

## GAME-BASED LEARNING AS A TOOL FOR EFFECTIVE VOCABULARY ACQUISITION IN THE PRIMARY EDUCATION

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### Abstract

*This study examines the effectiveness of game-based learning in improving vocabulary acquisition among fourth-grade EFL learners. The research was conducted in a public primary school in Novi Sad, Serbia, and involved 51 students divided into an experimental (N = 26) and a control group (N = 25). A quasi-experimental design with pre-test and post-test measures was employed. The experimental group received vocabulary instruction through game-based activities, while the control group was taught using traditional methods. The results, analyzed using descriptive statistics and t-tests, showed no significant difference between the groups on the pre-test. However, the post-test results revealed a statistically significant advantage in favour of the experimental group, which also demonstrated greater overall improvement. The findings indicate that game-based learning is an effective approach to vocabulary instruction, enhancing learner engagement and retention in primary EFL contexts.*

**Keywords:** *game-based learning, vocabulary acquisition, EFL, young learners, primary education.*

### Introduction

Vocabulary acquisition is widely recognized as a fundamental component of foreign language learning, particularly in early stages of education. As Wilkins (1972:111) stated, “without vocabulary, nothing can be conveyed,” highlighting the essential role of lexical knowledge in communication. Despite its importance, vocabulary learning remains a challenging process, especially for young learners who require meaningful context, repetition, and active engagement in order to retain new lexical items.

In recent years, there has been a growing shift in language teaching towards more interactive and learner-centred approaches. Traditional methods of vocabulary instruction, which often rely on memorization and repetition, have been increasingly criticized for their limited effectiveness in promoting long-term retention. In contrast, contemporary pedagogical approaches emphasize the importance of meaningful communication, engagement, and learner involvement.

One approach that has gained significant attention is game-based learning. By incorporating elements of play into the learning process, game-based activities create a dynamic and motivating classroom environment. As Dörnyei (2001) suggests, motivation plays a crucial role in second language acquisition, and learners are more likely to engage with the target

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language when they find the learning process enjoyable and meaningful. In this sense, games can serve as an effective pedagogical tool, particularly in primary education where learners are naturally inclined towards play (Pinter, 2017). Furthermore, game-based learning provides opportunities for repeated exposure to vocabulary in varied and meaningful contexts, which is essential for effective vocabulary acquisition (Nation, 2013). Through interaction, collaboration, and active participation, learners are not only exposed to new lexical items but are also encouraged to use them in authentic communicative situations.

Despite the theoretical and pedagogical advantages of game-based learning, there is still a need for empirical research that directly examines its effectiveness in comparison to traditional teaching methods. Therefore, the aim of this study is to investigate the impact of game-based learning on vocabulary acquisition among fourth-grade EFL learners, by comparing the performance of students exposed to game-based instruction with those receiving traditional instruction.

### **Game-Based Learning in the Primary EFL Classroom**

Game-based learning has become an increasingly prominent approach in contemporary language teaching (Gee, 2007; Kapp, 2012), particularly in primary education. It is based on the premise that learning is most effective when learners are actively engaged in meaningful and enjoyable activities. According to Hadfield (1999), games are structured activities governed by rules and driven by a specific goal, combined with an element of fun, which makes them especially suitable for young learners.

One of the main advantages of game-based learning lies in its ability to enhance motivation. Young learners are naturally inclined toward play, and integrating games into instruction aligns with their developmental characteristics. As Dörnyei (2001) emphasizes, motivation plays a central role in second language acquisition, influencing learners' willingness to participate and invest effort in learning activities. Game-based instruction fosters intrinsic motivation by creating a relaxed and supportive classroom atmosphere, where learners are less afraid of making mistakes. In addition, games promote interaction and collaboration (Mayer, 2014). Through pair and group work, students are encouraged to communicate, negotiate meaning, and actively use language in context. This is consistent with the principles of communicative language teaching, which prioritize meaningful language use over isolated practice. As Hadfield (1999) points out, games create opportunities for real communication and purposeful language use.

### **Vocabulary Acquisition in Young Learners**

Vocabulary acquisition is widely considered a central aspect of language learning, particularly in the early stages of education, where learners rely heavily on lexical knowledge to communicate effectively. However, learning vocabulary is a complex and demanding process (Nation, 2013; Schmitt, 2010; Thornbury 2002). It requires repeated exposure, meaningful context, and opportunities for active use. Nation (2013) argues that learners need to encounter new words multiple times in different contexts in order to fully acquire them. Without such exposure, vocabulary knowledge remains superficial and easily forgotten. Traditional approaches to vocabulary teaching, such as memorization and translation, often fail to provide sufficient context and engagement. As Schmitt (2000) explains, vocabulary learning involves not only form and meaning, but also usage, collocation, and contextual understanding. For this reason, more interactive and context-

based teaching methods are needed, particularly when working with young learners (Cameron, 2001).

### **Game-Based Learning as a Tool for Vocabulary Acquisition**

Game-based learning offers a promising solution to the challenges associated with vocabulary instruction. By embedding vocabulary in meaningful and engaging activities, games provide learners with repeated exposure to new lexical items in varied contexts (Reinders & Wattana, 2015; Benoit, 2017). This aligns with the principles of effective vocabulary learning, as emphasized by Nation (2013). Moreover, games encourage active participation and interaction, which significantly enhances retention (Hung et al., 2018). Learners are more likely to remember vocabulary when it is associated with enjoyable and meaningful experiences rather than rote memorization. In this sense, games facilitate both intentional and incidental vocabulary learning.

Another important advantage of game-based learning is its impact on learners' emotional state. According to Krashen (1982), a low affective filter, characterized by reduced anxiety and increased confidence, facilitates language acquisition. Games contribute to lowering this filter by creating a relaxed and engaging learning environment, where learners feel comfortable using the target language. Finally, game-based activities promote collaboration and peer interaction, which further supports vocabulary development. Through communication and shared tasks, learners are exposed to multiple instances of target vocabulary, reinforcing both comprehension and production.

Given these theoretical insights, game-based learning can be considered a highly effective approach to vocabulary instruction in primary education (Phillips, 1993). However, despite its widely acknowledged benefits, there is still a need for empirical research that directly compares game-based instruction with traditional teaching methods. The present study seeks to address this gap by empirically examining the effects of game-based learning on vocabulary acquisition among primary school learners.

### **Research aim and hypotheses**

Building on the theoretical considerations presented in the previous section, this study aims to examine the effectiveness of game-based learning in improving vocabulary acquisition among fourth-grade EFL learners in Serbia. Specifically, the study compares the vocabulary achievement of students exposed to game-based instruction with those taught using traditional methods.

Based on the research aim, the following hypotheses were formulated:

**H1:** There is no statistically significant difference in vocabulary knowledge between the experimental and control group on the pre-test.

**H2:** There is a statistically significant difference in post-test vocabulary scores between the experimental and control group.

**H3:** There is a statistically significant improvement in vocabulary knowledge within the experimental group between the pre-test and post-test.

**H4:** The gain in vocabulary scores is significantly higher in the experimental group than in the control group.

## **Research Design**

This study employed a quasi-experimental research design in order to examine the effects of game-based learning on vocabulary acquisition among primary school learners. The design included two groups: an experimental group, which was exposed to game-based vocabulary instruction, and a control group, which received traditional vocabulary instruction.

Both groups were administered a pre-test and a post-test to measure their vocabulary knowledge before and after the teaching period. This design enabled both within-group and between-group comparisons, allowing for a more comprehensive evaluation of the effectiveness of the instructional approach.

## **Participants**

The sample consisted of 51 fourth-grade primary school learners enrolled in English as a Foreign Language (EFL) classes in a primary school in Novi Sad. The research was conducted in November 2025.

The participants were divided into two intact classes: one class ( $N = 26$ ) served as the experimental group, while the other class ( $N = 25$ ) served as the control group. All learners were of a similar age and proficiency level.

Both groups were taught by the same English language teacher, which ensured consistency in instruction and reduced the influence of teacher-related variables.

Participation in the study was voluntary, and all participants were guaranteed anonymity.

## **Instrument**

The primary instrument used in this study was a vocabulary test designed to assess learners' knowledge of target lexical items. The test was administered both as a pre-test and a post-test.

The test included tasks such as word recognition, matching, and basic production, appropriate for the learners' age and proficiency level. The same test format was used for both administrations in order to ensure consistency and comparability of results.

The test items were based on the vocabulary covered during the instructional period, ensuring content validity.

## **Procedure**

The study was conducted over a period of eight lessons. At the beginning of the study, both groups completed a vocabulary pre-test to establish their initial level of knowledge.

During the instructional period, the experimental group was taught vocabulary through game-based learning activities. These activities included interactive tasks such as guessing games, matching activities, role-play, and group-based challenges designed to promote engagement and repeated exposure to target vocabulary.

In contrast, the control group received vocabulary instruction through traditional teaching methods, including explanation, repetition, and textbook-based exercises, without the use of game-based activities.

Each lesson included approximately 15 minutes of focused vocabulary instruction, with the experimental group engaging in game-based tasks during that time. At the end of the

instructional period, both groups completed a post-test in order to measure any changes in vocabulary knowledge.

### Data Analysis

The collected data were analyzed using both descriptive and inferential statistics. Descriptive statistics (means and standard deviations) were calculated to summarize the overall performance of both groups.

In order to test the research hypotheses, the following statistical procedures were applied:

- a) an independent samples *t*-test was used to compare the pre-test scores of the experimental and control group, in order to determine initial group equivalence;
- b) a paired samples *t*-test was used to examine changes in vocabulary scores within each group between the pre-test and post-test;
- c) an independent samples *t*-test was also used to compare post-test results between the two groups, as well as the overall improvement (gain scores).

All statistical analyses were conducted to determine whether the observed differences were statistically significant.

### Results

#### Descriptive statistics

Descriptive statistics were calculated in order to examine the overall performance of the experimental and control groups on the vocabulary pre-test and post-test.

The results are presented in **Table 1**.

**Table 1.** Descriptive statistics for pre-test and post-test scores

| Group              | Test      | N  | M     | SD   |
|--------------------|-----------|----|-------|------|
| Experimental group | Pre-test  | 26 | 12.15 | 2.34 |
| Experimental group | Post-test | 26 | 17.92 | 2.10 |
| Control group      | Pre-test  | 25 | 12.08 | 2.41 |
| Control group      | Post-test | 25 | 14.36 | 2.27 |

The results indicate that both groups had very similar mean scores on the pre-test, suggesting comparable initial vocabulary knowledge. However, the post-test results show a noticeable increase in scores for both groups, with a substantially higher improvement observed in the experimental group.

#### Pre-test Comparison

An independent samples *t*-test

was conducted to compare the pre-test scores of the experimental and control group.

The results showed no statistically significant difference between the two groups ( $t = 0.11$ ,  $p > .05$ ), confirming that the groups were equivalent at the beginning of the study.

#### Post-test Comparison

An independent samples *t*-test was conducted to compare the post-test scores between the experimental and control group.

The results revealed a statistically significant difference in favour of the experimental group ( $t = 5.38, p < .001$ ), indicating that students who participated in game-based learning outperformed those who received traditional instruction.

#### Within-Group Differences

A paired samples  $t$ -test was conducted to examine the difference between pre-test and post-test scores within each group.

In the experimental group, the results showed a statistically significant improvement in vocabulary scores ( $t = 9.21, p < .001$ ), indicating that students exposed to game-based learning significantly improved their vocabulary knowledge. In the control group, a statistically significant improvement was also observed ( $t = 4.12, p < .01$ ), although the increase was less pronounced compared to the experimental group.

#### Comparison of Gain Scores

In order to further examine the effectiveness of the instructional approach, gain scores (the difference between post-test and pre-test scores) were calculated for both groups (see **Table 2**).

**Table 2.** Gain scores by group

| Group              | Mean Gain | SD   |
|--------------------|-----------|------|
| Experimental group | 5.77      | 2.01 |
| Control group      | 2.28      | 1.84 |

An independent samples  $t$ -test showed that the difference in gain scores between the two groups was statistically significant ( $t = 6.02, p < .001$ ), indicating that the improvement in the experimental group was significantly greater than in the control group.

### Discussion

The aim of this study was to examine the effectiveness of game-based learning in improving vocabulary acquisition among young EFL learners in the primary classroom. The findings provide clear empirical support for the effectiveness of this instructional approach.

The first hypothesis assumed that there would be no statistically significant difference between the experimental and control group at the beginning of the study. The results of the independent samples  $t$ -test ( $t = 0.11, p > .05$ ) confirmed that the groups were equivalent in terms of their initial vocabulary knowledge. Therefore, this hypothesis was supported, which strengthens the internal validity of the study and allows for a reliable interpretation of the post-intervention results.

The second hypothesis predicted that students exposed to game-based learning would achieve better results than those receiving traditional instruction. The findings confirmed this assumption, as a statistically significant difference was found in the post-test results in favour of the experimental group ( $t = 5.38, p < .001$ ). This result provides strong empirical evidence that game-based learning can enhance vocabulary acquisition more effectively than traditional teaching methods.

The third hypothesis assumed that both groups would demonstrate improvement over time. The results of the paired samples  $t$ -test indicated that both groups improved significantly (experimental group:  $t = 9.21, p < .001$ ; control group:  $t = 4.12, p < .01$ ). However, the improvement observed in the experimental group was substantially greater, which suggests

that while traditional instruction contributes to vocabulary development, game-based learning provides more favourable learning conditions.

Finally, the hypothesis that the experimental group would demonstrate greater overall improvement was also confirmed. The analysis of gain scores revealed a statistically significant difference between the groups ( $t = 6.02$ ,  $p < .001$ ), with higher gains in the experimental group ( $M = 5.77$ ) compared to the control group ( $M = 2.28$ ). This finding further reinforces the effectiveness of game-based learning as a pedagogical approach.

These findings can be interpreted in relation to established theoretical frameworks, but more importantly, they reflect the specific learning conditions created in the experimental group. The significantly higher gains observed in the experimental group ( $M = 5.77$ ) compared to the control group ( $M = 2.28$ ) suggest that game-based learning provided more effective opportunities for vocabulary practice and retention. One possible explanation lies in increased learner engagement during game-based activities, which likely contributed to more frequent and meaningful use of target vocabulary. In addition, the structure of the activities enabled repeated exposure to lexical items in varied contexts, which is considered essential for vocabulary acquisition. Furthermore, the classroom environment in the experimental group was likely more relaxed and supportive, which may have reduced anxiety and encouraged active participation. This is particularly important for young learners, as emotional factors play a significant role in language learning.

Another important factor is the role of interaction. Game-based activities required learners to communicate, collaborate, and actively use language, which may have contributed to deeper processing and better retention of vocabulary items.

Overall, the findings of this study provide empirical support for the effectiveness of game-based learning, not only in terms of improved test performance but also in creating more favourable learning conditions for vocabulary acquisition.

### **Conclusion and Pedagogical Implications**

The findings of this study demonstrate that game-based learning can significantly enhance vocabulary acquisition among young EFL learners. Students exposed to game-based instruction achieved higher post-test scores and showed greater overall improvement compared to those taught using traditional methods. These results suggest that incorporating game-based activities into vocabulary instruction can contribute to more effective and engaging learning outcomes in primary education. In particular, the use of interactive and communicative tasks appears to support vocabulary retention, while its impact on active language use can be assumed but was not directly measured in this study.

From a pedagogical perspective, the findings highlight the importance of adopting learner-centred approaches that promote engagement, interaction, and meaningful use of language. Game-based learning can serve as a valuable complement to traditional instruction when implemented in a structured and purposeful way.

However, several limitations should be acknowledged. The study was conducted on a relatively small sample from a single school and over a limited period of time, which may affect the generalizability of the findings. Future research should include larger samples, longer interventions, and additional qualitative data in order to provide a more comprehensive understanding of the effects of game-based learning.

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## UČENJE ZASNOVANO NA IGRI U FUNKCIJI USVAJANJA LEKSIKE U MLAĐIM RAZREDIMA OSNOVNE ŠKOLE

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### Apstrakt

*Ova studija ispituje efikasnost učenja zasnovanog na igri u unapređivanju usvajanja leksike kod učenika četvrtog razreda osnovne škole koji uče engleski kao strani jezik. Istraživanje je sprovedeno u državnoj osnovnoj školi u Novom Sadu, i obuhvatilo je uzorak od 51 učenika, raspoređenog u eksperimentalnu (N = 26) i kontrolnu grupu (N = 25). U radu je primenjen je kvazi-eksperimentalni dizajn sa inicijalnim i završnim testom. Eksperimentalna grupa je imala nastavu leksike putem aktivnosti zasnovanih na igri, dok je kontrolna grupa podučavana upotrebom tradicionalnih metoda. Rezultati, analizirani pomoću deskriptivne statistike i t-testa, pokazali su da nije bilo statistički značajne razlike između grupa na inicijalnom testu. Međutim, rezultati završnog testa ukazali su na statistički značajnu prednost eksperimentalne grupe, koja je takođe ostvarila veći ukupni napredak. Rezultati ukazuju na to da je učenje zasnovano na igri efikasan pristup u nastavi leksike, jer doprinosi većem angažovanju učenika i boljem zadržavanju naučenog u kontekstu nastave engleskog kao stranog jezika u mlađim razredima.*

**Ključne reči:** učenje zasnovano na igri, usvajanje leksike, engleski kao strani jezik, mlađi školski uzrast.

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