



The Effectiveness of Civic Learning Using Quizizz to Increase Participation and Knowledge of Class XI TKJ Students at SMK Negeri 5 Malang

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Abstract. This study aims to describe the effectiveness of Civics learning using Quizizz on the learning participation and knowledge of class XI TKJ SMK Negeri 5 Malang students. This study uses a quantitative approach to the experimental method of pretest posttest control group design. The research subjects were 71 students. Data was collected by means of tests to measure the level of student knowledge and attitude observation sheets to measure the level of student participation in learning. Analysis of observational data using the Mann Whitney Test and test data using the Independent Sample T-Test through SPSS. The results of the study show that Civics learning using Quizizz is effective in increasing learning participation in class XI TKJ SMK Negeri 5 Malang. Civics learning using Quizizz is effective to increase the scores of students' knowledge.

Keywords: Knowledge · Participation · Quizizz

1 Introduction

The rapid changes caused by the covid-19 pandemic must be addressed quickly and appropriately, one way is by utilizing ICT, especially e-learning. E-learning or internet-based learning is a form of future education because it offers interactive, interesting and entertaining ways of learning and provides easy access 24 x 7 or 365 days throughout the year and is cost effective [1]. Implementing e-learning in the learning process is anticipated to boost the interest and engagement of students who tend to be easily bored and shy, so it is assumed that e-learning can motivate students by creating more opportunities to actively collaborate.

E-learning is one of the efforts to utilize information and communication technology that can be used by teachers as a means of facilitating the learning process in order to achieve learning objectives in a fun way [2, 3]. Teachers can take advantage of information and communication technology to facilitate the learning process in the network. Even so, the use of e-learning should be adjusted to the carrying capacity of students and the school environment.

Civics learning at SMK Negeri 5 Malang during the pandemic has been carried out in a network. However, in practice it feels monotonous and reduces the focus of students because they only use google classroom. The shortened learning time also requires educators to be able to find new and more fun ways of teaching so that learning objectives can be achieved.

To foster innovation to create a fun learning environment and achieve learning objectives, there are several important aspects that must be carried out, namely: (i) developing curriculum, (ii) learning media innovation, (iv) fulfilling educational infrastructure [4]. Innovation in the form of the use of learning media in the classroom is expected to offer a new learning atmosphere and have an effect on increasing student participation and knowledge. ICT-based learning media offer the latest technology to achieve effective, creative, interesting, and fun learning [5]. The development of current information and communication technology plays a crucial role in the development of e-learning must be utilized optimally, one of which is a breakthrough in creating innovative and contemporary learning media.

The selection of learning methods and media must be adjusted to the material, school environmental conditions, and student conditions and other adjustments need to be made [6]. The proper selection of learning methods and media significantly influences the achievement of learning objectives. One innovative and ICT-based learning media that educators can utilize is Quizizz interactive media. Quizizz is an online quiz platform where students compete against each other for the highest points. Teachers prepare quizzes themselves or choose quizzes from the library including other quizzes created by other educators. After making the quiz, the teacher gave the code to the students. Then the teacher clicks start a live quiz and the students can finish it any time they want. The types of questions available on Quizizz consist of multiple choice, filled-in, and open-ended [3, 7].

Quizizz with lessons and quiz features is considered a suitable learning medium for both online and face-to-face learning because it is easily accessible anytime and anywhere. Quizizz interactive media that can be accessed through applications or websites can create an atmosphere of teaching and learning activities that are not monotonous so that material can be conveyed to students [8]. Easy access to Quizizz's features can create a fun learning atmosphere in both virtual and real classes.

The use of Quizizz interactive media in the classroom has a positive influence on increasing students' motivation and knowledge, especially in the cognitive/knowledge aspect [3, 9, 10]. In [11] said that during the COVID-19 pandemic, Quizizz educational media has emerged as one of the most effective online learning tools utilized in applied physics courses. In line with this, [12] stated that the application of the TGT type of cooperative learning model using Quizizz was directly related to the level of learning motivation and student learning outcomes. The use of Quizizz as a learning media, especially during the pandemic, has an effective positive influence on students in the form of increasing motivation and learning outcomes, especially cognitive aspects.

This study utilizes Quizizz, especially the lessons and quiz features because the lessons on the Quizizz website and application are not yet widely known and used by educators and researchers, so it is important to conduct a study. Quizizz lessons provide teaching facilities where learning does not focus on the teacher delivering material, but

students can express their opinions directly by typing answers on their respective devices then the answers appear on the teacher's device screen. The students' answers can be used as material for discussion in real class.

The use of Quizizz media for students of Class XI TKJ SMK Negeri 5 Malang is based on the need for method/media updates that are fresher and more fun and challenging for students. The creativity of educators in delivering conceptual material on Civics subjects is also needed so that learning is more varied and not monotonous. The successful implementation of Quizizz learning in the classroom necessitates the availability of certain infrastructure and facilities. These include a stable internet network to access the Quizizz platform, mobile devices, or school computers for students to participate in the quizzes, and LCD screens or projectors to display the questions and answers. The purpose of writing this article is to (i) describe the application of Quizizz interactive media in Civics learning in class XI TKJ SMK Negeri 5 Malang, (ii) describe the effectiveness of Civics learning using Quizizz to increase student participation in class XI TKJ SMK Negeri 5 Malang, (iii) describes the effectiveness of Civics learning using Quizizz to increase the knowledge of class XI TKJ students at SMK Negeri 5 Malang.

2 Methodology

This study uses a quantitative approach using the experimental method conducted at SMK Negeri 5 Malang. The participants of the study consist of students from Class XI TKJ SMK Negeri 5 Malang in the 2021/2022 academic year, totalling 71 students. The object studied is the participation and knowledge of students. The independent variable is Quizizz interactive media, while the dependent variable consists of student participation and knowledge. The learning media in the experimental class is Quizizz interactive media, especially the lessons and quiz features, while the learning media in the control class uses Microsoft PowerPoint.

The experimental design used is the pretest posttest control group design. The instruments used in this study consisted of treatment instruments and measurement instruments. The treatment instrument consisted of: (i) learning implementation plan/RPP, (ii) learning media, while the measurement instruments used consisted of: (i) test kits, (ii) attitude observation sheets. Data collection techniques used in the form of attitude observation and tests. Data collection techniques with observation are used because the number of respondents observed is not too large and the study is related to human behaviour or work processes [13]. The observation technique was carried out with detailed observations and careful and systematic recording using an attitude observation sheet instrument to determine the level of student participation during the learning process. The observation sheet instrument has been tested for content validity by experts and is declared feasible.

The test is an instrument to find out and measure students' abilities, especially aspects of knowledge and psychomotor [14]. The test is used to determine the level of knowledge of students by using Quizizz quizzes. The test instrument has been tested for item validity and reliability testing and is declared a valid and reliable instrument. Items are said to be valid if the correlation coefficient/ $r \geq 0.3$ [13]. The results of the item validity test using the Pearson Product Moment Correlation showed that the majority of the questions were

valid and could be used as an instrument to measure student knowledge. However, for questions number 10 and 16, it was found that the questions were invalid, so they were deleted. The results of the reliability test using Cronbach's Alpha showed a reliability coefficient score of 0.744 ($0.744 \geq 0.700$) which means sufficient reliability in the sense that the instrument is reliable and produces reliable data.

This study uses data analysis techniques of normality test, homogeneity test and hypothesis testing. The normality test is employed to assess whether the analyzed data follows a normal distribution [15]. The homogeneity test aims to find out the data from the two variances of each sample group can be said to be homogeneous or not [16]. If the data from the two variances are homogeneous, it means that the data group also comes from a homogeneous population. Hypothesis testing is useful for drawing conclusions whether a treatment is effective on the variables of student participation and knowledge. For data that are normally distributed, parametric statistics of the Independent Sample T-test is commonly used when the samples are independent of each other, meaning that the observations in one group do not affect the observations in the other group. Test the hypothesis of abnormal data distribution using non-parametric statistics of the type of Mann Whitney Test. The research hypothesis in this study is as follows: (i) H1: Civics learning using Quizizz is effective in advancing student learning participation and (ii) H2: Civics learning using Quizizz is effective in advancing students' knowledge.

3 Results

3.1 Application of Quizizz Interactive Media in Civic Education Learning in Class XI TKJ SMK Negeri 5 Malang

The basic competencies taught are basic competencies/KD 3.15 analyzing the legal and judicial system in Indonesia in accordance with the 1945 Constitution of the Republic of Indonesia. The learning methods used are lectures, discussions, and questions and answers with an allocation of 6 h of lessons.

There are several activities during the learning process, such as opening activities, core activities, and closing activities. In the opening activities the teacher provides orientation such as greeting, praying, check attendance and motivation as well as providing apperception by linking learning materials with students' experiences in everyday life. In the core activity, the teacher gave directions to students to open the Quizizz site through their respective browsers and gave a code to join and ensure all students could join. The teacher gives a stimulus to students to focus on their respective devices that have displayed the presentation screen from Quizizz. The learning process using Quizizz is summarized as shown in Fig. 1.

The student's Quizizz screen is integrated directly with the teacher's Quizizz screen where the teacher can set slides that must appear on the student's device screen. Each discussion/question-and-answer session is provided with a slide to convey responses so that students can write and present their answers in real time and the answers that have been sent appear automatically on the teacher's screen. The answers that have been collected from students can be used as material for direct questions and answers in class so that the delivery of material is reciprocal/two-way and not teacher centered.

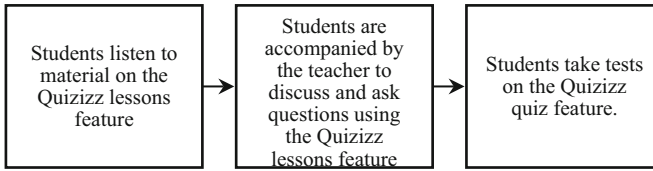


Fig. 1. Process of Core Learning Activities Using Quizizz as Interactive

Learning using the Quizizz lessons continued by using the Quizizz quiz feature. First, the teacher chooses the classic model where this model allows students to go forward and solve each question according to their respective speed and ability. The teacher can also choose whether the questions and answer choices are randomized or not and choose the music on/off. The teacher gives a quiz code to join and students enter the code on their respective Quizizz pages. The names of students who have successfully joined appear on the teacher's device screen so that the teacher can find out which students have successfully joined or who are still having network problems. Once all students have joined, the teacher can initiate the quiz. During the test time, the teacher shows the progress of each student along with the number of true/false answers. Once all students have completed their work, the teacher can conclude the quiz and download the results of calculating student scores in Microsoft Excel. The results of these calculations are then processed for evaluation. In the final/closing activity, the teacher asks students to reflect on their learning using Quizizz and draw conclusions from the lesson and give closing greetings.

The assessment instruments used were attitude observation sheets and tests. This attitude observation sheet is filled out by the teacher to measure student achievement, especially in the aspect of participation attitude during learning activities. The purpose of the test given is to gather data regarding students' knowledge achievement in the specific aspect of knowledge. The test consists of 20 multiple-choice (objective) questions based on a grid that has been prepared previously. The test was distributed twice before and after learning in each class. There are several stages in the preparation/making of test questions, starting from determining the indicators of learning objectives, developing a grid of questions to becoming objective/multiple-choice questions that are ready to be used. The reason for using objective questions at the C2-C5 level is because solving multiple-choice questions requires good understanding skills and high-level analytical skills of students. Therefore, multiple choice questions can show the achievement of students' knowledge of students.

3.2 The Effectiveness of Using Quizizz Media to Increase Student Participation in Class XI of SMK Negeri 5 Malang

Data on Student Participation in Experimental Class. Observations of student learning participation were conducted by the teacher during the learning process and teaching activities with the help of an attitude observation sheet instrument. There are four aspects observed, namely: asking, answering, expressing opinions, and giving responses. The

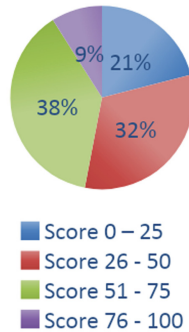


Fig. 2. Percentage of Student Participation Score in Experimental Class

results of the measurement of learning participation in the experimental class can be seen in Fig. 2.

Most students in the experimental class (38.23%) scored in the 51–75 interval with a high learning participation category, while the minority of students with a percentage of 8.82% at the score's interval is 76–100 with a very high learning participation category. The average/mean scores of student participation in the experimental class is 46.4. The scores of the experimental class learning participation variance is 394,618 and the standard deviation scores is 19.86499.

The observations of student participation in the experimental class revealed that as many as 21 students actively participated by giving responses, while the least student participation was in the aspect of asking questions with a total of 3 students. Even so, most of the class can participate during the learning process.

Data on Student Learning Participation in the Control Class. Students in the control class who scored in the interval 0–24 with a very low learning participation category with a percentage of 64.86%, while only 5.40% of students scored in the 76–100 grade interval with the category very high. The average/mean scores of the control class students' learning participation are 34.1. The scores of the variance of learning participation in the control class is 295.009 and the standard deviation is 17.17583. Figure 3 displays the results of measuring the scores of student learning participation in the control class and the calculation of the percentage of students.

The results of observations during class observation, it is known that students in the control class participate more in aspects asking as many as 7 students, while at least 4 students participated in the aspect of expressing opinions and/or giving responses.

Variations in Student Learning Participation Between Experimental Class and Control Class Data analysis with hypothesis testing requires several prerequisite tests, namely normality and homogeneity tests. Table 1 presents the outcomes of the normality test using Kolmogorov Smirnov with Lilliefors correction.

Table 1 shows that the significance scores of 0.000 ($0.000 \leq 0.05$) It was concluded that the data did not follow a normal distribution, so it was decided to test the homogeneity using Levene's test.

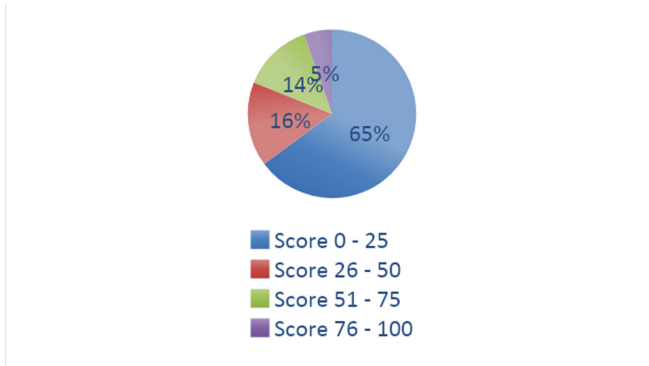


Fig. 3. Percentage of Student Participation Score in Control Class

Table 1. Normality Test for Results Scores.

Media	Kolmogorov-Smirnov ^a		
	Statistic	df	Sig.
Quizizz	.230	34	.000
Ppt	.388	37	.000

Table 2. Homogeneity Test Results if Learning Participation Scores.

		Levene Statistics	df1	df2	Sig.
Score	Based on Mean	0.015	1	69	0.901
	Based on Median	0.822	1	69	0.368
	Based on Median and with adjusted df	0.822	1	59.738	0.368
	Based on trimmed mean	0.127	1	69	0.722

Table 2 provides information that the Levene test results based on the average/mean data show a scores of 0.15 with a significance level of 0.901 ($\text{Sig. } 0.901 \geq 0.05$) so it can be concluded that the variation of the data is homogeneous. The results of the assumption test showed that the distribution was not normal and quite homogeneous, so hypothesis test by non-parametric statistics, specifically the Mann Whitney test to determine the effectiveness of Civics learning using Quizizz on increasing student participation in Class XI TKJ SMK Negeri 5 Malang.

Table 3 shows that the Mann Whitney test results show a t count of $346,500 \geq t$ table of 2,000 and an Asymp Sig score. (2-tailed) of 0.001 ($0.001 \leq 0.05$), then the hypothesis

Table 3. Hypothesis Test on Study Participation Scores

Test Statistics ^a	
	Participation
Mann-Whitney U	346,500
Wilcoxon W	1049,500
Z	-3.453
Asymp. Sig. (2-tailed)	.001

is accepted, indicating that there is a significant difference in learning participation between the experimental class and the control class.

3.3 The Effectiveness of Using Quizizz Media to Increase Student Knowledge in Class XI of SMK Negeri 5 Malang

Data on Student Knowledge Score in Experimental Class An overview of the data regarding the scores of students' knowledge in the experimental class can be seen in Fig. 4.

Figure 4 shows the lowest and highest scores of the pretest scores of the experimental class, namely 27.75 and 88.80, respectively, with range 61.05. The average score for the pretest is 56.96 and the median score is 55.5. The variance of the experimental class pretest score was 377,674 with a standard deviation of 19.43. The lowest and highest scores of the posttest scores of the experimental class are 38.85 and 99.90, respectively, with a range of 61.05. The mean scores of the class increased from the pretest score to 65.78 and the median was 66.6. The variance of the posttest score of the experimental class was 300,805 with a standard deviation of 17,34373.

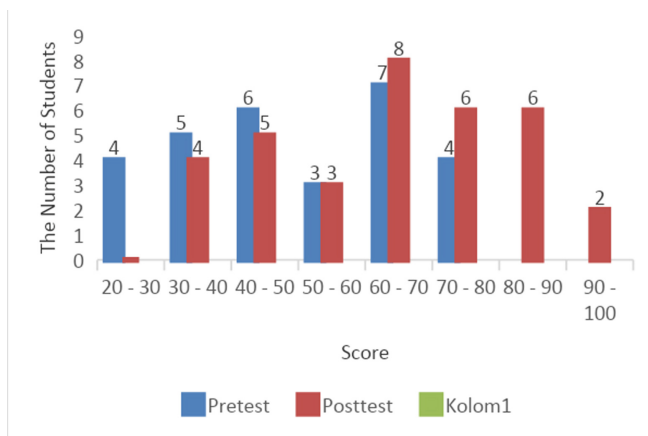


Fig. 4. Diagram Line of the Knowledge Scores in the Experimental Class.

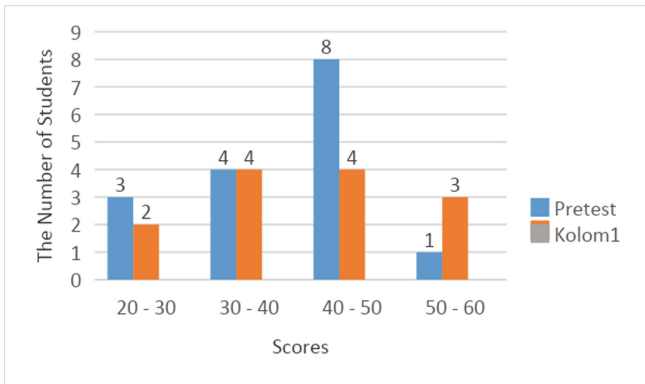


Fig. 5. Bar Chart of Knowledge Scores in the Control Class.

Data on Student Knowledge Score in the Control Class Data on the knowledge aspect of learning outcomes consisting of pretest and posttest in the control class can be seen in Fig. 5.

The control class had the lowest and highest scores on the score pretests were 5.55 and 94.35, respectively, with the difference between the highest and lowest scores (range) of 88.80. The average pretest score is 58.65 and the median score is 61.05. The variance of the control class pretest score was found to be 474.942 and the standard deviation/standard deviation was 21,79315. The lowest and highest scores of the posttest are 22.20 and 94.35 with the range is 72.15. The average posttest is 63.15 and the mean score is 66.6. The variance of the posttest for the control class was found to be 361.675 with a standard deviation of 19.01775.

Differences in Student Knowledge Learning Outcomes Between Experiment Class and Control Class An overview of students' knowledge scores can be seen in Table 4.

The mean pretest scores of the experimental class were 56.96 which increased to 65.78 in the posttest score and increased by 8.82. The control class has a pretest score of 58.65 and the posttest score increases to 63.15 with an average increase of 4.50 for

Table 4. Comparison of Student Knowledge Scores.

Indicators	Experimental Class		Control Class	
	Pretest Score	Posttest Score	Pretest Score	Posttest Score
Minimum score	27.75	38.85	5.55	22.20
Maximum score	88.80	99.90	94.35	94.35
Mean	56.96	65.78	58.65	63.15
Median	55.50	66.6	61.05	66.60
Variance	377.674	300.805	474.941	361.675
Deviation	21.79	19.43	17.34	19.01775

the control class. The conclusion is that the average increase in the experimental class surpasses the increase observed in the control class so that simply civics learning using Quizizz is effective in increasing students' knowledge scores.

Assumption tests, including normality and homogeneity tests, were conducted on students' knowledge scores to assess the normal distribution of the data and the homogeneity of data variance. The results of the normality test and their significance levels are presented in Table 5.

Table 5 shows that the significance level of all data groups is greater than 0.05, the conclusion is that the data is normally distributed, then the homogeneity test is continued using the Bartlett's Test as shown in Table 6.

Table 6 provides information that the results of the Bartlett test show a score of 1.471 with a significance level of 0.229 (Sig. $0.229 \geq 0.05$) so it can be concluded that the data on the scores of students' knowledge has a homogeneous variance.

The results of the normality and homogeneity test on students' knowledge scores indicated that the data were normally distributed and homogeneous. Consequently, the Independent Sample T-Test was employed to test the hypothesis to determine the hypothesis whether civics learning using Quizizz was effective in increasing the knowledge of Class XI TKJ SMK Negeri 5 Malang students. Hypothesis testing was carried out by calculating the delta between the pretest and posttest scores on each subject's score.

Table 5. Normality Test Results of Knowledge Scores.

	Class	Kolmogorov-Smirnov ^a		
		Statistics	df	Sig.
Student Knowledge	Pretest score of experimental class	0.096	34	0.200*
	Posttest score of experimental class	0.084	34	0.200*
	Pretest score of control class	0.111	37	0.200*
	Posttest score of control class	0.113	37	0.200*

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 6. Homogeneity Test Results of Student Knowledge Scores.

Box's M	1.471
approx	1.450
df	1
Sig.	0.229

Table 7. Hypothesis Testing Results of Student Knowledge Scores.

	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Equal Variances Assumed	2.719	69	.008	4.31471	1.58659	1.14955	7.47986

The difference in the delta scores was compared to determine the increase in the experimental class and the control class. H_0 means that the same results are obtained, while H_a means that the experimental class has an average greater than the control class after giving the treatment. The results of hypothesis testing using parametric statistics of the Independent Sample T-test can be seen in Table 7.

Table 7 shows the results of hypothesis testing calculations using Independent Sample T-Test, obtained t count ($2.719 \geq t$ table ($2,000$)) and a significance of 0.008 ($0.008 \leq 0.05$) then the hypothesis is accepted, meaning that the hypothesis which reads Civics learning using Quizizz is effective in increasing the knowledge of Class XI TKJ students of SMK Negeri 5 Malang is accepted.

4 Discussion

4.1 The Application of Quizizz Interactive Media in Civics Learning in Class XI TKJ SMK Negeri 5 Malang

The use of Quizizz interactive media using the lessons and quiz features is implemented as an effort to initiate the effectiveness of civics learning. Features such as polls and short questions and answers are utilized optimally so that learning does not focus on the teacher's lectures and students are expected to be more active in expressing opinions. This is different from the study by [17] which uses the quiz feature only for assessment in Arabic classes. The findings of the study indicate that when students utilize Quizizz as a teaching and assessment tool in Arabic classes, students are more active in answering questions and concentrating on the topic being taught. The use of Quizizz, both the lessons and quiz feature, provides positive changes to students during the learning process.

The implementation of core learning activities in the classroom using Quizizz media is done by organizing students to independently read the material and listen to the teacher's explanation and work on the questions that have been provided. This is different from research by [18] where the teacher arranges students into study groups comprising two or three students, assigning them to observe examples of previously explained problems and try to solve problems related to LESTV material. Learning using Quizizz interactive media allows students to study independently or in groups.

Quizizz is given after the teacher gives a short lecture in class. In [19] explains that lecturers give lectures to students and give them simple quizzes through Quizizz. The quiz evaluations are based on leaderboards and points carried out over four sessions that make students feel motivated to move up the leaderboard and achieve the highest score.

The quiz mode for the selected experimental class is Live Quiz or live quizzes to avoid cheating and make evaluation easier [20] argue that the choice of the direct quiz mode allows exams to be held simultaneously and improves student discipline. Students are encouraged to be punctual and not to delay taking exams to access live quizzes. Quizizz is user-friendly and offers a wide range of features, making it easy to create questions in an educational context and at the same time teaches students to be disciplined in participating in learning by limiting the time for joining and ending quizzes [21]. Live Quiz mode on Quizizz encourages students to be disciplined and honest during quizzes and makes it easier for teachers to get pure grades from student work without cheating.

4.2 The Application of Quizizz Interactive Media in Civics Learning in Class XI TKJ SMK Negeri 5 Malang

The results of hypothesis testing using Mann Whitney Test indicate that Civics learning using Quizizz is effective in increasing student learning participation. The effectiveness of learning can be interpreted as the right interaction of teachers and students so that the desired learning objectives are achieved [22]. The effectiveness of learning can be observed from student activity during learning activities, student responses to learning activities and students' level of conceptual understanding [23]. The utilization of Quizizz in Civics learning to enhance teacher-student interaction is deemed effective as it has successfully increased student learning participation.

The application of Quizizz into the learning process has a positive impact on students, particularly in terms of knowledge acquisition and skill development. ICT allows teachers to develop information and learning resources for more interesting, fun learning so that the material is easily understood by students [24]. The integration of interactive technology and social media has the potential to increase the interest and participation of students who tend to feel bored or shy [25]. Consequently, it can be inferred that web-based instruction has the capacity to motivate students by fostering increased opportunities for active collaboration.

The application of Quizizz succeeded in increasing learning participation as it was empirically demonstrated that the average score of the experimental class was higher than the control class. The results of attitude observations showed that students in the experimental class were able to show a better attitude in terms of expressing opinions and answers. Learning participation can be observed through students' ability to identify, formulate problems, find, and explain findings and actively participate in analyzing, interpreting and drawing conclusions [26]. Participation in learning means the involvement of students substantially in an important activity produced through a learning experience that emphasizes content and interpersonal relationships in order to recognize and develop one's thoughts and potential [27]. The ability of students to identify, formulate problems and present them in public is useful for developing student potential and increasing learning participation.

The results of this study show that Quizziz as an effective learning media to increase learning participation certainly cannot be separated from many underlying factors. Factors that influence the effectiveness of learning, among others (a) Raw Input, namely students who of course come from heterogeneous backgrounds from physiological or psychological aspects, (b) Environment Input, in the form of the surrounding environment which can be in the form of a natural or a natural environment. Social, (c) Instrumental Input, in the form of curriculum, programs/teaching materials, facilities, and educators [28]. The good ability of students in terms of using technology, a good internet network, and interesting teaching materials in the form of Quizziz contribute to the success of civics learning in the classroom so that learning objectives can be achieved.

The use of Quizziz interactive media as an instrumental input in learning has succeeded in creating a fun and challenging learning environment that is effective in increasing student participation. At the same time, students must be motivated and motivated to achieve targets so that students can participate in learning effectively [29]. Of course, the use of Quizziz as an interactive learning media must be accompanied by the readiness of teachers and students and the support of the environment.

Factors that influence learning participation, especially learning that is carried out online, include: characteristics of technology, experience in accessing learning content, clear roles and tasks for students, and the provision of information that is not excessive. Technological characteristics such as interface designs that offer spatially and visually well-organized discussions can help achieve coherent and meaningful participation. Learning technology that is easy to understand allows students to easily operate it, of course providing a fun learning content access experience. A clear division of roles and tasks facilitates the achievement of shared goals between students, students and teachers and prevents students from running away from responsibilities. An equally important point is that the teacher/instructor should provide sufficient information so as not to confuse students [30]. The effectiveness of using media in the network as a learning facility is directly related to the characteristics of the media, pleasant experiences when accessing learning content, students' understanding of their roles and duties, and providing sufficient information.

Student participation should not be considered as an addition but must be experienced by every student as a way of daily work. In arena one, which is usually found in a classroom environment or science laboratory, the main activities are learning, teaching, and assessment, students could participate in giving opinions and making decisions [31]. The use of the Quizziz lessons which offers features such as polls, yes/no, true/false, short answers and comprehensive answers becomes a bridge for students to give more participation during learning activities.

The features possessed by Quizziz lessons give students the opportunity to ask questions, answer questions and even provide feedback through their respective devices which then appear on the Quizziz page on the teacher's device. In return, the teacher can provide feedback or input back which then the teacher's answer appears on the student's device. Learning by prioritizing reciprocal interactions between teachers and students creates responsive learning and does not only focus on teacher lectures. This is in line with the results of a study by [32] that e-learning assists in removing obstacles that

could impede participation, such as the apprehension of engaging in conversations with fellow students. And facilitate interaction between individuals to exchange opinions and appreciate different points of view. Furthermore, [33] said that e-learning offers extra opportunities for teachers and students to engage with each other, aiming to facilitate the delivery of educational content. Quizizz as a learning medium that can be accessed via the internet meets the criteria as a good learning medium. When educators integrate these applications into the classroom, students can engage and participate more actively.

4.3 The Effectiveness of Using Quizizz Media to Increase Students' Knowledge in Class XI SMK Negeri 5 Malang

Learning outcomes can be grouped into three domains, namely: cognitive/knowledge, affective/attitude, and psychomotor (Bloom in [34]). This study measures learning outcomes, one of which is the aspect of knowledge. Student knowledge is a student's skill after carrying out the learning process and it is important for an assessment to be carried out so that educators can get information about student achievement towards the desired learning goals. Student knowledge is an individual skill in this case students relate to the extent to which learning objectives can be achieved. The results the Independent Sample T-test as hypothesis test showed that civics learning using Quizizz was effective in increasing students' knowledge.

The average difference between the control class and the experimental class as well as the difference in the increase shows that the provision of treatment in the form of Quizizz interactive media gives different and more satisfying results to aspects of students' knowledge. The enhancement of student knowledge can be influenced by the perception of students who find the utilization of interactive learning media like Quizizz is very fun and interesting. This perception, in turn, has a positive impact on increasing student motivation to actively participate in the learning process [10]. Increasing students' motivation is linear with increasing student knowledge so that quizizz can be said to be effective for increasing student knowledge, especially in the cognitive realm.

The implementation of Quizizz as an interactive medium has effectively boosted student participation and interest in participating in continuous learning. This is in line with the results of the study of [17] which said that the implementation of Quizizz in the classroom as a teaching and assessment tool made all students very active in answering the questions provided and concentrating more on the topic. Complementing this opinion, [3] argues that Quizizz has a colorful display that makes it attractive and features that are easy to understand and operate so that students get a fun learning experience. Many students think Quizizz is an interesting learning medium because it offers new experiences so that students are more motivated to learn and compete.

Quizizz as one of the learning media in e-learning that utilizes the use of information and communication technology provides many positive impacts on students. [35] reported that the integration of Quizizz into the learning process resulted in a positive impact on students' learning experiences, as evidenced by higher scores in satisfaction and instructor teaching evaluations. This finding aligns with the outcomes of the study conducted by [36], which revealed that the implementation of Quizizz assessment

media contributes to the development of student learning motivation, fostering enthusiasm among students to actively engage in online learning. The use of Quizizz not only results in higher grades but also develops students' motivation and learning participation.

Quizizz provides opportunities for students to be actively participate in the learning process. Quizizz is a game-based learning assessment tool that offers numerous benefits. It not only facilitates the monitoring of student understanding but also enhances student engagement in the learning process [37]. The use of quizizz allows teachers to see student scores from the highest to the lowest scores which are displayed in Microsoft Excel form to facilitate the analysis and evaluation process. Another advantage that Quizizz has is that Quizizz quizzes can be done anytime and anywhere provided the device used is connected to the internet network [38]. This certainly makes it easier for students to access quizzes and simplifies the task of evaluating the achievement of learning objectives for teachers.

The results of this study indicate that Civics learning using Quizizz can increase students' knowledge, especially in the condition of students who are easily bored. Quizizz media can increase students' enthusiasm for learning by participating in ongoing learning because learning is not only teacher-centered, but Quizizz media allows interactive discussions between students and educators. Teachers can use Quizizz interactive media as an alternative tool to facilitate the learning process and evaluation in the classroom run interactively and fun, so that students' learning motivation can increase, during the evaluation it can reduce cheating between students and facilitate assessment. Students get a fun learning experience and increase their interest in learning Civics. The use of the Quizizz quiz feature provides an opportunity for students to find out the results of the evaluation of their understanding in real time after they complete the quiz.

5 Conclusion

The learning process using Quizizz interactive media includes: (1) students listen to material on Quizizz lessons, (2) students accompanied by teachers conduct discussions and ask questions using the Quizizz lessons feature, (3) students take tests on the Quizizz quiz feature.

Quizizz interactive media is effective in increasing student participation in Civics learning in Class XI TKJ SMK Negeri 5 Malang. Civics learning using the interactive media Quizizz is effective in increasing students' accepted knowledge.

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