Utilizing Gamified Quizzes to Enhance Students' English Reading Comprehension Skills

Malik Salim[1*], Karisman Muhammad Sukarno[2], Inayatur Robbaniyah[3], Muhamad Fauzan Aminudin[4], Sri Harti Widyastuti[5], Khoirul Bariyyah[6], Anni Nurul Hidayati[7]

[1,2]Department of English Education, Yogyakarta State University, Yogyakarta, Indonesia
[3]Department of Early Childhood Education, Yogyakarta State University, Yogyakarta, Indonesia
[4,5]Department of Language Education Science, Yogyakarta State University, Yogyakarta, Indonesia
[6]Department of English Education, Universitas Singaperbangsa Karawang, Indonesia
[7]Universitas Nahdlatul Ulama Surakarta, Surakarta, Indonesia
*Email: malliksallim@gmail.com

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ABSTRACT

Purpose – Reading comprehension includes identifying key concepts, drawing conclusions, and critically engaging with written resources, all of which are integral to academic success and communication. However, disinterest, insufficient vocabulary and an inclination toward technology have hindered students' reading growth. This study investigates the effectiveness of gamified quizzes, explicitly using the Quizizz application, in enhancing reading comprehension among junior high school students.

Methodology – Employing a quasi-experimental design with a one-group pretest-posttest framework, the study was conducted with Class VII-A students at SMP 1 Yogyakarta during the 2024/2025 academic year. The data were analyzed using SPSS version 25.

Findings – Descriptive statistics of pretest and posttest scores have indicated an enhancement in students' reading comprehension, with the average moving from 58.33 to 79.53. The results underscore the capacity of gamified quizzes to enhance engagement, motivation, and literacy abilities, presenting a viable solution to modern issues in reading instruction.

Significance – Future study should investigate the broader applications of gamified technologies and their persistent impact on learning outcomes.

INTRODUCTION

Reading comprehension is understanding and interpreting written texts, which is essential for academic success and effective communication. It involves recognizing the main ideas and details and making inferences (Elleman & Oslund, 2019; Zhao et al., 2024). As the foundation of learning, reading enhances literacy

skills such as comprehension, vocabulary, fluency, and writing, which are essential for acquiring knowledge and succeeding across all subject areas. Additionally, regular reading helps students grasp complex concepts, engage with the material, and retain information effectively, contributing to improved academic outcomes (Loh et al., 2024; Lammert & Brice, 2024; Soeharto et al., 2024; Setiawan & Soeharto, 2020).

Key components supporting reading comprehension include phonemic awareness and vocabulary development. Phonemic awareness, the ability to manipulate sounds within words, is a strong predictor of reading success, as it aids in efficient word decoding (Seyed, 2012; Demir et al., 2024). Vocabulary development, including oral and reading vocabulary, forms the foundation of literacy and can be strengthened through effective instruction and exposure to rich language experiences (Carmiol et al., 2024; McKeown, 2019). Additionally, critical thinking enriches comprehension by fostering deeper engagement through the analysis, evaluation, and integration of ideas, enabling readers to assess credibility, identify biases, and connect with texts on a meaningful level (Heidari, 2020; Lin & Chen, 2024; Mohammadi et al., 2024). In conclusion, these components highlight the diverse nature of reading to promote literacy, critical thinking, and lifelong enjoyment of learning.

Reading comprehension is a vital cognitive skill significantly influencing students' educational success and future growth. However, many students encounter persistent challenges in this area, which hinder their performance in school and their ability to engage meaningfully with content across subjects. According to Snow (2002), the problems that students encounter during the reading comprehension process can be grouped into several categories: the absence of interest, trouble in paraphrasing, deficient word power, and deficiencies in complex text understanding. Such factors are not independent of each other but, instead, form a circle that obstructs the process (Indrasvari et al., 2021).

Engagement is an important aspect of developing comprehension skills; without it, students tend to avoid reading tasks. Students not interested in the text paid less attention to the reading, adversely affecting their comprehension and recall. In addition, when students are unable to identify salient ideas in texts or are unable to summarize information, they tend to have a lower understanding of concepts. This is worse in the case of more advanced texts requiring several ideas to be brought together to complete parts of a text. A case study by Duke and Pearson (2002) explains that students often fail to make these connections, which results in more advanced parts of their reading being challenging to comprehend in parts.

An additional layer of complexity arises when considering the changing patterns in students' media usage. There has been a profound shift in how students perceive content today, as sites like TikTok, Instagram, and YouTube are highly favored. These sights are a staple in students' lives. Such interactive platforms foremost serve short, entertaining slots that can be skimmed through without the commitment to deep focus when reading. Mangen et al. (2013) note that these preferences are detrimental as they make students impatient, which translates to reading less informative material. Exposure to such an all-encompassing sights routine to students puts them at risk of losing interest in reading longer, complicated texts. Also, gaming activities provide the same level of engrossing experiences, which can distract attention from reading.

Observations recorded during the local pre-interviews in September 2024 reveal that many students had difficulties understanding long sentences and frequent attempts to connect dots within different paragraphs. These barriers lead to a segmented interpretation, which, in turn, may result in less desire to read. Therefore, there is a decrease in students' eagerness to read because of the excessive time it takes and the effort it requires to perform academic readings. This problem is made worse by the absence of organized instructional techniques to build an appropriate reading culture and master comprehension abilities.

Moreover, teachers are also encountering enormous challenges in tackling these problems efficiently. UNESCO (2016) states that their heavy administrative duties largely shape the way teachers deliver their teaching. Time constraints inhibit individualization, and teachers may not have the capacity to meet the individual reading comprehension needs of their pupils. This concern is more acute in resource-poor environments, where teachers have no facilities or systems to reinforce their instructive endeavors.

These factors, such as student disengagement, short-form media interaction, limited vocabulary acquisition, and teacher-used approaches, are detrimental to the acquisition of good reading skills. To address these issues, novel and systematic solutions are needed. For example, a balance between media consumption

and academic reading can be achieved through the adoption of provisions that strengthen digital literacy, along with improved reading comprehension in line with focused teacher training.

One promising solution to these persistent issues is integrating technology into reading instruction. Using modern tools and technologies means teachers can create personalized learning that meets students' needs. Including gamification in educational practices, for example, improves engagement and motivation by applying game design elements, such as points, levels, badges, and rewards. Reading activities become fun and enjoyable television shows, and students are animated and interested in these activities (Khan et al., 2024; Alfadil, 2020).

Gamification fulfills many functions that contribute to the achievement of specific educational goals. It encourages active participation by changing passive modes of learning into active forms with the aid of interactive technologies, and it maintains motivation for students over long periods. It has also been argued that motivation increases since they are provided with progress rewards and receive self-incentives when setting goals at the micro level that meet the usability criteria in future learning (Winangsih & Harahap, 2023). Social interaction and peer learning are stimulated by gamified tools and situations that promote group work within the gamified environment, encouraging students to communicate with each other and exchange ideas that support their understanding (Thompson & von Gillern, 2020). Even with these benefits in mind, technology integration into the classroom has not evolved in recent years, and this can be partially attributed to insufficient training and resources provided to educators. Solving these discrepancies is important to maximize the benefits of digital tools and gamification in enhancing reading comprehension. If these solutions are effectively integrated into education systems, students can address such reading problems and acquire the required literacy skills that are important in life (Rintaningrum, 2023; Mokhtar & Othman, 2022).

This research examines the use of gamified quizzes in reading comprehension pedagogy while seeking students at the junior high school level to learn and engage with the content better. There are various applications today, such as Quizizz, which increasingly seem to have the merit of meeting different learning needs and styles, including gamified quizzes. For example, visual learners benefit from quizzes' graphical and visual components, while competitive learners are motivated by interactive elements such as leaderboards and time-based challenges (Khan et al., 2024; Setyaningsih et al., 2023). Additionally, features that promote collaboration, including team-based tasks and peer interactions, foster a sense of community and shared learning. This method assists the learner in gaining some understanding and developing the ability to think relatively better (Blanco et al., 2023). The tools also enable the customization of tasks so that the learners only deal with what is suitable for them in order to achieve maximum learning experience (Orhan Goksun & Gursoy, 2019).

Despite these advantages, successfully implementing gamified quizzes requires adequate teacher training to design and effectively integrate these tools into classroom practices (Attig et al., 2024). Previous research highlights several benefits of gamified quizzes, such as improving reading comprehension (Heidari, 2020; Lin & Chen, 2024), fostering critical thinking (Thompson & von Gillern, 2020), and enhancing classroom motivation (Alfadil, 2020). Nevertheless, the tools' particular advantages for junior high school pupils in enhancing their reading comprehension abilities are largely ignored. This lack of information in the literature suggests that measuring the effectiveness of gamified quizzes against standard teaching practices is imperative (Julianti et al., 2022). As such, this investigation seeks to fill the gap in the literature by addressing the following research questions:

1. How do gamified quizzes impact students' learning outcomes in reading comprehension?
2. How does the integration of gamified quizzes influence student engagement, and how does this compare to traditional teaching methods in improving reading comprehension skills?

METHOD

This study uses a quasi-experimental design to evaluate the relationship between the independent and dependent variables. The independent variable is the use of the Quizizz application as a learning medium,

while the dependent variable is students' reading comprehension, measured through learning outcome tests. The research design applied is the Pretest-Posttest Nonequivalent Control Group Design (Sugiyono, 2019).

In this study, the research method employed was quasi-experimental, which involves experimental research conducted on a single group, referred to as the experimental group, without a comparison or control group (Arikunto, 2006). The research design adopted was the one-group pretest-posttest design, which is illustrated in Figure 1.

O_1 (Pretest)	→	X Treatment (use of the Quizizz application)	→	O_3 Post-Test
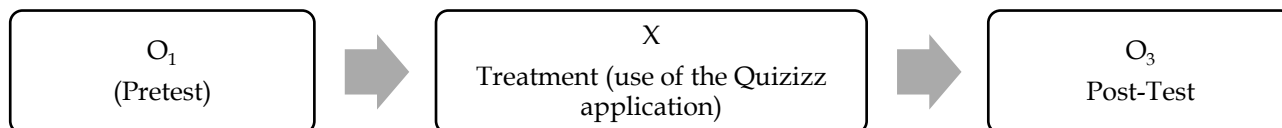
Figure 1. One Group Pretest-Posttest Design

This study was conducted at SMP 1 Yogyakarta during the 2024/2025 academic year, with the population consisting of all seventh-grade students. Class VII-A was selected as the research sample based on several strategic and technical considerations. The English teacher assigned to this class supported the study, including readiness to adjust teaching methods and incorporate the Quizizz application. Moreover, the timetable for Class VII-A accommodates incorporating new teaching strategies without interfering with the standard instruction calendar. This class was representative of the reading comprehension abilities of seventh-grade students at SMP 1 Yogyakarta due to the composite academic abilities of the class. Also, supporting facilities like access to technology-enabled interactive teaching-learning and using a One Group Pretest-Posttest design, using one class as the sample, enabled time, workforce, and material resources efficiency while permitting detailed research. Initial observations and communication with the teacher indicated that Class VII-A faced challenges in reading comprehension relevant to the focus of this study, making it an ideal choice for assessing the effectiveness of the Quizizz application.

FINDINGS

The researcher used SPSS version 25, beginning with Descriptive Statistics to summarize and describe the pretest and posttest scores. This particular step helped to explore the mean, standard deviation, and population spread range of the characteristics under analysis. These measures, as a description, provided a setting for a basic understanding of the students' performance surrounding the intervention, further broadening the range of analysis.

Table 1. Descriptive Statistics of Reading Comprehension Test

Class	N	Minimum	Maximum	Mean	Std. Deviation
Pretest	30	35.00	85.00	58.33	10.28
Posttest	30	60.00	95.00	79.53	10.40

The descriptive statistics, as seen in Table 1 above, reveal key differences between the pretest and posttest scores of the 30 students. During the pretest, the scores ranged from the lowest 35 to 85, where the mean obtained was 58.33, and the standard deviation was 10.28, indicating a moderate variance in the students' reading comprehension ability. However, when analyzing the posttest questionnaires, the scores ranged from 60 to 95, with the mean increasing to 79.53 and the standard deviation being 10.40. The increased mean indicates that the usage of the Quizizz application greatly assisted the students in increasing their reading scores. The performance level for the whole group remained the same across the different tests, as indicated by the standard deviation.

Figure 2 below compares the pretest and posttest scores of 30 study participants. The horizontal axis represents individual students (1–30), while the vertical axis shows the scores obtained. The blue bars represent the pretest scores, reflecting the students' initial abilities before the intervention. In contrast, the orange bars represent the posttest scores, showcasing the results after using the Quizizz application in the

learning process. Figure 2 shows that almost all learners performed better in the posttest than in the pretest. This suggests that the use of Quizizz was effective in improving the students' English reading comprehension ability.
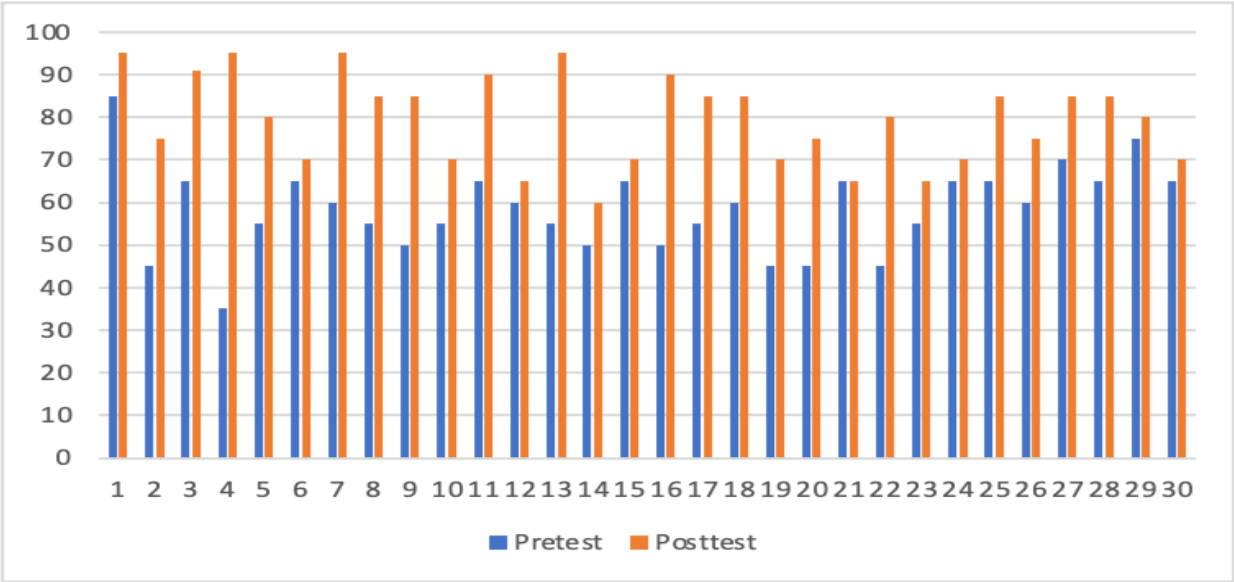
Figure 2. The Comparison of Pretest and Posttest in Reading Comprehension Test

In this study, since only one class was involved in the One Group Pretest-Posttest design, there was no need for homogeneity testing between groups. Sianturi (2022) noted that homogeneity of variance testing is essential when comparing two or more groups; however, this study only focused on a single group. Consequently, the analysis emphasized the normality of the data distribution. A normality test was then performed to ensure the data followed a normal distribution—statistical tests such as the Shapiro-Wilk test were used, depending on the sample size. If the "p" value obtained from the normality test was more significant than 0.05, it indicated that the data met the assumption of normality, which is a crucial requirement for subsequent statistical tests.

Table 2. Normality test of reading comprehension

Kelas	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	.158	30	.053	.955	30	.235
Posttest	.167	30	.032	.935	30	.066

Since the data meets the normality assumption, a Paired Samples t-test was conducted to compare the mean scores of the pretest and posttest. This statistical test evaluates whether there is a significant difference in students' performance before and after the treatment, indicating the effectiveness of the intervention.

Table 3. Tests of Paired t-test of reading comprehension

		Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Pretest Posttest	-21.2	14.01	2.56	-26.43	-15.97	-8.28	29	.000

The study investigated the impact of gamified quizzes through the Quizizz application on students' English reading comprehension skills. A Paired Samples t-test was employed to analyze the mean difference

between pretest and posttest scores. The analysis of Table 3 showed a remarkable enhancement in performance, as the average score difference of -21.20 indicates a considerable increase in the scores following the intervention. The score improvements exhibited a moderate variation, as shown by the standard deviation of 14.01, and the estimated precision was depicted by a standard error mean of 2.56. The 95% confidence interval ranged from -26.43 to -15.97, suggesting that the mean difference will likely fall within this range. The t-value of -8.288 and the degrees of freedom (29) indicated a statistically significant difference between pretest and posttest scores, as evidenced by the p-value of .000 (less than 0.05). These results confirm that Quizizz gamification increased the reading comprehension skills of students. The findings also demonstrate the effectiveness of technology-oriented methods in achieving better learning outcomes and engaging students' greater overall interest in English language learning.

DISCUSSION

Research carried out at Junior High School 1 Yogyakarta has proven that students' reading comprehension can be improved with the use of Quizizz, an online gamified quiz application. This difference is significant since it reaffirms the superiority of gamified learning tools compared to traditional strategies, as Ariyani and Kristin (2021) and Latif et al. (2020) noted. These results also support investigations by Mohammadi et al. (2024) and Noroozi et al. (2020), who point out the strong link between the application of gamification strategies and the improvement in educational results. All in all, this study indicates advancement with the help of Quizizz in reading comprehension and the student's level of involvement, which remained consistent and quantifiable.

The findings reveal that the experimental group's reading comprehension increased significantly after using the gamified quiz application Quizizz. This suggests that the application is practical in facilitating student learning, as there was an improvement in posttest scores, which recorded 79.53, up from a mere 58.33. Additionally, there has been a slight decrease in standard deviation from pretest and posttest, 10.28 to 10.40, which shows a slight improvement in student performance consistency.

As Zhang and Huang (2024) imply, alternative educational factors should be considered when assessing specific educational interventions to note the impact of broader features on the interventions. It is also essential to note that development in the control group, which utilized traditional methods of instruction or can be termed as untreated, was witnessed, albeit to a lesser degree (Safitri et al., 2019; Safitri, Hansyah, et al., 2023). The aforementioned factors could be ascribed to some natural self-learning growth, dilation through multiple assessments, or extra help in the domain, which were not provided within the study's limitations.

As part of this tool's attributes, Quizizz offered real-time feedback, enabling its users to present a structured lesson. This complemented improvement in student engagement and motivation levels. This engagement is critical for students, especially those learners who may have difficulties with conventional ways of learning. Gamified quizzes offer an active, dynamic alternative that can capture students' attention and deepen their understanding of the material through participation and problem-solving, as discussed by Tavares (2022). Future work should be directed towards assessing the long-term impact and retention of gamified activities on reading comprehension (Safitri et al., 2022; Safitri, Lestarani, et al., 2024; Safitri, Muti'ah, et al., 2023; Safitri, Rosnawati, et al., 2024). For instance, Culler and co-workers could conduct research studies that determine if gamification can be replicated again under different subjects and education levels and if the findings are broader in focus. In addition, broadening the sample and adding schools from different locations will contribute to a better understanding of the application and effectiveness of such gamified learning tools in diverse environments (Indrasvari et al., 2021).

There was a remarkable improvement in the reading comprehension of the students from Junior High School 1 Yogyakarta due to the use of the Quizizz application. The application of gamified quizzes boosted the engagement of educational outcomes, marked by the elevated average scores posted by the experimental group and the faint changes in standard deviation (Safitri, 2024; Safitri & Ansyari, 2024). Though other independent variables may be evaluated in terms of student learning, the interactive and gamified interface

of the Quizizz tool has specific advantages, providing a basis for its broader introduction into educational practice for more diverse and efficient learning environments (Nuraisyah et al., 2021).

CONCLUSION

The adoption of Quizizz brought about remarkable improvements in students' reading comprehension in Junior High School 1 Yogyakarta. The experimental groups' higher average scores and relatively low standard deviations indicate that gamified quizzes have great potential to improve educational performance. Although other aspects may have aided in students' learning, the fun and engaging qualities of Quizizz are unique and thus make a strong case in favor of its broader usage in the educational context, enabling efficient and engaging learning environments. In conclusion, quizzes in posttest scores indicate a significant enhancement in the reading comprehension outcomes of students in game variants of quizzes. Quizzes also have a role in improving students' performance and encouraging them more because they offer an interactive form of learning that encourages them to stay motivated.

In contrast to the traditional methods, gamified quizzes are the first and most effective way to enhance the participation of students in the learning process. This study demonstrates that attention should be paid to applying gamified learning tools in education to increase students' involvement and foster effective learning. Quizzes as gamified tools should be further researched concerning their timing and application in various subjects and educational levels because the results were positive. In addition, teachers should be advised to use gamified tools as part of their instructional strategy to increase learners' motivation and the quality of the learning process.

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