

DOI: <https://doi.org/10.36719/2706-6185/55/12-21>

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## **The Impact of AI-Based Gamified Tools on Vocabulary Acquisition: Evidence from Algerian Young Learners Using Quizlet and Wordwall**

### **Abstract**

In today's digitally-driven world, young learners often have more experience with game environment than physical classroom. Empirical research shows that children tend to engage with learning task more deeply when game elements are introduced. In particular, tasks that promote vocabulary learning have been found to develop vocabulary knowledge. The effect of games (AI games) in language classrooms is investigated with Quizlet and Wordwall that assist young learners to enhance their vocabulary. Gamification, defined as the use of game design elements in non-game contexts, has drawn attention in the field of English as Foreign Language (EFL) as a potential solution to enhance vocabulary acquisition. The purpose of this study is to investigate the impact of gamification on vocabulary learning of the English language for young learners. It argues that if applied appropriately, gamification could contribute to improving motivation, engagement, and vocabulary learning in early language learning scenarios. The investigation examines vocabulary enhancement through digital learning tools, focusing on the use of Quizlet and Wordwall. The main objective is to evaluate vocabulary improvement via these platforms alongside traditional instructional methods. Two research tools have been used in this study: classroom observation and teachers' interviews. The findings have shown that learning aided by AI games can foster rich interactions among learners and establish a student-centered milieu in the classroom, enabling learners to focus on their real needs and establish meaningful communication relationships.

**Keywords:** *AI gamification, English vocabulary, learners' motivation, engagement, interaction*

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## **Süni intellektə əsaslanan oyunlaşdırılmış vasitələrin söz ehtiyatının mənimsənilməsinə təsiri: Əlcəzairli gənc öyrənənlərin Quizlet və Wordwall istifadə etməsi üzrə sübutlar**

### **Xülasə**

Bu günün rəqəmsal dünyasında gənc öyrənənlər tez-tez fiziki sinif mühitindən daha çox oyun mühitində təcrübəyə malikdirlər. Empirik tədqiqatlar göstərir ki, oyun elementləri tətbiq olunduqda uşaqlar öyrənmə tapşırıqları ilə daha dərinlən məşğul olmağa meyllidirlər. Xüsusilə söz ehtiyatının öyrənilməsinə təşviq edən tapşırıqların lüğət biliklərini inkişaf etdirdiyi müəyyən edilmişdir. Dil siniflərində oyunların (AI oyunlarının) təsiri gənc öyrənənlərin lüğətini zənginləşdirməyə kömək edən Quizlet və Wordwall kimi vasitələrlə araşdırılmışdır. Oyunlaşdırma, qeyri-oyun kontekstində oyun dizayn elementlərinin istifadəsi kimi müəyyən edilir və lüğət əldə etməni yaxşılaşdırmaq üçün potensial həll kimi İngilis dilini xarici dil kimi öyrənmə sahəsində diqqət çəkmişdir.

Bu tədqiqatın məqsədi oyunlaşdırmanın gənc öyrənənlərin ingilis dili lüğətinin öyrənilməsinə təsirini araşdırmaqdır. Müəlliflər iddia edirlər ki, düzgün tətbiq edildikdə oyunlaşdırma erkən dil öyrənmə vəziyyətlərində motivasiyanı, iştirakçılığını və lüğət öyrənilməsinə yaxşılaşdırmağa kömək edə bilər. Tədqiqat rəqəmsal öyrənmə vasitələri vasitəsilə lüğətin inkişafını araşdırır və xüsusi olaraq Quizlet və Wordwall istifadəsinə diqqət yetirir. Əsas məqsəd bu platformalar vasitəsilə lüğətin ənənəvi tədris metodları ilə birlikdə necə inkişaf etdiyini qiymətləndirməkdir. Bu işdə sinif müşahidəsi və müəllimlərlə müsahibə olmaqla iki tədqiqat aləti istifadə olunub. Nəticələr göstərir ki, süni intellektə əsaslanan oyunlarla dəstəklənən öyrənmə öyrənənlər arasında zəngin qarşılıqlı əlaqələr yarada və sinifdə tələbə yönümlü mühit formalaşdırıla bilər, bu da öyrənənlərin real ehtiyaclarına fokuslanmasına və mənalı ünsiyyət münasibətləri qurmasına imkan verir.

***Açar sözlər:** süni intellektlə oyunlaşdırma, İngilis dili lüğəti, öyrənənlərin motivasiyası, maraq göstərməsi, qarşılıqlı əlaqə*

## Introduction

Vocabulary is one of the most important aspects that should be mastered by the students in learning a foreign language in order to use the language effectively. To improve their fluency in English, students have to master vocabulary because it provides directions in the production of the four language skills: writing, reading, listening, and speaking. Vocabulary development is central to successful preparation for English tests and effective reading comprehension. Vocabulary also represents a fundamental challenge in EFL contexts because it forms the core of language learning. Mastering vocabulary has become essential for achieving competence.

Today's digital landscape is changing how students approach vocabulary. The old routines of rote memorization and repetitive workbook tasks no longer hold the same appeal. Learners want and need something interactive and rewarding. That's where gamification comes in. By weaving game elements into lessons—things like points, friendly competition, or imaginative challenges—AI-powered gamified tools have turned vocabulary study into an experience that actually motivates and excites students.

### Research

With features like leaderboards, mini-competitions, and interactive stories, students not only feel compelled to participate, but they're also more likely to keep practicing regularly, which is crucial for mastering new words. In EFL settings, incorporating AI gamification makes vocabulary building more vibrant and engaging, helping students not just learn, but remember and use new language skills over the long term.

Research has shown that learning aided by AI games can foster rich interactions among learners and establish a student-centered milieu in the classroom, enabling learners to focus on their real needs and establish meaningful communication relationships. AI games have been used not only for English vocabulary but also in diverse credits such as English learning and student motivation. These applications also allow the user to pace the learning (Cooley, 2001).

This study aims to examine to what extent AI gamification can boost motivation, increase engagement, and enhance vocabulary retention in early language learning. It is also to acknowledge the benefits of using Quizlet and Wordwall to assist young learners in acquiring English vocabulary. Through a two-part approach that includes theoretical illustration and practical implementation, this paper seeks to contribute to more effective and inclusive language education. The outcomes of this study are anticipated to assist educators to provide enjoyable experiences that motivate students to learn and help them develop strategic thinking, problem-solving, creativity, and social interaction skills.

### 1. Literature Review

Skilled vocabulary usage is essential in building English communication ability and competency. An inadequate vocabulary hinders the communication process. Moreover, most learners in Algeria have limited vocabulary due to reduced exposure to the English language in daily life. This situation

results in a lack of motivation to learn English. Without effective techniques to enhance vocabulary, the learning process is bound to fail.

### **1.1. Gamification in Education**

The word gamification appeared in 2008. It is the application of game design elements, game mechanics, and game thinking to non-game contexts to engage people and solve problems. Gamification is defined as an educational technology tool that engages and motivates students (Sanmugam, 2017). Evidence confirms the positive impact of gamification on language learning achievement (Shen et al., 2024). Game elements are generally classified as either game design or game mechanics, both of which strongly influence the learner's game experience and should also influence how the game develops the learner's competency in the chosen area.

Gamification is used in the school environment because it has proven to be a good way for students to study and learn their lessons. The activities that exist in the games have a good effect on learners' moods. Their enthusiastic feedback because of the enjoyment makes them write essays focusing on how much of a difference the games have made to their ways of learning (Garland, 2015).

Game-based learning naturally creates a high degree of learner engagement and motivation through game enjoyment. Such engagement often leads to the sustained desire to achieve higher scores and an improved level of play. Similarly, many educational apps appear to engage and motivate the learners through their game-based mechanics and an intuitive and attractive visual interface designed especially for young learners.

Through the integration of artificial intelligence, these apps are able to provide a personalized learning experience by applying the concept of adaptive learning.

This approach personalizes the learning journey for students, making lessons more engaging, boosting their confidence, and helping them find real enjoyment in the process. As a result, students tend to grow more curious about vocabulary and participate more actively in class activities (Xiao & He, 2023).

With technology increasingly woven into language classrooms, certain digital platforms have stood out for their positive impact. Kahoot! has become a go-to for lively, interactive quizzes and discussions that bring a sense of fun to learning. Quizlet, available since the 2000s, provides digital flashcards and varied exercises to help students review and master new material at their own pace. Wordwall offers teachers tools to create interactive activities designed to fit the unique goals of each group of learners. By weaving in these game-like elements, gamification turns what can be a repetitive and sometimes tough task—learning new vocabulary—into an experience that is far more enjoyable and motivating. This not only makes the process more efficient but also encourages students to look forward to expanding their vocabulary.

### **1.2. Vocabulary Acquisition Framework**

Vocabulary is a cornerstone of language learning, yet it's common for some students to shy away from traditional vocabulary exercises, often favouring approaches that seem to deliver faster or more visible results. This underscores the importance of exploring and refining computer-assisted techniques, especially the innovative use of virtual reality games. While these technologies show real promise, there's still much to learn about how they can be practically applied to help students master new words in meaningful ways.

Vocabulary learning is a foundational element in EFL education, particularly for young learners who rely heavily on vocabulary to build communicative competence. It is the key to gaining language skills and also fosters the capacity to acquire knowledge and develop the ability to devise a method for reading, writing, and speaking (Matsubara & Yoshida, 2018).

The acquisition of vocabulary is necessary in order to use any language in communication. This applies to both first and second languages systems as well as to oral and written languages. Acquisition appears to take three stages: observation; storage and linkage; and consolidation. Provided a learner is allowed to feel secure, they appear to reach a sufficiently understanding of a concept within two minutes observation. They should then move to storage and linkage, a stage where

concepts are connected to one another and meaning is established. Finally, the consolidation stage is a period of practice to reinforce the understanding and sense of security.

Currently, an alternative approach to acquiring vocabulary uses human-computer interaction. Initial implementations were solely desktop applications, a strategy demonstrating some effectiveness but limited in scope. These applications allowed the user to pace the learning (Cooley, 2001). Further research found that for younger users, the addition of sound, visual cues, and animation, along with more immediate feedback, proved more effective than desktop applications alone. In today's world, technology has become an essential part of how we learn languages. It brings a sense of interactivity and makes learning more accessible and tailored to each individual. With the help of various digital tools, students can practise their speaking, listening, reading, and writing skills whenever it suits them, allowing them to learn at a pace that feels right for them.

### **1.3. The Use of Technology in Language Learning**

It is widely recognized that gamified AI tools represent some of the most innovative and engaging strategies for facilitating vocabulary acquisition among young learners. By incorporating game-based elements, these technologies foster increased motivation and active participation, thereby enhancing the effectiveness of vocabulary learning in educational contexts.

They also give them the opportunity to explore new words, reinforce their memory, and develop a richer lexical repertoire. These tools encourage students by turning vocabulary learning into a fun and interactive process. There are countless apps available to download that help teach vocabulary, grammar, or even claim to make a user fluent. Many of these apps are gamified and let the user score points or earn badges (Jackson, 2018).

#### **1.3.1. Quizlet: A Flashcard App**

Quizlet is a cross-platform web and mobile study application that allows users to create flashcards and study them through several interactive learning modes and games. One of the modes places target vocabulary words beside listening and reading cues—read, write, listen—(RWL) type activities; students attain better pronunciation precision as this activity enforces correct spelling practice by simultaneously reading and listening. The application makes it easy for the learner to remember new topics because of simple features (Abdillah & Thohiriyah, 2018). It also provides an avenue whereby users can interact with classmates or teachers, leading to enhanced engagements as well as shared studying activities among students. Pham's research (2018) on Quizlet found out that different mode practices offered by software together with engagement strategies foster active participation in vocabulary acquisition.

Within the app, a range of learning components, including multimedia (images and audio), game modes, a learning mode, and practice tests, cater to various preferences, fostering interaction and discussion. A significant advantage of Quizlet is the swift, automatic grading of practice test responses, which provides immediate feedback and highlights areas that need improvement.

#### **1.3.2. Wordwall: A Digital Repository Tool**

Wordwall is a web-based platform that enables users to transform multiple-choice, matching, or sorting activities into interactive games by populating customizable templates with their own content (Kish, 2018). The platform is popular for educators who want to create engaging and interactive digital games for their students. The intuitive web interface enables teachers to produce a wide variety of game types, including crossword, matching pairs, split screen matching, word search, word scramble, and missing word exercises. These can be easily customized using either embedded spreadsheets or simple text lists, with options to modify layout, colour schemes, and add images or sounds.

A multifarious array of nine exercise formats—including solitary-enhanced receptivity activities and team-based communicative tasks—ensures robust consolidation of vocabulary, balances difficulty, and fosters motivation (Matsubara & Yoshida, 2018). When running Wordwall activities, the system dynamically generates random challenges for the learners, presenting fresh and varied exercise opportunities each time.

The uses of competition, repetition, and visual stimuli within these tools not only boost learners' focus and attention but also help reduce anxiety and fear associated with language learning, which is usually present in traditional learning environments. Through the creation of a sense of achievement and autonomy, gamified AI applications engage students to become active participants in the educational process, which leads to better retention and improved classroom environment. Digital tools have significantly transformed the learning experience for young learners by making education more interactive, accessible, and personalized. Through apps, educational games, and online platforms, children can engage with content in ways that cater to their individual learning styles and paces.

#### **1.4. Effects of Digital Technology on Young Learners' Development**

Studies indicate that the use of AI-supported learning games can promote active engagement and meaningful interaction among students. Such tools help create a learner-centred classroom environment, where students can focus on their genuine learning needs and develop purposeful communication with their peers.

AI games have been used not only for English vocabulary but also in diverse credits such as English learning and student motivation. For instance, young learners who participate actively in AI game activities enjoy learning English more, thus enhancing their motivation. Moreover, games provide teachers with opportunities to practice their spontaneous use of the target language and make their lessons more enjoyable and interesting. They provide not only entertainment, but they can also be extremely beneficial for young learners.

Digital tools are increasingly integrated into young learners' individualized study activities and regular teaching procedures. Among these technologies, AI games and educational apps are frequently employed to enhance the learning experience. Educational apps such as Quizlet and Wordwall offer customizable, game-based features tailored to young learners' needs.

The teachers can set up distinct 'lessons' and group items within them to structure content progression and control difficulty levels. The datasets use the same spreadsheet format as the authoring tools, with each row containing a prompt paired with a corresponding response. During the gameplay, Wordwall randomly selects prompts from the active lesson and group, avoiding repetition within a session. The learners respond directly to the prompt, with the system confirming correct answers and repeating prompts for incorrect ones.

Feedback echoes the user's input and employs different strategies to reinforce learning. The players may also utilize navigation commands instead of providing direct answers. Initial implementations relied on straightforward string comparison to evaluate correctness, but later versions introduced more sophisticated matching techniques, significantly enhancing the user experience. AI games engage the players with interactive activities embedded with AI technology, capable of adapting, performing, or influencing them, thereby enriching the gaming experience. Educational apps that incorporate AI simulate intelligence akin to human beings, enabling effective educational activities that have become increasingly popular. AI games engage students through multimedia elements—sound, image, animation—fostering active participation, concentration, motivation, confidence, and exploratory behavior (Behnamnia et al., 2022).

Private schools in Algeria, particularly in cities such as Algiers, Oran, and Mostaganem, have integrated AI games and AI-powered study applications into their curriculum to motivate the students, enhance comprehension, and improve their professional skills through tailored learning strategies. Private school educators report that these games and apps have become integral to their instructional plans and day-to-day teaching.

## **2. Research Methodology**

This section outlines the research design and the methods employed to explore how games can support the development of English vocabulary among young learners. The study focuses on the use of digital learning tools, specifically Quizlet and Wordwall, to assess their role in vocabulary acquisition. The main aim is to determine how effectively these platforms contribute to improving students' English vocabulary.

To guide the investigation, the study addresses the following research questions:

- (1) In what ways do Quizlet and Wordwall enhance learners' acquisition of English vocabulary?
- (2) What are the teachers' perceptions of using these applications?

These questions lead us to assume the following hypotheses:

(1) Quizlet and Wordwall may enhance English vocabulary acquisition by displaying a strong commitment, motivation, and enthusiasm in the learners.

(2) Quizlet and Wordwall may represent an effective strategy for enriching vocabulary instruction and cultivating autonomous, motivated language learners.

### 2.1. Data Analysis

The data analysis aims at showing explicitly the way in which the research objectives have been achieved. To that end, a case study was conducted on the integration of Quizlet and Wordwall into an EFL class with special focus on vocabulary development through their use. The class comprises 30 young learners between the ages of 8 and 13 who attend English classes at Polyglo School, Mostaganem. Reliable and comprehensive insight is ensured by collecting data through classroom observation as well as interviewing three English teachers to obtain both learner and instructor perspectives.

### 2.2. Classroom Observation

The moment both games, Quizlet and Wordwall, were introduced together with the vocabulary-workbooks assignment as homework made the students very much excited and motivated toward the work. They proved to be excellent competitors in their willingness for interactive competition within the curriculum content and quickly adjusted to and adopted this new learning model. This is quite indicative of what has already been empirically proved by researchers concerning educational gamification: that game elements can drive engagement and motivation if thoughtfully applied (Berns et al., 2016).

**Table 1.**  
 Classroom Observation Findings

Engagement Levels of Young Learners	Interaction Patterns during Game Use	Vocabulary Retention Observed
The integration of game-based activities within English instruction <ul style="list-style-type: none"> <li>- fosters an affective notion of performance</li> <li>- increases learner engagement at school</li> <li>- maintains interest and motivation, facilitating vocabulary development.</li> <li>- there is increased curiosity about vocabulary and more active engagement in lessons</li> </ul>	During the game, children <ul style="list-style-type: none"> <li>- exchange both English vocabulary and expressions to facilitate progress through subsequent vocabulary sections.</li> <li>- transition from watching to active participation</li> <li>- spontaneous linguistic creativity</li> <li>- mutual support and peer teaching in English</li> <li>- nurturing atmosphere for vocabulary acquisition</li> <li>- introducing multiple learning modalities and interactive elements that encourage active participation and sustain interest.</li> </ul>	<ul style="list-style-type: none"> <li>- Both games have been identified as valuable aids for learners seeking effective methods to develop and retain English vocabulary</li> <li>- They have been noted as means for enhancements in vocabulary retention after gameplay.</li> <li>- They have also been considered as techniques that help learners' English proficiency progress rather rapidly, and the participants gain interest, confidence, and pleasure in the game.</li> </ul>

### 2.3. Teachers' Interviews Insights

"Can games improve the vocabulary of young learners?" is the key question that has been posed. The interviews with teachers revealed several key insights into the use of the AI game for English vocabulary acquisition. The teachers noted that the game successfully stimulates children's interest

in learning English through exciting competitive challenges. The game-based approach creates a lively and stimulating learning atmosphere, generating a desire among students to pursue and master English.

Concerning time constraints, the teachers confirm that the availability of the games provides a convenient supplementary teaching tool and add that they can provide continuous encouragement and assistance during lessons and recommend the games as a form of after-class training.

Regarding the usefulness of educational games, the interviewees focus on the importance of providing such games because they provide an environment for the students to explore their ideas, experiment with concepts, test their understanding, and encourage motivation without generating pressure. According to them, the learners construct knowledge based on their interactions with the environment. The vocabulary of a foreign language should not be presented in isolation, but rather in a context that also covers syntax and phonics.

Based on the idea that the learners construct knowledge from their interactions with the environment, the teachers advocate that the selection of vocabulary exercises helps children without prior knowledge engage with significant sets of words interactively within a limited time with as little additional information. Building a basic vocabulary forms the foundation for all subsequent formal education.

Teachers also state that Quizlet and Wordwall require an investment without the pressure of exams. In the context of spontaneous and intermittent use by children, similar to typical game engagement, these tools can also be considered “games” from an educational perspective, combining elements of fun with effective learning constructs.

#### **2.4. Discussion of the Findings**

The implementation of Quizlet and Wordwall in vocabulary learning has yielded encouraging results. Both tools serve as competitive games that enhance motivation and active participation among children and boost educators' instructional passion (Pham, 2018). The learners reported increased engagement and enjoyment, which fostered more consistent learning habits without any pressure.

The incorporation of competitive elements within the game context proved instrumental in sustaining the learners' focus and enthusiasm, positively affecting vocabulary acquisition. Resistance or inadequate familiarity with digital platforms can impede the integration into teaching practices. Overall, combining game mechanics with educational platforms such as Quizlet and Wordwall represents an effective strategy for enriching vocabulary instruction and cultivating autonomous, motivated language learners.

Quizlet vowels challenge learners to distinguish some English vowel sounds during a listening game. Wordwall possesses extensive pedagogical potential beyond the accommodating features of Quizlet. Its adaptable nature enables streamlined construction of diverse test formats, highly accommodating to specific instructional needs. These forms encompass standard multiple-choice setups, gap-filling exercises, matching pair tasks, as well as category-focused games and team-based competitions. Utilization of such varied formats is intended to offset habitual monotony, sustaining learner attention through prolonged and intensive engagement sessions.

Digital platforms have also transformed vocabulary teaching methodologies, enabling personalized, engaging, and flexible approaches. Common features among platforms include the capacity for word list customization, audio output accessibility, and multiple practice modes. Quizlet facilitates student engagement through interactive flashcards, authentic pronunciation, and digital mini-games, supporting autonomous learning outside the classroom (Pham, 2018). A special feature of Quizlet is that several users can share the same vocabulary set. Once a vocabulary set is created on Quizlet, it is easily accessible to any user.

Wordwall allows teachers to create diverse interactive activities without extensive technical skills, enhancing classroom enjoyment and motivation. These tools align with assessment criteria emphasizing usability, activity variety, and reinforcement of prior topics (Matsubara & Yoshida, 2018). Although technical issues may limit engagement with online materials, the overall educational connectivity of the platforms remains intact.

The student perceptions and attitudes toward Quizlet and Wordwall in EFL vocabulary learning were investigated. It was noticed that the majority of participants were very satisfied with both applications. Both tools encouraged the active use of vocabulary and made learning enjoyable. Quizlet's multimedia program let the learners collectively review the words, creating a sense of achievement and maintaining positive attitudes. Wordwall's interactive activities attracted most learners and helped improve vocabulary acquisition. Increased engagement in classroom vocabulary activities has been strongly associated with Quizlet and Wordwall, supporting their role as effective aids in the EFL context.

The findings also reveal that the learners were highly interested in the English vocabulary AI game teaching activities and made a positive and active response in the practice process. Their questions were not only concentrated on the teaching content but also extended to machine speech recognition and AI-related papers. Therefore, it can be judged that both games, Quizlet and Wordwall, play a crucial role in stimulating the participants' learning interest. In summary, consistent use of Quizlet and Wordwall positively influences the students' vocabulary acquisition and motivates them to become self-directed learners who appreciate immediate feedback in a secure and enjoyable setting.

### **2.5. Limitations of the Study**

Research bears promising potential results on employing Quizlet and Wordwall for young learners' vocabulary enhancement, but a few limitations were encountered during their application of Quizlet and Wordwall in vocabulary learning. Some students, mostly those who do not own personal computers or smartphones, find it difficult to access consistently; hence, the participation was low among this group of students. Technically, at some instances, smooth operation and interaction were hindered. Additionally, the level of student engagement varied widely: some used the platforms regularly and benefited substantially, while others exhibited minimal involvement, affecting overall effectiveness.

The selection of vocabulary words for the game was basic; therefore, it did not include more advanced vocabulary that higher grade students are often exposed to. The study covered a small group of young learners from one school with a limited number of participants who may represent a wider diversity of learners at this level. This research also lacks post-implementation interviews to collect qualitative information or assessment on how engaged the learners were with the games, which would have provided such viewpoints.

### **2.6. Implications for Educators**

AI games can be used for vocabulary building as a major component of student performance on related tasks. Previous research has found that the lack of adequate vocabulary due to limited exposure and opportunities for active use is considered one of the main obstacles in enhancing communication and acquiring any language effectively. AI games provide interactive settings involving new words through which learners can gain better illumination from different contexts about their passive knowledge being transformed into active usage. To learn new words from the Quizlet set, for instance, five types of activities were suggested—Flashcards, Learn, Match, Gravity, and Test. Students were encouraged to use them in a flexible way.

The educators recognize that AI games, when incorporated into instructional practices, can effectively support the pursuit of technological engagement characteristic of the 21st-century learners. Additional studies have demonstrated that the learners involved in video game-based activities outperform their peers who rely solely on traditional classroom instruction.

The results also suggest that AI-based games can be used as meaningful practice tools to help retain vocabulary and support the overall development of English language competence outside the classroom. Therefore, it will make learning experiences more meaningful if game and technology elements are deliberately incorporated into the syllabi by syllabus designers.

## Conclusion

Vocabulary is and always has been at the base of English proficiency, particularly with young learners. More reading and word memorization are two conventional methods which people have massively depended on to acquire vocabulary. However, that has changed due to advanced technology, which now allows interactive media as one of the new approaches together with many others introduced by interactive media itself. As technological change becomes very much a part of their lives, learners' involvement with digital environments increases; games have moved pedagogically from being only entertaining to having pedagogical value. Empirical research results show that game-based learning retains more vocabulary than traditional methods.

Quizlet and Wordwall allow for shared vocabulary learning both inside and outside the classroom. Beyond simple one-way-information flashcards, these dynamic, interactive exercises increase engagement and thus keep the content better remembered. Matching opportunities in Quizlet, listening to pronunciations and spellings, games that can be used, or practice tests—all features of Quizlet. Just like Wordwall, which facilitates interactive activities that can be adapted for increasing lexical difficulty and repeated engagement.

Using Quizlet and Wordwall in EFL classes has a positive effect on students' motivation and learning outcomes. Teachers should therefore encourage the use of such platforms in vocabulary development activities to respond to students' linguistic needs. As a result, employing games remains an effective means of helping young learners overcome acquisition problems and improving their proficiency in English vocabulary.

## References

1. Abdillah, D., & Thohiriyah, T. (2018). Promoting students' autonomy through Quizlet. In *Proceedings of the 2nd English Language and Literature International Conference (ELLiC)* (Vol. 2), 211–215.
2. Behnamnia, N., Kamsin, A., Ismail, M. A. B., & Hayati, S. A. (2022). A review of using digital game-based learning for preschoolers. *Journal of Computers in Education*, 1–36.
3. Berns, A., Isla-Montes, J. L., Palomo-Duarte, M., & Dodero, J. M. (2016). Motivation, students' needs and learning outcomes: A hybrid game-based app for enhanced language learning. *SpringerPlus*, 5(1), Article 1305. <https://doi.org/10.1186/s40064-016-2971-1>
4. Cooley, R. (2001). *Vocabulary acquisition software: User preferences and tutorial guidance*. The University of Kent at Canterbury. Kent Academic Repository.
5. Garland, C. M. (2015). *Gamification and implications for second language education: A meta-analysis* (Culminating project). St. Cloud State University. [https://repository.stcloudstate.edu/engl\\_etds/40](https://repository.stcloudstate.edu/engl_etds/40)
6. Jackson, D. (2018). *Evaluating mobile-based educational adventure games for language learning* (University honors thesis). Portland State University. <https://doi.org/10.15760/honors.610>
7. Kish, T. (2018). *The effectiveness of word walls on various groups of students* (Honors research project). University of Akron. [http://ideaexchange.uakron.edu/honors\\_research\\_projects/702](http://ideaexchange.uakron.edu/honors_research_projects/702)
8. Matsubara, M., & Yoshida, H. (2018). Fostering autonomous learners of vocabulary acquisition using content-based ICT methods. *Humanities & Social Science Reviews*, 6(1), 36–43. <https://doi.org/10.18510/hssr.2018.617>
9. Pham, L. (2018). Using Quizlet to engage the students in learning vocabulary. *Issues in Language Instruction*, 5(1), 29–30. <https://doi.org/10.17161/ili.v5i1.7019>
10. Sanmugam, M. (2017). *Effects of gamification on achievement, engagement and intrinsic motivation among students of different player traits in science learning* (Doctoral dissertation). Universiti Teknologi Malaysia.
11. Shafie Rosli, M., & Awalludin, M. F. N. (2018). Video games as vocabulary enhancement instrument in 21st century classroom. *International Journal of Recent Technology and Engineering (IJRTE)*, 8(2S), 285–290.

12. Shen, Z., Lai, M., & Wang, F. (2024). Investigating the influence of gamification on motivation and learning outcomes in online language learning. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2024.1295709>
13. Xiao, X., & He, G. (2023). Subjective experiences and perceptions of learning a second language through digital games: A case study of Chinese college students. *Frontiers in Psychology*, 1–13. <https://doi.org/10.3389/fpsyg.2022.1109370>

Received: 02.03.2025

Accepted: 11.05.2025