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EFFECTIVENESS OF LEARNING MEDIA BASED ON QUIZIZZ APPLICATION WITH REALISTIC MATHEMATICS EDUCATION APPROACH

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Abstrak

Penelitian ini bertujuan untuk mengetahui keefektifan pembelajaran melalui media pembelajaran berbasis aplikasi *Quizizz* dengan Pendekatan *RME* pada siswa kelas VIII.D SMP Negeri 1 Sungguminasa, penelitian ini mengacu pada tiga keefektifan pembelajaran yaitu dilihat dari hasil belajar matematika, aktivitas siswa, serta respons siswa. Jenis penelitian ini adalah pre-eksperimen yang hanya melibatkan satu kelas sebagai kelas eksperimen dengan desain penelitian One Group Pretest-Posttest Design. Kelas eksperimennya adalah kelas VIII.D SMP Negeri 1 Sungguminasa yang terdiri dari 38 orang siswa. Instrumen dalam penelitian ini adalah tes, lembar observasi dan angket melalui media pembelajaran berbasis aplikasi *Quizizz* dengan Pendekatan *RME*. Hasil penelitian menunjukkan: 1) Hasil belajar matematika siswa dikategorikan "Meningkat" dan "Tuntas" secara klasikal yaitu 97,37% siswa mencapai ketuntasan individu $t_{hitung} = 19{,}953 > t_{tabel} = 1{,}687$, 2) Aktivitas siswa dalam pembelajaran matematika dikategorikan "Aktif" yakni meningkat sebesar 78,38%, dan 3) Respons siswa terhadap pembelajaran matematika dikategorikan "positif" yaitu sebesar 98,31%. Berdasarkan hasil penelitian ini. siswa telah memenuhi kriteria keefektifan pembelajaran matematika yaitu hasil belajar, aktivitas siswa dan respon siswa sehingga dapat disimpulkan bahwa pembelajaran matematika efektif diterapkan melalui media pembelajaran berbasis aplikasi *Quizizz* dengan Pendekatan *RME* pada siswa kelas VIII.D SMP Negeri 1 Sungguminasa.
Kata kunci: Keefektifan; Media Pembelajaran; Quizizz; RME

Abstract

This study aims to determine the effectiveness of learning through learning media based on the Quizizz application with the RME Approach for students in class VIII.D SMP Negeri 1 Sungguminasa, this study refers to three learning effectiveness, namely seen from mathematics learning outcomes, student activities, and student responses. This type of research is a pre-experiment that only involves one class as an experimental class with a One Group Pretest-Posttest Design research design. The experimental class was class VIII.D SMP Negeri 1 Sungguminasa consisting of 38 students. The instruments in this study were tests, observation sheets and questionnaires through Quizizz application-based learning media with the RME Approach. The results showed: 1) Students' mathematics learning outcomes were categorised as "Improved" and "Completed" classically, namely 97.37% of students reached individual completeness $t_{count} = 19.953 > t_{\_table} = 1.687$, 2) Students' activities in learning mathematics were categorised as "Active" which increased by 78.38%, and 3) Students' response to mathematics learning was categorised as "positive" which was 98.31%. Based on the results of this study. students have

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met the criteria for the effectiveness of mathematics learning that is learning outcomes, student activities and student responses, so it can be concluded that mathematics learning is effectively implemented through Quizizz application-based learning media with the RME Approach for students in class VIII.D SMP Negeri 1 Sungguminasa.
Keywords: Effectiveness; Learning Media; Quizizz; RME

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INTRODUCTION

Mathematics, a basic discipline taught in educational institutions ranging from primary schools to universities, holds a significant position (Kenedi et al., 2018; Syamsuadi et al., 2019). Mathematics permeates all levels of education, be it formal or informal institutions, including training centres and other domains aimed at improving the quality of human resources. Mathematics as a field that explores various rational and logical cognitive processes to formulate a concept (Heuvel-panhuizen et al., 2014; Nurfitri et al., 2023). The ubiquitous nature of mathematics in human life underscores the importance of mathematics. Purwaningsih et al. (2020) & Amelia et al. (2023), found that many challenges faced in daily life require the application of mathematical principles, such as counting, measuring, and more. In addition according to Priyatna & Wiguna (2021), mathematics serves as a basic foundation for various other disciplines, underlining its interdisciplinary nature. Therefore, it is clear that mathematics stands as an important subject that has a profound influence in the field of education.However, in reality student learning outcomes in mathematics learning are still not optimal (Ikhlas et al., 2023).

Research conducted by Nurfitri et al. (2023) showed that the learning outcomes of MTsN 3 East Aceh students were still very low. This is caused by monotonous mathematics learning activities and inappropriate learning methods so that students are not easy to understand and master the material presented by the teacher. Therefore, innovation is needed in learning methods that can increase students' interest and understanding of mathematics. In another study conducted by

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Saraswati et al. (2023) revealed that the learning outcomes of SMPN 6 Jambi City students were still very low, this was influenced by internal and external factors. Internal factors include lack of student interest and motivation in learning mathematics. While external factors come from teachers, friends and the environment. Such as teacher methods that are monotonous or uninteresting to students. The lack of variety in teaching methods causes students to feel bored and uninterested in being actively involved in the learning process. In addition, lack of support from peers and a less conducive learning environment also contribute to low learning outcomes.

The field findings could be introduced with a topic sentence summarizing the key issues found at SMP Negeri 1 Sungguminasa. In addition, there are problems in the learning process, such as knowledge transfer, where teachers still use conventional methods. According to Richards & Rodgers (2014), the conventional method or approach is an approach where students mostly listen to the teacher's explanation in class with a relatively monotonous method. This approach minimises the use of media, making students less active and even passive. In fact, learning will be more meaningful if the material taught is related to the real life of students, so that learning becomes more interesting and relevant to them (Ahmed, 2017; Heuvel-panhuizen et al., 2014). This traditional method also influences students' motivation to learn, which is often lacking. Consequently, students show less interest in participating in lessons, negatively affecting their academic performance. Furthermore, conventional techniques frequently fail to create opportunities for students to cultivate critical and creative thinking abilities, which are essential for a profound understanding of mathematical concepts. (Johnson, 2022).

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Figure 1. Learning Process in Class

To overcome the above problems, researchers found a solution by utilising learning media by combining technology such as educational games in the form of Quizizz applications. This application not only makes the learning process more interactive and fun, but can also increase student motivation and participation in learning. In addition, the use of Quizizz allows teachers to monitor student progress in real-time, provide quick feedback, and customise learning materials according to individual student needs (Stehle & Peters-Burton, 2019; Wijayanti et al., 2019; Zhu et al., 2016). The utilisation of educational games has been shown to increase student engagement in learning, thus representing an innovative advancement in fostering an enjoyable learning experience for students (Kurniawan & Rivaldi, 2021; Wijayanti et al., 2019). An example of an educational game that can be integrated into an android application is the Quizizz application, which functions as a web-based tool for creating interactive quiz games used in learning. These interactive quizzes typically feature four answer choices, including the correct response, and have the option to include an image in the background of the question. Upon completion of quiz creation, a unique code can be distributed to students, allowing them to access the quiz. Additionally Degirmenci (2021), Quizizz offers insights and analytics on student performance, allowing educators to monitor the number of students who have attempted questions, pending questions, and more. Additionally, educators have the ability to download statistics in Microsoft Excel format. Additionally, Quizizz incorporates a "homework" function, allowing students to complete assignments at their own pace and from any location. As a

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result, students gain greater flexibility in completing homework assignments, while instructors can set time limits for those assignments.

Research conducted by Mulyati & Evendi (2020), Ardiansyah (2022), and Mawaddah et al. (2022) has shown that the utilisation of Quizizz app as a mathematics learning medium showed a favourable impact on improving students' academic achievement and their overall interest in the learning process. This phenomenon can be attributed to the incorporation of game-like features in the Quizizz app, including the presence of avatars, diverse themes, memes, and engaging musical elements during learning sessions. Furthermore, the competitive nature of Quizizz allows students to engage in healthy competition with their peers, thus fostering a sense of motivation to actively participate in educational activities with the ultimate goal of improving their academic performance levels (Degirmenci, 2021). Through collaborative quiz sessions conducted in a classroom environment, students are not only able to take part in an interactive learning experience but also have the opportunity to directly observe their ranking on a digital leaderboard, thus fuelling their drive for continuous improvement. Ultimately, the integration of the Quizizz app serves as a valuable tool in instilling motivation among students to engage in the learning process and consequently improve their academic outcomes, especially in preparation for exams that traditionally rely on paper-based assessments (Hafiyya & Hadi, 2023).

Quizizz is an online learning media that is used for free in learning activities to improve and motivate students and can be used to provide questions and answers as a daily assessment in certain subjects (Yuniartanti et al., 2023). According to Eniyati et al. (2022), Quizizz is an application used to create interactive and interesting quizzes in the world of education. Meanwhile, according to Pusparani Pusparani (2020), Quizizz is one of the media in which there is a learning evaluation that has many features, such as multiple choice questions, fill-in questions, or description questions. According to the opinion of (Noor, 2020 & Purba et al.,

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2020), argues that Quizizz is a game-based educational application that can be used as a learning evaluation that can be done anywhere and can make learning fun.

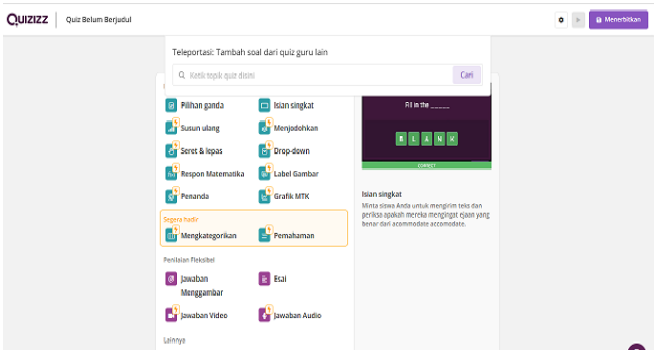

Figure 2. Display of Quizizz Feature

Some general advantages of the Quizizz application as a mathematics learning media: (1) Interactive and engaging. Quizizz is deliberately created to encourage interactivity and fun among students. The mathematics learning content is delivered through captivating questions and responses, all aimed at stimulating active student participation and fostering high interest in the study of mathematics; (2) Ability-tailored content. Educators have the ability to design maths quizzes that are aligned with their specific classroom requirements and academic syllabus. Educators can customise questions, incorporate multimedia elements such as images, video, or audio, and set time limits for answering questions; (3) Comprehensive question response format. Students can respond to maths questions more expansively as Quizizz facilitates the display of full answer formats, rather than being limited to multiple choice or short fill-in responses; (4) Evaluation and progress monitoring. Educators can monitor student progress and achievement using the analysis tools embedded in the app; and (5) Convenience and user-friendliness. The app is easily accessible on various devices such as computers, tablets, or smartphones, allowing students to engage in learning activities at any time and from any location with an internet connection.

In addition to the use of the Quizziz application, one approach that fits with everyday life is the application of the Realistic Mathematics Education (RME) approach, which is focused on practical mathematical issues that are relevant to

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everyday experiences. As stated by Laurens et al. (2018), RME is used to connect mathematical principles with real-world problems that resonate with students' daily lives. Studies conducted by Puspitasari & Airlanda (2021), Liando (2022), and Anggi et al. (2023) have shown that the RME instructional approach has a favourable impact in improving students' academic achievement. In addition, RME instruction helps in facilitating students' understanding of educational materials, thereby improving retention of the content learnt. The RME approach is also effective in transforming abstract concepts into practical and contextualised scenarios for students.

RME has been a pedagogical approach developed since 1971 by a group of mathematicians affiliated with the Freudenthal Institute at Utrecht University in the Netherlands. Within the RME framework, there is an integration of perspectives on the essence of mathematics, the cognitive processes involved in learning mathematics, and methodologies for effective mathematics teaching (Fadilah & Hakim, 2022). Ardiniawan et al. (2022) consider RME as an approach strategy that starts from real concepts relevant to students, accentuating the procedural aspects of mathematical activities. It entails engaging in discussions, collaborative problem solving, and constructive debates with peers to foster a culture where students engage in self-discovery, then apply mathematical concepts to address challenges both independently and in teams. In this educational paradigm, the instructor's role is primarily as a facilitator, mediator, or assessor, providing a conducive environment for students to reflect, articulate their reasoning, and embody democratic principles by valuing religious (Laurens et al., 2018; Puspitasari & Airlanda, 2021).

The importance of research on the application of Quizizz with RME in mathematics learning is to evaluate its effectiveness and impact on students' understanding of mathematical concepts. By using RME, students are expected to relate the subject matter to real situations, so that learning becomes more contextualised and meaningful (Laurens et al., 2018). Quizizz, as an interactive

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quiz-based learning platform, can increase student engagement and provide immediate feedback, which is very useful for understanding the extent to which students have mastered the material taught (Degirmenci, 2021). The steps in implementing Quizizz application-based learning media with the RME approach in the mathematics learning process in the classroom include:

Table 1. Steps to Implement Quizizz Application-Based Learning Media with RME

No	Steps	Teacher Activity	Student Activity
1.	Understanding realistic problems. (1st characteristic)	The teacher presents learners with problems using Quizizz, and asks them to understand the complexity in each problem. The teacher provides instructions on how to answer the questions in Quizizz and provides opportunities for students to ask questions, ensuring that mathematics learning is done with a realistic approach	Students are asked to understand the context of the realistic problem or problems presented. When the teacher explains, students actively listen, and they are encouraged to ask questions to improve their understanding.
2.	Solve problems realistically. (1st, 2nd and 3rd principles. 2nd characteristic)	The teacher instructs each group to discuss in solving the questions contained in Quizizz. In addition, the teacher also provides additional guidance to groups that have difficulty in solving the questions.	Students collaborate in groups to solve the questions contained in Quizizz
3.	Compare and discuss answers. (Characteristics 3 and 4)	The teacher guides each group to compare and discuss the most appropriate answers within their small groups.	Students compare and discuss answers within their groups.
4.	Drawing Conclusions	The teacher asks each group to conclude the material that has been learnt.	Each group makes a conclusion of the material that has been learnt.

Through this research, it is hoped that effective and efficient steps will be found to implement Quizizz application-based learning media with the RME approach, so that it can be used as a model or standard in a more modern and effective classroom mathematics learning process.

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METHOD

This research is an experimental study that uses a pre-experimental design, specifically a one-group pretest-posttest design, because it only involves one class as an experimental class without a control group for comparison. This design was chosen for its simplicity, allowing the research to be conducted with limited resources, such as time and number of participants. In addition, pre-experimental designs are suitable for use in the early stages of research to explore new hypotheses or ideas. By using one class as an experimental class, researchers can measure changes that occur before and after the treatment is given. The purpose of this study was to evaluate the effectiveness of mathematics learning through the use of learning media based on the Quizizz application with a realistic mathematics education approach in class VIII.D SMP Negeri 1 Sungguminasa. The overall population in this study were all VIII grade students of SMP Negeri 1 Sungguminasa in the 2023/2024 academic year, consisting of 11 classes with a total of 431 students. The samples in this study were students from class VIII of SMP Negeri 1 Sungguminasa, selected using purposive sampling technique. The consideration of the researcher and the teacher led to the selection of class VIII.D as a sample, because the characteristics of students in the class are classified as active in learning mathematics.

Table 2. One Group Pretest-Posttest Design

Pretest	Treatment	Posttest
Y_1	X	Y_2

In this study, there are dependent variables that are measured to evaluate the effectiveness of quizizz application-based learning media with the RME approach used are: (1) Learning Outcomes, where this variable measures the extent to which students understand and master the material taught after the application of quizizz application-based learning media with the RME approach. Learning outcomes are usually evaluated through tests or exams given before (pre-test) and after (post-test) treatment; (2) Student Activity, where this variable measures the level of student participation and involvement during the learning process. Student activity can be

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observed and recorded through observation sheets or journals that record student involvement in discussions, assignments, and other classroom activities; and (3) Student Response: This variable measures students' perceptions and responses to the applied learning approach. Student responses can be collected through questionnaires to obtain feedback on the effectiveness of the learning. By measuring these variables, researchers can evaluate the effectiveness of quizizz app-based learning media with the RME approach.

The instruments used in this study include:

1. Learning implementation observation sheet, used to assess teacher competence in managing mathematics learning by utilising learning media based on the Quizizz application with a realistic mathematics education approach. The indicators in this observation sheet are based on the activities carried out by the teacher during the learning process, in accordance with the lesson plan listed in the lesson plan. In this context, the learning implementation observation sheet will be more appropriately filled in by independent observers (teachers) who are not directly involved in the teaching process who have experience and skills in observing learning activities and assessing teacher competence;
2. Maths Learning Outcome Test, which was used to evaluate students' level of understanding of the learning material. This test was in the form of an essay consisting of 3 questions and was prepared by the researcher based on the material taught during the study, taking into account the learning indicators. The learning outcome test through test validation is an important step in ensuring the accuracy and reliability of the test used to evaluate student achievement;
3. Student Activity Observation Sheet is used to monitor student participation during learning with the use of learning media based on the Quizizz application with the RME approach. This observation sheet is filled in by an independent observer (teacher) whose job is to observe and record student activities and participation during the learning process. Filling in the observation sheet is carried out during class, so that the observer can directly observe the interaction

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between students, teachers, and learning media used. Some key indicators used in this observation sheet are (1) students' involvement in discussion; (2) activeness in answering questions; (3) collaboration between students, and (4) Active Engagement with Learning Media.

4. The Student Response Questionnaire was used to assess student responses to the implementation of learning with the utilisation of Quizizz application-based learning media and the RME approach. This questionnaire consists of a number of open-ended questions, designed to collect various student responses and perceptions of the learning experience. Student responses are quantified using a Likert scale, where students are asked to rate the level of agreement or disagreement with the statements given, or provide open-ended answers to questions that ask for their opinions or experiences during learning.

After all data from students is collected, the next step is to analyse the data. In this study, the data analysis techniques used were as follows: (1) Descriptive statistical analysis was conducted by describing the data of students' mathematics learning outcomes through average, maximum value, minimum value, and standard deviation. Furthermore, it provides an overview of the average score of students' mathematics learning outcomes before (pretest) and after (posttest), student activities during the learning process, and student responses to learning media based on the Quizizz application with the RME Approach; and (2) Inferential Statistics is a statistical method used to analyse sample data and the results are extended or applied to a larger population. The purpose of this technique is to test the research hypothesis. Before testing the hypothesis, the first step taken is the normality test as a requirement. Normality test, the criteria used are H_0 is accepted if the $P_{value} \geq \alpha$ and H_1 is rejected, if the $P_{value} < \alpha$ where the value of $\alpha = 0{,}05$.

RESULTS AND DISCUSSION

From the previous explanation, to explore the effectiveness of mathematics learning with the use of learning media based on the Quizizz application with the

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RME Approach for students in class VIII.D SMP Negeri 1 Sungguminasa, the research used experimental procedures and analysed data using descriptive analysis techniques and inferential analysis. The results of the analysis of the two techniques are described as follows:

Data regarding the implementation of learning with the use of learning media based on the Quizizz application with the RME approach can be observed through an observation sheet filled in by an independent observer (teacher) from the beginning to the end of the activity, in accordance with the lesson plan and learning procedures. On this sheet, an observer assesses the implementation of learning by filling in the relevant columns and rows. This assessment refers to four categories that have numerical values from 1 to 4, namely less (score 1), sufficient (score 2), good (score 3), and very good (score 4). This provides clarity in interpreting performance or achievement by using a defined numerical scale, allowing for more detailed and objective analyses. These scores reflect the level of achievement, with higher numbers signalling higher levels of implementation. The following are the results of the lesson implementation observation analysis

Table 3. Results of Observation Data Analysis of the Implementation of Quizizz Application-Based Learning Media with the RME Approach

Class VIII.D	Learning Implementation Score						Average
	I	II	III	IV	V	VI	
Quizizz Application with RME Approach	Pretest	3,47	3,47	3,53	3,60	Posttest	3,52

The average assessment was in the "very well implemented" category from the second to the fifth meeting, reaching a value of 3.52. Thus, it can be concluded that learning with Quizizz application-based learning media with the RME Approach is effective according to the effectiveness criteria. Overall, the assessment of learning implementation is in the range of $3.00<x\leq4.00$, which indicates that learning can be categorised as "highly implemented". These results confirm that the combination of the RME Approach and Quizizz application learning media is not only successful

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in implementing learning, but also succeeds in achieving an optimal level of implementation. This is in line with the findings in the study (Zahara et al., 2020),that the high learning implementation assessment reflects the good implementation of the RME Approach with the support of interactive learning media, while the increase in student learning outcomes confirms the effectiveness of this approach in improving students' understanding and achievement in mathematics. This shows that the application of the RME Approach with the Quizizz application learning media has a significant impact in improving learning implementation.

The results of data analysis on mathematics learning achievement of students in class VIII.D SMP Negeri 1 Sungguminasa after applying Quizizz Application-Based Learning Media with the RME Approach revealed that most students had reached the level of completeness. Of the total 38 students, only 1 student or about 2.63% did not reach the completeness, while 37 students or about 97.37% of other students had reached or exceeded the limit of completeness, can be seen in table 4.

Table 4. Description of the Completeness of Mathematics Learning Outcomes after the Application of Quizizz Application-Based

Learning Outcome Score	Category	Frequency	Percentage
$0 \leq x < 75$	Tidak Tuntas	1	2,63
$75 \leq x < 100$	Tuntas	37	97,37
Total		38	100

Thus, based on the analysis in Table 4, it can be concluded that the learning outcomes of students in class VIII.D SMP Negeri 1 Sungguminasa after applying the RME Approach with the support of Quizizz application learning media reached the level of classical completeness. The success achieved was created because this approach allows students to learn more actively, because it provides opportunities to develop themselves by expressing their opinions such as asking questions if they do not understand the material taught or answering if questions arise. Students become more enthusiastic in learning because of the use of Quizizz application learning media which provides a variety of fun game features. And during the

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learning process students do not feel bored because of the two-way interactions carried out by the teacher, both between teachers and students, students and their group mates and student interactions in using the Quizizz application learning media. This is why the RME approach assisted by Quizizz application learning media can be applied in learning as an alternative approach and the use of effective learning media. This is in line with research conducted by Palayukan et al. (2023), who developed the RME learning model assisted by the Quizizz application stated that this learning is an alternative to learning using learning media that is effective to use.

The results of the data analysis showed that the average increase in mathematics learning outcomes of students in class VIII.D SMP Negeri 1 Sungguminasa after the Quizizz application-based learning media with the RME approach, as measured by the Normalised gain, was 0.78. This indicates that the increase in students' mathematics learning outcomes is generally in the high category, because the gain value is in the N-Gain $\geq$ 0.70 range. This finding is consistent with research conducted by Sumira et al. (2022), which showed an increase in students' mathematics learning outcomes from pretest to posttest scores with an interpretation gain value of 0.51. This confirms the effectiveness of the combination of Quizizz application learning media with the RME approach in improving students' understanding and mathematics learning achievement. With a high gain value, this approach is able to provide strong support in improving students' ability to understand mathematical concepts in depth.

In learning mathematics through Quizizz application-based learning media with the RME approach, it is seen that students have the ability to work together without feeling awkward, give and take, support each other, and respect the opinions of others. Therefore, in this study, it is expected that the Quizizz app-based learning media approach with the RME approach will have a positive impact on improving student activity, social relationships, and student mastery of mathematics achievement. Students showed active involvement in learning, both before and after

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learning. Social relationships between students and researchers were also well established. Students' activities, measured according to the predetermined indicators, showed that they were active and effective in learning, with the average frequency of student activities meeting the ideal time criteria with a tolerance of 5%. The results of the analysis of student activity observation data show that the average percentage frequency of student activity with the application of the RME approach is in a good range, in accordance with the criteria of the Ideal Time Percentage Tolerance Interval (PWI). This indicates that students have been actively involved in the mathematics learning process through the RME approach supported by the Quizizz application learning media. This finding is in line with the results of research conducted by Mulyati & Evendi (2020), which showed that there was an increase in student learning outcomes after using Quizizz game media. In cycle I, the average student learning outcome was 63, while in cycle II it increased to 78 In addition, the study also noted an increase in students' process skills in learning that implemented Quizizz game media. The same thing from research Pusparani (2020), that the use of the Quizizz application as a learning evaluation media is very effective in improving student learning outcomes and motivation, as well as providing convenience and efficiency in the evaluation process for teachers.

The results of the analysis of student responses after the study showed a positive response to the Quizizz application-based learning media with the RME approach applied by the teacher. From various aspects evaluated, students expressed happiness with the teaching approach applied by teachers using the RME Approach, which is supported by the Quizizz application learning media. They felt more active and creative in learning, as they could actively express their opinions by asking or answering questions. In addition, students also reported that they found it easier to work on problems through the Quizizz application after applying the RME Approach. Overall, the average positive response of students reached 98.31%, which indicates that most students gave a very positive response to the learning. This is in the positive response category, in accordance with the predetermined

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standard, which is at least 41% of students who give a positive or moderately positive response. This finding is in line with the results of research by Nitit et al. (2022), which showed that students' responses to the learning process by applying the RME Approach were in the positive category, with a percentage of 80%.

In this study, hypothesis testing used a one sample t-test which was previously carried out Normalised gain on pretest and posttest data. Normalised gain testing aims to evaluate the improvement of student learning outcomes after the application of Quizizz application-based learning media with the RME approach. The results of hypothesis testing using the t-test one sample test show that the value of t_{hitung} = 19.953 is greater than t_{table} = 1.687. Thus, H_0 was rejected, which showed that there was an increase in mathematics learning outcomes after the application of Quizizz application-based learning media with the RME approach in mathematics learning of students in class VIII.D SMP Negeri 1 Sungguminasa, where the gain value was more than 0.30. The completeness of learning outcomes after the application of Quizizz application-based learning media with the RME approach was classically more than 97.37%. This is supported by the results of the proportion test which shows the value of Z_{hitung} = 3.194 is greater than Z_{tabel} $(0.5-\alpha)$=0.45, indicating that student learning outcomes are classically complete. Furthermore, the results of the inferential analysis showed that the average score of student learning outcomes with Quizizz application-based learning media with the RME approach showed a value of t_{hitung} = 10.819 greater than t_{table} = 1.687, which means that student learning outcomes have reached the KKM 75. From the results of this analysis, it can be concluded that the average score of student learning outcomes after learning Quizizz application-based learning media with the RME approach has met the effectiveness criteria, especially on the material of the system of linear equations of two variables.

CONCLUSION

Based on the problem formulation, hypothesis, and research findings that have been presented, it can be concluded that the Quizizz application-based

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learning media with the RME approach is proven to be effective in learning the material of the system of linear equations of two variables (SPLDV) in class VIII.D SMP Negeri 1 Sungguminasa. This can be seen from the achievement of (1) The mathematics learning outcomes of students in class VIII.D SMP Negeri 1 Sungguminasa after applying the Quizizz application-based learning media with the RME approach showed a significant increase. A total of 37 students or 97.37% of students achieved individual completeness, reflecting the achievement of classical learning completeness. Descriptive analysis showed that student learning outcomes were higher than the pretest. The results of SPSS statistical analysis showed that the average value of student learning outcomes after learning exceeded 75, with of t_{hitung} = 10.819 is greater than t_{table} = 1.687, confirming that H0 was rejected, and learning was effective; (2) Student activities in learning mathematics with Quizizz application-based learning media with the RME approach created active interactions. Student activity reaches the ideal category, where the percentage of student activity is always within the time tolerance limit at each meeting; (3) Students' responses to learning mathematics with Quizizz app-based learning media with the RME approach showed that most students gave positive responses, with only a few giving negative responses. Student responses reached 98.31%, exceeding the standard set, signalling a positive response to learning.

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