

From Play to Proficiency: Enhancing Indonesian EFL Learners' English Grammar through Mobile Game-Based Learning

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ABSTRACT:

This study was conducted to investigate the effect of the Grammar Bubbles Game on Grade VIII students' mastery of the simple present tense in descriptive texts. A quasi-experimental method with a pretest–post-test design comprising experimental and control groups. The participants were students at MTs Fadhilatul Islamiyah, comprising 44 students in total, across the two groups. The experimental group received a treatment using the Grammar Bubbles Game, while the control group used picture series in their study. The data were analyzed using descriptive statistics and an independent-samples t-test. Pre-test results show no significant difference between the experimental and control groups, with $t(42) = 0.44$ and $p = 0.665$. After eight meetings of treatment, the results of the post-test show that the experimental group has higher scores ($M = 62,95$; $SD = 15,94$) than the control group ($M = 44,77$; $SD = 17,22$). The mean difference of 18.18 points was statistically significant, $t(42) = 3.64$, $p = .001$. Besides, the large effect size (Cohen's $d = 1.14$) indicates that the difference in English Grammar scores between the two groups is of substantial magnitude. Based on those findings, this study concludes that the Grammar Bubbles Game has a significant effect on students' grammar achievement.

Keywords: English grammar, mobile-based game, English as a foreign language, computer-assisted language learning.

1. Introduction

The development of English in worldwide communication has increased the importance of developing learners' language proficiency, particularly, within educational contexts. In many countries, English is incorporated into formal

curricula because of its role in education and international communication (Pratiwi alet., 2020; Idris et al., 2020). In Indonesia, English is taught as a foreign language (EFL) and has been incorporated into formal education across different levels of schooling (Bolton & Kuteeva, 2023). However, opportunities to use English in

everyday communication are relatively limited in Indonesian context (Septiani et al., 2021). Consequently, classroom instruction plays an important role in providing students to develop their language knowledge and communicative competence (Maranatha & Sengkey, 2023). At the same time, the development of digital technology has created new opportunities for English language teaching and learning. The widespread use of mobile devices has provided students to access English learning resources to be more flexible (Figueiredo, 2023). According to Muhfiyanti et al. (2021), one approach that has emerged from these technological developments is Mobile-Assisted Language Learning (MALL), which involves mobile technologies to facilitate the students in their learning process.

Mobile technologies can help EFL learners to study English through their interactivity and portability (Santosa et al., 2024). MALL provides students with opportunities to access learning materials beyond conventional classroom activities and to engage with English through interactive and learner-centered tasks (Priyanti et al., 2019; Krisbiantoro, 2020). The implementation of MALL in teaching EFL can make the teaching and learning process more interesting and fun (Dewi et al., 2017). Similarly, technology-supported language learning can enhance learner engagement by providing more flexible and interactive opportunities for language learning (Yuan et al., 2025). Building on these developments, digital games have attracted increasing attention in language education because their interactive features can promote repeated language practice, provide immediate feedback, and encourage greater learner engagement (Pattemore & Gilabert, 2025). Besides, the use of games in teaching EFL also can make the teaching and learning process more enjoyable, improve students' metacognition, strategic actions, and motivation (Mahayanti et al., 2020, 2024). Thus, these developments highlight involving technology in the classroom makes teaching and learning to be more engaging. It means that such opportunities can be used in teaching grammar because in learning grammar, the students need repeated practice and

meaningful interaction to strengthen their understanding and use of grammatical forms.

Grammar is a fundamental part of English proficiency because it makes students to construct sentences accurately as well as to convey meaning effectively (Hsieh & Wang, 2019). However, for EFL learners, grammar is often considered challenging because it needs an understanding to use the grammars' rules properly in meaningful contexts (Mustakim et al., 2025). Murtisari et al. (2020) add that grammar learning is difficult when the students have lack of motivation and opportunities to use grammatical forms in contextualized situations. In addition, conventional grammar instruction may place considerable emphasis on rules, explanations, and exercises, which can limit opportunities for active and meaningful engagement with grammatical forms (Pawlak, 2021). Moreover, with the emergence of AI-based grammar checkers, e.g., Grammarly, many students are too reliant on AI assistance (Li et al., 2026). Such conditions may lead learners to acquire knowledge of grammar rules without necessarily being able to apply them effectively in language use. Therefore, grammar instruction requires learning activities that provide opportunities for repeated practice, contextualized use, and timely feedback (Sarfaty, 2024). Tilahun (2026) mention that digital game-based grammar learning suggests or interactive game environments can support grammar learning while also fostering learners' motivation, engagement, and learning experiences. Then, integrating interactive and technology-supported activities into grammar instruction may offer a more engaging way to help EFL learners develop their grammatical knowledge and ability to use grammatical forms accurately.

Furthermore, applying the digital games in language learning has increasingly been explored as an alternative approach to addressing the challenges of grammar instruction (Acquah & Katz, 2020). Besides, Game-based learning can create interactive learning environments in which learners actively engage with language forms, receive immediate feedback, and practice target structures repeatedly (Aliyyah & Shofiuddin,

2025). In the context of grammar learning, Lin et al. (2020) found that digital game significantly improved student's mastery of grammatical competence and reduced grammatical errors, suggesting that game-based activities can facilitate the application of grammatical knowledge in contextualized situations. Similarly, Sari et al. (2026) reported that digital game-based grammar learning, particularly when combined with metalinguistic corrective feedback, improved learners' grammar performance and positively influenced their motivation, self-efficacy, and flow experiences. Previous research has shown that digital games can support grammar learning by allowing learners to engage in repeated practice and apply grammatical forms through interactive activities (Bayuong et al., 2026). Among the various grammatical structures introduced in EFL classrooms, the simple present tense is considered an essential area of learning because it is commonly used to describe routines, habits, general facts, and daily activities. Nevertheless, many Indonesian EFL learners continue to face challenges in applying these structures accurately, particularly in subject-verb agreement, auxiliary verbs, and appropriate verb selection (Rusdi et al., 2025). For this reason, a game designed around repeated and contextualized practice of the simple present tense helps learners develop greater grammatical accuracy while maintaining their involvement in learning activities (Paramida & Zulfitri, 2023). In this study, the Grammar Bubble Game is designed as a mobile-based learning activity that allows students to practice the simple present tense through interactive tasks, offering an alternative to traditional grammar exercises that mainly focus on rules and written drills.

Despite the importance of the simple present tense and the potential of game-based learning to support grammar instruction, Indonesian EFL learners may still encounter problems in applying grammatical structure correctly (Rusdin, 2022). The problems are subject-verb agreement, auxiliary verbs, and appropriate verb forms. Such challenges may arise when grammar instruction emphasizes the memorization of rules and written exercises without providing sufficient

opportunities for learners to apply grammatical forms in meaningful contexts (Lin et al., 2020; Aliyyah & Shofiyuddin, 2025). In this regard, a mobile-based game which focuses on simple present tense provides learners with opportunities to practice grammatical forms actively, receive feedback, and reinforce their understanding through engaging learning activities (Putri et al., 2023). Therefore, integrating targeted grammar practice with game-based features may offer a more engaging alternative way and potentially enhance learners' grammatical accuracy and learning engagement.

There are some previous studies have demonstrated the potential of mobile game learning for supporting English grammar development. Pratiwi et al. (2020) mentioned that using Kahoot! helped Indonesian students' mastery of the simple present tense, particularly their use of *to be* and third-person singular forms, while Idris et al. (2020) reported significant improvement in present tense mastery among Malaysian ESL learners after learning through Kahoot!. More recently, Sari et al. (2025) said that the Android-based Climbing Castle game have improved the Indonesian secondary students' grammar performance, including their mastery of the simple present and past tenses, and Ahmad et al. (2025) found that a mobile grammar application enhanced Indonesian students' learning of the simple present tense compared with conventional instruction. At a broader level, Öztürk Taş et al. (2025) confirmed that the potential of digital games to improve grammar learning of the students and their engagement. Despite these encouraging findings, several limitations remain. Existing studies have predominantly examined general-purpose gamified platforms or pre-existing mobile applications rather than purpose-designed games developed specifically to address learners' recurring grammatical difficulties. Moreover, previous game-based studies have generally targeted grammar achievement broadly or combined several grammatical structures, providing limited attention to the specific difficulties associated with the simple present tense. There is also limited empirical evidence on

how a mobile game can integrate targeted grammar instruction with repeated practice, immediate feedback, and contextualized application within a single learning environment, particularly for Indonesian EFL learners at the junior secondary level. Therefore, the present study addresses this gap by examining the effect of the purpose-designed Grammar Bubbles Game on Indonesian EFL learners' English grammar achievement, with a specific focus on improving their mastery of the simple present tense through repeated, interactive, and game-based practice. Grammar Bubbles Game is a special mobile-based game designed to help English language learners practice basic English grammar

2. Methodology

Design

This study was conducted to investigate Grammar Bubbles Game on Indonesian EFL learners' grammar achievement, particularly their mastery of the simple present tense in descriptive text. A quantitative approach was employed using a quasi-experimental design with a pre-test–post-test control group design. The study involved an experimental group that received instruction using the Grammar Bubbles Game and a control group that received conventional instruction using picture series or flashcards. The pre-test and post-test scores were compared to determine the effect of the Grammar Bubbles Game on students' grammar achievement.

Sample

The population of this study was all students of Grade VIII at MTs Fadhilatul Islamiyah, Dompu, West Nusa Tenggara (NTB), who were enrolled in English lessons during the academic year of the study. The cluster random sampling was used to select the participant and based on the random selection, VIII A and VIII B were selected as the sample groups. Both classes consist of 22 students and it divides into two groups as experimental and control groups. Thus, both groups consisted of an equal number of students, which facilitated the comparison of their

grammar achievement before and after the treatment

Instruments

The data of the study was from a grammar test. The test consisted of 25 multiple-choice items covering the grammatical forms of the simple present tense. The pretest was given before the treatment to identify the students' initial grammar achievement, while the post-test was administered after the treatment.

Data Analysis

The collected data were analysed using SPSS version 22.0 and the descriptive statistics was used to find out the mean scores of two groups. Besides, before conducting the inferential analysis, normality and homogeneity tests were done to determine whether the data met the assumptions for parametric analysis. An independent-samples t-test was used to examine whether there was a significant difference in grammar achievement between the experimental and control groups. Finally, an effect size analysis was conducted to find out how large the effect of the Grammar Bubble Game on students' grammar achievement

3. Results

To determine whether the implementation of mobile game-based learning influenced the English grammar proficiency of Indonesian EFL learners, data obtained from the pre-tests and post-tests of the experimental and control groups were analyzed in two stages. The first analysis employed an independent t-test to compare the pre-test results of the experimental and control groups, ensuring there were no significant differences in the students' understanding of English grammar prior to the intervention. The second analysis utilized an independent t-test to compare the post-test results of the experimental and control groups, aiming to identify differences in English grammar proficiency between the two groups following the eight-session intervention.

Independent t-test Results for Pre-test Scores of the Experimental and Control Groups

Prior to the administration of the treatment to the experimental group, both groups took the same pre-test. Before analyzing the data using an independent t-test, it was verified that the data from both groups were normally distributed and homogeneous. Normality test results using the Shapiro-Wilk test indicated that the data for both groups were normally distributed: experimental group $W(22) = 0.929$, $p = 0.116$; control group $W(22) = 0.900$, $p = 0.089$. Similarly, homogeneity test results using Levene's statistic showed no significant difference in variance between the two groups, $F(1, 42) = 2.991$, $p = 0.91$. Having confirmed normal distribution and homogeneity, the analysis proceeded with an independent t-test.

The results of the independent t-test based on the pre-test scores of the experimental and control

groups are presented in Table 1. The results show that the experimental group had a slightly higher mean score ($M = 29.77$; $SD = 9.32$) compared to the control group ($M = 28.18$; $SD = 14.35$), with a difference of 1.59; this difference was not statistically significant, $t(42) = 0.44$. The p-value (0.665) indicates that there was no significant difference between the pre-test results of the experimental and control groups. In other words, the results demonstrate that there was no significant difference in English grammar understanding between the groups prior to the experimental group receiving the Mobile Game-Based Learning treatment. Furthermore, the small effect size (Cohen's $d = 0.14$) indicates that the observed difference was of relatively small magnitude.

Table 1. Independent t-test Results for the Control and Experimental Groups' Pre-Tests

Group	<i>n</i>	<i>M</i>	<i>SD</i>	Mean Difference	95% CI for Mean Difference	<i>t</i>	<i>df</i>	<i>p</i>
Experimental	22	29.77	9.32	1.59	-5.77, 8.95	0.44	42	.665
Control	22	28.18	14.35					

Independent t-test Results of Post-Test Scores for the Experimental and Control Groups

After the experimental group received the treatment—being taught using Mobile Game-Based Learning—and the control group was taught using conventional instruction over eight sessions, both groups took a post-test. This post-test was administered to measure English grammar understanding and to allow for a comparison between the experimental and control groups. The post-test results were then analyzed using descriptive statistics and an independent t-test.

Prior to the independent t-test analysis, prerequisite tests, specifically normality and homogeneity tests, were conducted. Shapiro-Wilk normality test results indicated that both datasets were normally distributed: experimental group $W(22) = 0.968$, $p = 0.668$; control group $W(22) = 0.950$, $p = 0.316$. Similarly, Levene's test

for homogeneity showed no significant difference in variance between the two groups, $F(1, 42) = 0.009$, $p = 0.926$. Having confirmed normal distribution and homogeneity, the analysis proceeded with an independent t-test.

Descriptive statistics revealed a significant difference in English grammar scores between the experimental and control groups. The experimental group achieved a higher mean score ($M = 62.95$; $SD = 15.94$) compared to the control group ($M = 44.77$; $SD = 17.22$). This mean difference of 18.18 points was statistically significant, $t(42) = 3.64$, $p = .001$. Furthermore, the large effect size (Cohen's $d = 1.14$) indicated that the difference in English grammar scores between the two groups was substantial in magnitude. These findings suggest that the implementation of Mobile Game-Based Learning had a significant impact on improving the experimental group's understanding of English grammar.

Table 2. Independent t-test of Post-test Scores for the Experimental and Control Groups

Group	<i>n</i>	<i>M</i>	<i>SD</i>	Mean Difference	95% CI for Mean Difference	<i>t</i>	<i>df</i>	<i>Sig. (2-tailed)</i>
Experiment	22	62.95	15.94	18.18	8.09, 28.28	3.64	42	.001
Control	22	44.77	17.22					

4. Discussion

This research discusses the effect of Grammar Bubbles Game on students learning mastery of simple present tense at MTS Fadhilatul Islamiyah. Also, this research explains how the implementation of Grammar Bubbles Game on student's learning mastery of simple present tense in their learning process. The result of this research was analysed quantitatively. According to the result of this research, there is significant difference between the students who taught using Grammar Bubble Game and the students who taught using conventional teaching media. The score of the students in the experimental group was higher than the students in control group as the mean score of the students in experimental group is 33.18 while the mean score of the students in control group is 16.59. Besides, the result of independent-samples t-test in 2-tailed is 0.001 which is less than 0.05. It shows that the use of Grammar Bubbles Game is effective in improving student's mastery of simple present tense, especially in descriptive text because there is a significant difference between the experimental group and control group.

Based on the effect size test, Grammar Bubble Game implementation has a strong effect on the improvement of students' mastery of simple present tense. It means that it becomes consideration if it is implemented to all students over a long time. In addition, since the use of Grammar Bubble Game in study is integrated with Mobile-Assisted Language Learning (MALL). Then, it can be a new idea for the teacher to use this media in teaching grammar because it gives richer experiences compared to traditional method. Similarly, using educational

site which is integrated with MALL can make learning process becoming more effective, attractive, and efficient (Shakhmalova & Zotova, 2023; Agustina et al., 2025). In addition, MALL can help the EFL students by increasing their positive attitude because it makes the students to be more independent. It is in line with Sarfaty (2024). Integrating MALL in the classroom can make the class environment becoming more interesting and efficient since the students can use various types of game of education which is can motivate the students.

Moreover, along the process of conducting this research, there were some differences found in the both groups as experimental and control groups in term of students' motivation, participation, and learning environment. the students in experimental group had high motivation since in the classroom they study through technology. Learning through technology also can help students to strengthen the language skills and learning mindset as well as build the students' self-induction strategies and self-confidence (Putri et al., 2023; Romadhon, 2024; Rosmiaty et al., 2023). Besides, in the experimental group, in the class is more students-cantered learning because they can operate their mobile phone independently as Idris et al. (2020) and Pratiwi et al. (2020) found that using technology in the classroom has permitted more student-cantered learning. Also, Murtisari et al. (2020) agreed that MALL is a tool that can be used in language learning and teaching through mobile devices because it can assist and enhance the language learning for students in the classroom. Thus, the use of technology especially MALL can lift learning environment becoming more interactive and more personalized as well as

it can made the students to have high motivation and felt enthusiastic in learning English. Acquah and Katz (2020) also emphasized the potential of mobile devices to support language learning by providing learners with opportunities to interact with digital learning resources. Therefore, the main evidence of the effectiveness of the Grammar Bubbles Game in this study remains the significant difference in grammar achievement between the experimental and control groups.

Improvements in English grammar understanding through mobile game-based learning are driven by learning activities that are more interactive, engaging, and student-centered. Unlike conventional grammar instruction, which typically emphasizes rule explanations and standard exercises, mobile game-based learning enables students to learn and apply grammatical structures through challenges, games, and contextual activities. Generally, game elements boost student motivation and engagement, encouraging active participation and practice (Chin & Chang, 2024; Lin et al., 2020; Yuliani, 2025). Furthermore, interactive game activities provide opportunities for students to use grammar rules in context rather than merely memorizing them (Chang et al., 2017; Rajendran et al., 2025). Consequently, heightened engagement and opportunities for active practice can strengthen students' understanding and retention of language structures.

Mobile game-based learning also supports grammar acquisition through immediate feedback, personalization, and opportunities for independent learning. When students receive instant information regarding the correctness of their answers, they can identify errors and refine their understanding during the learning process (Chang et al., 2017; Koong et al., 2026; Ghorbani & Ebadi, 2019). Additionally, mobile-based learning systems offer flexibility, allowing students to learn at their own pace and according

to their specific needs, including through personalized and self-regulated learning mechanisms (Wang et al., 2021). An engaging, low-pressure game environment can also make students feel more comfortable experimenting, making mistakes, and correcting their responses (Tsai et al., 2017; Sun, 2023). Therefore, the effectiveness of MGBL in enhancing grammar understanding stems not merely from the use of mobile technology, but from the integration of motivation, active engagement, contextual practice, immediate feedback, and adaptive learning—factors that collectively create conditions conducive to the development of EFL students' grammar understanding.

5. Conclusion

This study was conducted to investigate the effect of the Grammar Bubbles Game on students' mastery of the simple present tense. The results showed that the students who learned descriptive text using the Grammar Bubbles Game achieved higher grammar understanding than those who received conventional instruction using picture series. This result indicates that there was a statistically significant difference in grammar achievement between the experimental and control groups. The findings provide empirical support for integrating game-based digital activities into English grammar instruction. Nevertheless, the findings are limited to the specific students, grammatical focus, instructional context, and treatment period examined in this study. Then, further study is strongly suggested to conduct other studies on the use of Grammar Bubbles Game at different levels of the students as well as they can add more participants in their studies.

6. Author Declaration

The authors confirm that this manuscript is an original work and has not been published previously. The writers declare there is no conflict of interest.

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