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USING MENTIMETER IN ACTION RESEARCH TO ENHANCE STUDENTS' ENGAGEMENT IN ONLINE LEARNING

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Abstract

In online learning, improving student participation in English as a Foreign Language (EFL) classes is still a growing concern. Fortunately, several studies have demonstrated a favorable relationship between using technology to increase student engagement. This action research study investigated the effect of using a mentimeter on student's engagement in online learning. The study used a participatory classroom action-research approach to enhance student engagement. The participants were 22 second-year-undergraduate students, consisting of 7 males and 15 females. Findings revealed that engaging students in engaged discussion enhances their engagement and achievement in the word cloud and open-ended questions model using a mentimeter. The students gave positive responses after being taught by using a mentimeter. The findings support the enhancement of the students' engagement in an EFL learning context and suggest useful implications for educators.

Keywords: *action research, Mentimeter, online learning, student engagement*

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Introduction

Online learning has become more and more prevalent in modern educational settings, which has significantly changed the educational landscape in recent years. It has become a popular platform in the ever-changing educational landscape because it is flexible, accessible, and without having to arrive at the appointed time (Niu et al., 2023). Many educational institutions develop it for learning activities. In higher education level, it becomes one of the real forms that proved effective in the implementation of learning (Wang et al., 2023) and both lecture and students have their respective roles (Putri Anzari & Pratiwi, 2021).

The transition to virtual classrooms, while offering unprecedented opportunities for flexible learning, has not been without its challenges, particularly concerning student engagement. Student engagement is one of the factors that can influence the success of the teaching and learning process in online learning (Mafulah & Cahyono, 2023). Online participation plays an important role in online learning success. In a similar vein, interaction is a crucial contextual component that can influence people's internal elements and encourage students to actively participate in online learning activities (Zhang et al., 2023).

There are several obstacles to long-term involvement, including technology distractions, a deficiency of in-person interaction, and the lack of immediate feedback. Examining these concerns becomes essential as we delve into the intricacies of online learning. The researchers also encountered the same problem as had been shown. Based on the preliminary study done in one local university in Indonesia, there were some problems faced by the lecture in online learning, they are: behavioral engagement often seen that the students have low participation in online learning, the students lack participation in the class, they joined the class but like to keep silent, most of the students like to close their camera and become the listener only. The lecture used Zoom Cloud meetings and PowerPoint as media to explain the material. In delivering the material, the lecturer asked the students' opinions and only a few students gave responses orally. It seems difficult to have all students participate in the class. Students might feel more comfortable within the confines of their homes, leading to a tendency to remain silent or keep their cameras off. Shyness or introversion could also be significant factors inhibiting contributions during class discussions.

Understanding those tendencies, instructors or class facilitators can foster a supportive atmosphere in the virtual environment. This may involve adopting a more personalized approach, providing additional support to introverted students, or creating opportunities for them to participate in

more comfortable ways, such as through chat or online forums. By doing so, it is anticipated that students who may feel more reserved or shy will feel more supported and encouraged to contribute and engage actively to the online learning experience.

Student engagement stands as a cornerstone in the edifice of effective education, playing a pivotal role in shaping the learning process and influencing academic outcomes. According to Farizka and Cahyono (2021), higher education institutions have demonstrated a consistent commitment to encouraging students' learning engagement by implementing significant innovative tactics that provide fresh approaches to imparting new knowledge. Research demonstrated that when students actively participate in their education, they enhance their learning outcomes, communication abilities, focus, and acquisition of life skills (Banihashem et al., 2022) and affect the success of the teaching and learning process (Mafulah & Cahyono, 2023).

As stated by Panhwar and Bell (2022), there is strong evidence that the achievement of academic goals depends on student engagement. It comprises behavioral engagement, which pertains to students' participation in class. Emotional engagement is associated with students' positive feelings toward certain individuals in the school environment, while cognitive engagement involves a readiness to tackle challenging concepts, comprehend them, and persevere in learning challenging abilities. Since digital technology is now a necessary component of learning, engagement is a crucial component of instructional assessment and effectiveness improvement. In particular, it pertains to how students interact with one another in the classroom and what can be done by students, educators, and educational institutions to enhance and encourage student engagement (Lim et al., 2022).

Facing those problems, the researchers need to have a strategy to solve them. The strategy concerned can be the use of media and relevant learning methods in online learning. Mentimeter is a digital media in learning that can accommodate the interaction between lecturer and students. Mentimeter is a student response system (SRS) that can be used by students through mobile devices (Mohin et al., 2022). Mentimeter is using URLs included in presentation slides to collect quick replies (Carter, Andersen, Stagg, et al., 2023). Mentimeter has special differences from other SRSs as Pool Everywhere and GoSoapBox. They offer a wide range of question formats, but among them, they have different capacities for the participant. Pool Everywhere limits the number of participants to 25, and GoSoapBox to 30. It is less than most class sizes. While Mentimeter does not have limitations to the capacity. An outline of Mentimeter's capabilities and possible applications is given in this technological assessment (Moorhouse &

Kohnke, 2020). In using Mentimeter instant online SRS, we can go to www.menti.com by inserting a special code given by the application or we can scan the QR code that has been provided by the presenter. We do not need to download the application, both software and data are hosted in the cloud (Pichardo et al., 2021). Mentimeter is a significant advancement above earlier audience participation technologies. Additionally, it goes beyond more modern methods that provide students clickers to record their answers to questions at the beginning of a lecture (Mayhew, 2019). Using an electronic system or tool can increase the involvement and engagement in anonymity, which is not available in traditional conversation. It also helps to actively engage students (Wong & Yunus, 2020).

Mentimeter is one of the platforms that is mainly used in higher education to convey the lecturing of the theoretical sessions in courses to more engaging and interactive discussions (Ranjbaran et al., 2023). Mentimeter aids students in keeping their focus by encouraging greater engagement in the teaching and learning process (Mayhew, 2019). One of the examples suggested by Ranjbaran et al. (2023), stated that with the ability to respond to digital questions using their phones, students can undoubtedly create a more inclusive learning environment. Mentimeter is one of the supporting technologies included in online learning which gives a chance for participants to engage with digital tools (Carter, Andersen, Turner, et al., 2023). In addition, using a mentimeter is one of the possible tools in a digital activity that can improve student engagement.

Mentimeter works extremely well with a multiple intelligences-based teaching strategy. Classes become more fun as a result of the variety of questioning contexts that allow different learning styles of students to be addressed. Mentimeter allows for more sophisticated participation because it goes beyond a simple question "thrown out" in the classroom. Instead, it is the outcome of careful consideration of the best question type and format for each learning objective, whether it be quantitative (multiple choice, ranking, scales, and quizzes) or qualitative (word clouds and text open-ended questions) (Pichardo et al., 2021). Mentimeter has some features and has different applications. The features adopted by Mohin et al. (2022) are as follows:

Table 1. The features of mentimeter and their applications

Features	Applications
Multiple Choice	Multiple choice questions with or without image; formative assessment; enhancement of students' engagement, active learning, and enjoyment.
Image Choice	Aid visual learners according to the VARK model
World cloud	Emphasize the most common words submitted by the students in real-time
Quiz	Engage students in fun and learning-intense competition
Scales	Evaluating the teaching activity with the learning environment
Questions from the audience	Evaluate the lecture
Who will win?	Test and develop knowledge of the students from an instructor, reinforce, students' learning. It promotes gamification in lectures, energizes the students, and motivates them. Additionally, it supports the Behavioural approach to learning
Quick slides	Lecture presentation

Some previous studies related to enhancing students' engagement by using a mentimeter are as follows: The first study by Mohin et al. (2022) stated that it could make the learning atmosphere in the classroom more interactive, engaging, and inclusive using a mentimeter. The result of the research said that using Mentimeter has a positive impact on students' attitudes and performance, learning environment, and technical aspects. Second, research done by Moorhouse and Kohnke (2020), mentimeter offers several pedagogical advantages for EAP/ESP classrooms, such as boosting engagement and interaction, asking for feedback, and formatively assessing student understanding. By incorporating student ideas, educators can organize their lessons around their interests and boost student engagement while fulfilling particular ESP/EAP pedagogical objectives.

Third, another previous study, Vallely and Gibson (2018), stated that Mentimeter invites students to use their mobile devices to participate in conversations and debates. It makes it possible to receive anonymous, prompt feedback on both quantitative and qualitative questions that are asked during a teaching exercise. Fourth, another research done by Sari (2021) indicates that Mentimeter has a noteworthy effect on students' participation in English language learning through opinion-sharing and discussion exercises. It was demonstrated by the fact that student involvement rates exceeded the average contribution of Mentimeter participants, coming in at 82% and 91%, respectively.

The next study by Pichardo et al. (2021) shows that a mentimeter is used by students to enhance their participation, engagement, gamification, focus, and attention in traditional classroom settings. It also facilitates their involvement and promotes inclusivity in virtual learning environments. The following study done by Mayhew (2019), mentioned that a mentimeter enhances opportunities to reformulate passively. It enables teachers to

implement an active, student-centered pedagogy and, in doing so, has the potential to improve discipline-specific attention, engagement, motivation, peer learning, and accomplishment.

From those previous studies, the mentimeter is very crucial to be used in teaching, especially for enhancing the students' engagement. There are some beneficials had by mentimeter and it can make different with others. First, it is easy to use. Mentimeter's user-friendly interface simplifies the creation of interactive presentations and activities, enhancing ease of use for both educators and students. While others may pose learning challenges, requirinf additional time for educators and students to master interactive content creation and participation. Second, it has diverse question type. Mentimeter's diverse question types (multiple choice, open-ended, word clouds, quizzes, and many more) enable educators to create enganging content for various learning objectives. While others come tools may limit question types, affecting the variety of interactive activities in lessons. Both beneficials from the mentimeter can be something important for the reseacrhers to decide it to use in this research. Those studies did not show that mentimeter had been used in online learning activities, so it is necessary to test the timetable in online classes. With the limitations of online learning, mentioned in the preliminary, it is expected to increase students' engagement in learning activities.

Regarding the previous studies, the mentimeter is one of the media that can solve students' engagement problems. Mentimeter is a digital media in learning that can accommodate the interaction between lecturer and students. Based on Vallely and Gibson (2018), three multi-disciplinary strategies can be supported by mentimeter to engage students: gauging opinion, engaging discussion, and voicing concerns. In this study, the researchers focus on applying a mentimeter in online learning to enhance students' behavioral engagement that focuses on engaging discussion. To this end, the action research was carried out to answer the following questions:

1. How does mentimeter enhance engagement among EFL students in online learning?
2. To what extent are there any significant differences in EFL students' achievement after being engaged by using a mentimeter in online learning?
3. How do the students feel after being engaged by using mentimeter in online learning?

Research Methods

This section discusses the methodology. It consists of several subsections: design, participants, instrument, procedures, and criteria of succes.

Design

Following the review of the literature, we decided to implement an action research project to know the effect of using a mentimeter to enhance student engagement in online learning. This study used participatory classroom action research. We hoped that our findings would add to the body of literature on teaching and assessment. The action research study can provide some useful contributions to the reformation of teaching practices, especially online learning, and was inspired by several personal and educational values that action research promotes, such as engaging in the form of discussion.

Participants

The participants, who took part in this study, were 22 second-year-undergraduate students of Hasyim Asy'ari University, the local university in Indonesia, consisting of 7 males and 15 females. Students enrolled in this course met virtually via Zoom cloud meeting for a month.

Instrument

The instrument used is a mentimeter, test, and questionnaire. The mentimeter type used in this study is a word cloud and text open-ended questions. The test is an essay in the form of pretest and posttest. The questionnaire is an open-ended questionnaire that talks about students' feelings after being engaged by using mentimeter in online learning.

Procedures

To enhance students' engagement level, we used cyclic action research with different research instruments over a month. We implemented a design framework to carefully monitor and measure the impact of the interventions in two cycles, preceded by pre-cycle and post-cycle (see Figure 1). We set a scaffolded operational framework to develop the existing teaching practices and learning-related issues. Specifically, we identified a teaching framework in which the word cloud model and text open-ended model in mentimeter were employed in two cycles to enhance students' engagement, collected and analyzed data before and after each cycle. The following subsections describe the procedures we used in each cycle, all of which were based on the action research concept that our students and their cognitive and feeling are our most important data.

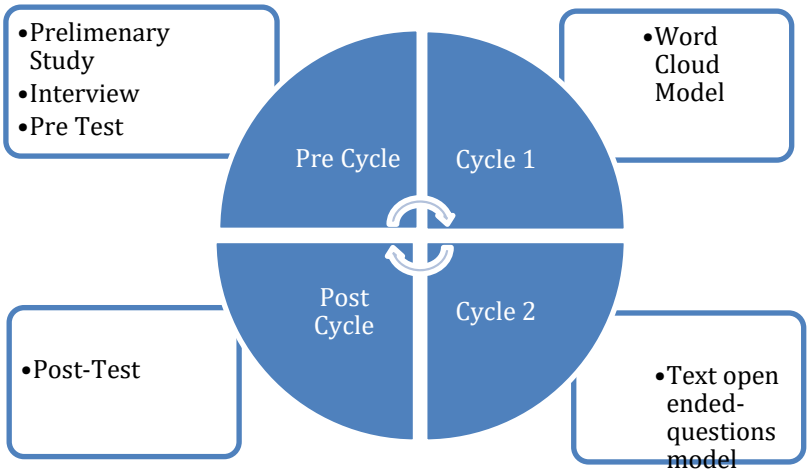

Figure 1. Operational Framework of the Action Research

Criteria of Success

The determination of criteria of success is a crucial and deliberate process in the field of action research. Selecting these parameters is similar to establishing the course for the whole research expedition, pointing researchers in the direction of significant discoveries and significant results. The selected criteria function as a benchmark for evaluating the efficacy and pertinence of the study intervention. These standards not only clarify the study's aims and objectives, but they also serve as a foundation for assessing how well those aims and objectives were met. This study needs to have criteria of success to be the standard of improvement. First, for the students' engagement, the criteria are there is the development of students' participation in each meeting. Second, for the students' cognitive we decided the criteria that 80% the number of the students get 70 scores for their test. Third, regarding the students' feelings after using the mentimeter 80% the number of the students had positive responses.

Results and Discussion

Result

Preliminary Study

In alignment with the action research procedures, we opted to understand the students during the preliminary study by having an interview during the lecture and doing a pre-test to know the students' cognition. First, we interviewed the lecturer about the condition of online learning. During the interview we found several problems faced by the lecturer, they are: behavioral engagement often seen that the students have low participation in online learning, the students lack participation in the class, they join the class

but like to keep silent, most of the students like to close their camera and become the listener only. The lecture used Zoom Cloud meetings and PowerPoint as media to explain the material. In delivering the material, the lecturer asked the students' opinion of the picture given and only a few students gave responses orally. It seems difficult to have most students participate in the class. Second, we gave a pre-test to know the students' prior knowledge of the topic discussion. It is about describing an art. We gave a picture and asked the students to create a paragraph description based on the picture. The result of the pretest showed only 41% of the students had 70 scores or only 9 students of the whole class. The result of the pretest is as follows:

Table 2. The result of pretest (= 22)

The Students	Score	The Students	Score
Students 1	65	Students 12	70
Students 2	62.5	Students 13	72.5
Students 3	70	Students 14	70
Students 4	62.5	Students 15	60
Students 5	70	Students 16	65
Students 6	65	Students 17	65
Students 7	67.5	Students 18	55
Students 8	70	Students 19	70
Students 9	70	Students 20	62.5
Students 10	62.5	Students 21	75
Students 11	60	Students 22	65

These findings, in addition to our aforementioned observations of the discussion prompts, inspired us to introduce the mentimeter to the students to enhance their engagement, achievement, and positive response in their feelings dealing with the use of mentimeter, word cloud, and open-ended questions model, in online learning.

RQ 1: How does a mentimeter enhance engagement among EFL students in online learning?

Cycle 1: Using Mentimeter by using a word cloud question model

This cycle involved engaging students through a mentimeter (word cloud model). In giving the treatment, after discussing the materials included, we asked students to comment on at least 3 words that show the best words to describe the image given. Regarding the topic of describing art, we gave four images to be discussed. At this meeting, we were focusing on excavating the vocabulary that students own. In each image given, students were asked to write three words that could describe the image. The students were very enthusiastic about submitting three vocabularies into the mentimeter application. Each student could see the results of his writings and could also

see the writings of their friends. After the text was sent and read on the mentimeter, the lecturer commented by reading and called the student concerned to ask about the meaning of the written vocabulary. From this activity, students could learn from the experience of their friends. Students could also add previously unknown vocabulary from the result of other friends' vocabulary that has been sent to the mentimeter. The lecturer gave a commentary on all the vocabulary that had been sent to the mentimeter, so there was an active interaction between the lecturer and the student. In addition, other students can add knowledge about new vocabulary related to the image. In the first image (See Figure 2) student participation is quite high. 68 words have been sent, 44 in word form and 22 in phrase form. It shows that students are very enthusiastic about commenting with ease using a mentimeter application. In the second image, the lecturer gave a similar activity to the previous one: digging students' prior knowledge of vocabulary into a mentimeter. The result of the vocabulary that has been sent to the mentimeter is a total of 70 words consisting of 46 word-shaped words and 24 phrases (See Figure 3). Compared to the previous image the vocabulary produced more. It means the students are becoming more enthusiastic about the activities that have been given by the lecturer.

Figure 2. Students' participation in Mentimeter (image 1)

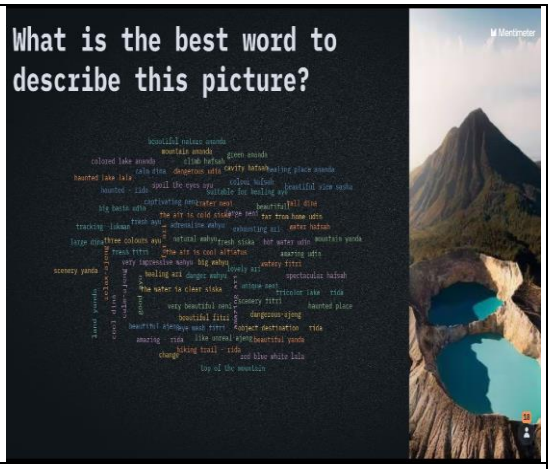

Figure 3. Students participation in mentimeter (image 2)

On the third image, the lecturer gave a new image related to the description of art. The results obtained using a mentimeter showed that there were 76 resulting vocabularies consisting of 46 word-shaped words and 31 sentences (See Figure 4). Total generated vocabulary indicates an increase in the number of vocabularies compared to the previous image. In the last picture in cycle 1, the lecturer gives the same activity as in the previous picture. The results showed a total of 80 words submitted by

students consisting of 52 words and 28 phrases. The results show an increased student participation in ongoing learning (See Figure 5).

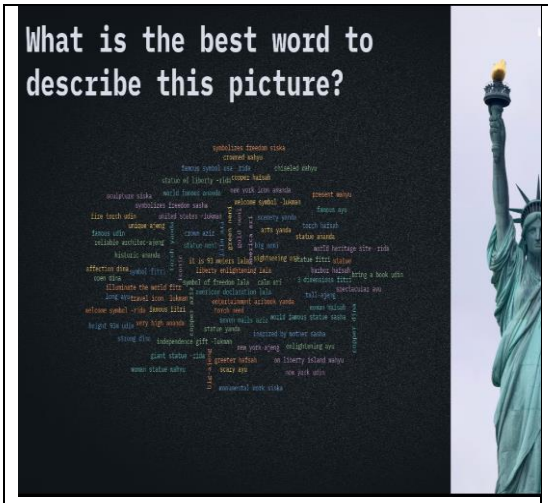

Figure 4. Students' participation in the mentimeter (image 3)

Figure 5. Students participation in mentimeter (image 4)

The explanation above indicates that the learning activity using mentimeters has seen a significant increase in student participation. This is demonstrated by the increased participation of students that is constantly increasing in each given picture. For more clarity, the increase in students' participation can be seen through the following table and the diagram (See Figure 6):

Table 3. Students participation in cycle 1

Image	Students' Response in a word	Students' Response in a phrase	Total Students' Response
Image 1	44	22	68
Image 2	46	24	70
Image 3	46	31	75
Image 4	52	28	80

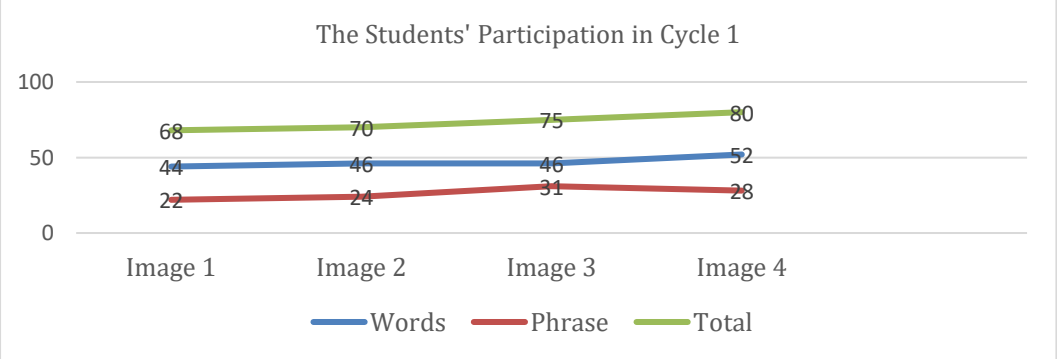

Figure 6. The diagram of students' participation in cycle 1

The diagram above shows a significant and regular increase in student participation from the first image to the fourth. In the first image, there are a total of 68 generated vocabularies, on the second image there is a total of 70 generated vocabularies, in the third image there were a total of 75 generated vocabularies, and in the fourth image, there have been a total 80 produced words. From these results, it can be concluded that the use of a mentimeter, a word cloud model, can improve students' engagement in online learning activities.

Cycle 2: Using Mentimeter by using an open-ended question model

In this cycle, researchers provide learning activities using an open-ended question model to determine students' participation. In cycle 1, researchers focus on vocabulary that can describe an image, but in this cycle, they focus on the student's ability to make simple sentences related to the image presented. Here are the results of student participation in the use of a mentimeter in this cycle.

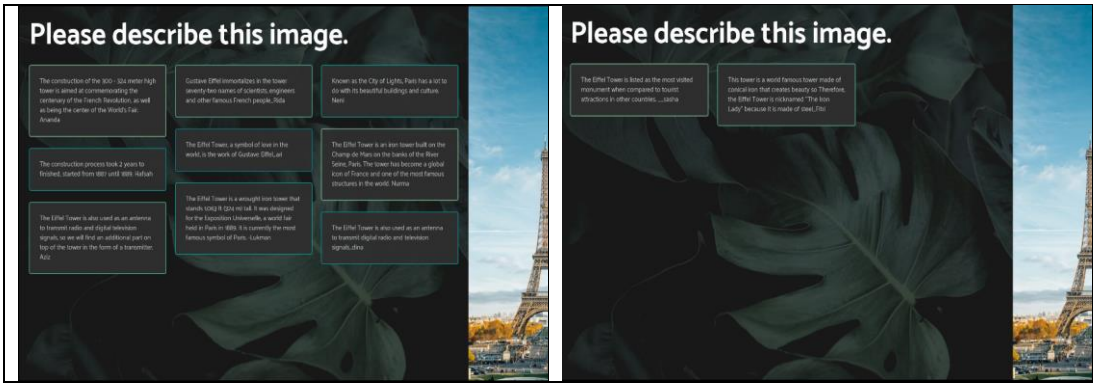

Figure 7. Students' participation in mentimeter (image 1)

The picture above shows the metric results of cycle 2. The instructions given by the lecturer are "Please describe this image", which means that students are asked to make simple sentences related to the image presented. Student participation results showed that 11 students had already participated submitting answers to the question.

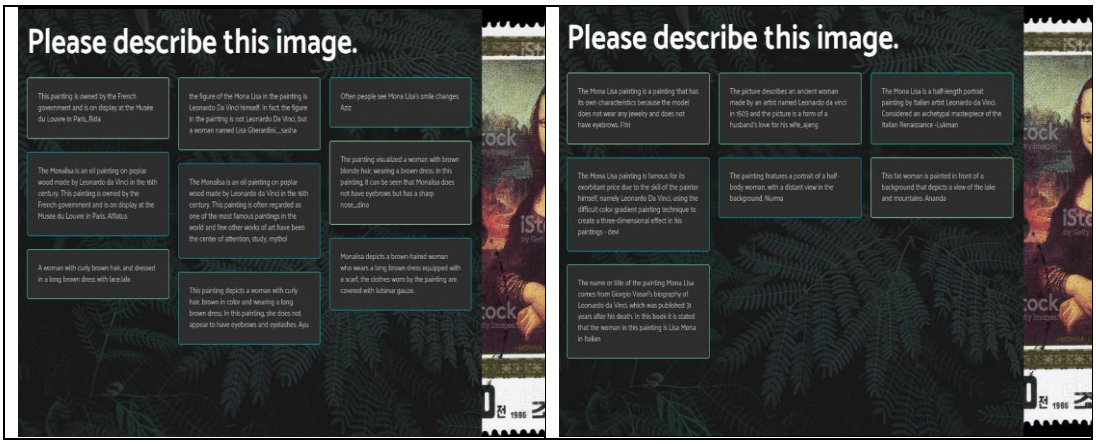

Figure 8. Students' participation in mentimeter (image 2)

The picture above shows the Mentimeter results on cycle 2. The instruction given by the lecturer is the same as the previous image, "Please describe this image", which means that the student is asked to make a simple sentence related to the image presented. Student participation results showed that 16 students had already participated, submitting answers to the question.

The above data indicates that there is a significant increase in student participation in learning activities using the open-ended questions model, where the number of students responding to the first image in Figure 7 is 11 students and second image in Figure 8, there are 16 students. It can be concluded that the use of mentimeter can increase student engagement in online learning activities. To make it easier to see the results of increased student participation can be seen in the following diagram:

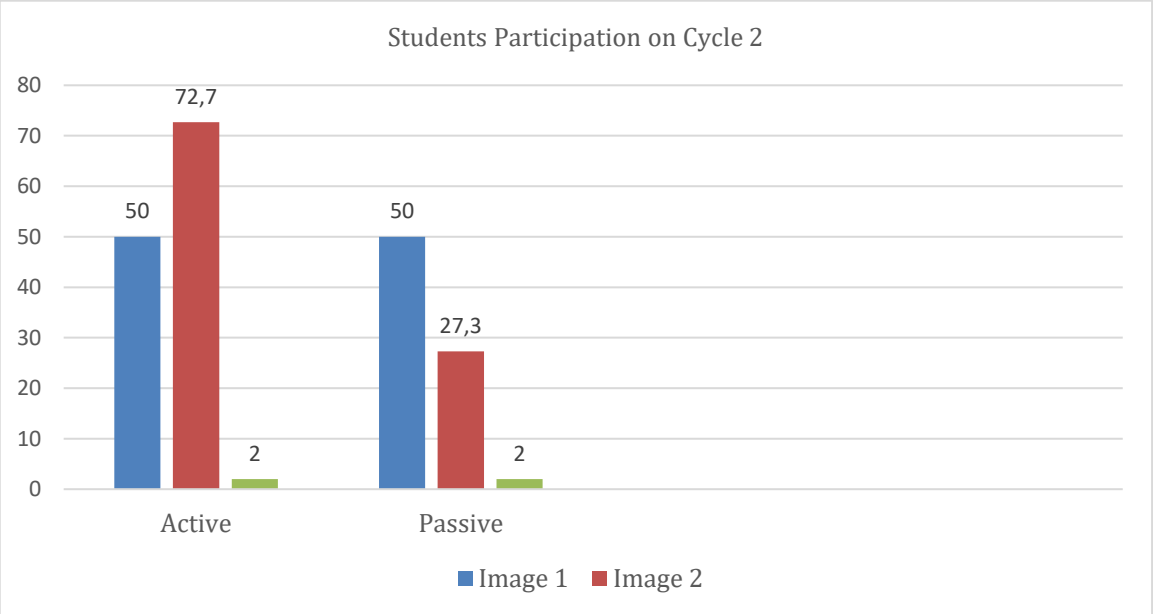

Figure 9. The diagram of students' participation in cycle 2

The above diagram shows in image 1 a comparison of students who participate actively 11 students or equal to 50% and passive 11 students, or equivalent to 50% in learning activities. However, in the second image the active participation of students has increased, i.e. 16 students are participating actively or the equivalent of 72.7% and some students are passive 6 students or similar to 27.3%. These data show a significant increase in student engagement in digesting mentimeters, and open-ended questions, in the online learning activities.

RQ 2: To what extent are there any significant differences in EFL students' achievement after being engaged by using mentimeter in online learning?

To identify any significant differences in student learning outcomes, the researchers gave a posttest related to the topics that have been discussed in learning. The posttest given is the same as the one given when the pretest. The post test is about creating a paragraph description from the picture they have. However, the difference is the image given. The post-test results are evaluated using the scoring rubric that has been specified. However, the posttest results can be seen in the following table:

Table 4. The result of students posttest (=22)

The Students	Score	The Students	Score
Students 1	70	Students 12	90
Students 2	80	Students 13	80
Students 3	80	Students 14	90
Students 4	75	Students 15	65
Students 5	75	Students 16	75
Students 6	75	Students 17	87.5
Students 7	80	Students 18	60
Students 8	80	Students 19	90
Students 9	87.5	Students 20	70
Students 10	90	Students 21	82.5
Students 11	65	Students 22	85

Based on the established criteria of success, the post-test results showed that 86% of students, or the equivalent of 19 students obtained a score of 70 or above. The results can be concluded that there is significant differences in student learning outcomes after being engaged by using mentimeter in online learning.

RQ 3: How do the students feel after being engaged by using mentimeter in online learning?

To strengthen the results of research that showed an increase in students' engagement on the use of mentimeters in online learning, researchers need to know how students feel after being treated with mentimeter. The results of the questionnaire analysis of students' feelings about the use of mentimeters can be seen in the following table:

Table 5. Students feelings about using Mentimeter

No	Statements	SA/A %	N %	DA/SD %	Total
1	I am happy to learn English online through the Mentimeter because I can access it through applications and websites	90.9	9.1	0	100
2	I think that the use of Mentimeter media is the right choice of media to use in English language learning.	81.9	13.6	4.5	100
3	I am interested in using Mentimeter media because I can use information and communication technology in the world of education.	81.9	18.1	0	100
4	I am interested in using Mentimeter media in online English learning because the features are easy to understand	77.3	18.2	4.5	100
5	I can communicate with lecturers and friends by using a mentimeter	90.9	9.1	0	100
6	Mentimeter can be a means of implementing online English learning on writing skills	77.3	22.7	0	100
7	In Mentimeter, I learned not only about learning but also about technological developments in the world of education.	77.3	22.7	0	100
8	I know how to access the mentimeter	77.3	22.7	0	100
9	There are several variations of activities to improve writing skills in Mentimeter	77.3	22.7	0	100
10	I can discuss with the lecture by using a mentimeter	77.3	18.2	4.5	100
11	The lecturer gave feedback directly related to the student's writings already submitted in the mentimeter	77.3	18.2	4.5	100
	Total	80.6	17.8	1.6	100

SA/A: Strongly Agree/Agree.
N: Neutral
DA/SD: Disagree/Strongly Disagree

The table above shows the results of students' feelings about the use of mentimeters in learning. There are a total of 90.9 % of students feel that they are happy to learn English online through the Mentimeter because they can access it through applications and websites and 81.9 % said that the use of Mentimeter media is the right choice of media to use in English language learning. After that about 81.9 % of students are interested in using Mentimeter media because it can use information and communication

technology in the world of education and 77.3 % of students are interested in using Mentimeter media in online English learning because the features are easy to understand.

Besides that, there are 90.9 % of students can communicate with lecturers and friends by using a mentimeter and 77.3 % stated that a mentimeter can be a means of implementing online English learning on writing skills. Then, there are 77.3 % of students obtained that using a mentimeter is not only about learning but also about technological developments in the world of education and 77.3% of students know how to access a mentimeter. Then, about 77.3% of students agreed that Mentimeter has several variations of activities to improve writing skills and 77.3 % of students can discuss with the lecture by using Mentimeter. At last about 77.3% of the students stated that the lecturer gave feedback directly related to the student's writings already submitted in the mentimeter. In addition, there are 80.6 % of the students shows positive feeling after using a mentimeter in online learning. The result of students' feelings is appropriate with the criteria of success.

Discussion

Works of literature have documented that a mentimeter can enhance students' engagement. In this study, we employ multiple inquiry cycles of action research design to use both word cloud and open-ended questions in mentimeter to enhance students' engagement. We also investigated the students' achievement and response after being taught by using a mentimeter as a media in the teaching and learning process.

Concerning the first research question the effect of mentimeter on enhancing students' engagement among EFL students in online learning, we observed that asking students to be active in engaging in discussion in Cycle 1 resulted in a significant increase in the number of students' participation in giving some words or phrases to describe an image. It shows the increase from one image to another. In this cycle, the students had a limitation in engaging in discussion in the form of words and phrases that came to mind in response to a prompt. The finding in Cycle 1 is different from Cycle 2, in which the students could give their responses in the form of sentences. The result showed that there is a significant difference in students' participation in engaging discussion to both images. The first image showed a half of the students participated and it increased in the second image. In cycle 2, the results of the student's responses are detailed and foster a deeper exploration of the topic. The students get the opportunity to explore making descriptive sentences based on existing images. The question models used in this research are word cloud and open-ended questions. They include participatory questions that focus on increasing students' involvement in the

discussion. Both models are the fifth best choice from the teacher perception that usually uses a mentimeter in teaching (Pichardo et al., 2021). By using both models, the student's activities can be set from simple to detailed and deeper exploration. The above explanation is in line with the theory proposed by Vallely and Gibson (2018) that engaging discussion is one of three multi-disciplinary strategies that can be supported by mentimeter to engage students.

The second research question addressed the effect of using mentimeter on students' achievement. At this stage, the researchers intend to find out whether increased student engagement can also affect increased student achievement. Findings show that the result of the post-test has significant differences from the pre-test. The pretest and the post-test given are in the essay questions. It is about describing an image written. After analyzing the result of the test, the result shows that can reach the criteria of success determined. It means the student's score can increase after being taught by using mentimeter. The result shows that 86% of the total students get a 70 score or above. The explanation above in line with the theory proposed by Wong and Yunus (2020) stated that mentimeter can assist students in achieving improved learning outcomes, such as finishing their writing assignments.

Regarding the third research question, which concerns potential variations in students' reported pleasure with the instructional media, we employ mentimeter analysis to examine the responses provided by the students to a questionnaire following their instruction. The findings show that 80.6% of students show a positive response. They are happy and interested in using a mentimeter in the teaching and learning process. They think that mentimeter is a good media that can be used to teach because the feature is easy to be used. The students feel closer to their lecturer and friends because they can get direct feedback from their lectures and see their friend's comments directly. Its finding is in line with Wong and Yunus (2020) and Moorhouse and Kohnke (2020) that using mentimeter, students can generate ideas and inadvertently, gain knowledge from each other and view one another's comments anonymously, fostering greater collaboration in the classroom and knowledge co-construction. The next finding said that mentimeter can help them to improve their writing by using a new technology. It is supported by Wong and Yunus (2020) that mentimeter can help them complete their writing task.

Overall, our reflections and findings seem to support the idea that involving students in discussions by using mentimeter can improve students' engagement. Similarly, this tendency seems to support our decision to engage in action research studies to help us demonstrate increased student participation in discussion, improved student achievement, and knowing student responses after using mentimeters in the teaching and learning process. This commitment has also helped us improve our professional practice after introducing discussions using mentimeter and assessing their impact in a cyclical manner.

Conclusion

The research findings substantiate the claim that including Mentimeter in instructional strategies can greatly improve student engagement. Mentimeter is a platform that engages students and promotes active involvement with its word cloud and open-ended questions interactive features. Visual aids like word clouds not only add dynamism to the learning process but also give teachers insightful knowledge about the student's overall comprehension.

Mentimeter integration as a teaching tool has a good effect on students' academic progress, as demonstrated by the empirical data in this study. Mentimeter's interactive features—which include word cloud and open-ended questions have shown a strong association with increased participation and engagement. Improved academic performance and achievement are the direct result of this increased engagement. One of the main reasons Mentimeter has been successful is that it can accommodate a wide range of learning preferences and styles, which enables teachers to customize their instruction to meet the needs of each student.

The student feedback that was obtained after Mentimeter was incorporated into the teaching process offers strong proof of its beneficial effects on the educational process. Students' answers have been overwhelmingly favorable, indicating that they are very engaged and satisfied with Mentimeter's interactive features.

The present study, however, may have some limitations, such as the number of interactive features in the mentimeter, the type of student engagement which focus on behavioral engagement, and the three multi-disciplinary strategies that can be supported by the mentimeter that only focuses on engaging discussion. Thus, further researchers are recommended to use other interactive features, cognitive and emotional engagement, and other multi-disciplinary strategies that can be supported by mentimeter. Probably, those can solve other problems related to students' engagement in teaching and learning process.

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