

Exploring the Effects of Different Gamified Learning Conditions on L2 Learners' Vocabulary Acquisition Using Quizlet

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Abstract

Digital technology has revolutionized second language (L2) vocabulary learning, with gamified applications like Quizlet leading the charge. The emerging gamified language learning applications create greater creativity and innovation for language learning by virtue of their rich functionality and flexible usability. As an expeditiously growing application, Quizlet has attracted significant attention from L2 teachers. Extant research has demonstrated the positive influence of using Quizlet for English vocabulary acquisition. However, fewer studies have directly compared the effects of different gamified learning conditions on students' learning outcomes. Therefore, this study examines L2 vocabulary learning through Quizlet outside the classroom by looking further into how different gamified learning conditions influence learners' vocabulary learning outcomes. Sixty Japanese native speakers who study English as a Foreign Language (EFL) participated in the study and were randomly assigned to three gamified learning environments: competitive, cooperative, and self-regulated learning. A pretest-posttest design was applied to this study. The preliminary findings show that all three groups achieved higher scores in the post-test compared to their performance in the pre-test. Additionally, a statistically significant difference in vocabulary learning outcomes was found between the cooperation and the competition groups, as well as between the cooperation and the self-regulation groups. The findings of this study intend to contribute to the field of language education by shedding light on the impact of

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various gamified learning environments. By making vocabulary learning more engaging and effective, the study will contribute to the body of knowledge by providing evidence-based recommendations for the design of gamified learning experiences that can be integrated into language curricula.

Keywords: Gamification, Mobile-assisted language learning, Vocabulary acquisition, Cooperative learning, Competitive learning

Introduction

The importance of vocabulary acquisition in the field of foreign language learning cannot be overstated, given its instrumental role in fostering language growth and facilitating communication. Language educators have applied various pedagogical strategies in imparting vocabulary knowledge. One of the innovative approaches involves leveraging online technology (Ma, 2017; Segler et al., 2002; Stockwell, 2007). The concepts of Computer-assisted Language Learning (CALL) and Mobile-assisted Language Learning (MALL) refer to the incorporation of computer-based or mobile technologies into language pedagogy. However, MALL differs from CALL by emphasizing the improvised and continuous nature of language learning enabled by portable digital devices (Chinnery, 2006; Levy, 1997; Stockwell & Wang, 2024). Empirical studies have demonstrated that integrating digital technologies into language education not only enables students to engage in individualized practice but also augments their communicative competencies and critical thinking skills. This, in turn, enhances the effectiveness and interactivity of language learning processes, thereby fostering a more engaging and dynamic learning environment (Altun & Ahmad, 2021; Klimova et al., 2023).

In recent years, there has been a growing trend to incorporate gamification elements into language education (Fithriani, 2021). Gamification embodies the utilization of game-oriented strategies and game-centered thinking in non-game environments, with the aim of cultivating enjoyable and motivating learning experiences for language learners (Kapp, 2012). Findings from previous systematic reviews have substantiated the considerable influence of gamification on academic performance and learning experience, thus emphasizing its potential as a transformative tool in language education (Dehghanzadeh et al., 2021; Zhang & Hasim, 2023). Newly developed gamified language-learning applications such as Quizlet have rapidly gained prominence among L2 teachers and learners. Waluyo and Bakoko (2021) investigated how learners with low English proficiency responded to gamified vocabulary instruction via Quizlet. They concluded that using Quizlet for vocabulary memorization facilitates extracurricular language

learning and strengthens learner autonomy. Positive results were also identified by Sanosi (2018), pointing out that students who used Quizlet to learn vocabulary scored higher on the post-test compared to their counterparts.

The exploration of gamified cooperative and competitive learning also represents a valuable area of research. Cooperative learning strategies stimulate learners to evolve into proactive and energetic participants, fostering efficient interactions that facilitate social relatedness (Dindar et al., 2021). On the other hand, while competition can enhance student engagement and drive (Burguillo, 2010), it may concurrently trigger anxiety and stress among learners (Chen et al., 2022). Previous studies have reached mixed findings, highlighting both advantages and disadvantages inherent in cooperative and competitive learning conditions.

Extant research has investigated the implementation of Quizlet for English vocabulary acquisition spanning diverse educational levels and contexts, as well as the impact of competitive game features on English language learning. However, fewer studies have directly compared the effects of gamified cooperation and competition on students' vocabulary learning outcomes in one study. Moreover, most studies have examined the influence of utilizing Quizlet on vocabulary learning in a classroom setting, while studies that focused on outside-of-the-classroom settings have been scantily explored.

Therefore, this study aims to fill a gap in the literature on L2 vocabulary learning through Quizlet outside the classroom, delving into the impact of gamified competitive and cooperative learning on learners' vocabulary learning outcomes. In addition, apart from cooperative and competitive learning conditions, this study also introduces a self-regulated learning condition. The researcher is eager to explore whether differences or similarities will be found by comparing learners' performances under three different gamified learning environments. Two research questions were addressed:

1. How does gamified vocabulary learning through Quizlet impact Japanese EFL learners' vocabulary learning outcomes?
2. Do gamified cooperative, competitive, and self-regulated condition groups significantly differ from each other in relation to vocabulary learning outcomes?

Methodology

Participants were 60 undergraduate students enrolled in a first-year English language course at a Japanese university. They came from three intact classes. The researcher randomly assigned the three classes into three different groups:

cooperative learning group ($n = 20$), competitive learning group ($n = 22$), and self-regulated learning group ($n = 18$). The average English proficiency level of the participants was intermediate, equivalent to levels B1 and B2 of the Common European Framework of Reference for Languages (CEFR).

A pretest-posttest design was applied to this study. Both tests include 40 multiple-choice questions and have a full score of 100. In the first class of the semester, a pre-test was given to participants to examine their English vocabulary level before the experiment. Then, participants were asked to learn 175 English words via Quizlet over an academic semester (14 weeks). They were told that learning vocabulary through Quizlet would help them prepare for the weekly mini-quiz. Moreover, participants were invited to participate in the badge collection activity. In the competition group, participants were awarded 10 points for each badge they earned, and they needed to compete with each other to earn as many badges as possible. At the end of the semester, the top three participants with the highest scores will be awarded special rewards. In the cooperation group, a badge was deemed 'completed' only when all group members had obtained it. In the self-regulated group, participants were told to collect badges based on their individual pace and preference. In the last class of the semester, a post-test was conducted to assess participants' vocabulary learning outcomes after the intervention.

Results and Discussion

Data were analyzed using the statistical software package, SPSS version 29.0. All three groups received higher scores in the post-test compared to their performance in the pre-test. More specifically, on a range from 0 to 100, the cooperation group had an average score of 75.4 ($SD = 10.17$) on the pre-test, followed by the self-regulation group with an average score of 73.1 ($SD = 15.47$) and the competition group with an average score of 69.8 ($SD = 10.95$). In terms of the post-test, both the cooperation and competition groups made remarkable progress by receiving an average score of 87.75 ($SD = 9.28$) and 78.41 ($SD = 14.15$), respectively. The self-regulation group also performed better in the post-test by obtaining an average score of 75.1 ($SD = 17.79$), though the progress was not as pronounced as that of the other two groups.

A one-way ANOVA was run to explore whether there was a significant difference among the three groups regarding their performance after the intervention (i.e., the post-test score). There was a statistically significant difference in vocabulary scores among the groups, $F(2, 57) = 4.227$, $p = .019$, $\eta^2 = .129$. Post-hoc comparisons using Tukey's HSD test indicated that the mean score for the cooperation group was significantly different from the competition group ($p = .045$) as well as the self-regulation group ($p = .037$). However, there

was no statistically significant difference between the competition and self-regulation groups ($p = .897$).

The results of this study align with Dindar et al. (2021), who found that gamified competition and cooperation promoted similar learning achievement scores. However, unlike the findings of Dindar et al. (2021) indicating that no significant difference was found between gamified competition and cooperation in the vocabulary posttest scores, this study revealed a statistically significant difference between the gamified cooperative and competitive groups. Another important finding is that participants in the cooperation group achieved the greatest improvement in the post-test. This finding appears to contradict Qiao et al. (2024), who found that students in the competitive condition demonstrated a significantly greater improvement in the post-test than students in the cooperative condition. This could be due to participants' individual differences in different gamified condition groups, such as their lack of prior experience with online technology or game-based applications for language learning. Further insights into participants' perceptions of different gamified learning conditions will be elicited in the upcoming interviews.

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