnaire items	N	$\bar{x}$	SD
Questions on learning improvement			
1. “Word Guessing” game helps learners develop English reading skills.	50	4.12	.69
2. “Word Guessing” game helps learners develop vocabulary skills.	50	3.94	.64
3. “Word Guessing” game provides the activity to support cooperative learning among learners	50	4.36	.57
4. “Word Guessing” game provides activity that challenge learners to use English language	50	4.22	.46
Questions on critical thinking skills			
5. “Word Guessing” game provides opportunities for learners to think critically in order to solve the problem systematically.	50	4.42	.73
6. “Word Guessing” game provides tasks that allow the students to analyze and synthesize the information.	50	4.22	.74
7. “Word Guessing” game stimulate the students to use reasoning skills	50	4.35	.68
Questions on learning motivation			
8. “Word Guessing” game stimulates the learners’ interests.	50	4.20	.78

Questionnaire items	N	$\bar{x}$	SD
9. "Word Guessing" game helps increase learning motivation.	50	4.62	.57
10. "Word Guessing" game provides a relaxed atmosphere to promote use of English language.	50	4.28	.49

From Table 2, it can be concluded that the majority of respondents agreed with the items and had a positive attitude on the use of the "Word Guessing" game in terms of learning skills, critical thinking skills, and learning motivation. In addition, it is also clear that there is not any item in the questionnaire that was strongly disagreed by the respondents. ($\bar{x}$ ranges from 3.94 to 4.62)

4.4 The Appropriateness of the "Word Guessing" Game

As Soleimani (2020) said that critical teaching should be promoted in learning in the 21st century, therefore, the "Word Guessing" game can be used as an effective material to enhance the students' autonomy, social skills, and learning motivation. In addition, the game was also created according to the concepts of Seker & Komer (2008) who claimed that the students' critical thinking skills should be enhanced by using activities and materials that can stimulate the students to generate ideas or to solve any problems systematically with reasoning.

Furthermore, the researcher decided to create this game to be used as the learning material for ESL classes as Lander & Callan (2011) stated that games can support the learning process with satisfied outcomes. In addition, this game was also designed to be played in the form of team competition. This is to follow the idea of Shih, Hu, & Chen (2006) which had previously said that intergroup competition is one of the important factors in promoting cooperative learning. As a result, the game can provide opportunity for the students to have the interaction between them while they are playing.

According to the result of IOC evaluation analysis of the 3 English teaching experts shown in table 1, it can be concluded that this game is appropriate to be used as a teaching material to enhance English reading and critical thinking skills of the students. As the concept of the game is to provide some statements describing about something and the students have to use their English reading skills to collect the meaning along with their background knowledge and critical thinking skills to guess of what could possibly be the answer. As Paul (1993) have stated earlier that the activities with questioning which allow the students to build up their systematic problem solving can definitely improve the students' critical thinking skills.

4.5 The Attitude of the Students toward the Use of the "Word Guessing" Game

According to the result of the questionnaire shown in table 2, it was found that the junior high school students had a positive attitude on the use of the game. In terms of English learning, the students agreed that the game could help them improve their learning skills, critical thinking skills, and learning motivation. It shows the different idea of Moyad (2012) who claimed that the games only make the students fun without learning. Moreover, the students also agreed that the game could positively affect their critical thinking skills because it provided different items of statements for them to analyze and synthesize systematically. It also shows the same result as some previous studies such as Shih, Hu, & Chen (2006) who found that such intergroup competition can promote the cooperative learning and Masruddin (2019) who found that the games can create fun atmosphere, the spirit of competition, and the learning motivation. One of the most interesting results is that the students strongly agree that the game can highly promote the learning motivation. As motivation is one of the key influences on language learning success (Zhou, 2011) and Thai EFL learners really believe that it directly affects their learning achievement (Koad & Waluyo, 2021), so this game is not only the material that is used to enhance the students' English skills and thinking ability but it also has a lot of potential for learning motivation that could possibly lead to the positive learning outcome as Lander & Callan (2011) had previously stated.

5. Conclusion

From the study, it can be explained that using games as a part of teaching is one of the most effective strategies that can enhance the students' critical thinking skills and learning motivation. As most games provide tasks or questions that encourage the players to use their thinking ability to solve the problem systematically. In terms of cooperative learning, using competitive games for education also allow the students to work together in order to create interactions between learners in aspects like discussion, reasoning, and systematic problem solving, all of which are all skills that are needed for the 21st century. Moreover, having team leaders also helps the students to learn about leadership.

Furthermore, using games are also very useful for teaching English as a second language (ESL) because students feel relaxed and have fun while playing and practicing the English language through games. However, this

strategy can be adapted with different lessons successfully if only the teachers understand the concepts of gamification, cooperative learning, and basic psychology. Once the teachers know the concepts very well, they can use their creativity to design any kind of games that are most suitable for their students.

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Appendix 1: IOC evaluation analysis form for the 3 experts to analyze the congruence of the content used in the “Word Guessing” game, in terms of English learning contents and thinking skills.

Word Guessing game, in terms of English learning contents and thinking skills.				
No	Issues to analyze	IOC evaluation by 3 experts		
		-1	0	1
English Learning Contents				
1.	English vocabulary knowledge			
2.	English grammar knowledge			
3.	Appropriateness of language use			
4.	English language accuracy			
5.	English reading skills improvement			
Thinking Skills				
6.	Stimulation of problem-solving skills			
7.	Stimulation of thinking skills			
8.	Stimulation of analysis and synthesis skills			
9.	Stimulation of creativity skills			
10.	Stimulation of inference skills			

Appendix 2: a questionnaire for the students to find out their attitude toward the “Word Guessing” game.

Instruction: Please identify your opinion on English learning activities through the “Word Guessing” games.

There are five levels of opinions which can be described as follows:

1	means	Strongly disagree
2	means	Disagree
3	means	Unsure
4	means	Agree
5	means	Strongly agree

No.	Items of questions	Levels of opinion				
		1	2	3	4	5
1	“Word Guessing” game helps learners develop English reading skills.					
2	“Word Guessing” game helps learners develop vocabulary skills.					
3	“Word Guessing” game provides the activity to support cooperative learning among learners					
4	“Word Guessing” game provides activity that challenge learners to use English language					
5	“Word Guessing” game provides opportunities for learners to think critically in order to solve the problem systematically.					
6	“Word Guessing” game provides tasks that allow the students to analyze and synthesize the information.					
7	“Word Guessing” game stimulate the students to use reasoning skills.					
8	“Word Guessing” game stimulates the learners’ interests.					
9	“Word Guessing” game helps increase learning motivation.					
10	“Word Guessing” game provides a relaxed atmosphere to promote use of English language.					