

## The Investigation of Students' Engagement in Online Class during Pandemic Covid-19

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### Abstract

Students' engagement is the high level of cognitive, emotional, and behavioral engagement in the teaching-learning activity. This article research investigated the effects of collaborative classroom activities on student engagement in the virtual classroom. This research is mix-method research that consists of qualitative and quantitative research. The independent variable is collaborative classroom activities, and the dependent variable is students' engagement. The subjects of this research are students from two different universities in Lampung. The researchers use questionnaires to collect the quantitative data and employ observation and take notes to collect the qualitative data. The researchers use TPT Cognitive Engagement Model and Quadrant Analysis for analyzing the data of research. The findings show the same level of students engagement in both quadrants three and four in both classes taught by both researchers. Analysis of students' engagement can be analyzed accurately if the use of peer-coaching techniques is carried out. In addition, the material on subject writing can be studied effectively, and students can also get motivated through collaborative learning based on research survey data.

**Keywords:** students' engagement, TPT analysis, collaborative learning

## Investigasi Keterlibatan Siswa di Kelas Online selama Pandemi Covid-19

### Abstrak

Keterlibatan siswa merupakan tingginya tingkat keterlibatan kognitif, emosional, dan perilaku siswa dalam kegiatan belajar-mengajar. Penelitian artikel ini bertujuan untuk menyelidiki efek dari kegiatan kelas kolaboratif pada keterlibatan siswa di kelas virtual. Penelitian ini merupakan penelitian metode campuran yang terdiri dari penelitian kualitatif dan kuantitatif. Variabel bebasnya adalah aktivitas kelas kolaboratif, dan variabel terikatnya adalah keterlibatan siswa. Subyek penelitian ini adalah mahasiswa di dua perguruan tinggi yang berbeda di Lampung. Peneliti menggunakan kuesioner untuk mengumpulkan data kuantitatif dan menggunakan observasi dan mencatat untuk mengumpulkan data kualitatif. Model TPT Cognitive Engagement dan Analisis Kuadran digunakan oleh peneliti untuk menganalisis data penelitian. Temuan menunjukkan tingkat yang sama dari keterlibatan siswa di kedua kuadran tiga dan empat di kedua kelas yang diajarkan oleh kedua peneliti. Analisis engagement siswa dapat dianalisis secara akurat jika dilakukan penggunaan teknik peer-coaching. Selain itu, materi tentang penulisan mata pelajaran dapat dipelajari secara efektif, dan siswa juga dapat termotivasi melalui pembelajaran kolaboratif berdasarkan data survei penelitian.

**Kata Kunci:** keterlibatan siswa, analisis TPT, pembelajaran kolaboratif

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## INTRODUCTION

Collaborative learning is an activity that lecturers often use for teaching college students in an online class because this learning model provides social benefits, such as creating a positive, committed, supportive, and affectionate relationship with student engagement, social competence, and psychological health in the online class. However, this activity is often responded to passively by students at the Zoom conference. Lecture activities can be disrupted due to the passivity of students so online classes cannot be conducted effectively (Muir et al., 2019). This problem causes the researchers to investigate the appropriate teaching techniques to help students be more active in online learning. The researcher aims to evaluate students' engagement in students majoring in English at two different universities. Furthermore, the subject in this research is the English language because both of the researchers work as English lecturers on their campuses. The focus of the research is the use of teaching techniques that can increase student participation in the courses being followed.

In the era of online learning, educators often encounter some problems, namely the passiveness of students' engagement in class. Shah & Barkas (2018) stated that learning English can be carried out online using an approach that is suitable for the characteristics of the students, namely the use of well-designed educational technology and avoiding students' cognitive overload. In addition, Moreira et al. (2018) explained that students' engagement could be increased to be more active if educators can apply learning approaches that are to student needs. Furthermore, many researchers investigated whether student engagement can be influenced by student interaction and classroom atmosphere in learning English (Dwivedi et al., 2019; Schuetz et al., 2018; Soffer & Cohen, 2019). Students' engagement significantly influences student learning outcomes conducted online. This statement is supported by Jeong et al. (2020) who point out that online learning cannot be conducted effectively if the students in video conferences are passive. Educators in higher education environments must investigate effective strategies to motivate students to become better learners in response to the problems above.

Lee et al. (2019) investigated problem-solving exercises and concept map development are examples of active learning activities that can develop students' engagement. This statement is in line with the findings of Struyf et al. (2019) which state that there is an improvement in students' engagement in the application of simulation games based on the simulation-based pedagogical approach used by teachers. Meanwhile, Murillo-Zamorano et al. (2019) investigated students' perceptions of class discussions that increased motivation and learning engagement based on the application of student presentations, group work, debates, and discussions.

On the other hand, Rajabalee et al. (2020) stated that learning English can use the right learning design to motivate and involve students in achieving learning targets. Changes in the learning approach to become student-centered from the previous teacher center can increase student engagement in online classes. However, higher levels of thinking must be the focus of teachers so that student engagement can be improved and student learning outcomes.

There are limitations to the student engagement research found in previous studies, such as those (Galikyan & Admiraal, 2019; Martin & Collie, 2019; Muir et al., 2019; Rajabalee et al., 2020; Shah & Barkas, 2018; Soffer & Cohen, 2019). These researchers did not investigate the collaborative learning approach that can improve students' engagement in learning English. This limitation causes the researchers to identify the impact on students' engagement in the application of collaborative learning as the novelty of the research.

An effective strategy, such as strong content, clear structure, and high interaction, can produce high student engagement in online courses (Muir et al., 2019). There is a combination of presentation slides, lecture videos, and audio texts as an up-to-date web resource so that many students can take advantage of the advantages of online courses (Tratnik et al., 2019). There are findings that online courses can provide many benefits to students, such as up-to-date information, varied learning materials, easy access, and without being limited by distance and time (Dwivedi et al., 2019; Galikyan &

Admiraal, 2019; Jing, 2019; Soffer & Cohen, 2019). In addition, the quality of the students' engagement can be improved based on the various conveniences offered in online courses. Since the corona pandemic, many educators have used Zoom conferences as an online learning medium (Aini et al., 2021; Cheung, 2021; Khusniyah, 2020).

Moreover, the effectiveness of online learning is influenced by student engagement, so student engagement is one of the influential aspects in that students can develop their learning abilities online (Galikyan & Admiraal, 2019). Furthermore, online learning also allows students to develop independent skills to adapt to digest the learning materials that the teacher has prepared. Meanwhile, flexibility in location and time is another advantage of online learning. Learning materials can be easily mastered by students if there is high student engagement. Student engagement can help students to manage to learn effectively and produce the desired learning outcomes so that the level of student satisfaction will be even higher (Koranteng et al., 2019).

A productive pedagogic technique is found in collaborative learning and is used in a university environment based on various previous studies (Herrera-Pavo, 2021; Liu et al., 2018; van Leeuwen & Janssen, 2019). However, there are various risks experienced by educators when implementing collaborative learning in teaching students, especially if the lecture activities are still traditional (Liu et al., 2018). In addition, many researchers are also concerned about whether the topic discussions can generate bright ideas and increase student engagement (Dwivedi et al., 2019; Muir et al., 2019; Rodphotong, 2018). This problem can be overcome if educators adapt collaborative learning to be more modern, applying techniques to online courses. This phenomenon causes researchers to examine whether collaborative learning in online courses influences student engagement. Hence, what activities can open insights and discussion representations can improve student learning outcomes?

Monitoring and facilitating students working collaboratively is a primary concern of educators (Herrera-Pavo, 2021). This concern happens because the quality of collaboration is influenced by student engagement based on previous studies. Collaboration between learning techniques and high student engagement can help students achieve learning targets and develop their learning abilities (Martin & Collie, 2019). Meanwhile, the corona pandemic has caused many educators to develop learning techniques appropriate for online learning so that educators finally implement collaborative learning held online (Liu et al., 2018). These changes help students explore communication, collaboration, critical thinking, and adaptation to produce new things in learning. On the other hand, the teacher is also responsible for the learning process. The teacher must be ready to become a facilitator, provide feedback, and support students to achieve learning targets better even though learning activities are still held online.

## METHOD

The researcher aims to find the right learning techniques to increase students' engagement in online classes during the Corona Pandemic. There is quantitative and qualitative analysis in this mixed-methods study carried out in the first semester of the 2021-2022 academic year—50 students from two classes majoring in English Department at IAIN Metro Lampung and STKIP PGRI Bandar Lampung. In addition, the researchers chose those institutions as the research location because they work as English lecturers at IAIN Metro Lampung there. Both institutions have a Memorandum of Understanding as evidence of collaboration of the research project. Furthermore, the researchers have obtained approval from research subjects to obtain data about feedback and can carry out observations about students' engagement. In addition, the researchers also ask students to fill out a questionnaire about collaborative activities at the end of the semester.

The TPT Cognitive Engagement Model and Quadrant Analysis is the instrument of this research. This instrument can help the researchers to describe the important aspects of the learning activities, such as the level of cognitive participation that students invest in the virtual classroom. The evaluation of teaching activity and the mapping out of the lesson in the virtual classroom can be administered using an implementation of this model. This instrument also can improve the quality of teaching activity and enhance the analysis of drawbacks of the lesson in collaborative learning. There are four quadrants in this instrument, and each quadrant is very important in any given lesson. In summary, the purpose of implementing this instrument is to facilitate the students to get the opportunity to be immersed in the fourth quadrant.

Furthermore, the researchers also employed a questionnaire that consists of seven questions in the five-scale Likert and three additional questions in the form of open-ended questions as the other instruments in this research. This questionnaire is administered to investigate the students' engagement in the virtual classroom. The readers can read this questionnaire in Table 1 of this research. This questionnaire is delivered to the students using Google Forms so they can answer the questions using their smartphone or notebook anonymously.

There is feedback and support for the researchers involved in the peer coaching process carried out in this study. During online learning, the level of student engagement was observed by research colleagues who carried out every week so that researchers visited each other's, online classes. Online learning is carried out using Zoom conference media. The researchers analyze research subjects using the TPT Cognitive Engagement Model and Quadrant Analysis developed by Himmele & Himmele (2011).

Quadrant 3 High Cognition/Low Participation	Quadrant 4 High Cognition/ High Participation
Quadrant 1 Low Cognition/Low Participation	Quadrant 2 Low Cognition/High Participation

Figure 1. TPT cognitive engagement model

The researchers asked and hired an independent research assistant to control for bias and cross-validate findings. The TPT Cognitive Engagement Model and Quadrant Analysis were employed as research instruments so that the research assistant could observe and take notes in this process. The level of participation and cognition can be determined based on the analysis of notes that consist of the amount of time devoted to the virtual classroom based on collaborative learning strategies. Furthermore, the analysis of the calculation of time devoted to each quadrant can be conducted using the combination of the researchers' data and independent observer's notes.

During virtual classroom sessions, the researchers employed some collaborative techniques. Higher cognition and engagement can be promoted using the selected techniques based on analysis of the previous research (Himmele & Himmele, 2011). Moreover, the researchers administered the surveys at the end of the semester. There is a 5-point Likert scale for the items used in this survey that consists of seven questions and three open-ended questions as the additional instrument. The affective, cognitive, and behavioral domains are the objectives of the questions in these surveys. There are three categories of virtual classroom engagement based on the idea of (Muir et al., 2019). The student's attitude towards the teaching activity, such as the interesting topic can be measured using affective engagement. Furthermore, Bloom's taxonomy degrees of creativity, evaluation and analysis focus on a higher-level understanding of the materials that can be achieved in cognitive engagement. Last, the "on-task" behaviors focus on behavioral engagement. The students' self-assessments and teacher observations can be utilized to measure those areas.

## RESULT AND DISCUSSION

### Result

#### Student engagement ratings

During online learning activities, students' engagement is measured and observed through a peer coaching process. Each researcher member joined a virtual class in the Zoom conference. Meanwhile, the researchers used the cognitive engagement model and TPT Quadrant Analysis developed by Himmele & Himmele (2011) to analyze these findings. There is bias control by an independent observer to observe each online class. The independent observer recorded the researcher's instructional time in each quadrant. There are 90 minutes in each quadrant for four class periods as a percentage of the total time due to observations. Class A is from STKIP PGRI Bandar Lampung, and Class B is from IAIN Metro Lampung.

Table 1. *Quadrant Analysis Results for Class A*

Quadrant Analysis	Number of Percentage of The Students
Quadrant 1	6%
Quadrant 2	9%
Quadrant 3	14%
Quadrant 4	60%

Table 2. *Quadrant Analysis Results for Class B*

Quadrant Analysis	Number Percentage of The Students
Quadrant 1	6%
Quadrant 2	12%
Quadrant 3	18%
Quadrant 4	64%

Based on Table 1, there is 74% of students' engagement levels in quadrants three and four in the analysis of class A. Meanwhile, 82% of the time is divided into quadrants three and four of students' engagement in class B based on Table 2. Low participation and high cognitive are descriptions of quadrant three. Not all students participated actively based on the researcher's findings even though the activities had been designed for high cognition when the class time was spent in that quadrant. On the other hand, there is high participation and high cognition in quadrant four. The learning material explained by the teacher is discussed by students in pairs or small groups so that student participation can increase in collaborative activities during class time spent.

Problem-solving exercises and concept map development are activities in quadrant three based on class event analysis. Not all students actively participate because the two activities get third place. There is a finding that the dominant student will take over the class activities during this activity. In addition, some students behave passively and only agree to the decisions of the dominant students. This statement is supported by Yüksel (2006) who stated that the dominant students could influence the decision of passive students.

Furthermore, there are debates, group work, presentations, and game simulations in the quadrant four categories. Meanwhile, there is full participation and high-level thinking in debate and group work activities. In group work, students were given a topic to develop the topic into an essay. Meanwhile, other groups can provide feedback and evaluation so that the work of their friends can develop. Each student will record any feedback from other groups. Next, the group revised based on the feedback from other students. However, students can argue if the ideas given by their friends cannot be accepted. All students are actively involved in this activity to be individually responsible for the assignments given by the teacher. Therefore, collaborative learning as the model above can make students more active in teaching-learning activity (Nokes-Malach et al., 2015).

Debate techniques can also be applied in teaching writing. In this activity, students get some questions they must carry out preliminary research, synthesis, and evaluation. Next, they can develop a text based on the question. The final text can be published to the e-learning media, and other students can deliver opposing arguments based on the writings of their friends. The researchers found high participation and high cognition of students in this activity. This finding is like the previous research who stated that debate technique can improve the student's participation and cognition (Mokhtar et al., 2020).

Moreover, there is a need for analysis, synthesis, and evaluation in presentation activities where students must respond individually to questions given by the audience. Students can write about a topic given by the teacher and convey the contents of the text through a presentation. Educators can provide feedback and a question to participate actively and improve their high cognition. It was found that students were very enthusiastic when answering questions and responding to feedback from teachers in this activity. Pollock & Harvey (2011) stated that presentation activities as one of the abortive activities could improve students' enthusiasm and participation in the classroom.

Game simulation is an activity where students must describe a word in English, and other students must guess the word. The key into the simulation game is the ability to write student

descriptions. If the student's ability to write descriptions is good, other students can guess the word in question. Another previous research showed that game simulation is the right activity to develop students' high participation and cognition (Annetta et al., 2009).

In summary, the two research classes are in quadrants three and four so that the two different classes show the same level of involvement. This phenomenon happened because student participation showed a high category due to extensive dialogue on the topic of using activities, according to the researchers' findings. Students' engagement can be analyzed accurately using peer-coaching techniques. However, there is a drawback in peer coaching, namely that researchers have experienced errors when observing their class. The error is that the researchers believe that all students can have high cognition and high participation. This problem can be overcome by asking independent observers to help control the bias of research findings. Student participation and cognitive abilities can be observed in detail if there are independent observers who participate in observing the research sample.

### Student surveys

There are similar results for both classes based on the analysis of survey questions (see Table 2). Moreover, the researchers found a positive interpretation of one or two responses on the Likert scale. Meanwhile, each question was responded to positively by the percentage of students in the report.

Table 3. *Student Survey Results*

Question	Class A	Class B	Engagement Type
1. Collaborative activities helped me to understand the content.	82%	79%	Cognitive
2. Collaborative activities made me want to participate more.	72%	64%	Affective
3. I took careful notes during class	76%	62%	Behavioral
4. I connected new learning to the information I already knew.	90%	88%	Cognitive
5. I identified key information from reading assignments	78%	80%	Cognitive
6. I asked questions in class	64%	70%	Behavioral
7. I contributed to class discussions.	76%	78%	Behavioral
N = 50			
Open-Ended Question			
Question	Class A	Class B	Engagement Type
8. Describe additional information about how collaborative activities helped or did not help your learning.	82% Positive	78% Positive	Affective
9. What motivates you to learn content materials from class the most?	56% Internal 44%	42% Internal 58%	Affective
10. What do you think gets in your true learning?	Pedagogy Life	Pedagogy Life	Affective
N = 50			

The measurement of the level of cognitive involvement is in questions one, four, and five based on the categories determined by the researchers. Question 1 was responded to positively by 82% of class A students. In comparison, 79% was the percentage of class B's responses which indicated that the learning materials could be understood easily by implementing collaborative activities. In addition, previous learning can be linked to the new material in the fourth question, 90% of A's responded to it, and 88% of B's responded positively. Meanwhile, students' ability to identify key information from writing activities had similar results, namely 80% in class B and 78% positive responses in class A on question 5.

Next, the researchers discuss the level of affective engagement. The level of student

participation that collaborative grouping activities can influence is the content of the second statement. 64% responded positively in Class B, and 72% in Class A responded positively. The questionnaire has three open-ended questions. The first question responded with 78% positive in Class B and 82% positive answers in Class A. Readers can read table 3 for details on the positive and negative comments typical for this question.

Table 4. *Student Comments on Question 8*

Positive Comments	Negative Comments
There are various positive impacts of collaborative activities, such as being able to express bright ideas and get support from group mates.	Group friends help me answer questions, making learning activities less interesting.
Collaborative activities help me develop ideas so they can be conveyed perfectly in class.	There was ineffective communication in our group, so I was not helped by collaborative learning.
The best answers can be conveyed based on the exchange of ideas in collaborative learning.	The method is boring because it only repeats itself

The responses to the second question in Table 3 consist of collaborative group work, reviewing material through various class group activities, talking with others, and activities involving instructors and colleagues to become teachers in the future. The responses related to pedagogy and internal motivation are the two main categories of respondents' responses. Some responses explain that students' future careers are influenced by strong learning motivation.

Meanwhile, teaching methods and instructors are two factors that act as student learning motivation based on other responses. The findings show that 44% are categorized as motivated by the teacher, and 56% are categorized as internally motivated in Class A. Meanwhile, 58% are motivated by the teacher, and 42% are intrinsically motivated in Class B. The last question has various responses, including too many classes, home life, and limited time representing personal problems. However, "learning by doing" allows students to carry out collaborative activities based on several student responses.

## Discussion

According to the researchers' findings, student participation showed a high category due to extensive dialogue on using activities. In addition, the researchers found that the two research classes are in quadrants three and four. Hence, the two classes show the same level of involvement in implementing collaborative learning. Martin & Collie (2019) stated a change in the learning system where students act as learning centers and teachers only act as facilitators in collaborative learning. There are obligations and responsibilities that students must become active learners. The aim of becoming better learners is the focus of the problem investigated in this study. This goal can be achieved if students develop engagement in teaching and learning activities (Nkomo et al., 2021).

Raes et al. (2020) explain that the responsibility of educators is to teach, while students have the responsibility to learn. It was found that the problem was closely related to the responses to question nine in the student survey. Internal encouragement is something that affects students' motivation to learn. This statement causes the researcher to examine the reasons for learning that students have in both classes. Based on in-depth analysis, various students' study hard to become civil servants after graduating from college based on observations in two research classes.

The desire to learn for the future is an example of the ideas expressed by Raes et al. (2020) that there is a change in the role of students, namely, students are aware that their task is to learn to achieve their goals. However, this intrinsic motivation is not only found in non-traditional students. The internal drive to learn was also found in traditional students based on the researcher's findings.

The learning methods commonly used by the researchers can be changed based on the analysis findings of the TPT Cognitive Engagement Model. Learning by forming small groups, lectures by sharing screen material on Zoom conferences, asking questions, and showing videos are common things researchers do when teach students. These various activities are carried out to participate in writing learning activities. However, the study findings show that these activities are only in quadrants one and two compared to quadrants three and four. The ability to apply to learn, demonstrate understanding and

remember information in concrete situations was the goal of previous research activities. It causes the involvement of all students at a higher level of cognition is the focus of the researcher based on the findings of the total participation technique (Oleas & Andrade, 2021).

Moreover, the survey data shows that most students feel that learning materials can be learned easily through collaborative activities. This statement is in line with the findings of (Dwivedi et al., 2019; Koranteng et al., 2019; Martin & Collie, 2019; Soffer & Cohen, 2019), which explains that learning materials can be understood by the high motivation of students obtained from collaborative activities.

## CONCLUSION

In summary, the researchers found that the two research classes are in quadrants three and four, so the two classes show the same level of involvement. This phenomenon happened because student participation showed a high category due to extensive dialogue on the topic of using activities, according to the researchers' findings. Students' engagement can be analyzed accurately using peer-coaching techniques (Ma et al., 2018). However, there is a drawback in peer coaching, namely that researchers have experienced errors when observing their class. The error is that the researchers believe that all students can have high cognition and high participation. This problem can be overcome by asking independent observers to help control the bias of research findings. Student participation and cognitive abilities can be observed in detail if there are independent observers who participate in observing the research sample (Aguillon et al., 2020).

In addition, the survey data shows that the learning materials can be understood effectively based on the motivation obtained in implementing collaborative activities. As an extension of this research, there is a study examining the relationship between student engagement and academic achievement for further exploration.

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