

# The Training of Online Quiz as Gamification and Assessment in Virtual Learning

<sup>1</sup> MASAGUS MHD TIBRANI, <sup>1\*</sup> SUSY AMIZERA, <sup>1</sup> KODRI MADANG, <sup>1</sup> RAHMI SUSANTI,  
<sup>1</sup> YENNY ANWAR, <sup>1</sup> ADENG SLAMET, <sup>1</sup> KHOIRON NAZIP, <sup>1</sup> NIKE ANGGRAINI

<sup>1</sup> Biology Education, Sriwijaya University, Palembang-South Sumatra

Correspondance author: [susyamizera@fkip.unsri.ac.id](mailto:susyamizera@fkip.unsri.ac.id)

## Article

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## Abstract

The COVID-19 pandemic has led to the emergence of policies regarding the transition from face-to-face learning systems to virtual ones. It impacts changes in the implementation and readiness of teachers in the learning process, especially in terms of learning evaluation. One of the teacher's efforts is to master the use of online quiz applications for valid assessment purposes. Evaluation activities are innovatively modified into gamified online quizzes to make the assessment process more fun. The structure of this service activity includes training and assistance in utilizing online quiz applications. The service activities were carried out from August 30 to October 30, 2021. The number of participants in the service activities was 44 MGMP biology teachers from East Oku Regency. The action begins with the preparation and implementation stages of training, followed by mentoring activities. This activity starts with determining the type of test and the design of the questions given in the learning evaluation activity. Furthermore, the questions are adjusted to the essential competencies in the learning activities that the teacher has prepared. The values obtained by the participants before and after the training showed an increase in participants' scores by 22.7%. The results of the pretest and posttest indicate that teachers have gained an understanding of the use of online quiz applications. This training can assist teachers in providing interactive learning evaluations to students, thereby capturing more students' attention in learning activities.

*Keywords* : Online Quiz, Gamification, Assessment, Virtual Learning, Evaluation

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## Introduction

The emergence of the COVID-19 pandemic outbreak led to a policy regarding the learning system. The learning system, which is usually conducted face-to-face, is transformed into a virtual learning system. The virtual learning system allows students to learn from home by utilizing the sophistication of internet technology. The teaching process occurs separately from the learning process, therefore, electronic media must facilitate communication between teachers and students. This new learning system has an impact on changes in the form of learning implementation and teacher readiness in preparing virtual learning process designs (Permana & Syarifah, 2021). In virtual learning, the delivery of learning material is facilitated by using the internet for both teachers and students. The interactions that occur during

learning are limited to digital spaces without face-to-face meetings. However, technological advances assisted by learning applications have greatly helped teachers in the learning process. Teachers are starting to use online learning platforms a lot to carry out student learning and assessment (Kumar *et al.*, 2021)

The provision of dynamic, conducive, and dialogic learning media is necessary for developing students' potential. It is because learning activities are carried out between teachers and students. In conveying information in the form of knowledge (cognitive), skills (psychomotor), and attitude values (affective), an intermediary in the form of learning media is needed. The learning media aims to stimulate students' thinking so that it encourages the desire to actively participate in the learning process (Lusiana & Maryanti, 2020). Good learning design, supported by proper facilities and teacher creativity, especially in using learning media, will make it easier for students to achieve learning targets. From an educational perspective, media is a very strategic instrument that also determines the success of the teaching and learning process. This success can be achieved through the process of internalizing knowledge, attitudes, skills, competencies, and accumulated learning experiences (Rahadian *et al.*, 2019).

Virtual learning systems require teachers to use electronic media using either laptops or cell phones. The availability of electronic media can support the implementation of virtual learning by utilizing technological facilities in the form of supporting applications that are already available. According to (Rahayu & Haq, 2021), technological facilities are necessary infrastructure facilities to support the implementation of virtual learning process. One of the virtual learning processes that take advantage of technology is the use of technology-based applications in the learning evaluation process.

Evaluation of learning is one way to measure and assess student learning. The results of the learning evaluation show the learning progress described and documented in a qualification framework. Since the COVID-19 pandemic, teachers must prepare the learning material and carry out the assessment process online from home. A lack of understanding of learning media, especially media for online tests, causes teachers to need clarification on how to carry out valid learning outcomes assessments. Therefore, teachers must be able to design innovative and creative media that can involve the active role of students as supporters in learning evaluation activities. Teachers can plan the learning evaluation process and use electronic media adapted to today's technological developments to optimize learning facilities. One of the efforts teachers can make to use learning evaluation media is through online quiz applications.

Based on the preliminary results of the questionnaire given to biology teachers in the East Oku district regarding the virtual learning system, it was found that 72% of teachers had not used electronic media in learning evaluation activities, and 78% of teachers still did not understand how to use virtual learning media, especially online quiz apps. So far, the teacher gives questions that students work on at home, and then students' answers are collected via WhatsApp or email. In this virtual learning system, it is difficult for the teacher to monitor the test results' validity level. On the other hand, improving the quality of teacher competence is very important to enhance the quality of learning, especially in preparing the assessment system during a pandemic. According to (Fitriyani & Astuti, 2021), training on using online evaluation in learning activities can increase teacher professionalism and help implement them in learning activities, thereby improving the quality of virtual learning. In addition, electronic-based learning training activities for teachers can open eyes to the importance of teachers' understanding of utilizing technology in learning activities to support teacher professionalism (Kurniawan *et al.*, 2021).

One of the efforts to support teacher professionalism in conducting evaluation activities during a pandemic is to master the use of online quiz applications. It is intended for the teacher to make sure that the pandemic will not be an obstacle in conducting the assessment process and to reduce student boredom in learning. Online quizzes are not only a medium for learning assessment activities but can also be an interactive medium for game-based learning. Some online quiz applications that can be used in learning are Mentimeter, Quizizz, and Kahoot. According to (Satriani, 2022), the utilization

of game-based learning evaluation media can enhance enthusiasm and dynamics in learning, especially during the COVID-19 pandemic. Interactive features in online quiz applications can increase students' interest in learning and assist teachers in learning evaluation activities.

Based on the description above, it is important to conduct training on innovation in assessing learning outcomes by using online quiz applications as gamification and assessment in virtual learning. The scope of limitation of this service activity is to provide information and knowledge to teachers on how to use online quiz applications as a medium for carrying out evaluations in the form of gamification so that the assessment process will not worry the students. The applications that will be used are Kahoot, Quiziz, and Mentimeter. In addition, the target audience to be reached through community service activities is focused on biology teachers in East Oku Regency with the aim that (1) teachers can understand the use of online quiz applications (Kahoot, Quiziz, and Mentimeter) as online evaluation media for students; (2) biology teachers in East Oku Regency can utilize online quiz applications (Kahoot, Quiziz, and Mentimeter) to give students assignments, exercises, and exams; and (3) teachers use the Kahoot, Quiziz and Mentimeter applications for their assessment systems.

### Research Method

Community service activities were carried out from August 30th to October 30th, 2021. The initial action was the preparatory stage, which continued with the training that would be conducted online on September 6th, 2021, and then proceeded with mentoring activities. The activities were carried out in FKIP Sriwijaya University. The target audience for this community service activity is focused on 44 biology teachers who are members of the Biology MGMP in East Oku Regency.

The activities carried out are community services using a problem-solving model. A solution to a problem that can answer the problem formulation is by holding training on the utilization of online quiz applications for teachers as gamification and assessment in virtual learning. The problem-solving framework can be seen in Table 1.

**Table 1**  
**Problem Solving Framework**

Current Conditions	Treatment	Expected Conditions
1. The condition of the COVID-19 pandemic, which has an impact on the online learning system, makes it difficult to monitor students in the assessment process	1. Training for teachers on the use of online quiz applications, namely Kahoot, Quiziz and Mentimeter, as a medium for creating assessment instruments	1. Teachers have the ability to carry out valid assessment processes in online learning systems
2. The majority of teachers do not understand how to use online learning media, especially online quiz applications, for learning evaluation	2. Preparation of assessment instruments through online quiz applications, namely Kahoot, Quiziz, and Mentimeter	2. Teachers have the ability to compile assessment instruments through online quiz applications, namely Kahoot, Quiziz, and Mentimeter

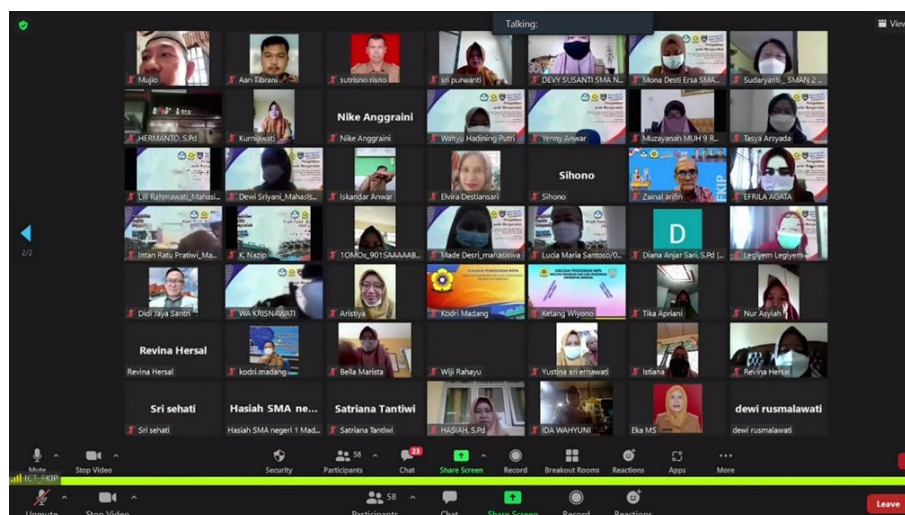
The method used in this activity includes the presentation of material and practice using online quiz applications as online test media. The training begins with determining the type of test to be given and the design of questions adapted to the basic competencies in the learning activities that the teacher has previously prepared. The next activities are training and assignments for the participants. In the context of effectiveness and efficiency, the activities are carried out in three stages: in the first stage, all participants take part in classical activities online through the Zoom meeting platform; in the second stage, all participants carry out training activities in group formations consisting of 3 or 4

people to practice making questions using an online quiz application as a test medium; and in the third stage, participants will do a simulation using an online quiz application in an online test.

Tests and questionnaires were used to find out training participants' responses and to discover the success of this training. Tests are given before the implementation of the training (the initial test examination) and after the completion of the activity (the final test). The initial test explores participants' knowledge and abilities regarding online quiz applications. The final test is conducted to determine participants' understanding and skills after counseling and training. A questionnaire sheet about the responses of the training participants was distributed to find out the results of the training's implementation.

## Results & Discussion

Community service activities are conducted from August 30<sup>th</sup> to October 30<sup>th</sup>, 2021. The activity begins with the preparatory stage, followed by the training that will be conducted online on September 6<sup>th</sup>, 2021, and then proceeds with mentoring activities. The activities are carried out at FKIP Sriwijaya University. This service activity consists of three stages: the training stage for creating online quizzes, the stage for assisting in creating online quizzes, and the stage for design evaluation.



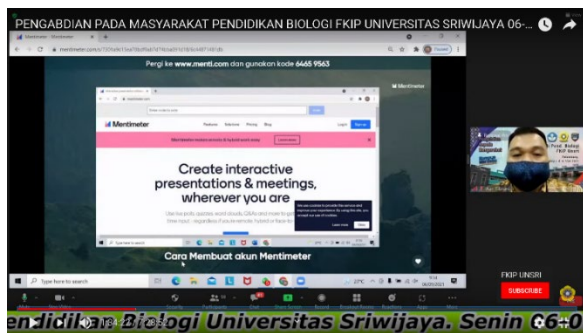
*Figure 1. Online Community Service Participants  
(Source: Personal Documentation)*

In the training activities, the material regarding online quizzes was divided into three sessions according to the types of apps: Mentimeter, Kahoot, and Quizizz. The first training material was making questions using meters. The resource person started the training by giving several surveys and polls using meters. Next, participants were taught how to make questions using a meter. Mentimeter is an online quiz application that can be used to make practice questions and presentation slides. In using Mentimeter as a gamified assessment tool, training participants were given information about the use of Mentimeter as an online quiz application. Teachers as training participants can start making online quizzes by clicking on "new presentations". Furthermore, the teacher can choose the display of question types such as multiple choice, word cloud, and open-ended questions. When the teacher assesses students using the meter, the teacher provides a link to the meter code so that students can answer the questions on the meter. In this regard, using mentimeter can be an interactive medium through direct polls so that students immediately get responses to their answers. This has implications for increasing the quality of fun in virtual learning.

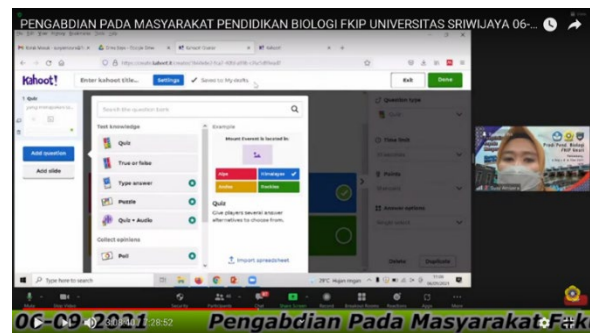


The second training material is the use of Kahoot to make questions. Kahoot is an online quiz platform that allows teachers to make questions based on teaching materials or other general material. Teachers can use this application to create quizzes or multiple-choice questions online. During the training of Kahoot as a learning assessment tool, teachers are taught about the features of making online quizzes by first creating a start button, and a way to enter the question creation page. Furthermore, the teacher can set questions and answers and the duration of time for working on the questions. The correct answer can be marked with a checklist feature. In making questions, the teacher can also insert pictures or videos. If the teacher has finished making questions using Kahoot, he or she can provide the join code to students through <https://kahoot.it/>. After the students have joined to work on the quiz that has been given, the teacher can start the online quiz by pressing the start button. This application can make quizzes more interactive, as the points students get for answering questions are based on the accuracy of their answers and the speed at which they are answered.

The third training material the resource person delivered was making online quizzes using the Quizizz application. Quizizz is a website for creating interactive quizzes that can be used in classroom learning. The Quizizz can be applied to learning evaluation activities. In addition, the Quizizz application is not only used for making quizzes but also for creating challenges and slides. During the training, teachers were taught how to use Quizizz as a medium for making online quizzes. It was initialized by accessing the [www.quizizz.com](http://www.quizizz.com) page and clicking the get started feature. Making questions through Quizizz begins with activating the Create feature, and then the teacher can make questions and answers. The quizizz application can be used with two options: play live or do homework. When the teacher conducts the assessment activity, students are asked to access [www.quizizz.com/join](http://www.quizizz.com/join) and enter the quiz code that the teacher has given before.



(a)



(b)



(c)

Figure 2. The Training Materials of (a) Mentimeter, (b) Kahoot, and (c) Quizizz (Source: Personal Documentation)

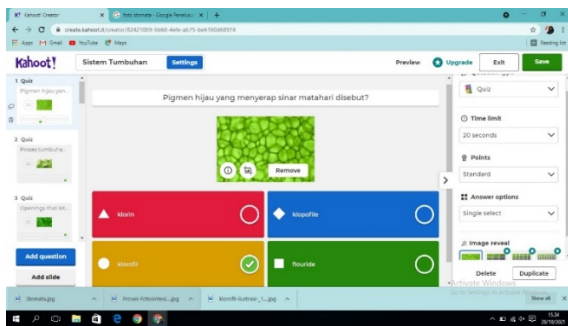
After completing the training on how to use online applications in learning evaluation, the activity continued with mentoring conducted by university students in East Oku Regency for a month until the participants were able to create online quiz products with the help of the Mentimeter, Kahoot, and Quizizz applications.

This community service activity is included in the village lecture scheme, thus it involves university students as a form of MBKM (Freedom Learning Campus Merdeka) activity. Students assist teachers in integrating questions into the online quiz application according to the lecturer's directions. In mentoring activities, students directly assist teachers in making questions of evaluation by using online quiz applications (Kahoot, Quizizz, and Mentimeter). These mentoring activities will be related to several subjects, such as learning media, learning evaluation, and computer applications in learning.

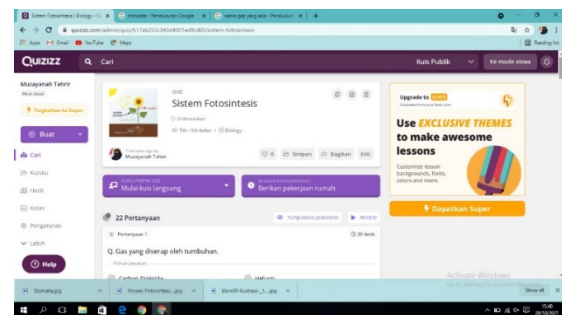


Figure 3. Students Assist Teachers in Making Online Quizzes in East Oku Regency (Source: Personal Documentation)

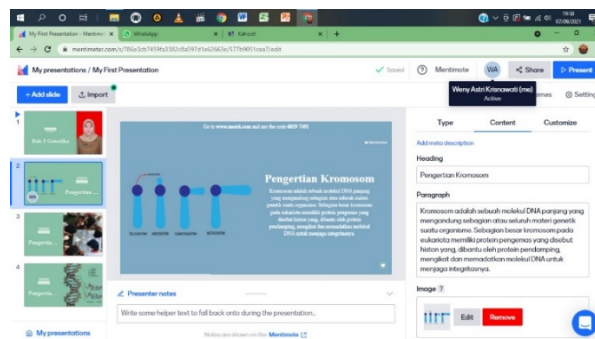
After training and mentoring activities are completed, teachers design online quiz-based learning evaluations using Mentimeter, Kahoot, and Quizizz. The results are presented in Figure 4 below.



(a)



(b)



(c)

Figure 4. The Results of Participants' Online Quiz Design on (a) Kahoot, (b) Quizizz, and (c) Mentimeters (Source: Personal Documentation)

The next stage in the implementation of community service activities is the evaluation stage, which is carried out to determine the success of these activities. It is conducted through the administration of tests and questionnaires to gauge the responses of the training participants. Tests are given to training participants to locate the differences in participants' abilities before and after mentoring activities. Participants' abilities are measured through the average pre-test and post-test scores, as shown in Figure 4.6. Furthermore, a questionnaire on participant responses is given to determine the participants' responses to training activities related to the use of online quizzes in learning evaluation.

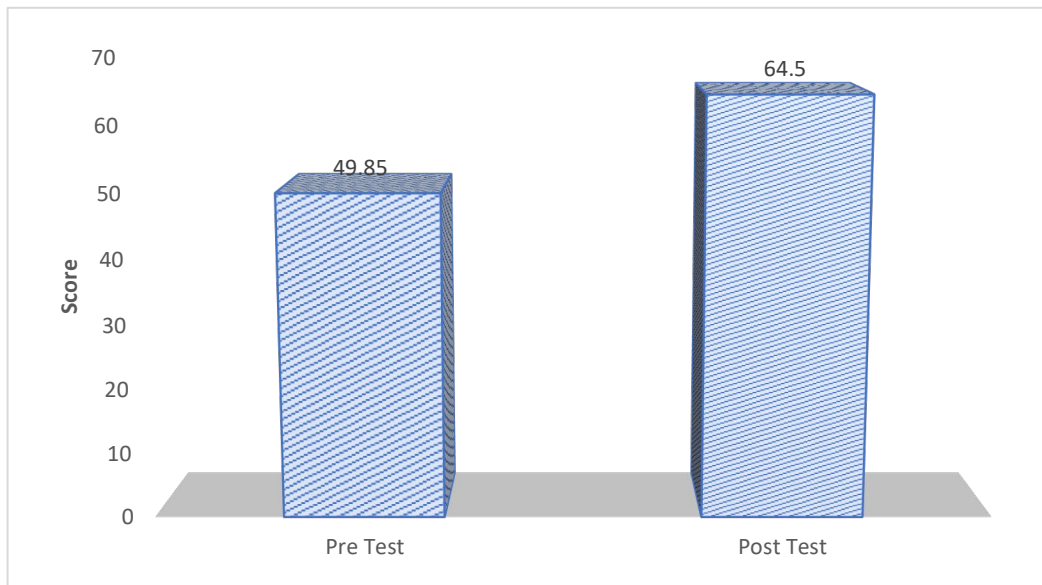


Figure 5. The Average Pre-Test and Post-Test Values of Training Participants

Based on the scores obtained by the teacher before and after the training, it can be seen that there is an increase in the teacher's score of 22.7%. These results indicate an improvement in teachers' understanding of online quiz applications in learning evaluation activities. Service activities are carried out intensively so that teachers can understand the use and application of online quizzes in learning evaluation activities. In addition, it also indicates that the stages carried out during community service activities, starting with the training stage that begins with the material delivery stage and continues with online and face-to-face mentoring activities, have proven effective. It is also in line with (Fitriani *et al.*, 2021) who find that implementing training and mentoring activities that combine online and face-to-face methods is more effective in increasing teachers' abilities in designing virtual learning. Therefore, training and mentoring activities can teach teachers how to implement learning evaluation activities in virtual learning.

The next activity in the evaluation stage is conveying response questionnaires to teachers who participate in community service activities. It aims to find out about the participants' responses to the implementation of the training that has been carried out. The results of the training participants' responses can be seen in Figure 6.

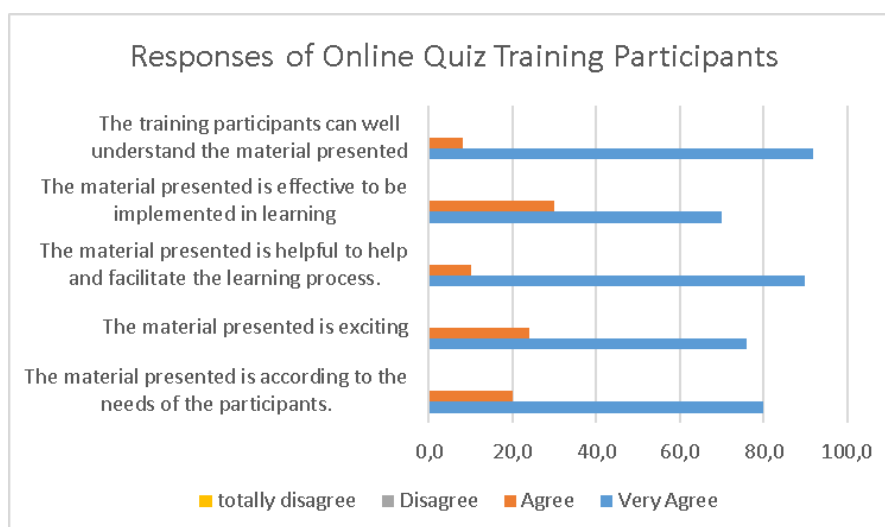


Figure 6. Responses of Training Participants to Using Online Quizzes in Learning Evaluation Activities

The material presented in this training is tailored to the needs of the participants. The COVID-19 pandemic situation that has shifted the face-to-face learning system into online learning requires teachers to innovate with their learning evaluation activities. Since teachers and students do not meet in person during online learning, it is difficult for teachers to believe that the learning evaluation process is valid because they do not supervise the process. According to (Jamila *et al.*, 2021), the implementation of learning evaluations carried out virtually has yet to be able to measure the competency abilities of students in learning. When carrying out the online assessment, students will likely look for answers through books and the internet, so they do not understand the material being taught. Therefore, through the use of online quizzes, teachers can easily monitor the evaluation process since the assessment system is not only measured by the final results of work but also by the speed and timeliness of completing the questions (Rahmadani, 2022).

The material presented in training activities was considered attractive by the participants since it was not delivered in one direction but involved them interactively. During the training activities, the teachers immediately practiced the online quizzes to make the activity interesting and exciting. According to (Fitriyani & Astuti, 2022), activities carried out interactively can increase teacher motivation to absorb the knowledge and skills provided during community service activities. In addition, interactive training activities can provide a more meaningful and memorable learning experience so that teachers can apply the learning process they have learned in class (Asrida & Cahayani, 2021).

The training and material presented are helpful for teachers to facilitate the learning process, especially the learning evaluation process. Through online quiz applications, teachers can set the time to work on questions. They can also assess student evaluation results through their accuracy and speed in answering questions. Students can also be more enthusiastic about working on questions during the evaluation process using online quizzes, and learning evaluation activities will seem more attractive. According to (Lestari *et al.*, 2021), the use of online quizzes for learning evaluation has an impact on student motivation. It makes them more enthusiastic about working on the questions given. Through the application of online quizzes, students not only try to answer the questions correctly but also do it on time.

The material presented is effective and can be implemented in learning. This training activity can support online learning evaluation. The teacher can easily apply these online quizzes to learning evaluation activities in online learning. In addition, the use of online quizzes can be more effective



when applied to learning activities in class. As stated by (Hidayati & Aslam, 2021), online quizzes, which are game-based learning media, can give teachers insight during the virtual learning process. In addition, using online quizzes can make the learning atmosphere more enjoyable and make it easier for teachers to evaluate the learning material.

The training participants can understand the material presented during the training activities, including the content of material and participant assistance. The understanding of participants was also proven through the results of online quiz products of Mentimeter, Quizizz and Kahoot that met the indicators and were in accordance with the material delivered during the training process.

## Conclusions

Training on using online quizzes as gamification and assessment in virtual learning can assist teachers in implementing learning evaluation activities for students during the COVID-19 pandemic. Based on the results of the pre-test and post-test, it can be illustrated that there is an increase in teachers' understanding of using online quiz applications (Kahoot, Quizizz, and Mentimeter) as online evaluation media for students. This training can assist teachers in utilizing online quiz applications when providing training and gamified learning evaluations to students to attract their attention to learning assessment activities. In addition, through the training, teachers can use Kahoot, Quizizz, and Mentimeter to conduct learning assessments.

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