

Students' Perception in Learning Mathematics Using *Quizizz*

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Abstract. Mathematics is a subject that has its challenges. This challenge is related to the negative perception of mathematics learning, which is considered complex and saturated. Quizizz is one of the defense media that is considered exciting and fun. This study aims to determine the perception of Madrasah Aliyah (MA) students towards mathematics learning using the Quizizz application. The research method used in this study is quantitative descriptive using a questionnaire consisting of 30 statements. The respondents to this study are 30 MA Al Zaytun Indramayu students who have used Quizizz in mathematics learning in the even semester of the 2023-2024 Academic Year. The study results show that the use of Quizizz in mathematics learning, in general, can be positively received by students. Students feel more motivated to learn, engage, and understand the material better when using the Quizizz app. However, there are several challenges, such as difficulties in understanding the material and time pressure in working on problems some students feel. Overall, Quizizz is considered an effective tool for improving students' learning outcomes and interest in math, with the note that its implementation should be tailored to the needs of students.

Keywords: Quizizz, students, learning technology

I. INTRODUCTION

As discussed in the research paper, mathematics education in high schools faces several challenges. These challenges include negative student attitudes that result in lower scores, the need for personalized learning, and attention to the affective aspect. Difficulties in learning mathematics, poor perception, and external pressure. There are also challenges related to the implementation of learning, such as rejection from teachers, lack of resources, and limitations in student interaction and participation. In addition, during the COVID-19 pandemic, challenges in mathematics teaching have arisen, including curriculum-related issues, difficulties for teachers in delivering lessons and managing online classes, and students facing technology, motivation, and environmental constraints. These challenges emphasize the importance of addressing various aspects to effectively improve mathematics education in secondary schools. (Wang, 2023) (Pokhrel, 2023b, 2023a) (Li, 2023) (Sharmin et al., 2023)

Quizizz has been proven effective in improving students' mathematics learning outcomes on Pythagorean Theorem material. Studies show this method effectively increases students' motivation, engagement, and understanding of mathematical concepts. Research shows that Quizizz is considered user-friendly, fun, and effective in reducing boredom during learning, which ultimately improves students' learning outcomes and interest in math. By integrating quizzes into classroom activities, teachers can create a more interactive and engaging learning environment, encouraging students' understanding of mathematics and overall academic performance. The app's interactive features and game-based approach are instrumental in improving student engagement and positive attitudes toward learning, making it a valuable tool for educators looking to optimize math teaching in elementary and secondary schools. (Daulay et al., 2023; Fadillah et al., 2023; Monika et al., 2024; Syaifuddin & Rahmasari, 2023) (Daulay et al., 2023; Syaifuddin & Rahmasari, 2023)

Research in elementary schools found that using Quizizz improved students' math comprehension and critical thinking skills, which increased their confidence and independence in learning (). Additionally, research in vocational high schools showed that Quizizz was influential in fostering students' interest in learning, with significant improvements seen in engagement, attitudes towards learning, and perception of assessment. () Annisa , 2023 ; Fadillah , 2023 Rulismi, Sahil, and Dali 2024

Based on the previous description, researchers perceive that students feel bored with monotonous mathematics learning, and quizzes are one of the alternatives teachers in mathematics learning can use. Therefore, the researcher's focus in this study is to investigate how MA students perceive mathematics learning using Quizizz. This study aims to discover the perception of MA students in learning mathematics using Quizizz. This research is expected to benefit teachers by allowing them to obtain better student understanding.

II. METHODS

The method used is a quantitative descriptive method. Quantitative descriptive research methods include collecting data to describe existing conditions or situations without trying to find a cause-and-effect relationship. This research emphasizes the systematic presentation of data through surveys, questionnaires, or observation methods to provide a comprehensive picture of a particular population, question, or circumstance. This method is designed to critically analyze and interpret data, aiming to build a narrative based on theories about a phenomenon to support further research and provide new perspectives and understandings. This method focuses on individual characteristics and the overall sample, providing practical information through scientific analysis, interpretation, and generalization, making it helpful in solving local problems and making predictions. (Miksza et al., 2023) (Classic & Zahran, 2022) (Salaria, 2012)

The population of this study is 236 students of MA Al Zaytun Indramayu, grade 10. For the research sample, only 30 students are from class 8D. This research was conducted in the even semester of the 2023 – 2024 Academic Year.

Purposive sampling is a technique used in research to select participants or data sources based on specific characteristics relevant to the research objectives. Grade 10 N 7 was chosen because the researcher had done mathematics learning using Quizizz. (Ames, Glenton, and Lewin 2019; Andrade 2021; Benoot, Hannes, and Bilsen 2016; Douglas 2022)

The data collection technique in this study was a questionnaire instrument consisting of 30 statements given to students about their perceptions after using the Quizizz Application in mathematics learning adapted from the research. To find out the attitudes and perceptions of the respondents. This study uses the Likert Scale. (Anggraeni & Sari, 2022)

The Likert Scale is a simple assessment tool that ranges from 0 to 3 and is used as a benchmark to measure responses related to disaster risk reduction, operational capacity, and organizational resilience in various fields of science. (Pescaroli et al., 2020)

The steps in this study are as follows: the researcher gives a questionnaire to students, and the results of the students' answers are exported in Microsoft Excel. Subsequently, the data was changed in the form of numbers. The data results were used to review students' perceptions of learning mathematics using quizizz. The Likert Scale points are four: Strongly agree = 4, Agree = 3, Disagree = 2, Strongly disagree = 1.

III. RESULTS AND DISCUSSION

The questionnaire in this study used 30 questions to find out students' perceptions of using the Quizizz application.

1. Motivation in learning and assessment using Quizizz

Table 1 shows students' perception of learning motivation and assessment using Quizizz.

Table 1. Motivation in learning and assessment using Quizizz

| It | Question | Strongly Agree | Agree | Disagree | Strongly disagree |
|----|---|----------------|-------|----------|-------------------|
| 1 | Quizizz makes learning exciting and fun | 10 | 15 | 5 | 1 |
| 2 | Quizizz has an attractive look and challenging features | 12 | 14 | 4 | 1 |
| 3 | Quizizz makes me more active in my studies | 11 | 15 | 4 | 1 |
| 4 | Quizizz does not make me tense when doing the exam questions | 9 | 16 | 5 | 1 |
| 5 | Learning with Quizizz feels like playing | 13 | 12 | 5 | 1 |
| 6 | Quizizz motivates me to answer questions from other friends | 10 | 15 | 5 | 1 |
| 7 | I love the Quizizz app for classroom learning | 14 | 12 | 4 | 1 |
| 8 | Quizizz created a competitive atmosphere, and I felt encouraged | 12 | 13 | 5 | 1 |

From the data above, we can describe students' perception of motivation in learning and assessment using Quizizz, which tends to be positive. Students feel more engaged, motivated, and able to

understand the material better when using this app. However, some students find it difficult or disagree with some aspects, such as understanding the material and using the application. This shows that while Quizizz has many benefits, there is still room for improvement in its implementation.

2. The effectiveness of Quizizz as a test or assessment medium

Table 2 shows students' perception of learning motivation and assessment using Quizizz.

Table 2. The effectiveness of Quizizz as a test or assessment medium

| It | Question | Strongly Agree | Agree | Disagree | Strongly disagree |
|----|--|----------------|-------|----------|-------------------|
| 9 | Quizizz creates a competitive atmosphere, and I feel compelled to be number one on the leaderboard | 12 | 13 | 5 | 1 |
| 10 | Quizizz allows me to correct myself when I make a mistake in an exam | 11 | 14 | 5 | 1 |
| 11 | I want Quizizz to be one of the indicators of daily test scores | 9 | 16 | 5 | 1 |
| 12 | Quizizz keeps me focused on answering test questions | 11 | 14 | 5 | 1 |
| 13 | The Quizizz app helps recall the learning material that has been studied | 12 | 13 | 5 | 1 |
| 14 | The Quizizz application increases students' knowledge of learning materials | 10 | 15 | 5 | 1 |
| 15 | Taking the test through Quizizz made me even more interested in learning | 12 | 13 | 5 | 1 |

From Table 2 Overall, students' perception of the effectiveness of Quizizz as a test or assessment medium is positive. Students feel more engaged and motivated and get helpful feedback through this app. Despite challenges like time pressure, many students appreciate a more interactive and enjoyable learning experience. This shows that Quizizz can be an effective tool in the assessment process as long as it is well-implemented and tailored to the needs of students.

3. The Effectiveness of Math Learning Using Quizizz

Table 3. The Effectiveness of Math Learning Using Quizizz

| It | Question | Strongly Agree | Agree | Disagree | Strongly disagree |
|----|--|----------------|-------|----------|-------------------|
| 16 | Learning through the Quizizz game makes it easier for me to understand the math material | 11 | 14 | 5 | 1 |
| 17 | Doing exercises using Quizizz helps me practice counting | 10 | 15 | 5 | 1 |
| 18 | Quizizz made me more interested in improving my numeracy | 12 | 13 | 5 | 1 |
| 19 | The limited time on each Quizizz question motivates me to strengthen my numeracy skills | 11 | 14 | 5 | 1 |
| 20 | The material in my class is suitable for teaching through Quizizz | 10 | 15 | 5 | 1 |
| 21 | Varied and not boring questions | 12 | 13 | 5 | 1 |
| 22 | I feel bored using the Quizizz App | 2 | 5 | 15 | 3 |

| | | | | | |
|----|--|---|---|----|----|
| 23 | I would be too lazy to use math books because of the Quizizz app | 3 | 4 | 15 | 9 |
| 24 | I am having trouble using the Quizizz app | 1 | 3 | 15 | 12 |
| 25 | I cannot understand the material through the Quizizz app | 2 | 2 | 15 | 12 |
| 26 | Learning math using the Quizizz app makes students overwhelmed and depressed | 3 | 4 | 15 | 9 |

From Table 3 Overall, students' perception of the effectiveness of learning mathematics using Quizizz is very positive. Students feel more engaged and motivated and gain a better understanding of math material. The use of Quizizz as a learning tool not only makes the learning process more enjoyable but also improves student learning outcomes. Thus, quizzes can be considered an effective method for learning mathematics as long as they are used correctly and according to the student's needs.

4. Access and use of Quizizz

Table 4. Access and Use of Quizizz

| It | Question | Strongly Agree | Agree | Disagree | Strongly disagree |
|----|---|----------------|-------|----------|-------------------|
| 27 | Quizizz's menus and display are easy to understand and easy to use | 12 | 13 | 5 | 1 |
| 28 | My quota is always enough to access Quizizz | 10 | 15 | 5 | 1 |
| 29 | The device I use is adequate for accessing Quizizz | 11 | 14 | 5 | 1 |
| 30 | I cannot log in to my Quizizz app account because of the wrong internet network | 5 | 10 | 10 | 6 |

From Table 4 Overall, students' perceptions of Quizizz's access and use tend to be positive, with many feeling the benefits of motivation and involvement in the learning process. However, there are also challenges to be aware of to ensure that all students can make the most of this application.

DISCUSSION

The research results from the data obtained regarding using Quizizz can be carried out by considering several vital aspects that emerge from the students' responses. Here are some critical points in the interpretation of the research results:

1. Positive Reception of Quizizz

Students have shown a positive attitude towards using Quizizz as a learning tool for math subjects. The data shows that many students positively perceive using Quizizz in learning. They feel that this app makes learning more exciting and enjoyable and increases their engagement in the learning process. The results revealed that 64% of learners found Quizizz easy and fun. In comparison, 75% stated that the platform helped them remember the material studied, and 67% acknowledged its contribution in identifying confusing areas. (Ariati et al., 2023)

Studies have proven that using Quizizz contributes to improved learning outcomes, as students can understand mathematical concepts more effectively, meeting key indicators of comprehension. This can be interpreted that Quizizz has successfully met the needs of students for interactive and fun learning methods (Fadillah et al., 2023)

2. Motivation and Engagement

Based on the results of the study show that students feel motivated to learn when using Quizizz. The competitive atmosphere created by this application encourages students to strive better and actively participate in the class. This is in line with the results of a study conducted by Ariati, which revealed that 61% of students felt that Quizizz deepened their understanding of the subject, and 53% reported an increase in motivation due to ranking among peers. The app also creates a fun and competitive atmosphere, which reduces anxiety in the face of tests and encourages active participation. (Ariati et al., 2023) (Itsaini et al., 2023)

In addition, the gamification aspect of Quizizz has been shown to improve students' attention and motivation, with an effectiveness rating of 70.1% for attention and 70.3% for motivation. This shows that quizzes serve as an evaluation tool and an effective motivational tool for increasing students' interest in learning. (Suwarni et al., 2023)

3. Constraints in Use

While many students have benefited from Quizizz, some have difficulties, such as difficulty understanding the material or feeling overwhelmed. This shows that while this app has many advantages, challenges still need to be overcome to ensure that all students can get the most out of this app. This research indicates the need for additional support for students experiencing difficulties.

4. Accessibility and Technology Readiness: Data shows that students generally do not experience issues in terms of accessibility, such as internet quota and devices used. This shows that the technological infrastructure among students is adequate to support the use of digital-based learning applications such as Quizizz. This is important to consider in the implementation of educational technology in the future

5. Recommendations for Development: Based on the research results, there is an opportunity to develop further the features in Quizizz that can help students experiencing difficulties. For example, additional materials or tutorials can be provided before or after using Quizizz to help students understand concepts better.

Overall, the study results show that quizzes can potentially improve the student learning experience. However, it also highlights the importance of paying attention to students' needs to ensure that all students benefit from this app.

The implications of using Quizizz in mathematics learning at Madrasah Aliyah (MA) can be seen from various aspects, including student motivation, learning effectiveness, and skill development. Here are some of the critical implications:

1. **Increases Student Motivation and Engagement:** Quizizz, a game-based app, can make math learning more engaging and enjoyable. Students tend to be more motivated to participate in learning activities when engaged in the game. This is in line with the finding that gamification elements can increase student participation in learning

2. **Interactive Learning:** Using Quizizz, students can interact directly with the learning materials. The app allows students to answer questions in real time, provide instant feedback, and encourage discussion among classmates. This interaction can help students understand mathematical concepts better and strengthen their understanding of the material being taught

3. **Critical Thinking Skills Development:** Quizizz can be designed to include challenging questions requiring critical thinking. By answering different questions, students can practice their analytical and problem-solving skills, which are essential in mathematics.

4. **Immediate Feedback:** One of the main advantages of using Quizizz is the ability to provide direct feedback to students. After completing the quiz, students can see their results and understand the areas they need to improve. It helps students to correct their mistakes and learn from experience, which is very important in math learning

5. **Flexibility in Learning:** Quizizz allows students to learn flexibly inside and outside the classroom. Students can access quizzes anytime and anywhere, which supports self-paced learning and allows them to learn at their own pace.

6. **Creating a Healthy Competitive Atmosphere:** With the leaderboard feature, Quizizz creates a competitive atmosphere that can motivate students to go the extra mile. This atmosphere can encourage students to improve their abilities in mathematics and strive to achieve better results.

7. **Identify Student Weaknesses:** Through analyzing quiz results, teachers can identify areas where students are experiencing difficulties. This allows teachers to pay more attention to specific topics and tailor their teaching to meet the needs of students.

Overall, the use of Quizizz in mathematics learning in MA can have a significant positive impact on student motivation and learning effectiveness. However, teachers must integrate these apps with the right teaching strategies and ensure all students have adequate access to maximize their benefits.

IV. CONCLUSIONS

The main findings of the study regarding the use of Quizizz in mathematics learning in MA can include several key points as follows:

1. **Increased Student Motivation:** Research shows that Quizizz can increase students' motivation to learn math. Students feel more engaged and excited when learning through an interactive, game-based platform.

2. **Learning Effectiveness:** The quiz results show that Quizizz students tend to understand the math material better. The instant feedback the app provides helps students immediately recognize and correct their mistakes.

3. **Interaction and Collaboration:** Quizizz encourages interaction between students, both in the form of group discussions and competitions. This creates a collaborative learning environment where students can help each other and learn from each other.

4. **Critical Skills Development:** Students who use Quizizz show improvements in critical thinking and problem-solving skills. Well-designed questions challenge students to think deeper and apply mathematical concepts in different situations.

5. **Flexibility and Accessibility:** Quizizz provides flexibility in learning, allowing students to learn outside of school hours. The app can be accessed anytime and anywhere, which supports self-paced learning.

6. **Identify Student Weaknesses:** The data obtained from the quiz results allows teachers to identify areas where students are having difficulties. This assists teachers in designing more appropriate interventions to support students who need additional assistance.

7. **Positive Competitive Atmosphere:** The leaderboard feature in Quizizz creates a healthy competitive atmosphere, encouraging students to go the extra mile and improve their learning outcomes.

Overall, research shows that using Quizizz in math learning in middle school increases student motivation and engagement and contributes to a better understanding of the material and the development of essential skills in mathematics.

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REFERENCES

- Ames, H., Glenton, C., & Lewin, S. (2019). Purposive Sampling In A Qualitative Evidence Synthesis: A Worked Example From A Synthesis On Parental Perceptions Of Vaccination Communication. *BMC Medical Research Methodology*, 19(1). <https://doi.org/10.1186/s12874-019-0665-4>
- Andrade, C. (2021). The Inconvenient Truth About Convenience and Purposive Samples. *Indian Journal of Psychological Medicine*, 43(1). <https://doi.org/10.1177/0253717620977000>

- Anggraeni, N. K. P., & Sari, R. K. (2022). Pandangan Mahasiswa Terhadap Pemanfaatan Quizizz Sebagai Media Pembelajaran Bahasa Inggris. *Research and Development Journal of Education*, 8(2). <https://doi.org/10.30998/rdje.v8i2.14066>
- Annisa, S., Zaenuri, Z., Kustiono, K., & Guntur, M. (2023). Penerapan Quizizz Bernuansa Etnomatematika Melalui Problem Based Learning Untuk Meningkatkan Kemampuan Berpikir Kritis Siswa. *Jurnal Inovasi Pendidikan dan Pembelajaran Sekolah Dasar*, 7(1). <https://doi.org/10.24036/jippsd.v7i1.120960>
- Ariati, C., Rada, G., & Fauzan, A. (2023). How Does Quizizz Application As An Online Mathematics Learning Quiz Media During Pandemic Covid-19? *AIP Conference Proceedings*, 2698. <https://doi.org/10.1063/5.0122431>
- Benoot, C., Hannes, K., & Bilsen, J. (2016). The Use Of Purposeful Sampling In A Qualitative Evidence Synthesis: A Worked Example On Sexual Adjustment To A Cancer Trajectory. *BMC Medical Research Methodology*, 16(1). <https://doi.org/10.1186/s12874-016-0114-6>
- Daulay, S. H., Ramadhan, A., & Wahyuni, S. (2023). Quizizz Application in Students Learning Outcomes: Teacher's and Students' Perception. *Modality Journal: International Journal of Linguistics and Literature*, 3(2). <https://doi.org/10.30983/mj.v3i2.6719>
- Douglas, H. (2022). Sampling Techniques for Qualitative Research. Dalam *Principles of Social Research Methodology*. https://doi.org/10.1007/978-981-19-5441-2_29
- Fadillah, B. N., Putra, D. A., & Setiawan, F. (2023). Aplikasi Quizizz sebagai Media Pemahaman Matematis. *Dawuh Guru: Jurnal Pendidikan MI/SD*, 3(2). <https://doi.org/10.35878/guru.v3i2.787>
- Itsaini, N. S., Asmara, C. H., & Pongpan, K. (2023). Students' Perspectives On Using "Quizizz" Apps To Assess Learning. *Journal Universitas Muhammadiyah Gresik Engineering, Social Science, and Health International Conference (UMGESHIC)*, 2(1). <https://doi.org/10.30587/umgeshic.v2i1.5216>
- Klasik, D., & Zahran, W. (2022). The Art of Sophisticated Quantitative Description in Higher Education Research. https://doi.org/10.1007/978-3-030-76660-3_12
- Li, S. (2023). Application of Embodied Learning in Middle School Mathematics Education. *Journal of Education, Humanities and Social Sciences*, 22. <https://doi.org/10.54097/ehss.v22i.12498>
- Miksza, P., Shaw, J. T., Kapalka Richerme, L., Hash, P. M., Hodges, D. A., & Cassidy Parker, E. (2023). *Quantitative Descriptive and Correlational Research*. Dalam *Music Education Research*. <https://doi.org/10.1093/oso/9780197639757.003.0012>
- Monika, L., Prabowo, F., & Jami, F. Y. (2024). Pemanfaatan Aplikasi Quizizz sebagai Media Pembelajaran Matematika di Sekolah Dasar Islam di Karawang. *Jurnal Syntax Admiration*, 5(1). <https://doi.org/10.46799/jsa.v5i1.975>
- Pescaroli, G., Velazquez, O., Alcántara-Ayala, I., Galasso, C., Kostkova, P., & Alexander, D. (2020). A Likert Scale-Based Model for Benchmarking Operational Capacity, Organizational Resilience, and Disaster Risk Reduction. *International Journal of Disaster Risk Science*, 11(3). <https://doi.org/10.1007/s13753-020-00276-9>
- Pokhrel, M. (2023a). Challenges Toward Learning Mathematics. *Shikshya Sandesh*, 6(1). <https://doi.org/10.3126/ss.v6i1.63094>
- Pokhrel, M. (2023b). Exploring Challenges Towards Learning Mathematics Among Secondary School Students in Nepal. *Academic Journal of Mathematics Education*, 6(1). <https://doi.org/10.3126/ajme.v6i1.63784>
- Rulismi, D., Sahil, A., & Dali, Z. (2024). Effectiveness of the Use of Quizizz Media on Students' Learning Interest. *Futurity Education*, 4, 245–262. <https://doi.org/10.57125/fed.2024.06.25.13>
- Salaria, N. (2012). Meaning of the term descriptive survey research method. *International journal of transformations in business management*, 1(6).

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- Sharmin, R., Halim, M. A., & Sultana, T. (2023). Exploring the Challenges of Mathematics Teaching-learning Process at Primary School Level During COVID-19. *Teacher's World: Journal of Education and Research*. <https://doi.org/10.3329/twjer.v48i1.67546>
- Suwarni, S., Lubna, L., Aimang, H. A., Cakranegara, P. A., & Pratama, D. (2023). Quizizz Gamification of Student Learning Attention and Motivation. *Al-Ishlah: Jurnal Pendidikan*, 15(2). <https://doi.org/10.35445/alishlah.v15i2.3215>
- Syaifuddin, M., & Rahmasari, E. (2023). Students' Response, Learning Interest, and Conceptual Understanding Ability of Two-dimensional Figures in Junior High School: A Study on the Use of Quizizz App. *Mosharafa: Jurnal Pendidikan Matematika*, 12(3). <https://doi.org/10.31980/mosharafa.v12i3.828>
- Wang, Y. (2023). Research on Blended Learning in Middle School Mathematics Classes. *Journal of Education, Humanities and Social Sciences*, 22. <https://doi.org/10.54097/ehss.v22i.12464>