AlphaMath
Journal of Mathematics Education, 10(2) November 2024
p-ISSN 2477-409X, e-ISSN: 2549-9084
Available online: https://jurnalnasional.ump.ac.id/index.php/alphamath/

The Effect of the Use of Quizizz-Assisted Learning Media on the Learning Interest of Elementary School Students

Rona Syafira Ardita*[1], Alzaber [2], Sri Rezeki[3], Astri Wahyuni[4]
[1,2,3,4]Islamic University of Riau, Indonesia
ronasyafiraardita@student.uir.ac.id*[1], alzaber@edu.uir.ac.id[2], sri_rezeki@edu.uir.ac.id[3], astriwahyuni@edu.uir.ac.id[4]
http://dx.doi.org/10.30595/alphamath.v10i2.23810

ABSTRACT
The purpose of this study is to determine whether Quiziz media has an impact on sixth-grade elementary school pupils' interest in learning. This study uses an experimental pretest-posttest one-group design. The population in this research consists of all sixth-grade students at SD Kartika 1-9 Pekanbaru, totalling 21 students. The sampling technique is saturation sampling, where the entire population is used as the sample. An interest questionnaire with 20 questions determines students' learning interests. Descriptive and inferential statistical analysis are the methods of data analysis that are employed. According to the findings of the descriptive study, the average score on the pretests was 58.19 before the use of Quizizz-assisted media (pretest) and had risen to 66.05. In the meantime, a Sig(2-tailed) value of 0.002 was derived based on the results of inferential analysis, where the value was less than 0.05 (0.002 < 0.05). Consequently, it might be said that "Hypothesis Accepted" or that H0 is rejected and H1 is accepted. Therefore, it may be concluded that a factor influences the rise in learning interest among sixth-grade elementary school pupils.
Keywords: Conventional Learning, Interest, Quizizz.

ABSTRACT
Tujuan dari penelitian ini adalah untuk mengetahui apakah media Kuis berdampak pada minat belajar siswa kelas enam sekolah dasar. Penelitian ini menggunakan Pretest-Posttest One Group Design, yang bersifat eksperimental. Populasi dalam penelitian ini adalah seluruh siswa kelas VI di SD Kartika 1-9 Pekanbaru, yang berjumlah 21 siswa. Untuk teknik pengambilan sampel, digunakan teknik sampling jenuh (saturation sampling), di mana seluruh populasi digunakan sebagai sampel. Angket minat dengan 20 item pertanyaan merupakan alat yang digunakan untuk mengetahui minat belajar siswa. Analisis statistik deskriptif dan inferensial adalah metode analisis data yang digunakan. Berdasarkan hasil penelitian deskriptif, skor rata-rata pada *pre-test* adalah 58,19 sebelum penggunaan media berbantuan Kuis (*pre-test*) dan meningkat menjadi 66,05. Sementara itu, berdasarkan hasil analisis inferensial diperoleh nilai Sig (2-tailed) sebesar 0,002, dimana nilai tersebut lebih kecil dari 0,05 (0,002 < 0,05). Oleh karena itu, dapat dikatakan bahwa "Hipotesis Diterima" atau H0 ditolak dan H1 diterima. Oleh karena itu, dapat disimpulkan bahwa ada faktor yang mempengaruhi peningkatan minat belajar di kalangan siswa kelas enam sekolah dasar.
Kata kunci: Pembelajaran Konvensional, Minat, *Quizizz*.

Received : August 30, 2024
Accepted : November 28, 2024
Published : November 28, 2024

Introduction

According to (Hutauruk & Simbolon Surel, 2018) mathematics is a science that is a socio-cultural product that is used as a thinking tool to solve problems and contains

a series of axioms, definitions, theorems, proofs, problems and solutions. Mathematics is a discipline that is studied from elementary school to tertiary education. This shows that mathematics is a discipline that needs to be studied. Understanding concepts is an important phase in learning mathematics since it forms the foundation in which to deal with both mathematical problems and everyday life (Febriantika, 2020). Through mathematics learning, a person is trained to think creatively, critically, honestly and can apply mathematics in solving problems in daily life and other disciplines (Yudha, 2019; Sallira & Pattimukay, 2024). This means that mathematics as one of the subjects in school, is considered to play an important role, both its mindset in shaping students to be quality and its application in daily life (Amelia et al., 2019; Alzaber et al., 2021).

Along with the times, mathematics learning is closely related to technology, communication, and information. Technology greatly facilitates and helps in learning mathematics so that learning becomes effective and on target (Putri & Suripah, 2021; Suripah et al., 2022). This is in line with the enactment of a new curriculum, namely the independent curriculum. The purpose of this curriculum is to facilitate all students to have the opportunity to obtain education. Thus, alternative learning is needed that can facilitate students with the help of technology.

As a means of advancement in the 4.0 era, technology has aided students in their educational journey (Sembiring & Sutirna, 2024). The speed at which science and technology are developing nowadays can be utilized as a catalyst for change and to make our way of thinking more effective and pragmatic in the advancement of the educational field (Suripah, 2017). An essential tool for teaching and learning mathematics is technology. While there are many tasks to complete in the classroom, it's crucial to avoid considering technology as an extra burden. Conversely, among the various resources available to assist youngsters in learning mathematics, technology ought to be an alternative (Sabban, 2022; Viberg et al., 2023). Seen as an integral part of learning tools, technology can expand the scope of subject matter that students can learn and can expand the problems that students can work on.

Learning interest is a key factor in determining the success of educational outcomes. Interest influences students' motivation and engagement, which are critical for sustaining attention, enhancing understanding, and fostering a positive attitude towards learning (Schunk et al., 2014). Without interest, students may face difficulties in maintaining focus and enthusiasm, which can negatively impact their academic performance and overall learning experience. Therefore, enhancing students' interest in mathematics is essential to support their cognitive and emotional development in this subject.

p-ISSN 2477-409X, e-ISSN: 2549-9084

With technological advancements, mathematics learning has become increasingly intertwined with communication and information technologies. These tools enhance learning efficiency and make it more targeted (Putri & Suripah, 2021; Suripah et al., 2022). The independent curriculum implemented in Indonesia further emphasizes the need for alternative, technology-facilitated learning models to ensure inclusivity and educational equity.

One example of technology related to mathematics learning is Quizizz. Quizizz It is a form of development of technology-based learning media in the era of the 4.0 revolution. According to (Purba, 2019; Yanuarto & Hastinasyah, 2022), quizizz is a gaming educational app, which brings multiplayer activities to the classroom and makes them in the classroom interactive and fun practice classes. Not only in the form of quizzes, teachers can also make slides of subject matter on Quiziz. Quizizz allows teachers to create quizzes, slides, and multimedia presentations, making it a versatile resource for classroom activities (Miladanta & Muharam, 2021; Mulyati & Evendi, 2020).

Studies have demonstrated the effectiveness of Quizizz in enhancing student engagement and learning outcomes. For instance, (Aini, 2020) found that Quizizz improves students' competencies and fosters teacher creativity in elementary and secondary education. Similarly, (Agustina & Martha Rusmana, 2019) highlighted that Quizizz makes mathematics learning more enjoyable for students, thereby fostering a positive attitude towards the subject. While these studies focus on improving competencies, creativity, and enjoyment, this research aims to examine how Quizizz specifically influences learning interest among elementary school students, an aspect that remains underexplored.

Based on preliminary observations during campus teaching activities (August 12 – December 1, 2023), students at SD Kartika 1-9 Pekanbaru exhibited low interest in learning mathematics due to monotonous teaching methods and lack of engaging media. Despite having access to adequate computer labs and internet facilities, the potential of technology like Quizizz remains untapped. This research seeks to fill this gap by investigating the impact of Quizizz-assisted learning media on enhancing learning interest among sixth-grade students at SD Kartika 1-9 Pekanbaru. By comparing pre-test and post-test results, this study contributes to understanding how gamified learning platforms can address challenges in traditional mathematics education.

Research Methods

This study employs an experimental method, specifically a Pretest-Posttest One Group Design, which is used to assess the impact of a treatment by comparing results before

and after the intervention (Sugiyono, 2018). The objective of this design is to determine the influence of Quizizz-assisted learning media on the learning interest of sixth-grade primary school students. The study used a questionnaire to measure students' interest in learning, administered both before and after the intervention.

The research involved a population of 21 students in grade VI at SD Kartika 1–9 Pekanbaru. A saturation sampling technique was applied, meaning the entire population was included in the sample. Saturation sampling ensures that all data points from the population are analyzed comprehensively (Sugiyono, 2018). The variables analyzed in this study include the independent variable, which is the use of Quizizz-assisted learning media combined with a conventional learning model, and the dependent variable, which is students' interest in learning.

The data were analyzed through descriptive and inferential approaches. Descriptive analysis was used to summarize the pretest and posttest data, including the lowest, highest, and average scores of students' interest in learning. Inferential analysis was performed to test the hypothesis using statistical methods such as normality tests, homogeneity tests, and paired T-tests. The analysis was conducted using SPSS version 22 to ensure reliability and validity (Sugiyono, 2018; Creswell, 2012). By following a structured experimental method, this study contributes to the growing evidence on the role of gamified learning tools in education, specifically their impact on enhancing learning interest among elementary school students.

Result and Discussions

This study aims to measure the level of interest of students in learning mathematics using the Quiziz application, this research was conducted at SD Kartika 1-9 Pekanbaru, Sail District, Pekanbaru City, Riau Province. The research sample is class VI students, for grade VI students at SD Kartika 1-9 Pekanbaru only has 1 class so that a saturated sampling technique is carried out.

The data collection process was carried out using a questionnaire consisting of 20 questions with the choice of SS, S, TS, STS. Each option has a value of 1,2,3, and 4 for questions with positive values. Meanwhile, those with negative values have a value of 1 for SS, 2 for S, 3 for ST, and 4 for STS. In the validation results with 21 respondents, the r table was obtained at 0.4132 at a significant level of 5%. The validation results were carried out to find out whether the student learning interest test was valid or not. The researcher conducted expert validation on two lecturers who contained material and media. Based on the results of expert validation, it has been declared valid with improvements. Some of the things that need to be improved include correcting language and inappropriate sentences on the questionnaire made by the researcher. In the next stage, the researcher refines the input and suggestions given

by the two validators until they are declared valid and can be tested before the experiment.

To prove whether the instrument is valid or not, the researcher proves the results of the trial using SPSS version 22, then the resiliency is analyzed using Alpha Cronbach.. This test is to measure whether or not the questionnaire items in the research are used to measure students' interest in learning mathematics. According to (Sugiyono, 2018) The decision making of a reliable item if the alpha ≥ 0.6 with sufficient criteria. After analyzing its reliability, an alpha value of 0.906 was obtained, meaning that the item was said to be reliable because the alpha value obtained was greater than 0.60.

Descriptive Analysis

From the pre-test and post-test data conducted in the study, it can be analyzed descriptively which is summarized in the Table 1:

Table 1. Experimental and Control Class Questionnaire Score Data

Descriptive Analysis	Pre-test	Post-test
Highest Scores	70	80
Lowest Rate	49	54
Number of Samples (n)	21	21
Installment ($\bar{x}$)	58,19	66,05

Based on the Table 1, it can be seen that numerically the average interest in learning mathematics is not much different between *pretest* and post-test classes. After being treated using Quizizz-assisted mathematics learning, the results of th*e* post-test interest questionnaire were higher than the pre-test. This explains that the interest in learning mathematics of students in the post-test class is higher than that of the pre-test. If you look numerically, it can be assumed that the Quiziz application has an effect on students' interest in learning mathematics. However, to prove whether Quizizz-assisted mathematics learning is statistically influential, it is necessary to conduct an inferential analysis so that the results obtained are truly accurate.

Inferential Analysis

Normality Test

The normality test in this study was carried out using the Shapiro Wilk test. The following are the results of the Normality test obtained.

Table 2. Results of Normality Testing

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
PreTest	.153	21	.200*	.927	21	.120
PostTest	.167	21	.129	.912	21	.061

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

The normality test was conducted using the Kolmogorov-Smirnov and Shapiro-Wilk tests. The Table 2 presents the results of these tests for both pre-test and post-test data. Basis for decision-making (1) If the significance value (sig.) > a with a = 0.05, then the data is normally distributed; and (2) If the significance value (sig.) < a with a = 0.05, then the data is not normally distributed. Based on the results of the normality test above which was analyzed using the *Shapiro-Wilk* test, a Sig value of 0.061 was obtained greater than 0.05 (0.061 > 0.05). So it can be concluded that the variables are normally distributed.

Homogeneity Test

Data testing using SPSS 22. The homogeneity test aims to find out whether the data has the same variance or not. The following are the results of the homogeneity test obtained:

Table 3. Homogeneity Test Results

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Student Interests	Based on Mean	.401	1	40	.530
	Based on Median	.406	1	40	.528
	Based on Median and with adjusted df	.406	1	37.682	.528
	Based on trimmed mean	.408	1	40	.527

In Table 3, from the results of the homogeneity test above, Based on Mean was obtained with a significance value (Sig) of 0.530. Where the value is greater than 0.05 (0.530 > 0.05). So it can be concluded that the data has the same variant.

Hypothesis Testing

Paired Samples T-test

The Paired Samples T-test test is used to determine whether there is a significant influence between the pre-test and post-test scores of students' learning interests with Quiziz-assisted media.

Department of Mathematics Education, Universitas Muhammadiyah Purwokerto, Purwokerto, Indonesia
p-ISSN 2477-409X, e-ISSN: 2549-9084

Table 4. Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PreTest	58.19	21	6.772	1.478
	PostTest	66.05	21	8.034	1.753

Table 5. Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	PreTest & PostTest	*21*	.033	.887

Based on the Table 4 and Tabel 5, the average questionnaire score before being given treatment is 58.19 while the average questionnaire score after being given treatment is 66.05. On the Table 6, the thitulng value is-3.484 and the sig value obtained is 0.002. Because the Sig value < 0.05, H0 is rejected. This means that there is an increase in students' interest in learning after learning using Quiziz. Thus, it can be concluded that the provision of treatment using Quiziz has a significant effect on the increase in learning interest of grade VI students of SD Kartika 1-9 Pekanbaru.

Table 6. Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
PPair 1	PreTest – PostTest	- 7.857	10.336	2.255	-12.562	-3.152	-3.484	20	.002

These findings align with previous research that has demonstrated the positive impact of Quizizz on students' learning engagement. For instance, (Aini, 2020) found that the use of Quizizz in elementary and secondary education significantly improved students' competencies and engagement. Similarly, (Agustina & Martha Rusmana, 2019) reported that Quizizz made learning mathematics more enjoyable for students, which is consistent with the findings of this study. In comparison to these studies, the present research extends the understanding of Quizizz's impact by focusing specifically on its influence on learning interest among elementary school students, an area that has been underexplored. The significant increase in students' interest in this study further emphasizes the potential of Quizizz as a valuable educational tool in enhancing learning outcomes.

From the results of the research on the use of the Quiziz application on students' interest in learning mathematics. In general, it shows that there are differences in students' learning interests. Based on the hypothesis test using SPSS version 22 with the Paired Sample T-test, from the results of processing SPSS version 22 with a significance level of $\alpha = 0.05$, a Sig value (2 tailed) of 0.002 was obtained where the value was smaller than 0.05 ($0.002 < 0.05$). Therefore, it can be concluded that H0 was rejected and H1 was accepted, which means that there is a significant influence on the increase in learning interest of students in grade VI of SD Kartika 1-9 Pekanbaru.

The results of the data analysis showed the average score of mathematics learning interest of students in grade VI of SD Kartika 1-9 Pekanbaru after applying assisted learning media Quiziz is 66.05 at a value of post-test higher than the average score of students' learning interest results before applying assisted learning media Quiziz which is 58.19. This result is corroborated by the results of the study (Musdar, 2023) that the application Quiziz proven to be influential in increasing students' interest in learning mathematics.

Learning with technology helps teachers to interact together with students in the classroom (Rezeki et al., 2023). The development of digital technology is something that cannot be avoided. Developments in the world of education continue to accelerate and will continue to go hand in hand with the development of increasingly advanced technology. Use of learning media Quiziz itself is a form of technology implementation in education that continues to develop. This is certainly a positive movement in the development of learning media, especially in the past before the existence of digital learning media such as Quiziz. Implementation Quiziz In this learning, it is a form of media progress that has begun to develop. Especially now that teachers tend to still use conventional learning media and combined with boring lecture methods, this is in accordance with the conclusions derived from research (Nurhayati, 2022) who said that digital learning media is better and more in demand by students and based on the results of the same research stated that the impact of using learning media Quiziz The interest in learning of students is very large. The development of the curriculum and the adjustment of learning have required teachers to find solutions to these problems. Use Quiziz it is considered to be a solution to the problem of learning media and the response is quite good. Therefore, the use of Quiziz-assisted learning media can have a big impact on students' interest in learning. From the analysis of data and theory, because there are significant differences, it can be said that "there is an influence of the use of Quiziz-assisted learning media on the interest of students in grade VI of SD Kartika 1-9 Pekanbaru"

p-ISSN 2477-409X, e-ISSN: 2549-9084

Conclusion

Based on the results of the research and data analysis obtained, namely from the results of the post-test analysis, it is known that the Sig (2 tailelds) is 0.002 where the value is smaller than 0.05 (0.002 < 0.05). So according to the decision in the paired sample T-test, it can be concluded that H0 is rejected and H1 is accepted. The results of the data analysis showed that the average value of students' interest in learning mathematics after applying Quiziz's assisted learning media was 66.05 on a post-test score higher than the average score of students' learning interest results before applying Quiziz's assisted learning media which is 58.19. The significant influence of Quizizz can be attributed to its engaging, gamified format, which motivates students and makes learning more enjoyable. Thus, it can be said that there is a significant influence on learning using the Quiziz application compared to conventional learning in increasing the learning interest of students in grade VI of SD Kartika 1-9 Pekanbaru. Suggestions for the next researcher are to pay more attention to students so that they do not emulate their benchmates when doing questionnaires and are expected to provide more motivation to students before starting learning.

Acknowledgment

We would like to thank Riau Islamic University for supporting the completion of this article. We would also like to thank the lecturers who have helped and contributed to this research.

References

Agustina, L., & Martha Rusmana, I. (2019). Pembelajaran Matematika Menyenangkan Dengan Aplikasi Kuis Online Quizizz. *AL-IDARAH Jurnal Kependidikan Islam, 9*, 1-7.

Aini, Y.I. (2020) Pemanfaatan Media Pembelajaran Quizizz Untuk Pembelajaran Jenjang Pendidikan Dasar Dan Menengah Di Bengkulu. *Jurnal ABDI HUMANIORA: Pengabdian Masyarakat Bidang Humaniora*, *1*(1), 23–35.

Alzaber, A., Suripah, S., & Susanti, W. D. (2021). Pengembangan Buku Ajar untuk Memfasilitasi Perkuliahan Dasar dan Proses Pembelajaran Matematika (DPPM). *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *10*(4), 2291-2303. https://doi.org/10.24127/ajpm.v10i4.4131

Amelia, Y., Abdurrahman, & Wahyuni, P. (2019). *Pengaruh Model Penemuan Terbimbing Terhadap Hasil Belajar Matematika Siswa Kelas VII SMP Negeri 2 Pekanbaru*. *7*(1), 63–69.

Creswell, J. W. (2012). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. Boston: Pearson.

Febriantika, A. A. (2020). Kemampuan Pemahaman Konsep Matematis Ditinjau dari Kompetensi Keahlian. *AlphaMath : Journal of Mathematics Education*, *5*(2), 1-8.

https://doi.org/10.30595/alphamath.v5i2.7329

Hutauruk, P. (2018). Meningkatkan Hasil Belajar Siswa Dengan Alat Peraga Pada Mata Pelajaran IPA Kelas IV SDN Nomor 14 Simbolon Purba. *SEJ (School Education Journal)*, *8*(2), 121-129. https://doi.org/10.24114/sejpgsd.v8i2.9770

Miladanta, A. N., & Muharam, A. A. S. (2021). Efektivitas Pembelajaran Tatap Muka Berbasis Quizizz dalam Meningkatkan Hasil Belajar Siswa MTs Darul Fikri Materi Gerak. *Proceedings UIN Sunan Gunung Djati Bandung*, *1*(27), 25-37.

Mulyati, S., & Evendi, H. (2020). Pembelajaran Matematika Melalui Media Game Quizizz Untuk Meningkatkan Hasil Belajar Matematika SMP. *GAUSS: Jurnal Pendidikan Matematika*, *3*(1), 64–73. https://doi.org/10.30656/gauss.v3i1.2127

Musdar, M. (2023). Pengaruh Penerapan Media Quiziz dalam Meningkatkan Minat dan Hasil Belajar Peserta Didik pada Mata Pelajaran Fisika Kelas X IPA. *Journal on Education*, *6*(1), 490–502. https://doi.org/10.31004/joe.v6i1.2962

Nurhayati. (2022). Efektivitas Model Pembelajaran Daring Dan Konvensional Terhadap Prestasi Belajar Mahasiswa Semester IV STAB Kertarajasa. *Perspektif Ilmu Pendidikan*, *36*(1), 13–18. https://doi.org/10.21009/PIP.361.2

Purba, L. S. L. (2019). Peningkatan konsentrasi belajar mahasiswa melalui pemanfaatan evaluasi pembelajaran quizizz pada mata kuliah kimia fisika I. *Jurnal Dinamika Pendidikan*, *12*(1), 29-39. https://doi.org/10.33541/jdp.v12i1.1028

Putri, V. W., & Suripah, S. (2021). Eksplorasi Hasil Penelitian yang Terintegrasi Teknologi Informasi dan komputer (TIK) dalam Pembelajaran Matematika. *JPPM (Jurnal Penelitian Dan Pembelajaran Matematika)*, *14*(2), 208–222.

Rezeki, S., Dahlia, A., & Amelia, S. (2023). Pengembangan Media Pembelajaran Matematika Menggunakan Aplikasi Wordwall Untuk Peserta Didik Fase E. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *12*(3), 3136-3146. https://doi.org/10.24127/ajpm.v12i3.7188

Sabban, N. D. M. (2022). Analisis Manajemen Penggunaan Teknologi Informasi Dan Komunikasi Dalam Pembelajaran Matematika Di SMA Negeri 3 Makassar. *Journal of Applied Management and Business Research (JAMBiR)*, *2*(2), 196–202.

Sallira, H., & Pattimukay, N. (2024). Analisis Kemampuan Berpikir Kreatif Siswa dalam Menyelsaikan Masalah Keliling dan Luas Persegi panjang Di Kelas III SD Negeri 68 Ambon. *PEDAGOGIKA: Jurnal Pedagogik Dan Dinamika Pendidikan*, *12*(1), 175–181. https://doi.org/10.30598/pedagogikavol12issue1page175-181

Schunk, D. H., Pintrich, P. R., & Meece, J. L. (2014). *Motivation and Learning: Theories and Research*. Pearson Education.

Sembiring, V. M., & Sutirna, S. (2024). Analisis Minat Belajar Matematika Siswa Kelas X dalam Menggunakan Aplikasi Geogebra Pada Materi Trigonometri. *PHI: Jurnal Pendidikan Matematika*, *8*(1), 143-149. https://doi.org/10.33087/phi.v8i1.360

Sugiyono. (2018). *Metode Penelitian Kuantitatif, Kualitatif, R&D*. Bandung: Alfabeta.

Suripah. (2017). Mengembangkan Keterampilan Mengajar Berbasis ICT Bagi Calon

Guru Abad XXI. *Prosiding KMP Education Research Comference*, 676–684.

Suripah, Istikomah, E., & Habibah, U. (2022). *Integrasi Teknological Pada Pedagogical Content Knowledge (PCK) Calon Guru Matematika Dalam Merancang Pembelajaran*. DPPM Universitas Islam Riau.

Viberg, O., Grönlund, Å., & Andersson, A. (2023). Integrating Digital Technology In Mathematics Education: A Swedish Case Study. *Interactive Learning Environments*, *31*(1), 232–243. https://doi.org/10.1080/10494820.2020.1770801

Yanuarto, W. N., & Hastinasyah, P. D. (2022). Gamification: Quizizz In Mathematical Game Learning For Secondary Students. *Indonesian Journal of Mathematics Education*, *5*(2), 64–73. https://doi.org/10.31002/ijome.v5i2.6588

Yudha, F. (2019). Peran Pendidikan Matematika Dalam Meningkatkan Sumber Daya Manusia Guna Membangun Masyarakat Islam Modern. *Jurnal Pendidikan Matematika (JPM)*, *5*(2), 87–94. https://doi.org/10.33474/jpm.v5i2.2725