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THE EFFECTIVENESS OF BAAMBOOZLE AS A GAME-BASED LEARNING PLATFORM FOR ENHANCING VOCABULARY MASTERY AMONG ELEVENTH-GRADE STUDENTS AT SMAN 1 CIOMAS

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Abstract

Vocabulary mastery is essential for successful English language learning, yet many EFL students continue to experience difficulties in understanding and using English vocabulary effectively. This study aimed to investigate the effectiveness of Baamboozle as a game-based learning platform in enhancing students' vocabulary mastery. A quantitative approach with a quasi-experimental non-equivalent control group design was employed. The participants were eleventh-grade students at SMAN 1 Ciomas, consisting of an experimental group taught using Baamboozle and a control group taught through paper-based instruction. Data were collected using equivalent-form pre-tests and post-tests and analyzed through descriptive statistics, the Shapiro–Wilk normality test, Levene's homogeneity test, an Independent Samples *t*-test, and Cohen's *d* effect size analysis. The findings revealed that the experimental group obtained a higher post-test mean score (74.36) than the control group (68.24). The Independent Samples *t*-test indicated a statistically significant difference between the two groups (p = .006). Furthermore, the experimental group demonstrated a medium level of improvement, with a mean N-Gain score of 0.46, indicating a moderate enhancement in students' vocabulary mastery, while the effect size analysis produced a Cohen's *d* value of 0.61, indicating a medium practical effect. These findings suggest that Baamboozle effectively enhances students' vocabulary mastery by promoting active participation, engagement, and meaningful vocabulary learning. Therefore, Baamboozle can be considered an effective game-based learning platform for teaching vocabulary in EFL classrooms.

Keywords: Baamboozle; game-based learning; vocabulary mastery; quasi-experimental research; English language teaching.

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INTRODUCTION

Vocabulary mastery is one of the fundamental components of English language learning because it enables learners to understand texts, express ideas, and communicate effectively. Adequate vocabulary knowledge also supports the development of the four language skills: listening, speaking, reading, and writing. However, many EFL students still have limited vocabulary knowledge, making it difficult for them to comprehend texts and use English appropriately. As Wilkins, as cited in Thornbury (2002), stated, *"without grammar very little can be conveyed, but without vocabulary nothing can be conveyed."* Therefore, vocabulary mastery is essential for successful language learning.

Based on the researcher's teaching practicum (*PLPH*) at SMAN 1 Ciomas, many eleventh-grade students experienced difficulties in understanding word meanings and using vocabulary appropriately in context. Students frequently relied on translation and showed limited participation during vocabulary learning. These problems were also influenced by the limited use of interactive instructional media, as classroom activities were still dominated by conventional teaching methods. Consequently, a more engaging learning approach is needed to improve students' vocabulary mastery.

One potential solution is *Game-Based Learning* (GBL), which integrates game elements into classroom instruction to create an interactive and motivating learning environment. One platform that supports this approach is *Baamboozle*, an online game-based platform that allows students to learn collaboratively through quizzes and team competitions using only one device and a projector. These features encourage active participation, collaboration, and meaningful vocabulary learning.

Previous studies have reported positive findings regarding the use of Baamboozle in vocabulary learning. Amanda et al. (2024) found that Baamboozle improved students' vocabulary mastery and classroom engagement. Likewise, Nesia et al. (2025) reported a significant improvement in students' vocabulary achievement after using Baamboozle. Hasanah et al. (2025) also found that the platform promoted motivation, participation, collaboration, and vocabulary retention. However, previous studies mainly focused on elementary and junior high school students and general vocabulary topics. Limited studies have investigated the effectiveness of Baamboozle among senior high school students, particularly in learning vocabulary through *Hortatory Exposition* texts and focusing on the aspects of meaning and use.

Therefore, this study aims to investigate the effectiveness of Baamboozle as a *Game-Based Learning* platform in enhancing vocabulary mastery among eleventh-grade students at SMAN 1 Ciomas. The findings are expected to provide empirical evidence regarding the effectiveness of Baamboozle in EFL vocabulary instruction and offer an alternative interactive learning platform for English teachers.

METHOD

This study employed a quantitative approach using a quasi-experimental design with a non-equivalent control group design to examine the effectiveness of Baamboozle in enhancing students' vocabulary mastery. Two existing eleventh-grade classes at SMAN 1 Ciomas were selected as the research participants. One class was assigned as the experimental group and received instruction using Baamboozle as a *Game-Based Learning* platform, while the other served as the control group and was taught using conventional paper-based activities. Since the classes had been predetermined by the school, random assignment of participants was not possible.

The study involved 41 students in the control group and 44 students in the experimental group. Both groups completed a pre-test before the treatment and a post-test after the treatment to measure students' vocabulary mastery. The treatment was conducted over four instructional meetings using *Hortatory Exposition* texts as the learning materials. During the treatment, students in the experimental group learned vocabulary through collaborative activities and quizzes provided by Baamboozle. In contrast, students in the control group received vocabulary instruction through conventional classroom activities like paper worksheets.

The research instrument consisted of equivalent-form vocabulary tests developed based on the learning objectives and indicators of vocabulary mastery. The tests measured students' understanding of vocabulary, particularly the aspects of meaning and use. Before being administered, the instrument was validated through expert judgment and a try-out test to ensure its validity and reliability.

The collected data were analyzed using IBM SPSS Statistics. Descriptive statistics were used to determine the mean scores and standard deviations of both groups. Before hypothesis testing, the data were examined using the Shapiro–Wilk normality test and Levene's homogeneity test. An Independent Samples *t*-test was then conducted to examine whether there was a statistically significant difference in post-test scores between the experimental and control groups. To determine the magnitude of the treatment effect, Cohen's *d* effect size was calculated.

FINDINGS

A. Pre-test and Post-test Results

The findings of this study present the results of the statistical analyses conducted to examine the effectiveness of Baamboozle in enhancing students' vocabulary mastery. The data were analyzed using descriptive statistics, normality and homogeneity tests, an Independent Samples *t*-test, and Cohen's *d* effect size.

Table 1 Descriptive Statistics

Group	Test	Mean	SD
Experimental	Pre-test	52.34	12.67
Experimental	Post-test	74.36	9.688
Control	Pre-test	48.68	11.74
Control	Post-test	68.24	8.590

The descriptive statistics indicate that both the experimental and control groups improved their vocabulary mastery after the instructional period. However, the improvement in the experimental group was greater than that of the control group. The mean score of the experimental group increased from 52.34 in the pre-test to 74.36 in the post-test, representing an improvement of 22.02 points. In contrast, the control group showed an increase from 48.68 to 68.24, with a gain of 19.56 points.

Furthermore, the standard deviation of the experimental group decreased from 12.67 to 9.69, suggesting that students' vocabulary scores became more consistent after learning through Baamboozle. A similar decrease was also observed in the control group, where the standard deviation declined from 11.74 to 8.59. Overall, the descriptive findings suggest that students who learned using Baamboozle achieved higher vocabulary scores than those who received paper-based instruction. Nevertheless, inferential statistical analysis was required to determine whether this difference was statistically significant.

B. Independent Sample T-test Results

Table 2 Independent sample T-test Results

Variable	Test	Sig. (2-tailed)	Decision
Vocabulary Mastery	Independent Samples *t*-test	**0.006**	Reject H_0

To examine the effectiveness of Baamboozle on students' vocabulary mastery, an Independent Samples *t*-test was conducted. As presented in Table 2, the significance value was 0.006, which was lower than the significance level of 0.05. Therefore, the null hypothesis was rejected, indicating a statistically significant difference in vocabulary mastery between students who learned using Baamboozle and those who received paper-based instruction. These findings suggest that the implementation of Baamboozle significantly improved students' vocabulary mastery.

C. N-Gain Results

Table 3 N-Gain Results

Group	Mean N-Gain	Category
Experimental group	0.46	Medium
Control group	0.36	Medium

Table 3 shows that the experimental group obtained a mean N-Gain score of 0.46, while the control group achieved 0.36. According to the adopted N-Gain interpretation criteria, both groups were categorized as medium. However, the experimental group demonstrated a higher level of improvement than the control group, indicating that students who learned through Baamboozle experienced greater gains in vocabulary mastery.

D. Effect Size Results

Table 4 Effect Size Results

Statistics	Value	Std.Deviation
Mean of Experimental Group	74.36	9.688
Mean of Control Group	68.24	9.074
Result of Cohen’s d	0,61	
Interpretation	Medium Effect	

To determine the practical significance of the treatment, Cohen's *d* was calculated. As shown in Table 4, the effect size value was 0.61, which falls within the medium category. This result indicates that the use of Baamboozle had a meaningful practical impact on improving students' vocabulary mastery, demonstrating that the observed improvement was not only statistically significant but also educationally meaningful.

DISCUSSION

The findings of this study demonstrate that the implementation of Baamboozle had a positive effect on students' vocabulary mastery. The significant difference between the experimental and control groups indicates that students who learned through Baamboozle achieved better vocabulary outcomes than those who received conventional paper-based instruction. These

findings suggest that integrating game-based learning into vocabulary instruction provides a more engaging learning experience that supports students' vocabulary development.

The greater improvement observed in the experimental group may be attributed to the interactive characteristics of Baamboozle. During the learning activities, students actively recalled vocabulary, discussed answers with their peers, and received immediate feedback while participating in team-based games. Such activities encouraged students to become active participants rather than passive recipients of information. This finding supports Prensky's (2003) Game-Based Learning theory, which argues that educational games enhance learning by increasing learners' motivation, engagement, and meaningful interaction. Through competition, collaboration, and instant feedback, Baamboozle created a learning environment that encouraged students to practice vocabulary more frequently and actively.

The findings are also consistent with Nation's (2001) theory of vocabulary learning, which emphasizes that vocabulary mastery develops through repeated exposure and meaningful use of words. In the present study, students encountered vocabulary repeatedly through activities requiring them to identify meanings and use words appropriately in context. Since the vocabulary test was designed to assess the aspects of meaning and use, the learning activities provided opportunities for students not only to recognize word meanings but also to understand how vocabulary functions in authentic contexts. This indicates that Baamboozle supported students in developing a deeper understanding of vocabulary beyond simple memorization.

Furthermore, the collaborative nature of Baamboozle reflects Vygotsky's sociocultural theory as cited by Hakim (2025), which highlights the importance of social interaction in the learning process. Students worked together to discuss possible answers, exchange ideas, and solve vocabulary tasks during gameplay. Through these collaborative activities, students were able to learn from one another and receive support from both peers and the teacher. In addition, the effectiveness of Baamboozle can be explained through Mayer's Cognitive Theory of Multimedia Learning as cited by Hakim (2025). By integrating written text, visual elements, classroom interaction, and immediate feedback, Baamboozle provided multiple forms of representation that facilitated meaningful cognitive processing and supported vocabulary retention.

The present findings are consistent with previous studies conducted by Amanda et al. (2024), Nesia et al. (2025), and Hasanah et al. (2025), which reported that Baamboozle improved students' vocabulary mastery while increasing classroom engagement and motivation. However, the present study extends previous research in several ways. First, vocabulary mastery was assessed through the aspects of meaning and use, providing a more focused evaluation of students' vocabulary knowledge. Second, the effectiveness of Baamboozle was examined not only through hypothesis testing but also through N-Gain and Cohen's *d* analyses. These additional analyses demonstrated that the experimental group achieved greater learning improvement and that the intervention produced a medium practical effect, providing more comprehensive evidence of Baamboozle's effectiveness.

Despite these positive findings, the improvement achieved by the experimental group remained in the medium category. This suggests that although Baamboozle effectively supports vocabulary learning, it should be viewed as a complementary instructional medium rather than a standalone solution. The moderate improvement may also be influenced by the relatively short duration of the treatment, which was conducted in only two meetings. As Nation (2001)

explains, vocabulary acquisition is a gradual process that requires repeated exposure and continuous practice.

CONCLUSION AND SUGGESTION

This study concludes that Baamboozle is an effective game-based learning platform for enhancing students' vocabulary mastery among eleventh-grade students at SMAN 1 Ciomas. Students who learned through Baamboozle achieved significantly better vocabulary outcomes than those who received conventional paper-based instruction. The findings were supported by the Independent Samples *t*-test, N-Gain analysis, and Cohen's *d* effect size, indicating that Baamboozle produced both statistically significant and practically meaningful improvements in students' vocabulary mastery. Furthermore, assessing vocabulary through the aspects of meaning and use provided a more comprehensive evaluation of students' vocabulary development. Therefore, Baamboozle can be considered an effective instructional medium for promoting interactive, collaborative, and meaningful vocabulary learning in English language classrooms. Based on these findings, English teachers are encouraged to integrate Baamboozle into vocabulary instruction to enhance students' engagement and learning outcomes. Future research is recommended to investigate the effectiveness of Baamboozle over a longer instructional period as well as to explore its effectiveness across different aspects of vocabulary knowledge and other English language skills

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