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COLLABORATIVE GAMING APPROACH IN ONLINE LEARNING TO IMPROVE STUDENTS' ENGAGEMENT

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Abstract

Due to the COVID-19 pandemic, students in Indonesia were required to study from home for about the past two years. It affected learning activities that made students less engaged. This research offers the Online Collaborative Gaming Approach model to improve students' engagement and participation in English learning. Inviting 58 students as research participants, the researchers reported the implementation of the Collaborative Gaming Approach and evaluation based on students' perspectives. This study employed Classroom Action Research utilizing students' scores, questionnaires and interviews, to measure the criteria of success. The result of the study showed that the average score in the quiz game activity inceased after the implementation of the quiz game (from 74,1 to 88,64). The result of the questionnaires also stated that 94.83% (55) students agreed that quiz game activities gave positive perceptions on the affective aspect, 91.38% (53) students agreed that quiz game activities gave positive perceptions on the social aspect, and 94.83% (55) students agreed that quiz game activities gave positive perceptions on the cognitive aspect. The result of the data showed that the collaborative gaming approach gives a positive impact on students. It implies that the practice of the collaborative gaming approach can increase the students' engagement.

Keywords: *collaborative gaming approach; quiz game; EFL learning*

1. Introduction

For the past 2 years, the world has been battling the COVID-19 pandemic. At the end of March 2020, the Indonesian government issued a policy for Indonesians to work from home. Through the official website, the Ministry of Education, Culture, Research, and Technology issued regulation Number 4 of 2020 concerning the Implementation of Education in the Coronavirus Disease (Covid-19) Emergency Period. One of the contents of the regulation is to discuss the implementation of learning that is carried out online (Kemdikbud, 2020). Adaptation is something that must be done by all teachers and students. Until this research was conducted, the learning process was still carried out online.

Teaching English for senior high schoolers in online context serve a problematic challenge. Atmojo & Nugroho (in Nur & Zahra, 2020) mentioned that some of the problems faced during online English learning are that students have low motivation in reading and learning new vocabulary, some students do not complete the assigned tasks, and students are less active in responding to google classroom. Another problem was also mentioned as the impact of online learning by Yuzulia (2021). Additionally, students finding it difficult to

concentrate and often feeling dizzy, students also have difficulty pursuing the learning process because of the many tasks that must be done, and some technical issues that occur such as poor internet connections.

This current research addresses the challenges faced by the researchers in teaching English for vocational schools. Based on the researchers' preliminary observation, the students of the vocational schools are less engaged with English learning especially in online setting. Despite the technical challenges, the students are mostly uninterested in synchronous session and they do not show active participation in online synchronous session. To reassure the researchers' assumption on the low engagement of the students in online learning, an initial interview has been carried out. Based on the interview, there are some prominent findings that are essential to solve the class problem, those problems are (1) Lack of connection between the students and their peers, the students and the teacher and the students with the learning materials and (2) Students are having less self confidence to participate because they worry about judgement on their English skills. Based on the interview, the teacher found out that the pandemic has created distance between the students and their learning environtment, this condition led to their low engagement in the learning process. Therefore, the researchers as the team teaching of the class should plan a teaching and learning strategies that promoto the students' engagement to improve their connection to their learning environment.

The previous researches have proven that collaborative gaming approaches are successfully increased students engagement in learning process as well as improve their learning achievement. Sung & Hwang (2013) reported the effectiveness of developing a collaborative game-based learning environment. The study showed that the proposed approach succeeded in improving students' learning attitudes, motivation, and achievement. Another study was conducted by Liang et al. (2021) reporting the effect of applying MCCG and CCG on individual contributions to collaborative learning. The research boldly claims that better collaborative learning outcomes and important competencies such as problem-solving and critical thinking can be achieved through the application of a game-based collaboration approach. In addition, a quasi-experiment was carried out by Wang et al. (2018) to determine the effect of a two-stage concept mapping-based collaborative gaming approach. The results of this study revealed that the proposed approach significantly reduced students' English learning anxiety and improved students' confidence and knowledge that consequently promoting their learning achievements. Based on aforementioned researches, the collaborative gaming approach is considered potential to address the problems and challenges facing the researchers to engage the students in English learning in the online context. This research reports the implementation of collaborative gaming approach in vocational school of Putra Indonesia Malang class XI odd semester for the academic year 2021/2022. The task procedures, students score improvement and students' perception on the collaborative gaming approach are presented and critically discussed to offer the alternative teaching strategies in online context.

2. Literature Review

2.1 Engagement

Engagement, which is also known as attention, is a positive response given to the interlocutor (in this case: the teacher). A simple example of engagement is eye contact between teachers and students. Zepke & Leach (in Bender 2017) defines students' engagement as students' cognitive investment in, active participation with, and emotional

commitment to learning particular content. Engagement occurs when students are directly involved in the learning process. This statement is supported by Kuh who said that engagement is seen from the results of student involvement, the more student studies a subject, the more they master a subject, the more they do practice, and get feedback through participating and collaborating in learning activities (Meyer, 2014). Engagement is related to the quality of the learning environment (Brindley et al., 2009). With a quality-learning environment, students' engagement levels will increase along with their ability to interact and collaborate in learning. A sense of community will be formed from the engagement given.

Pallof & Pratt (in Meyer, 2014) elaborated the requirements for the formation of a sense of community, namely active interaction, collaborative learning, socially constructed meaning, sharing of resources, and expressions of support and encouragement. Whereas cognitive engagement is evidence or result of the ability to study hard and students learn to take responsibility for their learning process (Richardson and Newbie as cited in (Meyer, 2014)). Cognitive engagement is reflected by a deeper of understanding of students thinking and working on their learning topic (Kennedy, 2020). Engagement is an important component of online learning to help students succeed in the learning process and build a sense of community to produce cognitive engagement.

2.2 Collaborative Gaming Approach

Collaborative learning is a learning strategy by grouping students into several small groups. Collaborative learning strategies provide opportunities for students to develop their potential and become more active in working together in groups to achieve goals. According to Kumala (2017) collaborative learning occurs because of the results of student interaction during learning. They work together and create an understanding that cannot be done alone. However, Brindley et al. (2009) stated that collaborative learning environments share knowledge with learners to achieve learning goals through active participation, seeking information, or giving opinions to their peers. Resnick (in Laal & Ghodsi, 2012) stated that collaborative learning can help students to have interaction and produce in self-management. Students are taught to be ready to complete tasks and work together in their groups.

The development of technology helps to learn activities in pandemic situations so that learning activities can be carried out with various media, approaches, or strategies as needed. The gaming approach can be used. Hadfield (1990) defined a game as an activity with rules, a goal, and an element of fun. Gamification is the technique to apply a game concept to non-gaming contexts (Tanaka et al., 2016). Prensky (in Sung & Hwang, 2013) claimed that the combination of game elements in educational goals provides students with interactive learning opportunities.

A similar study was conducted by Fu et al. (2009). This study discussed how to use a combination of approaches between collaborative learning with competition between groups to gain a deeper understanding of the knowledge-creation process. Competition can be used to create challenges and stimulate improvement (Hwang, 2020). The result of this study pointed out that the competitive learning atmosphere can increase the level of student's analytical skills, while the collaborative learning atmosphere can produce a higher level of synthesis. Therefore, the collaborative gaming approach is an approach taken by incorporating game elements into collaborative learning activities to increase students' engagement, learning performance, and academic achievement.

Discussing the collaborative gaming approach, this research focuses on the implementation of quiz game activities using the spinning wheel, one of the features in the *wordwall* application. Teachers must be able to choose the right media in teaching and learning because the quality and effectiveness of the learning process can improve student learning outcomes (Hadi & Athallah, 2021). The quiz game activity was chosen because it was following the suggestion (Lilisuryani, 2018) that the activity should be able to increase students' engagement to speak and use their English. The implementation of the collaborative gaming approach aims: (1) to find out how to practice using the spinning wheel media in online English learning activities, and (2) to find out the effects of implementing the collaborative gaming approach in online English learning activities.

The results of this study are expected to be useful theoretically and practically. Theoretically, this research can contribute to future researchers who will require references or supporting data related to collaborative gaming approaches. Practically, this collaborative gaming approach can help schools implementing their mission to achieve their goals. Thus, this research can help students to reach their cognitive engagement. This study can be used as a reference for other researchers for the development of the collaborative gaming approach. Accordingly, the research question is How to increase students' engagement using the Collaborative Gaming Approach in online English learning?

3. Research Method

To address the research question, a collaborative gaming approach was applied in an online English learning activity with the design of Classroom Action Research. Classroom action research is a method to know what effective techniques or strategies in a classroom to improve student learning are (Widayanti, 2008). This research was conducted for 1 cycle that consists of 3 rounds of implementation. This research was conducted at vocational school of Putra Indonesia Malang class XI odd semester for the academic year 2021/2022. This research was conducted for 3 hours of lessons (90 minutes) a week. There are 3 classes that are the target of the implementation of this research consisted of 18 students, 19 students, and 21 students. In conducting this research, the researchers followed Kurt Lewin model. This model is the basis of various other action research models (Widayanti, 2008). Kurt Lewin's model consists of 4 stages: planning, implementing, observing, and reflecting.

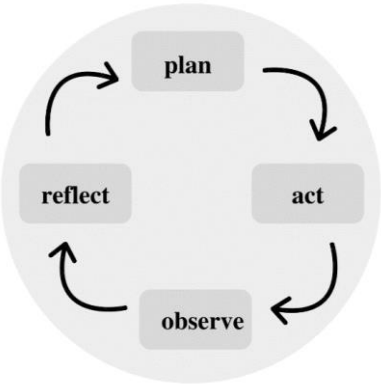

Figure 1. Kurt Lewin Model

The first stage is planning. At this stage, the researcher tries to formulate the right strategy or approach to overcome the problem at hand. In this study, the students learned opinions and thoughts. In this topic, students learn about how to ask and give opinions, generic structures, and kinds of expressions commonly used in conversations. During the

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research, all learning activities were carried out synchronously using *Google Classroom* and continued with *Google Meetings*. The second stage is implementing. The researchers provide learning activities in the form of quiz games. Quiz games are learning activities that are chosen to be applied in the collaborative gaming approach. Quiz games are conducted using learning media in the form of a spinning wheel, one of the features available in *wordwall*. The third stage is observating. Observations were made by researchers during the quiz game activity. The researcher writes down the events in the field notes. Field notes can be used to support the findings. The fourth stage is reflecting. Researchers reflect on the proposed approach. At this stage, the researcher also collected data from the questionnaire. In addition, the researcher also conducted unstructured interviews with several students regarding the quiz game activities that had been carried out.

Criteria of Success

There are 2 criteria of success to measure the success of the implementation. The first criterion is the score before and after the implementation of the quiz game and the second is the survey and interview data on students' perception toward the implementation of the quiz game.

Instruments, Data Collection and Data Analysis

The primary data of this research are the result of students score before and after the implementation of the quiz game activity. The data were collected through a quiz. Before the quiz game implemented, the students worked the quiz individually and they worked it collaboratively when this research was implemented. The second data is the result of a survey that measure students' perception on their engagement during the implementation of quiz game. The questionare was adopted from Buelow et al. (2018) . Unstructured interviews were also conducted to find out opinions, thoughts, or feedback before and after the collaborative gaming approach was applied. In total, 5 students are selected with random sampling technique. A descriptive statistic was implemented to see the trends of the students' perception.

4. Results and Discussion

4.1 The Implementation of the Collaborative Gaming Approach

This research implemented the collaborative graming approach in form of a quiz game. It is an activity to answer random questions on the spinning wheel. Quiz games are conducted in groups consisting of 3. The division of group members is carried out by students. Having a competitive atmosphere, each group has the goal of getting as many scores as possible. There are 30 questions with different scores depending on the level of difficulty of the questions.

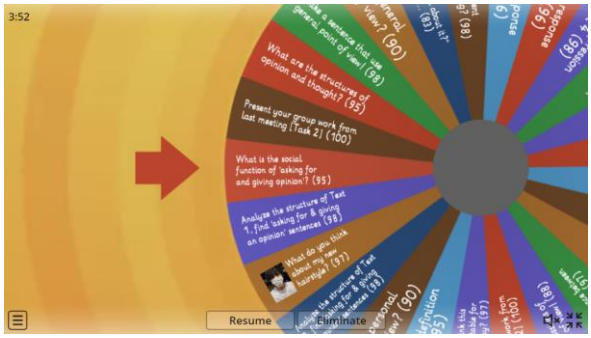

Figure 2. The examples of questions on spinning wheel

Each group got 1 chance to answer the questions they get or they have to do a mission for each round. The quiz game is done for 3 rounds. The implementation of the quiz game is guided by the teacher and is carried out using the sharing screen feature on *Google Meetings*. The score obtained will be written directly on the scoreboard so that all students can find out the provisional score.

Before starting the quiz game, the teacher explains the rules of the quiz game as follow:

a) Each group gets a turn to spin the spinning wheel
b) Each group must answer the question they got
c) Each question has a different score according to the difficulty level of the questions
d) If the group doesn't succeed in answering the question, the question can be answered by another group. The score moves to the group that successfully answered the question. It is called an extra score.
e) Each group only has a chance to get an extra score for each round

Groups that cannot answer the question in their turn are allowed to answer one other question if other groups cannot answer their question. There will be an extra round if time is sufficient (groups with low scores will be allowed to answer first).

4.2 Students' Score

The following are student scores before the collaborative gaming approach was applied and student scores from the quiz game implementation.

Class	Group	Conventional Test	Quiz Game
XI-X	1	90	90.5
	2	66.6	86.25
	3	78.3	90
	4	63.3	92.75
	5	78.3	92.75
	6	76.6	94.3
XI-Y	1	75	90.5
	2	35	83.6
	3	76.6	91.75
	4	83.3	91.5
	5	53.3	90.83
	6	93.3	97.75
	7	51.6	81
XI-Z	1	93.3	95.3
	2	90	90.25
	3	83.3	88.75
	4	90	92.75
	5	66.6	70.25
	6	66.6	68.75
	7	83.3	93.75
Average		74.71	88.64

Table 1 Students' score

The table above shows that students' scores have increased during the quiz game compared to other learning activities. The score of each group is based on the score of each

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question with a different level of difficulty. Students get difficult questions with high scores or easy questions with lower scores.

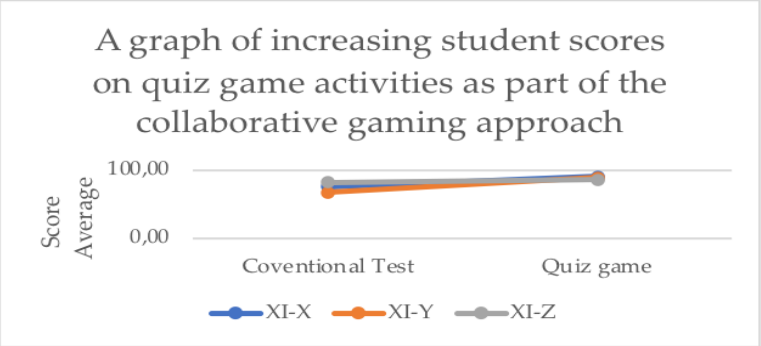

Figure 3 Students' perception towards quiz game activity as part of collaborative gaming approach

From the graph as displayed in figure 3 above, we can see that the highest increase in class average occurred in class XI-Y of 22.69. The increase in the second-highest increase in class average occurred in class XI-X of 15.24. The lowest increase in class average occurred in class XI-Z of 3.82.

4.3 Qestionnaire Result

Table 2 showed most of the students agreed that quiz game activities as part of the collaborative gaming approach had a positive impact on their abilities in the affective aspect. Affective abilities include critical thinking skills, active participation, and enjoying the teaching and learning. Statement number 5 is an uncoverable statement. From statement number 5, it was obtained data that more than 60% of students agreed that quiz game activities were better than other activities.

No	Statements	4	3	2	1
Affective aspect					
1	Quiz game helps me to be more Critical and Active in the Online class	51.72%	43.10%	5.17%	0.00%
2	I enjoyed participating in the synchronous quiz game activity of this course	48.28%	48.28%	1.72%	1.72%
3	I would enjoy participating in such an activity again	50.00%	43.1%	6.89%	0.00%
4	The quiz game activity provided less anxiety and a more relaxed environment than classroom discussion	36.21%	55.17%	5.17%	3.44%
5	I would have liked this course better without the quiz game	12.07%	27.59%	34.48%	25.86%
6	I felt my classmates were interested in answering the questions	29.31%	56.90%	12.07%	1.72%
7	I was interested in responding my classmates' questions	34.48%	46.55%	18.97%	0.00%

Table 2 The result of students' perception towards the affective aspect

No	Statements	4	3	2	1
Social aspect (Sense of Community)					
8	I experienced a sense of community with the other students in my group	41.38%	50.00%	8.62%	0.00%
9	I felt I was able to help out classmates who were experiencing problems during the course	36.21%	46.55%	15.52%	1.72%
10	I would like the course instructor to participate more in the activity	32.76%	55.17%	12.07%	0.00%
11	I got help with my problem(s) via the quiz game activity (my friends help me to solve my problem during the course)	36.21%	50.00%	10.34%	3.44%
12	Being representative of the group to answer the question made me more engaged to the quiz game activity	50.00%	39.66%	10.34%	0.00%
13	I enjoyed to be representative of the group	43.10%	44.82%	10.34%	1.72%
14	I enjoyed to be appointed to represented by my friend in the quiz game activity	36.21%	48.28%	15.52%	0.00%

Table 3. The result of students' perspective towards social aspect (sense of community)

Table 3 revealed that most of the research participants revealed that quiz game activities as part of the collaborative gaming approach helped them interact with other students to increase bonding between students. Participants gain valuable experience because they can help each other to answer questions or complete assignments. In addition, participants also enjoyed being group representatives in quiz game activities.

No	Statements	4	3	2	1
Cognitive aspect					
15	I learned things in the quiz game activity that I would not have figured out on my own	44.83%	48.28%	6.89%	0.00%
16	The quiz game activity gave me the opportunity to answer questions I would not have figured out on my own	36.21%	55.17%	8.62%	0.00%
17	The process of talking/writing through topics in the quiz game activity helped me to understand the topics better	43.10%	50.00%	5.17%	1.72%
18	Exchanging with other students in the quiz game activity helped me look at topics from perspectives I would not have considered on my own	39.66%	46.55%	13.79%	0.00%

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19	I participated more in the quiz game than I normally would in a whole class session or other activity technique	29.31%	55.17%	12.07%	3.44%

Table 4. The result of students' perspective towards the affective aspect

Table 4 showed most of the students agree that the quiz game activities that were part of the collaborative gaming approach helped them in the cognitive aspect. Students learn and try new things that they have not done. The learning process in quiz game activities is more effective because students can understand topics better. With this, students' cognitive engagement also gets better.

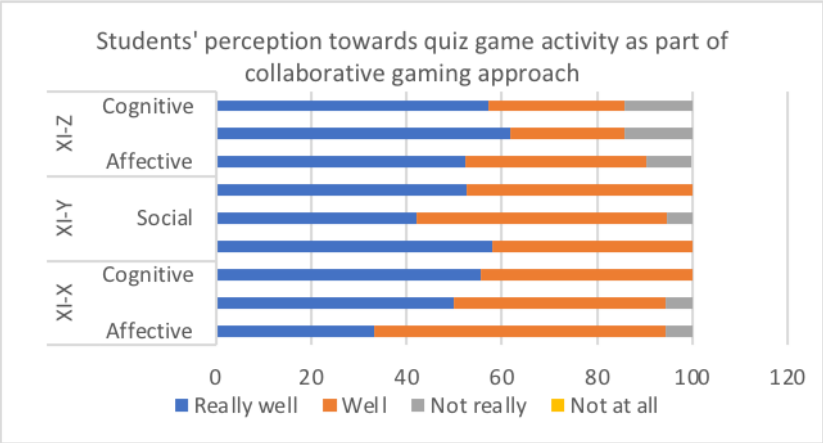

Figure 4. Students' perception towards quiz game activity as part of collaborative gaming approach

The figure 4 above is the result of students' perceptions of the questionnaire that has been processed by the author according to research needs. From the figure above, it can be concluded that the quiz game activity as part of the collaborative gaming approach can be well received by students. Quiz game activity has increased students' engagement and learning performance in terms of affective, social, and cognitive aspects.

4.3 Interview Result

As mentioned above, the researcher interviewed 3 students after the quiz game was implemented. One student from each class was randomly selected to be the interviewee.

Researcher: What do you think about quiz game activity?

Interviewee 1: “Quiz game is very fun and feels competitive”

Interviewee 2: “I think quiz games make studying easier.”

Interviewee 3: “Quiz games make the classroom atmosphere lively.”

Researcher: What challenges did you face during the quiz game activity?

Interviewee 1: “I get nervous when my group is about to answer questions.”

Interviewee 2: "There is no. I enjoyed it.”

Interviewee 3: "One of the obstacles I faced was a bad internet connection, other than that there were no significant obstacles."

Researcher: Can you tell me if there was any particular strategy your group used?

Interviewee 1: "My group has its chat group so we can have quick discussions to answer questions."

Interviewee 2: "Previously we had been self-taught on the topic, so when it was our turn to answer, we could answer questions with confidence."

Interviewee 3: "We divided the tasks for who had to answer because there were 3 rounds, we took turns answering them. If one member of the group does not succeed in answering, the other members will help."

From the interview results, the researcher can conclude that the quiz game activities can increase students' active participation, make the class atmosphere fun for learning, and improve students' critical thinking skills. In addition, the researcher saw that the student's sense of responsibility increased. This can be seen from the students' efforts in answering the questions they get. In addition, quiz games can increase collaboration between students. As stated by Zubaidah in Nurhajati (2021), collaboration is defined as the ability of students to work in teams and share roles according to their respective tasks to achieve goals. Students unite to complete their missions and help each other as members of a group. This is in accordance with the researcher's field notes that the online class atmosphere in English subjects during the quiz game was different from before the quiz game was held. Some students who have low concentration on learning activities are more active and confident to answer questions in quiz game activities. Most of the students smiled, laughed, and really enjoyed the quiz game activities.

The purpose of this research is to increase the students' engagement in online class through the implementation of the collaborative gaming approach that also consequently increases their score in collaborative work. The participants had never met from class X in offline learning because of the pandemic situation. Because they had never met before, students lacked interaction and bonding so that it disrupted the atmosphere of learning activities.

The use of the collaborative gaming approach gives positive benefits during teaching and learning for students of vocational high school in Malang. The implementation of the quiz game went smoothly. This will not happen if students do not have attention for learning activities. This proves that the proposed approach can stimulate student motivation in participating in learning activities. This statement is supported by Dixit et al. (2018) that the gaming approach can increase students' interest and attention in the class. The students can enjoy the learning process. The learning process becomes more interesting, the material is easier to understand, and interactions between students are more frequent. The students become more creative in composing dialogues and solving problems or assignments, be brave to speak, and are more communicative with their friends. This is supported by a statement from Yuzulia (2021) which reveals that some students are more comfortable expressing their opinions and actively speaking English during online learning.

Collaborative gaming approach helps students to deal with problems that occur. This is in accordance with previous research. (Yang et al., 2018) states that according to Young and Wang game approach can help learners overcome their speaking anxiety. Their research claims that the game approach results in learners' better performance. (Dixit et al., 2018) showed positive results regarding the implementation of the gaming approach for EFL learners. Their research proves that the gaming approach is effective in improving students' English learning performance, students' interest in class, problem-solving ability, create meaningful sentences, and willingness to actively communicate in English. Another study was conducted by Pattanpichet (2011). The study mentioned that the more often they work

together; the students become more familiar, thereby reducing anxiety at the same time. By working in a team, social skills are also getting better and useful in the future.

However, integrating the use of the collaborative gaming approach using the spinning wheel into teaching and learning is not easy for some people, both teachers and students. Because the implementation of the quiz game activity is led by the teacher, mastery of the media is a must. Some teachers may still be unfamiliar with the features in *Wordwall*. The proper use of media training needs to be carried out by teachers.

In addition, although the majority had a positive perception of the quiz game activity as part of the collaborative gaming approach, some students did not agree with it. Referring to the results of the questionnaire, some students have a negative perception of the collaborative gaming approach. This is due to differences in learning styles and the character of each individual. Some students still feel unfamiliar with collaborative gaming approach activities and consider conventional learning more helpful for them to understand the material than learning in groups.

The use of the collaborative gaming approach can be considered successful. Success means that the collaborative gaming approach can increase students' engagement and have an impact on increasing student scores. Some students who scored below the standard before applying the collaborative gaming approach showed satisfaction with group performance and increased their scores. This is in accordance with the results of previous studies. As stated by Hamman et al in (Heflin et al., 2017), overall students are more satisfied with the results of their work in small groups compared to satisfaction in full-class.

5. Conclusion

The online learning due to pandemic covid 19 has invited challenges as well as the creativity of the educators to facilitate the students to reach their optimum learning experience. One of the many factors that contribute to the success of the students learning is their engagement toward their learning environment including their peers, their teachers and also the learning materials. This research has reported that the collaborative gaming approach has positive benefits for students to improving their engagement and learning performance, increasing learning motivation and cooperation, reducing speaking anxiety so that they are more confident and actively participate in class activities as seen from the enthusiasm of students and a very competitive class atmosphere. To maximize the proposed approach, it is suggested for English teachers to pay more attention to the learning style and character of each student. The teachers can develop more innovative and communicative activities to encourage students to be more courageous and confident in learning. Further research can be done by investigating each student's character first to obtain more detailed research results.

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