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| RESEARCH ARTICLE

Gamified Reading with Quizizz: Performance Gains and Vietnamese EFL Learner Attitudes

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| ABSTRACT
The study investigates the extent to which Quizizz improves pre-intermediate learners' reading performance in a private center in Vietnam, and their attitudes towards it. The study employed a quantitative approach: A pair of pre-test and post-test was utilized to measure the effectiveness of Quizizz in improving pre-intermediate learners' reading performance. Their attitudes were examined through a 15-item Likert questionnaire based on the ACB model (affective, cognitive, and behavioral components) across the pre-, while-, and post-reading stages. The participants were 100 pre-intermediate learners from a language center in Vietnam, chosen through convenience sampling. Because normality was violated, the Wilcoxon signed-rank test was applied to compare scores. The results revealed a significant improvement in reading performance, with post-test scores higher than pre-test scores ($Z = -7.437$, $p < .001$) and a large effect size ($r = .80$). Additionally, the questionnaire findings showed positive attitudes in the while- and post-reading stages. In contrast, the learners' attitudes in the pre-reading stage were mixed: they enjoyed quizzes with entertaining elements while reporting neutral responses to flashcards and future intentions of use. In conclusion, Quizizz significantly enhanced reading performance and encouraged positive learner attitudes, particularly in the while- and post-reading stages. These findings highlight the potential of gamified tools to support comprehension, motivation, and learner engagement in English reading instruction.

| KEYWORDS
Quizizz; gamification; reading performance; attitudes; Vietnamese EFL learners

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1. Introduction

As English has been considered an important global language, playing an important role in communication, academia, employment opportunities, and international integration, the Vietnamese government has identified English as a strategic language for developing high-quality human resources, in line with the modern demands of global integration (Hoang, 2021). Thus, learners need to develop four English skills for better communication. Of them, reading offers crucial language input that facilitates the development of overall language proficiency and allows learners to access information widely (Grabe, 2022; Nation, 2022). However, many students still face big challenges in English reading performance because they are not interested in long reading passages and questions (Septia et al., 2022). Moreover, their poor reading performance is attributed to boring teaching methods adopted by their teachers (Iftanti, 2012). In the Vietnamese context, many learners feel bored with English reading due to dry and long texts, showing a lack of interest and motivation during reading lessons (Le, 2023); their difficulties in reading comprehension mainly stem from the lack of reading habits, enthusiasm, and motivation for reading (Duc & Lan, 2023). Therefore, these factors lead to low reading performance, causing many Vietnamese EFL learners to lose interest and confidence in learning English reading.

To address these issues, finding and applying innovative teaching methods to improve reading learning efficiency and increase learners' motivation and engagement are becoming essential. In the digital era, among the potential solutions, Quizizz - an online learning platform that applies gamification - is increasingly receiving attention from many teachers, especially those in language centers in Vietnam, for its convenience. Quizizz is popular for its entertaining elements such as leaderboards, music, and memes, which can create a competitive and interactive learning environment (Sihite & Hamzah, 2025). However, despite its popularity in language education, limited research has been conducted on its effectiveness on pre-intermediate learners' reading performance in the Vietnamese context. Therefore, this study was conducted to evaluate the effectiveness of this application in improving the English reading performance of pre-intermediate EFL learners in a language center in Vietnam. This group of learners was chosen because, at this level, many of them struggle with reading skills, as they often have limited vocabulary and ineffective reading strategies, and employ a mechanical reading approach without deep comprehension (Nguyen, 2025). Hence, as one of the popular gamified tools, Quizizz is an appropriate choice as it is user-friendly and provides instant feedback, visual support, and a competitive learning environment that encourages learners to focus on deep comprehension rather than mechanical reading (Dewi et al., 2025; Sholeh & Qodriyah, 2024; Sulistyanto & Prayoga, 2025).This study was then conducted to answer these two research questions: (1) To what extent does Quizizz improve pre-intermediate learners' reading performance? and (2) What are pre-intermediate learners' attitudes towards the use of Quizizz in learning English reading?

2. Literature review

2.1 The importance of reading in language learning

Reading is a fundamental skill in language learning, as it provides an essential input for the development of other skills. Aebersold and Field (1997) think that reading exposes learners to authentic materials, which in turn helps them enhance their vocabulary and grammatical knowledge. Nation (2001) further posits that consistent reading not only enhances vocabulary but also improves comprehension of collocations and sentence structures, resulting in more accurate and natural expression. Authentic texts also contribute to the development of intercultural communication skills by providing knowledge of a variety of styles and cultures. Recent studies (Mahmood, 2022; Usmanov & Kobilova, 2024) show that reading not only improves vocabulary and grammar but also develops critical thinking, memory, and creativity. Reading, therefore, plays an essential role in improving learners' language proficiency and academic achievement.

2.2 Technology in language learning

Recent technological advancements have enabled instructors to incorporate technology into their teaching methods. As a result, the use of technologies has become increasingly common in language learning over the past decades. Research has demonstrated that when technology is used appropriately, it can improve learners' language acquisition, motivation, autonomy, and interest in learning. The incorporation of technologies into language education has developed significantly from computer-assisted language learning (CALL) to mobile-assisted language learning (MALL) and, more modernly, web-based learning environments. CALL has long been acknowledged for its ability to promote learners' autonomy, provide authentic learning materials, and offer instant responses. Hence, this form of learning has facilitated personalized learning experiences (Warschauer & Healey, 1998). Meanwhile, thanks to the advancement of mobile devices, MALL has allowed learners to practice languages anywhere and anytime, providing them flexibility (Kukulska-Hulme & Shield, 2008). Additionally, the appearance of learning management systems (LMS) such as Google Classroom helps teachers create interactive lessons and easily monitor students' progress. LMS also encourages students to collaborate with each other, creating cooperative learning environments (Tian et al.,2025).

Another advantage of technology is that learners can acquire knowledge from various forms, such as texts, images, audio, and videos. This use of various media can help learners comprehend information more effectively (Mayer, 2001, 2009). He also notes that learners can learn best if texts and relevant images are presented close to each other, which helps them process knowledge more easily from two sources of information. Recent research further indicates that multimedia utilization may enhance long-term retention. For example, learners can remember vocabulary better through videos, images, and texts than using texts alone (Alhazmi, 2024); learners can retain vocabulary over time with the support of multimedia (Teng, 2023). In blended courses, learners' use of digital annotation tools on their English reading materials in an LMS helps improve their L2 lexical recognition and comprehension, and their ability to summarize, justify, reproduce, and rephrase concepts (Azmuddin et al., 2025).

2.3 Gamification in language learning

The term 'gamified learning' was first introduced in 2010 (Deterding et al., 2011). It refers to the application of game elements in educational settings to increase learners' motivation and engagement (Wood & Reiners, 2014). Gamified learning can address the problem of lack of motivation and disengagement in the learning process while creating a dynamic learning environment that encourages teamwork and increases self-confidence (García-López et al., 2023).

Several studies have shown the benefits of gamification in the language domain: Gamification activities are effective for vocabulary learning (Zou et al., 2019); Learners are able to improve their grammar and maintain their learning interest with the help of platforms such as Kahoot!, Socrative, and Quizizz (Hashim et al., 2019). The incorporation of gamified quizzes can reduce the stress of the learning environment that is usually associated with conventional classes (Alsswey & Malak, 2024). Learners are also more engaged and less stressed when learning in a gamified learning environment (Waluyo & Balazon, 2024). In brief, by maintaining motivation, promoting engagement, and creating a fun, competitive learning environment, gamification, especially a digital one, generally improves learners' attitudes and learning outcomes. Thus, it may serve as a suitable choice for learners in the age of technology.

2.4 Quizizz as a digital application for language learning

Quizizz, launched in 2015 by two Indian teachers, is an online learning platform that integrates game elements to increase learner motivation and engagement (Suwarni et al., 2023). There are five main tools available in this app: *quiz* (creating tests with multiple question types and instant feedback), *lesson* (providing interactive slide-based lessons that combine text, images, and audio), *interactive video* (inserting questions into videos to enhance active participation), *flashcard* (supporting vocabulary memorization through images and repetition), and *passage* (providing reading practice with text and questions on the same screen, supporting reading strategies such as skimming and scanning). Based on previous studies, the five main tools of Quizizz have been widely used in language learning, serving three main functions: (1) a quiz creation tool, (2) an assessment and review tool, and (3) a gamified student learning response system. They are briefly described as follows.

- Quizizz can be used as a platform to create quizzes with various question types. For learners, they can use their personal digital devices to answer the questions created by their teachers. After completing the exercises, learners can receive immediate positive or negative responses on the screen (Göksün & Gürsoy, 2019). For teachers, they can select questions from the library that have been prepared by other teachers and use the given questions in exercises for their students to practice, which helps them save time and effort (Degirmenci, 2021).

- Quizizz helps learners assess their learning outcomes with interesting learning experiences. Students can receive instant feedback, so they can identify their mistakes (Pitoyo et al., 2020). This is an advantage because feedback is prompt and helpful, and this reduces learners' test anxiety and increases their engagement through learning self-efficacy (Cao & Han, 2024). Additionally, entertaining elements such as memes, avatars, background music, and leaderboards can reduce students' anxiety and enhance their enjoyment while students take the tests (Zainuddin et al., 2020; Pitoyo et al., 2020).

- Quizizz creates a competitive learning environment (Yong & Rudolph, 2022). With timers, learners are motivated to focus on their tasks, minimizing the chances for cheating, so it can reflect their real performance. Additionally, leaderboards can encourage learners to do their best to achieve the highest positions (Pitoyo et al., 2020). Therefore, such features of Quizizz can promote learners' concentration and focus, contributing to better learning results. Based on the Flow Theory by Csikszentmihalyi (1990), setting some challenges for learners can help them fully immerse themselves in the learning process. Thus, this is suitable for those who enjoy learning through competition, but can cause some pressure for those who do not like competing with their peers (Wang et al., 2024).

2.5 The use of Quizizz in reading learning

Since Quizizz has gained increasing popularity in language education, it has attracted enormous attention from researchers in the field. Below are some studies focusing on important elements related to learners' reading learning.

Several studies have been conducted to prove the effectiveness of Quizizz in improving learners' vocabulary acquisition, an important part of reading comprehension. For example, Agustin (2022) discovered that Quizizz not only improved the vocabulary mastery of secondary school students in Indonesia but also enhanced their learning motivation. In Thailand, Castro et al. (2024) reported that Quizizz helped improve vocabulary acquisition among 241 university students, while Wang et al.'s (2024) study of

American high school students learning Chinese as a foreign language noted a strong positive correlation between practice time with Quizizz and post-test scores. In other words, the more time students allocated to studying Chinese vocabulary with Quizizz, the higher their post-test scores were. These findings altogether demonstrate that Quizizz has significant effects on improving students' vocabulary acquisition.

Additionally, numerous studies have shown the positive impacts of Quizizz on grammar, another essential part of reading comprehension. Hui et al. (2021) asserted that students in a primary school in Malaysia were more motivated to learn and exhibited better grammar acquisition when using Quizizz because of the fun and personalized learning environment provided by the platform. Similarly, Pham (2023) revealed that Vietnamese learners in the experimental group who used Quizizz had better performance in grammar tests compared to those in the control group, suggesting that gamified elements of Quizizz can enhance learners' academic results in grammar. Moreover, Rahmadani et al. (2022) highlighted that university students in South Kalimantan felt satisfied when studying grammar with Quizizz thanks to its user-friendly interface and instant feedback. Therefore, Quizizz is considered an effective tool that helps students learn grammar better and more interestingly.

Regarding reading in general, many studies in Indonesia showed that learners using Quizizz performed better than their counterparts, which proved the efficacy of Quizizz in reading comprehension. For example, Sihite and Hamzah (2025)'s pre-experimental study with grade 11 students showcased that their reading mean scores increased considerably after learning English reading with Quizizz. Furthermore, Matra and Dewi (2024) claimed that high school learners in Indonesia were more active, which in turn improved their reading comprehension. Pranata et al. (2024) compared the effectiveness of Quizizz and Google Forms in improving vocational school learners' reading comprehension in Indonesia, and they found that students using Quizizz had significant improvement compared to those using Google Forms. Khalsum (2024) reported that high school learners found doing reading comprehension exercises on Quizizz less stressful and more enjoyable, leading to better reading performance.

Overall, these previous studies, whose participants are mostly pre-intermediate or lower-level learners, have indicated the effectiveness of Quizizz in improving students' learning efficiency regarding vocabulary and grammar in particular, and reading comprehension in general. However, research on the use of Quizizz for reading in the Vietnamese context is still limited. Additionally, no efforts have been made to investigate Vietnamese learners' attitudes towards the incorporation of this application in enhancing their reading performance. Therefore, this study aims to examine two interrelated things, i.e., the effectiveness of Quizizz on learners' reading performance and their attitudes towards the use of this application.

2.6 Learner attitudes

Attitude has long received significant attention from researchers since it plays a crucial role in shaping individuals' perception of the world. The term "attitude" has been defined in several ways.

Likert (1932, p. 9) defines attitude as "an inference which is made on the basis of a complex belief about the attitude object." Later, Fishbein and Ajzen (1975, p. 6) regard attitude as "a learned predisposition to respond favorably or unfavorably to an attitude object." Hogg and Vaughan (2005, p. 150) provide a broader definition: Attitude is "a relatively enduring organization of beliefs, feelings, and behavioral tendencies towards socially significant objects, groups, events, or symbols." This view is shared in Olson and Kendrick (2008, p. 111): Attitude refers to "positive and negative feelings, beliefs, and behavioral information about all ranges of attitude objects." In general, considering its various aspects, we can agree that attitude is an integrated evaluative concept that connects affect, action, and cognition, which in turn directs how people react to social objects.

In language learning, learners' attitudes are vital, as Gardner and Lambert (1972) assert that learners' language acquisition is not only affected by their mental competence or language skills but also by their attitudes towards the language. Thus, positive attitudes play an indispensable role in language learning. Furthermore, Karahan (2007, p. 84) notes that "positive language attitudes let learners have a positive orientation towards learning English," while Wenden (1991) believes that learners' beliefs and behaviors towards the target language are influenced by their attitude, and this will guide their decision to acquire the language. To examine attitude, Baker (1992) constructs its three-component structure, including *cognitive* (C), *affective* (A), and *behavioral* (B). If one component changes, the others may adjust accordingly in order to maintain the internal consistency (Fishbein & Ajzen, 1975). This structure is then developed into the multicomponent model (ABC) by Eagly and Chaiken (1993). These components are interconnected and inseparable. The cognitive component refers to an individual's beliefs and thoughts towards an attitude object (Baker, 1992; Eagly & Chaiken, 1993). In the context of technological use, these beliefs are associated with the perceived usefulness and perceived ease of use in the TAM (Technology Acceptance Model) by Davis (1989), which shows that the cognitive component, in turn, impacts individuals' behavioral intention.

The affective component is related to individuals' positive or negative emotions or feelings towards an object (McLeod, 2023). For positive emotions, enjoyment is the primary element of the affective component (Dismore & Bailey, 2011). Learners' degree of enjoyment is determined by how much they love learning and interacting with the subject (Kupari & Nissinen, 2013). For negative feelings, anxiety is one of the affective elements that can cause poor academic performance (MacIntyre & Gardner, 1991) and is the most commonly researched emotion in language learning (Dewaele & MacIntyre, 2014). As a result, enjoyment and anxiety are two main emotions that are investigated in the affective component. With regard to technological use, the affective component refers to whether learners experience enjoyment or feel anxious while using the tool.

The behavioral component is how individuals' beliefs and emotions affect their response or behavior to an attitude object (Breckler, 1984). In language learning, this component is shown through intention to continue learning (Burgos, 2023). In the context of technology adoption for learning, it refers to whether learners are willing to continue using it in the future.

In general, given that attitude is important in language learning, understanding learners' attitudes is essential for teachers to provide motivating instruction. In this research, the ABC model is employed as a theoretical framework to investigate pre-intermediate learners' attitudes towards the use of Quizizz in their English reading learning. While component A reflects the level of enjoyment and anxiety when they use the tool, component C refers to their beliefs about usefulness and ease of use, and component B indicates their continued use intentions. This framework allows the analysis of the learners' attitudes towards the incorporation of Quizizz in the three stages of reading comprehension, i.e., the pre-, while-, and post-reading ones.

3. Methods

3.1 Pedagogical setting and participants

This study was conducted in a private language center in Vietnam. Its learners are mainly university students and young working professionals who want to get IELTS certificates. The center provides IELTS preparation courses to develop four English skills, enabling learners to achieve their desired band scores. Reading instruction focuses on equipping learners with reading strategies, expanding their vocabulary, and reinforcing grammar to enhance their comprehension of academic texts. The center currently uses internal coursebooks compiled in collaboration with the U.S. publisher National Geographic Learning. The incorporation of technology at this center is encouraged, but it is primarily applied to writing, speaking, and listening skills, while its reading application is still limited as many teachers prefer printed reading materials for convenience. Therefore, this center provides an ideal context to investigate the effectiveness of Quizizz in learners' reading performance.

The study included 100 learners enrolling in the 3.0-4.5 IELTS courses from six classes at the language center. The participants were selected for the study on the basis of convenience sampling with the center's permission and the agreement of the learners in classes under the researchers' instruction. They ranged in age from 16 to 25 and were at the pre-intermediate level with an admission IELT score of 3.0. This level generally focuses on improving learners' receptive skills, which include reading and listening, because exposure to such skills can provide them with language input beneficial for their productive skills in the following courses at higher levels.

3.2 Research design

A quantitative approach was adopted for this study. To answer the first question about the effectiveness of Quizizz on learners' reading performance, quantitative data from pre-tests and post-tests were collected. After that, comparison of these test scores allowed the researcher to measure the extent of improvement in reading comprehension after the intervention. With the second question, another set of quantitative data was collected through a Likert-scale questionnaire in order to investigate learners' attitudes towards the use of Quizizz in learning reading. The questionnaire items were developed based on the ABC model of attitudes, which can provide a comprehensive understanding of learners' attitudes.

The study employed a quantitative approach rather than a mixed methods one so that it could objectively measure the impact of Quizizz on learners' reading performance and assess their attitudes using the ACB model. By collecting numerical data through pre- and post-tests and structured questionnaires, the study enables statistical analysis to determine changes in performance and attitude patterns. This approach ensures objectivity, replicability, and analytical clarity, aligning well with the study's aim to evaluate effectiveness and attitude without the need for subjective interpretation, making a mixed-methods approach unnecessary.

3.3 Instruments

The first research instrument is a set of reading tests. The pre-test and post-test were extracted from Test 1 and Test 2 of Cambridge IELTS 16, as these tests are standardized ones, ensuring the reliability and validity of this research. However, only passage 1 of each test was used. There are three reasons for this selection:

(1) This part is the easiest one (IDP IELTS, n.d.; Cambridge University Press, 2021), making it suitable for pre-intermediate learners;

(2) These passages were around the same length (650-700 words) and included the same question types (i.e., fill-in-the-blank and true/false/not given); they could be seen as parallel forms, ensuring the objectivity of pre-tests and post-tests. These types of questions had been taught in previous courses, so they were appropriate to the participants' reading performance;

(3) The learners' scores were graded according to the standard scale of the organizations that manage the IELTS test, including the British Council, IDP: IELTS Australia, and Cambridge English Language Assessment. The application of this grading system contributes to ensuring accuracy and objectivity in the assessment, thereby accurately reflecting the level of progress in learners' reading skills during the research process.

The second research instrument is a learner questionnaire developed based on the ACB model to explore the participants' attitudes towards the use of Quizizz in learning reading using a Likert-scale. The items in the questionnaire were constructed according to the three-component framework of attitudes (affective, cognitive, and behavioral) and were grouped into three reading stages (pre-reading, while-reading, and post-reading). In order to check whether there was any ambiguity in the questionnaires, 10 learners (10% of the total participants) were chosen for the pilot study. The results showed that all the items were clear, so no changes were needed for the questionnaires. Additionally, Cronbach's Alpha reliability was calculated to check the reliability of all the items. All the scores were over 0.7, ranging from 0.839 to 0.860, thereby confirming the internal consistency reliability of the instrument used in this study (Nunnally & Bernstein, 1994).

3.4 Data analysis

Descriptive statistics were calculated to summarize the total score, mean score, minimum score, and maximum score of both the pre-test and post-test using SPSS version 22.

To determine the appropriate testing method, the normal distribution of the scores was tested through the Kolmogorov–Smirnov and Shapiro–Wilk tests. If the significance value is greater than .05, the data is considered to be normally distributed; conversely, if it is less than .05, the normal distribution assumption is not satisfied.

Because the test results showed that the pre-test and post-test score data did not follow a normal distribution, a non-parametric analysis method was used. Specifically, the Wilcoxon signed-rank test was chosen to compare the results of the pre-test and post-test. This test was appropriate for this study because it worked well with related samples and did not require normally distributed data.

Additionally, the effect size (r) was computed to evaluate how big the observed difference was, using the formula $r=|z|/\sqrt{N}$, where Z is the Wilcoxon signed-rank test statistic and N is the number of non-zero difference pairs (excluding ties) (Field, 2013). According to Cohen (1988), the interpretation of the effect size r can be seen in Table 1.

Table 1. Interpretation of effect size

Value of r	Interpretation
$r < 0.30$	Small effect
$0.30 \leq r \leq 0.50$	Medium Effect
$r > 0.50$	Large effect

Regarding the second question on learners' attitudes, descriptive statistics were calculated using SPSS version 22. The quantitative data from Likert questionnaires are presented with mean scores ranging from 1.0 to 5.0, together with the standard deviation of every item of the questionnaire.

4. Results and discussion

4.1 Research question 1: To what extent does Quizizz improve pre-intermediate learners' reading performance?

4.1.1 Results

The pre-test and post-test scores are presented in Table 2.

Table 2. Pre-test and post-test scores

Test	Total Score	Mean Score	Lowest Score	Highest Score
Pre-test	310.5	3.105	1.5	4.0
Post-test	391.0	3.91	2.5	4.5

Table 2 indicates that the pre-test had the lowest score of 1.5 and the highest score of 4.0, while the scores of the post-test were higher, at 2.5 and 4.5, respectively. Additionally, the mean score of the pre-test was 3.105, which was lower than that of the post-test (3.91). To determine if the difference was significant, the data had to be subjected to hypothesis testing. Before conducting any analysis, the normality of the data was examined using Kolmogorov–Smirnov and Shapiro–Wilk tests. The results of these tests can be seen in Table 3.

Table 3. Tests of Normality

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pre-test	.231	100	.000	.897	100	.000
Post-test	.235	100	.000	.836	100	.000

The results from Table 3 show that the Sig. (p-value) for both pre-test and post-test was less than .05 (Sig. = .000). This means that the data did not follow a normal distribution. Because the data were not normally distributed, non-parametric statistical analyses were selected to test the differences in scores between the pre-test and post-test. Specifically, the Wilcoxon signed-rank test was used to investigate whether the use of Quizizz could enhance pre-intermediate reading performance. The result of the Wilcoxon signed-rank test is presented in Table 4.

Table 4. Wilcoxon Signed-Rank Test Statistics

	Post-test – Pre-test
Z	-7.437b
Asymp. Sig. (2-tailed)	.000

The Wilcoxon signed-rank test indicates a significant improvement ($Z = -7.437$, $p < .001$). Moreover, the Z-value ($Z = -7.437$) is negative; it can be inferred that most post-test scores were higher than pre-test scores, indicating that the use of Quizizz had a positive effect on pre-intermediate learners' reading performance.

Table 5 summarizes the distribution of signed ranks.

Table 5. Wilcoxon signed-rank test ranks

	N
Negative Ranks	7a
Positive Ranks	80b
Ties	13c
Total	100

Note: a = Post-test < Pre-test; b = Post-test > Pre-test; c = Post-test = Pre-test.

Of the 100 pairs, 80 increased, 7 decreased, and 13 were ties. In addition to the statistical significance, the effect size (r) was also calculated in order to measure the magnitude of the difference between pre-test and post-test scores. The result of effect size was calculated by the formula:

$r = \frac{|z|}{\sqrt{N}}$, with N being the number of non-zero difference pairs (ties excluded). Using Z=−7.437 and N=80+7=87, the effect size was $r = \frac{|-7.437|}{\sqrt{87}} = \frac{7.437}{9.33} = .80$

According to Cohen (1988), this effect size represents a large effect, suggesting that Quizizz significantly improved the participants' reading performance.

4.1.2 Discussion

The pre-post analysis shows a clear performance gain: The post-test mean (3.91) exceeded the pre-test mean (3.105), and the minimum and maximum also shifted upward (1.5–4.0 vs. 2.5–4.5). Because normality was violated, a Wilcoxon signed-rank test was used and yielded a significant improvement (Z=−7.437, p< .001). The effect size was large (0.80), indicating a large effect of the intervention on learners' reading performance. These results are supported by some previous studies. For instance, Safitri and Pammu (2022) found that the Quizizz group had higher post-test scores than the control group (82.84 vs. 75.61; p=.000). Pranata et al. (2024) also used a nonparametric test for nonnormal data, reporting a significant difference and a very large effect size of r≈0.84 between the Quizizz and control groups. Likewise, Sihite and Hamzah (2025) reported a difference between pre-test and post-test scores of 31.61 points, p<.001, on narrative text. Therefore, these results support the argument that Quizizz had significant effects on learners' reading performance.

4.2 Research question 2: What are pre-intermediate learners' attitudes towards the use of Quizizz in learning English reading?

4.2.1 Results

Pre-reading stage:

Table 6. Learners' attitudes towards Quizizz in the pre-reading stage

Item	Statement	Mean	SD
1	I enjoy reviewing vocabulary using flashcards at my own pace (A)	3.40	0.586
2	I enjoy doing pre-reading quizzes with memes and music because they reduce my anxiety (A)	3.55	0.672
3	I find the flashcard tool easy and useful to use when reviewing vocabulary before reading (C)	3.49	0.577
4	I find the interactive video tool with visuals and questions useful for understanding the topic before reading (C)	3.44	0.608
5	I plan to keep using Quizizz to get ready for reading tasks (B)	3.36	0.628

The analysis of the participants' responses to the Quizizz pre-reading tools shows that their attitudes were generally mixed, with mean scores ranging from 3.36 to 3.55 and standard deviations from 0.577 to 0.672.

Component A: Participants were especially excited about the quiz activity that included memes and background music in the pre-reading stage (Item 2, M=3.55, SD=0.672). This indicates that the incorporation of entertainment components contributed to alleviating learners' anxiety and enhancing their enjoyment in the reading preparation activities. However, learners also gave a self-paced vocabulary review with flashcards a neutral rating (Item 1, M=3.40, SD=0.586), which shows that they were emotionally unsure about the flashcard tool.

Component C: Participants thought the flashcard tool was easy and useful to use for reviewing vocabulary before reading (Item 3, M=3.49, SD=0.577), and the interactive videos with images and questions were useful for understanding the reading topic (Item 4, M=3.44, SD=0.608). This result shows that learners rated these tools positively in terms of usefulness and ease of use.

Component B: Item 5 got an average score of 3.36 (SD=0.628) for the learners' desire to use Quizizz to get ready for future reading tasks. This score suggests that learners did not decide whether they will continue using Quizizz for pre-reading stages or not.

Overall, at the pre-reading stage, learners exhibited relatively positive attitudes towards the use of quizzes and interactive videos. However, although learners found flashcards easy and valuable to use, they had neutral emotional attitudes towards this tool. Additionally, their intention to use Quizizz in the future for pre-reading activities also remained neutral. Therefore, it can be concluded that learners exhibited mixed attitudes towards the use of Quizizz in the pre-reading stage.

While-reading:

Table 7. Learners' attitudes towards Quizizz in the while-reading stage

Item	Statement	Mean	SD
6	I enjoy answering reading questions when I can see my score and rank on the leaderboard (A)	3.89	1.014
7	I do not feel nervous when reading questions are timed (A)	3.94	1.135
8	I find images included in the reading passage help make the content easier to understand (C)	3.83	1.016
9	I find the passage tool easy to follow because of its clear layout and design (C)	3.83	1.092
10	I want to keep using the passage tool to practice timed reading and improve my comprehension (B)	3.87	1.031

The questionnaire results for the while-reading stage show that they had relatively positive attitudes towards Quizizz's tools and features at the while-reading stage, with the mean rating on the items spanning between 3.83 and 3.94 and the standard deviations above 1.0 in most cases. This implies a relatively high level of satisfaction but also captures the diversity of individual experience among learners.

Component A: Participants felt excited when doing reading tasks and could observe their scores and rankings on the leaderboard (Item 6, M=3.89, SD=1.014). In particular, many learners reported not feeling anxious when doing reading tasks with a time limit (Item 7, M=3.94, SD=1.135) - this is the highest mean score at this stage. This result shows that the competitive elements and time pressure contributed to promoting motivation to do the test without creating excessive stress.

Component C: Participants appreciated the integration of images in the reading, making the content more accessible and understandable (Item 8, M=3.83, SD=1.016). At the same time, the passage tool with a clear and easy-to-follow layout also received positive attitudes (Item 9, M=3.83, SD=1.092). These figures show that the intuitive design and visual support contributed to improving learners' comprehension during the reading process.

Component B: The desire to continue using the passage tool to enhance their reading speed and improve reading comprehension received a fairly high average score (Item 10, M=3.87, SD=1.031). This demonstrates the awareness of the practical benefits of practicing with digital tools.

Overall, these results demonstrate that the tools and features of Quizizz, such as leaderboards, timers, visuals, and clear designs, led to an overall positive learning experience, increased motivation, and improved reading comprehension in learners.

Post-reading stage:

Table 8. Learners' attitudes towards Quizizz in the post-reading stage

Item	Statement	Mean	SD
11	I enjoy receiving immediate feedback from the app after completing a reading activity (A)	3.91	0.986
12	I enjoy reviewing my reading homework results on the app at home without having to wait for the teacher's explanation (A)	3.90	1.068
13	I find the feedback and explanations helpful for understanding my reading mistakes (C)	3.84	1.070
14	I feel the feedback and explanations are easy to understand and follow (C)	3.90	1.049
15	I want my teacher to keep giving me reading homework using the passage and quiz tools (B)	3.94	1.052

The results of the questionnaire related to the post-reading support tools on Quizizz show that learners had positive attitudes, with mean scores ranging from 3.84 to 3.94 and standard deviations mostly around 1.0. This reflects a fairly high level of positivity among learners, while also indicating some diversity in individual perceptions.

Component A: The participants were satisfied to get immediate feedback from the app after finishing reading (Item 11, M=3.91, SD=0.986) and liked being able to get their reading results at home without having to wait for the teacher to explain (Item 12, M=3.90, SD=1.068). This shows that they liked how digital tools made learning easier.

Component C: Most learners agreed that the app's feedback and explanations helped them understand their reading mistakes better (Item 13, M=3.84, SD=1.070). Additionally, they pointed out that the explanations were easy to understand and follow (Item 14, M=3.90, SD=1.049). These results highlight the role of providing timely, specific feedback in developing learners' reading comprehension skills.

Component B: The desire to continue receiving reading assignments through the passage and quiz tools had the highest level of agreement (Item 15, M=3.94, SD=1.052). The result shows that the majority of the learners were not only satisfied with the experience but also recommended the continuation of this kind of learning in the future.

Overall, the findings from the post-reading questionnaires show that the instant feedback systems, detailed explanations, and review features on Quizizz promoted a positive learning environment, allowing the learners to improve their reading comprehension and promote independent learning motivation.

4.2.2 Discussion

The results of this study indicated that the participants had generally positive attitudes towards the use of Quizizz during the while-reading, and post-reading stages. Meanwhile, at the pre-reading stage, their responses were mixed, with neutral attitudes in the behavioral component and one affective item related to flashcards.

Pre-reading stage:

Component A: The research results show that learners had mixed attitudes towards the learning cards and the assessment tools in the pre-reading stage. Specifically, the self-study vocabulary flashcards received neutral responses (Item 1, M=3.40), showing that learners were emotionally unclear about the use of flashcards. This is different from what was discovered by Sun et al. (2021), who reported that the majority of medical students who used flashcards experienced reduced test anxiety and considered them a useful study preparation tool. Meanwhile, the quizzes with memes and background music scored the highest average in this phase (Item 2, M=3.55). These figures show that learners found these entertaining elements of quizzes interesting and anxiety-reducing. These findings are consistent with previous studies. For example, Alsswey and Malak (2024) found that game-based quizzes created a less stressful learning environment compared to conventional methods. Furthermore, Waluyo and Balazon (2024) showed that a gamified learning environment helped maintain learners' engagement while keeping anxiety levels low during their learning process. Overall, these studies provide strong evidence that gamified quizzes in the pre-reading stage had learners' positive attitudes as they boosted engagement and reduced anxiety, helping learners prepare mentally for subsequent readings, while flashcards and their future intention received more neutral attitudes.

Component C: Learners reported that the digital tools they were provided to use before reading were useful and easy to use. While the flashcards (Item 3, M=3.49) were easy to use and helped them learn new words, the interactive videos (Item 4, M=3.44) helped them better understand the topic through pictures and questions. These findings suggest that the usefulness and user-friendliness of these tools helped reduce cognitive barriers, thereby enhancing preparation for upcoming reading tasks. Previous research also supports this interpretation. Studies on Quizlet have consistently demonstrated that digital flashcards were perceived as user-friendly and beneficial for vocabulary acquisition, positively influencing learners' attitudes and persistence in using them (Alwahoub & Azmi, 2024). Empirical evidence suggests that integrating video clips into the pre-reading stage provides valuable contextual and visual support, helping learners understand content before engaging with the text (Saeidi & Ahmadi, 2016). Meanwhile, Brame (2017) said that interactive videos with built-in questions can help students stay focused and provide scaffolding that leads to better understanding and better learning outcomes. These results collectively validate that the perceived usefulness and ease of use of flashcards and interactive videos offered effective cognitive scaffolding during the pre-reading phase, enabling learners to engage with reading tasks with enhanced preparedness.

Component B: Learners expressed neutrality about their willingness to use Quizizz for future pre-reading tasks (Item 5, M=3.36). This means they did not have a clear intention to incorporate Quizizz in their pre-reading tasks in the future. In contrast, prior studies do not support this tendency. Xodabande et al. (2022) showed that learners using mobile-assisted tools could monitor their progress more effectively, which motivated them to persist with vocabulary learning tasks. Boroughani et al. (2023) similarly found that students who used mobile-assisted vocabulary learning tools with gamified components were more motivated and more likely to keep studying vocabulary outside of class. Also, the visual design of digital tools is very important for keeping students interested. The study by Matyakhan et al. (2024) emphasized that visual aids, such as images, icons, and memes, increase the appeal of learning platforms, thereby encouraging repeated use and long-term behavioral engagement.

While-reading stage:

Component A: Affective engagement remained high throughout the reading process, and students equally enjoyed timed tasks (Item 7, M=3.94) and leaderboards (Item 6, M=3.89). This is in line with Flow Theory (Csikszentmihalyi, 1990), where task-based gamified elements that impose levels of challenge enhance focus and immersion. Supporting evidence by Khalsum (2024) reported student perceptions of Quizizz as enjoyable and anxiety-free when used in reading comprehension activities. This indicates that gamified features can support engagement and participation in a way that does not induce any harmful stress.

Component C: The images in the reading passage (Item 8, M=3.83) and the clear design layout of the passage tool (Item 9, M=3.83) both received positive feedback and indicate that Quizizz's various design features lessen cognitive load and support student comprehension of the reading passage. The findings align with Mayer's Spatial Contiguity Principle, which states that learners learn more effectively when corresponding words and images are displayed close to one another on the same page or screen rather than far from each other (Mayer, 2001; Mayer, 2009). This relationship is still supported by recent data. For instance, Ghai and Tandon (2022) suggested that layout consistently predicted the usability and efficacy of e-learning. Similarly, Syamala (2025) showed that clear interface design could contribute to learners' reduced cognitive burden, greatly increasing their engagement and satisfaction in e-learning contexts.

Component B: Learners showed their strong willingness to keep practicing reading with the passage tool (Item 10, M=3.87). This means that when learners find the tool enjoyable, user-friendly, and useful, they are likely to adopt it for future use. This finding aligns with Breckler's (1984) idea, suggesting that individuals' beliefs and emotions can influence their behavioral intentions. This result is also affirmed by the TAM (Davis, 1989), which highlight that perceptions of usefulness and ease of use influence attitudes towards utilizing it and, in turn, behavioral intention. It is also aligned with the findings in Ganapathy et al. (2016), who confirmed that the perceived usability is one of the crucial aspects determining the acceptance of the app since it affects users' learning effectiveness and experiences

Post-reading stage:

Component A: In the post-reading stage, learners enjoyed immediate feedback (Item 11, M=3.91) and the ability to review results independently at home (Item 12, M=3.90). Hence, these findings indicate that immediate feedback and explanation can help reduce task uncertainty or anxiety and increase enjoyment. These affective responses towards feedback can be found in earlier studies. According to Cao et al. (2024), when feedback is timely and useful, test anxiety decreases and engagement increases through learning self-efficacy. Similarly, Vattøy and Gamlem (2024) found that enjoyment was positively correlated with peer feedback practices in the classroom. Thus, timely feedback after reading tasks is not only convenient but also creates positive emotional experiences—reduced anxiety, increased interest—that sustain engagement; in other words, feedback plays an important role in increasing enjoyment and reducing anxiety in learners.

Component C: Items suggesting that feedback was useful for identifying mistakes (Item 13, M=3.84) and explanations were easy to understand (Item 14, M=3.90) were positively rated. These findings indicate that corrective explanations in Quizizz thus provide learners with opportunities to reorganize their prior understanding, which strengthens their reading comprehension. Recent evidence supports this argument. In particular, elaborated feedback outperformed other forms such as knowledge of results, knowledge of correct response, and answer-until-correct for both lower- and higher-order outcomes, according to a network meta-analysis of 77 experiments (Mertens et al., 2022). Meanwhile, a recent meta-analysis verified that learning achievement was significantly impacted by feedback (Wisniewski et al., 2020). Furthermore, research on college students revealed a preference for clarity, specificity, and personalization for learners' receptivity to feedback (Karakaya Özyer, 2024), and Hattie and Timperley (2007) noted the benefits of clear, purposeful, and understandable feedback that helps learners know exactly what needs to be corrected.

Component B: The highest mean across all stages was recorded for the desire to continue using Quizizz for post-reading assignments (Item 15, M=3.94). This indicates not only high satisfaction but also the possibility of long-term adoption. The potential for future use is also stated by Yu and Cai (2022), who found that learners' intention to continue using online learning was positively correlated with the immediacy of feedback, both directly and indirectly, through attitude, satisfaction, perceived usefulness, and ease of use.

5. Conclusion

This study has proved that the use of Quizizz could improve pre-intermediate learners' reading performance. The descriptive statistics show that post-test scores were significantly higher than pre-test scores, and the Wilcoxon Signed-Rank Test also confirms a statistically significant difference. Moreover, the large effect size demonstrates that Quizizz had noticeable improvements in learners' reading performance.

Furthermore, questionnaire data generally reflect pre-intermediate learners' positive attitudes towards the use of Quizizz at the while-reading and post-reading stages, but mixed attitudes at the pre-reading stage. At the first stage (pre-reading), while they had positive attitudes towards interactive videos and gamified quizzes with entertaining elements because these features helped learners reduce their anxiety and increase their enjoyment, they were emotionally unclear about the use of flashcards and exhibited indecision about their future adoption of Quizizz for pre-reading activities. At the while-reading stage, some features such as leaderboards, timers, illustrative images, and clear layouts enhanced their concentration, speed, and motivation, thereby improving their reading performance. As a result, they wanted to continue doing reading exercises on this platform. Finally, at the post-reading stage, learners were particularly satisfied with immediate feedback and detailed explanations, allowing for self-learning. Therefore, they expressed their desire to continue using Quizizz for reading tasks in the future. Hence, it can be concluded that learners expressed their positive attitudes towards the use of Quizizz in both the while- and post-reading stages.

The research findings suggest some pedagogical implications for utilizing Quizizz in EFL reading instruction. Quizizz is most effective during the while- and post-reading stages, so teachers should prioritize its use for comprehension checks, vocabulary reinforcement, and formative assessments, exploring its features such as leaderboards, timers, and instant feedback to enhance learners' motivation, focus, and reading speed. Additionally, immediate feedback and detailed explanations in the post-reading phase highlight Quizizz's potential to support learner autonomy and self-regulation. Teachers should make it a valuable tool for independent study and revision. However, learners' mixed attitudes during the pre-reading stage require the use of more engaging tools such as interactive videos, contextual quizzes, or story-based warm-ups to reduce anxiety and build interest. It is important that teachers tailor gamified activities to each reading stage, using contextual clues and visuals for the pre-reading stage, comprehension checks for the while-reading stage, and feedback-rich tasks for the post-reading stage. Further research should investigate the long-term impacts of Quizizz and examine its role in supporting learners at various proficiency levels.

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