

The Effectiveness of Gamification on Quizizz Online Platform to Enhance Students' Achievement in English Language Learning

Shinta Putra Dewitasari¹, Ana Maghfiroh², Bambang Harmanto³, Elok Putri Nimasari⁴

¹Universitas Muhammadiyah Ponorogo, East Java, Indonesia, shintayaya18@gmail.com

²Universitas Muhammadiyah Ponorogo, East Java, Indonesia, ana_maghfiroh@umpo.ac.id

³Universitas Muhammadiyah Ponorogo, East Java, Indonesia, bambang_har@umpo.ac.id

⁴Universitas Muhammadiyah Ponorogo, East Java, Indonesia, nimasari@umpo.ac.id

*Correspondence Author: shintayaya18@gmail.com

Abstract

The purpose of this study is to evaluate the effectiveness of using the Quizizz platform for gamification in raising students' proficiency in English. The method used is a kuasi-eksperimen with pretest-posttest designs for 32 students in grade VIII B at SMPN 1 Bungal. Data is collected using the pre-test and post-test results from Quizizz's survey. The paired sample t-test is then used for analysis. The study's findings indicate a significant increase in the students' rata-rata scores, which went from 64.53 on the pretest to 83.91 on the posttest. The statistical analysis shows that Quizizz is effective in increasing English language learning results, with Sig. (2-tailed) = 0.001 (< 0.05). The results of this study indicate that Quizizz-based learning is more effective than traditional methods. In other words, gamification like Quizizz can be an engaging and interactive alternative to traditional teaching media.

Keywords:

Gamification;
Quizizz;
Language Learning

1. Introduction

English is one of the factors that influence human resource quality in the 4.0 era (Mandasari & Aminatun, 2020). In this age of globalization, there is no denying the importance of the English language for professional advancement (Таймыратов, 2023). English language competency is widely acknowledged to be important in the world of work, even though it is not the only requirement for career advancement (Clement & Murugavel, 2018). English instruction should begin at the middle level and progress to the highest level, which is the university. The goal of learning English is to generate graduates who can compete internationally and speak the language fluently (Nurtanto et al., 2021). English is a language that has generally been used as a forum for international communication, so that English can be said to be universal, where its use is not only a bridge of communication in everyday life in the international world but has also penetrated into cyberspace communication (Thariq et al., 2021). Since English is an international language, proficiency in it is required to boost each graduate's competitiveness (Pranawengtias, 2022). As a result, English is now one of the subjects that students in Indonesia must take. It is believed that offering English classes can meet students' educational needs and prepare them to become proficient in the language as it is used throughout the world. Due to the intense competition and the demands of the globalized, competitive workplace, proficiency in English is imperative (Likitrattanaporn, 2017).

In this era of globalization, technology is also advancing rapidly (Haji et al., 2025; Monike; Sudirman et al., 2026; 2026; 2025). There are numerous effects of this technology's development, one of which is its advancement in the field of education (Clement & Murugavel, 2018). With the help of this development, teachers can use technology to teach English to students. Gamification is one example of a technological advancement that can be used in teaching (Al-Dosakee & Ozdamli, 2021). Gamification is the term used to describe a learning model that incorporates game elements and techniques that are created in an off-game context, or a learning model that takes a game approach (Febrianto Hakeu, 2023). By combining game elements with technology, gamification—also known as game-based learning—has emerged as a new learning trend that encourages desired learning

outcomes and behavior (Dityaningsih et al., 2020). It's interesting to note that this teaching strategy promotes enjoyable and significant learning so that students can engage in fruitful learning exercises.

Furthermore, gamification is also considered to be able to encourage human motivation and performance for certain activities. The benefits of this gamification approach provide an incentive for students to participate in classroom learning activities. Using gamification as a teaching method makes teaching easier for teachers, such as when determining a student's final grade, which can be determined by the number of points they receive from each lesson and task (Pristiana, 2022). Thus, teaching English must fulfill the factor of how to improve students' motivation, learning outcomes, and English language skills for university students can improve their ability in the English language. However, in the implementation of the learning process, students seemed less enthusiastic about attending lectures in class (Isnawati & Hadi, 2022). Therefore, in the classroom, in the learning process, teachers or lecturers must be able to use media and facilities and also attract students' learning motivation (Pranawengtiyas, 2022). This happens made possible by several factors including the lack of motivation from students in learning.

Gamification has an important position in the world of education both in schools and universities, but there is still little research that discusses how the impact of implementing gamification on student learning outcomes has been comprehensively discussed. Information about the impact of applying gamification will provide an overview for teachers or teachers to plan and develop gamification learning methods. The purpose of this article research is to measure the effectiveness of gamification on online platform to enhance students' achievement English language learning.

2. Literature Review

English as a Foreign Language (EFL) learning remains a crucial component of education due to the growing importance of English for academic, professional, and global communication purposes. Studies have consistently emphasized that English proficiency is essential for effective performance in academic and workplace contexts, particularly in preparing students for future careers and global engagement (Clement & Murugavel, 2018; Thariq et al., 2021). However, many EFL classrooms still face challenges related to low student motivation, passive learning behaviors, and limited opportunities for meaningful language use. These challenges are often exacerbated by traditional instructional approaches that prioritize teacher-centered delivery over student engagement and active participation (Pranawengtiyas, 2022; Likitrattanaporn, 2017).

In response to these challenges, the integration of technology and gamification in teaching and learning has gained increasing attention across educational contexts. Gamification, defined as the use of game elements in non-game settings, has been shown to positively influence students' motivation, engagement, and learning behaviors (Al-Dosakee & Ozdamli, 2021; Isnawan et al., 2026; Nurtanto et al., 2021). Empirical studies conducted in Indonesian educational settings further indicate that gamified learning media can increase students' activeness and learning outcomes, particularly by fostering interactive and enjoyable learning environments (Dityaningsih et al., 2020; Febrianto Hakeu et al., 2023; Isnawati & Hadi, 2022). In EFL contexts, technology-supported instruction enables learners to engage more actively with language input and practice, which is especially beneficial where authentic English exposure is limited (Таймыратов, 2023).

Despite the growing body of literature supporting gamification and technology-enhanced learning, gaps remain in how learning outcomes are empirically measured and reported, particularly in intervention-based studies. Several studies focus predominantly on motivation, attitudes, or affective aspects of learning without systematically examining measurable improvements in students' academic performance (Pristiana, 2022; Pranawengtiyas, 2022). Consequently, there is a need for quantitative studies employing pretest–posttest designs to provide clearer evidence of learning gains following instructional interventions. Such approaches allow researchers to examine changes in students' performance more rigorously and contribute to a stronger empirical foundation for the implementation of gamified and technology-assisted strategies in EFL classrooms.

Previous studies also highlight that learning approaches emphasizing learning by doing and active student involvement are particularly effective in language education. Likitrattanaporn (2017) argues that experiential and participatory learning processes allow learners to construct knowledge through direct engagement, resulting in improved language skills and greater learner autonomy. Gamified learning

environments naturally support this approach by incorporating challenges, feedback, and goal-oriented tasks that encourage students to actively use the target language. When students are positioned as active participants rather than passive recipients of information, they are more likely to demonstrate increased motivation, persistence, and confidence in language learning (Nurtanto et al., 2021).

Moreover, gamification-based evaluation and assessment practices have been shown to support not only cognitive learning outcomes but also affective and behavioral dimensions of learning. Pristiana (2022) reports that gamified assessment models can enhance students' emotional engagement and positive attitudes toward learning activities, which in turn contribute to sustained participation. In secondary education contexts, such affective engagement is particularly important, as students' motivation strongly influences learning continuity and achievement. Nevertheless, while positive impacts on engagement and motivation are well documented, empirical evidence linking gamified interventions directly to measurable academic improvement remains limited. This underscores the importance of quantitative pretest–posttest studies that examine learning outcomes in a structured and statistically rigorous manner.

3. Method

This study employed a quantitative approach using a quasi-experimental one-group pretest–posttest design to examine the effectiveness of gamification through the Quizizz platform in enhancing students' English learning outcomes. A quasi-experimental design was selected because it allows researchers to examine the effect of an instructional intervention in natural classroom settings where random assignment and control groups are often impractical. Although this design does not fully control for all confounding variables and therefore limits strong causal inference, it remains appropriate for evaluating instructional effectiveness when experimental control is constrained.

The population of this study consisted of eighth-grade students of SMP Negeri 1 Bungkal in the 2024/2025 academic year. The sample was drawn from class VIII B, comprising 32 students, using convenience sampling, a non-probability sampling technique commonly applied in classroom-based educational research. To provide a clear overview of the participants, Table 1 presents the sample characteristics, including gender distribution and total number of students.

Table 1

Characteristics of Research Participants

Gender Frequency	
Female	23
Male	9
Total	32

Data were collected using pretest and posttest multiple-choice assessments administered through the Quizizz platform. The pretest was conducted prior to the instructional intervention to measure students' initial English proficiency, while the posttest was administered after the implementation of Quizizz-based learning to assess learning gains. Table 2 summarizes the descriptive statistics of students' pretest and posttest scores, including the mean, standard deviation, minimum, and maximum values.

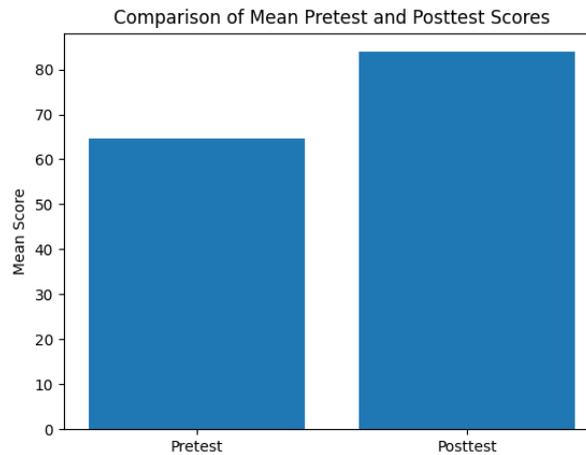
Table 2

Descriptive Statistics of Pretest and Posttest Scores

Statistic	Pretest Posttest	
	Pretest	Posttest
Mean	64.53	83.91
Standard Deviation	6.64	7.38
Minimum	50	65
Maximum	80	100

Figure 1

A graphical comparison of the mean pretest and posttest scores



To examine whether there was a statistically significant difference between students' pretest and posttest scores, the data were analyzed using a paired-samples t-test, as the same group of students was measured before and after the intervention. The results of the inferential analysis are reported in Table 3, which presents the t-value, degrees of freedom, significance value (Sig. [2-tailed]), and mean difference. In addition, Figure 1 illustrates a graphical comparison of the mean pretest and posttest scores, providing a visual representation of students' learning improvement following the Quizizz-based instruction.

Table 3

Paired-Samples t-Test Results

t-value	df	Sig. (2-tailed)
-12.24	31	0.000

4. Results and Discussion

This study employed an experimental research design. This study evaluated how well Quizizz-based instruction improved English learning outcomes for SMPN 1 Bungkal class VIII B students. A true experimental research design with a pre-test and post-test group design was employed. Although they had the same form, the pre-test and post-test instruments had different purposes. While the post-test assessed the students' level of mastery of the material they had learned, the pre-test examined the students' starting abilities. The results of both tests were compared to determine whether students had made progress and achieved success following the teaching and learning activities. A quantitative descriptive approach was used to analyze the research's data. A component of quantitative research was data measurement. This study uses pretest and posttest to evaluate 32 students.

Table 4

Pretest and posttest to evaluate 32 students

Number	Initial Name	Gender	Pretest Score	Posttest Score
1.	AYP	F	50	75
2.	ABP	M	55	75
3.	DSP	F	65	85
4.	DBSN	F	60	85
5.	EA	M	75	80
6.	FRP	F	60	90
7.	GMAR	F	60	85
8.	HDN	M	65	90
9.	HNS	F	55	75
10.	IYS	M	70	80
11.	ICR	F	60	90

12.	JAR	M	65	85
13.	JM	F	65	85
14.	KLS	F	65	90
15.	KSS	F	60	95
16.	MAF	F	60	75
17.	MA	M	65	90
18.	NH	M	70	80
19.	NRP	F	80	85
20.	NN	F	70	85
21.	NLS	F	60	75
22.	NMCA	F	65	90
23.	NDP	F	70	65
24.	QAR	M	75	85
25.	RSEP	F	60	75
26.	RAK	F	70	85
27.	SA	F	60	95
28.	SH	F	75	100
29.	SIP	F	65	90
30.	VKS	F	60	80
31.	WPL	F	70	80
32.	YNH	M	60	85

This study used paired sample t test. This test is used to compare the averages of two participating groups. Comparing the results before and after the same group's actions.

Pair	Description	Mean	Std. Deviation	Std. Error Mean	95% CI Lower	95% CI Upper	t	df	Sig. (2-tailed)
1	Before – After	-19.375	8.958	1.584	-22.605	-16.145	-12.231	31	< .001

The posttest value Sig. (2-tailed) was 0.001, and the research alpha in Tables above was 5%, or 0.05. This showed that the Sig. (2-tailed) value was less than the alpha value ($0.001 < 0.05$). Therefore, it could be concluded that in this investigation, H_1 was accepted and H_0 was rejected. Which is H_a : Quizizz is an effective tool for raising student achievement in English language learning, whereas H_o : Quizizz is not a useful tool for raising student proficiency in English. Therefore, it can be said that Quizizz has an impact on the learning outcomes of eighth-grade English students at SMP Negeri 1 Bungkal.

This study examines the effectiveness of Quizizz as a teaching tool in raising English language proficiency among VIII B students at SMP Negeri 1 Bungkal. Data from the pretest and posttest indicate a significant increase, with a rata-rata of 64.53 (SD=6.643) for the pretest and 83.91 (SD=7.376) for the posttest. Normality test(Shapiro-Wilk) and homogeneity test (Levene) ensure that the data is normal and homogeneous, while the paired samples t-test ($p=0.001 < 0.05$) confirms that this difference is statistically significant.

This supports Koster's (2004) gamification theory, which holds that game elements like skill and challenge in Quizizz increase student motivation and participation. The higher posttest results indicate that this interactive approach is more effective than the conventional method. In addition, the Quizizz learning resources available in schools make implementation easier and increase their positive impact. As a result, using Quizizz significantly improves students' English language proficiency. This study suggests using gamified media, such as Quizizz, to create more engaging and effective learning environments. It is necessary to conduct further research using larger samples and control variables to strengthen this.

Discussion

Based on the analysis of data collected using quasi-experimental methods with a one-group pre-test-post-test design, we can conclude that there are differences in the learning outcomes of students in the experimental class between the pre-test and post-test. As can be observed, the pre-test and post-test results show the average value of the students' cognitive abilities. The positive impact of Quizizz on

student achievement supports the gamification theory proposed by Koster (2004), which emphasizes that game elements like challenges, rewards, and competition can foster intrinsic motivation. The increase in posttest scores (mean = 83.91) compared to pretest scores (mean = 64.53) indicates that the competitive and interactive nature of Quizizz engaged students, motivating them to participate actively and improve their performance. This finding is consistent with the assertion by Nimasari, et al. (2025) that gamification integrates game mechanics into learning to reinforce positive behavior and enhance engagement.

The analysis revealed a notable improvement in scores, with the pretest average (64.53) being significantly lower than the posttest average (83.91). The paired samples t-test yielded a two-tailed significance value of 0.000, which according to the decision rule ($p < 0.05$), indicates that the Quizizz learning media had a statistically significant impact on students' English learning outcomes. Furthermore, when viewed from the average posttest of 83.91 with a pretest of 64.53. This shows that there is a difference between student learning outcomes in English subjects in class VIII B before being given and when compared to learning outcomes after being given treatment. Thus, the use of Quizizz learning media in learning English is more effective than learning using conventional approaches in an effort to improve the learning outcomes of students in class VIII B SMP Negeri 1 Bungkal. Based on the data, The use of Quizizz learning media in English subjects can have a significant effect in helping students achieve optimal learning outcomes. This media was first applied at SMP Negeri 1 Bungkal at the same time as the implementation of the research. In fact, the school has long had supporting facilities for Quizizz learning.

These findings are consistent with previous research highlighting the positive impact of gamification on student engagement and learning outcomes. Nimasari et al. (2025) argue that gamification strengthens learning by embedding game mechanics that reinforce positive learning behaviors, reflection, and collaboration. Similarly, Nurtanto et al. (2021) found that gamified learning environments positively influence both behavioral engagement and academic achievement by transforming learners from passive recipients into active participants. Compared to traditional teacher-centered instruction, gamified platforms such as Quizizz offer immediate feedback, real-time performance tracking, and competitive elements that stimulate learners' curiosity and persistence. This may explain the substantial score improvement observed in the posttest, as students were more motivated to complete tasks and respond actively during learning sessions. However, while the results indicate a clear improvement after the intervention, they should be interpreted cautiously. Unlike experimental studies employing control groups, this study used a one-group pretest–posttest design, which limits causal generalization. Therefore, rather than claiming superiority over conventional teaching methods, the findings suggest that Quizizz-based instruction *contributed to improved learning outcomes within the observed group*. This interpretation aligns with Pristiana (2022), who emphasizes that gamified learning often enhances affective and motivational dimensions, which indirectly support cognitive improvement. In contrast, some studies have reported that without proper instructional alignment, technology-based tools may not automatically yield learning gains (Likitrattanaporn, 2017). Thus, the effectiveness of Quizizz in this study may also be attributed to its appropriate integration into the instructional process and the readiness of the school's supporting facilities.

Furthermore, the context of SMP Negeri 1 Bungkal appears to have played a facilitating role in the successful implementation of Quizizz. The availability of adequate technological infrastructure enabled smooth adoption of the platform, allowing students to focus on learning rather than technical difficulties. This finding supports earlier studies conducted in Indonesian educational settings, which report that gamification yields stronger outcomes when supported by institutional readiness and teacher facilitation (Dityaningsih et al., 2020; Febrianto Hakeu et al., 2023). In EFL contexts, where students often experience limited exposure to authentic English use, technology-enhanced tools like Quizizz can create meaningful practice opportunities through repetition, feedback, and engagement (Таймыратов, 2023). Consequently, Quizizz may function not only as an assessment tool but also as an interactive learning medium that supports language acquisition.

Overall, this study contributes empirical evidence to the growing body of literature on gamification in EFL learning by demonstrating measurable improvement in students' English achievement following a gamified intervention. While the findings corroborate previous research emphasizing the motivational and engagement benefits of gamification (Al-Dosakee & Ozdamli, 2021;

Nurtanto et al., 2021), future research employing control groups, larger samples, and longitudinal designs is necessary to strengthen causal claims and examine long-term learning effects. Nevertheless, the present findings suggest that Quizizz-based gamification, when implemented in a supportive learning environment, can serve as an effective pedagogical strategy to enhance student learning outcomes in English.

5. Conclusion

Based on data analysis from research and hypothesis testing conducted, it can be concluded that the Quizizz-based learning method is effective on learning outcomes. Student learning outcomes using Quizizz-based learning are higher than using conventional learning. The increase in learning outcomes shows that the average at the time of the pretest is included in the medium category, while the average at the time of the posttest is higher and is included in the high category. This is also shown from the results of the student posttest T test with the posttest value obtained Sig. (2-tailed) is greater than the alpha value of the study, it can be concluded that this study H₀ is rejected and H₁ is accepted, that means there was an effect of using Quizizz on student learning outcomes in English Class VIII at SMP Negeri 1 Bungkal. This can be seen from the students' final results (posttest) higher than the pretest taught with conventional learning methods. From the above statement, it can be seen that the use of Quizizz learning media in the classroom is more effective in improving student learning outcomes compared to not using Quizizz learning in English subjects in class VIII B. So it can be concluded that there is effectiveness in the use of Quizizz on student learning outcomes in English subjects in class VIII at SMP Negeri 1 Bungkal. Despite these positive findings, several limitations of the study should be acknowledged. First, the research employed a one-group pretest–posttest design without a control group, which limits the ability to make strong causal comparisons between Quizizz-based learning and conventional instructional methods. Second, the sample size was relatively small and drawn from a single class in one school, which restricts the generalizability of the findings to broader educational contexts. Third, the study focused primarily on cognitive learning outcomes and did not examine affective variables such as motivation, engagement levels, or students' perceptions of gamified learning, which may also play a crucial role in language learning success.

In light of these limitations, future research is recommended to adopt more rigorous experimental designs, such as including control groups or employing randomized controlled trials, to strengthen causal inference regarding the effectiveness of Quizizz-based learning. Future studies may also involve larger and more diverse samples across different schools or regions to enhance the generalizability of findings. Additionally, longitudinal research could be conducted to examine the long-term impact of gamified learning on students' English proficiency. Further investigations that integrate qualitative data—such as student interviews or classroom observations—would provide deeper insights into how and why gamification influences learning processes. By addressing these areas, future research can offer a more comprehensive understanding of the pedagogical potential of Quizizz and similar gamified learning platforms in English language education.

6. References

- Al-Dosakee, K., & Ozdamli, F. (2021). Gamification in Teaching and Learning Languages: A Systematic Literature Review. *Revista Romaneasca Pentru Educatie Multidimensionala*, 13(2), 559–577. <https://doi.org/10.18662/rrem/13.2/436>
- Clement, A., & Murugavel, T. (2018). *English for the Workplace: The Importance of English Language Skills for Effective Performance*. 20(1), 1–15.
- Dityaningsih, D., Astriyani, A., & Eminita, V. (2020). Pengaruh Game Edukasi Quizizz Terhadap Keaktifan dan Hasil Belajar Matematika Siswa. *Prosiding Seminar Nasional Penelitian LPPM UMJ*, 1–8. website: <http://jurnal.umj.ac.id/index.php/semnaslit>
- Febrianto Hakeu, et al. (2023). Pemanfaatan Media Pembelajaran Berbasis Gamifikasi dalam Proses Pembelajaran di MIS Terpadu Al-Azhfar. *Jurnal PGMI*, 6. <https://doi.org/10.58518/awwaliyah.v6i2.1930>

- Haji, S., Yumiati, Y., & Wijaya, T. T. (2025). Reconceptualizing authenticity in problem-based learning for linear algebra course: A multi-stakeholder analysis of video-based hybrid instruction. *International Journal of Didactic Mathematics in Distance Education*, 3(1), 44–63. <https://doi.org/10.33830/ijdmde.v3i1.13479>
- Isnawati, A. U., & Hadi, S. (2022). Penerapan Gamifikasi untuk Meningkatkan Minat Belajar Siswa pada Mata Pelajaran Matematika Kelas II MI Ma'arif Cekok. *Prosiding Adaptivia*, 205–216.
- Isnawan, M. G., Alsulami, N. M., Hidayat, R., & Kuswara, R. D. (2026). Hybrid didactic design research for fraction understanding during pandemic-induced remote learning: Addressing ontogenic, didactical, and epistemological obstacles. *International Journal of Didactic Mathematics in Distance Education*, 3(1), 83–105. <https://doi.org/10.33830/ijdmde.v3i1.12898>
- Koster, R. (2004). *A Theory of Fun for Game Design*. New York: Paraglyph Press.
- Likitrattanaporn, W. (2017). The Development of English Language Teaching Skills for Graduate Students through the Process of Learning by Doing. *English Language Teaching*, 10(7), 96. <https://doi.org/10.5539/elt.v10n7p96>
- Monike, R. S., Sudirman, S., Kandaga, T., & Rodríguez-Nieto, C. A. (2025). Effectiveness of ChatGPT-integrated discovery learning on mathematical literacy in three-variable linear equation systems: A quasi-experimental study. *International Journal of Didactic Mathematics in Distance Education*, 3(1), 64–82. <https://doi.org/10.33830/ijdmde.v3i1.13157>
- Nimasari, E. P., Harmanto, B., Bonavidi, R., Cobantoro, A. F., Elvina Dwi, C., & Velrinda Fahza'a, R. (2025). Engaging students in a collaborative and reflective reading material development: Participatory action research. *JEES (Journal of English Educators Society)*, 10(2), 106–117. <https://doi.org/10.21070/jees.v10i2.1948>
- Nurtanto, M., Kholifah, N., Ahdhianto, E., Samsudin, A., & Isnantyo, F. D. (2021). A Review of Gamification Impact on Student Behavioral and Learning Outcomes. *International Journal of Interactive Mobile Technologies*, 15(21), 22–36. <https://doi.org/10.3991/ijim.v15i21.24381>
- Pranawengtiyas, W. (2022). Undergraduate Students' Motivation on English Language Learning At Universitas Teknokrat Indonesia. *Journal of English Language Teaching and Learning*, 3(2), 27–32. <https://doi.org/10.33365/jeltl.v3i2.1956>
- Pristiana. (2022). Implementasi Evaluasi Pembelajaran Model Gamification dalam Pelajaran Pendidikan Agama Islam pada Aspek Afektif Siswa di SMK Negeri 2 Bengkulu Utara. *Script*, 8.5.2017, 2003–2005.
- Sudirman, Rodríguez-Nieto, C. A., Hidayat, R., Isnawan, M. G., Pauzan, M., Yumiati, Martadiputra, B. A. P., & Faizah, S. (2026). Operationalizing didactical situation-based online learning to support eighth-grade students' mathematical reasoning and understanding in geometry: Participatory design research. *Journal on Mathematics Education*, 17(1), 43–68. <https://doi.org/10.22342/jme.v17i1.pp43-68>
- Sudirman, S., Martadiputra, B. A. P., Faizah, S., Rodríguez-Nieto, C., Soeharto, S., Lavicza, Z., ... & Suprihatin, R. J. (2026). Integrating steam-based MOOC as a supplement to didactical and pedagogical practices in school mathematics: A design-based research. *Journal of Technology and Science Education*, 16(1), 125-146. <https://doi.org/10.3926/jotse.3633>
- Sudirman, S., Andrés Rodríguez-Nieto, C., Dani Prasetyo Adi, P., Bukhori Muslim, A., Faizah, S., Dwi Susandi, A., & SaDijah, C. (2025). Contextualising AR digital module instruction as artifacts in 3D geometry: a didactical tetrahedron action research. *International Journal of Mathematical Education in Science and Technology*, 1-27.

- Thariq, P. A., Husna, A., Aulia, E., Djusfi, A. R., Lestari, R., Fahrimal, Y., & Jhoanda, R. (2021). Sosialisasi Pentingnya Menguasai Bahasa Inggris Bagi Mahasiswa. *Jurnal Pengabdian Masyarakat: Darma Bakti Teuku Umar*, 2(2), 316. <https://doi.org/10.35308/baktiku.v2i2.2835>
- Таумуратов, А. (2023). The use of technology in english language learning. *Ренессанс В Парадигме Новаций Образования И Технологий В Хxi Веке*, 1(1), 432–433. <https://doi.org/10.47689/xxia-ttipr-vol1-iss1-pp432-433>