

## **From Traditional to Gamified Methods in EFL Vocabulary Instruction: A Quasi-Experimental Study in Algeria**

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### **ABSTRACT:**

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#### **Abstract**

This research is an attempt to explore the impact of the role educational games have on boosting students' vocabulary learning for second year (L2) English as foreign language learners (EFL) at Chlef University by dissecting immediate acquisition success and long term retention, as well as exploring students' perceptions and engagement levels when adopting gamified approaches. A comparison between the impact of a gamified vocabulary teaching methodology and a traditional approach was undertaken in the present quasi-experimental study involving 36 EFL students and were divided into experimental (gamified learning) and control (traditional instruction) groups. Data from pre-test, immediate and delayed post-tests, survey feedbacks and interview responses indicate that students in the experimental group outperformed those of the control group with respect to vocabulary retention (i.e., active recall), spaced repetition as well as contextual learning after gamification.

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## **Introduction**

Vocabulary learning is a crucial issue for EFL (English as Foreign Language) learners, especially when it comes to language acquisition in an environment where the target language exposure is confined mostly within classroom walls. In Algeria, as in similar countries where English is the second foreign language (EFL), students encounter difficulties when it comes to retaining vocabulary items that contribute to impaired performance of their L2. The development of gamification (i.e., the use of game-design elements and principles in non-game contexts) provides potential to new approaches for enhancing conventional vocabulary learning. Gamification brings, competition, rewards and challenges into learning practice along with interactive narrative story line to what students usually feels boring for the sake of memorizing just vocabulary words (but became something they do eagerly). The study addresses three primary research questions:

1. To what extent does gamified vocabulary instruction enhance immediate vocabulary acquisition and long-term retention compared to traditional methods among EFL students at the University of Chlef?
2. How does gamification affect students' motivation and engagement in vocabulary learning?
3. What are students' perceptions of gamified vocabulary instruction, and what challenges emerge in its implementation?

The findings from this study contribute to the growing body of literature on gamification in language education while offering practical insights for EFL instructors seeking to enhance vocabulary instruction in similar educational contexts.

## **I. Literature Review**

### **1. Vocabulary Acquisition in EFL Contexts**

Vocabulary has long been recognized as a foundation of linguistic competence. Nation (2013) points out that vocabulary knowledge involve many aspects such as form, meaning and use; it also needs to be receptively known as well productively known. Vocabulary learning of EFL learners faces some difficulties because they only have limited authentic language exposure and they could not practice the second/foreign language in a meaningful way out-of- class (Schmitt

2008). Several studies conducted among Algerian students have emphasized issues related to vocabulary learning in the L2. Algerian university learners frequently face the problem of lexis learning in both retention and application (Boudersa, 2016); this could be caused by endorsement of a traditional teaching method which focuses on memory. In the same vein, Benrabah (2014) highlights that EFL education in Algeria has traditionally focused more on grammar knowledge as opposed to vocabulary learning where imbalance of proficiency exists among students.

As for effective vocabulary instruction, we propose that best practice would be a method that includes multiple encounters with targeted words, engaging in meaningful activities using the words and cueing recall (Webb & Nation 2017). Schmitt (2008) considers instructed vocabulary learning to entail both deliberate study and unsupervised exposure via genuine use, but these suggestions are frequently not realized in conventional teaching of vocabulary. Research on effective vocabulary instruction implies that optimal approaches should involve multiple exposures to target vocabulary, meaningful engagement with words, and opportunities for retrieval practice (Webb & Nation, 2017). Schmitt (2008) argues that vocabulary learning requires both intentional study and incidental exposure through meaningful contexts, recommendations that traditional vocabulary instruction often fails to implement effectively.

## **2. Gamification in Language and Vocabulary Learning**

The use of gamification in language learning has significantly expanded over the last decade. Research has endeavored to tease apart its impact on different language skill areas and learner types. Flores (2015) also investigated the influence of gamified activities on the acquisition of Spanish vocabulary among university students, and significant differences were found in terms of levels of retention and motivation. Similarly, Hasegawa et al. Ionita (2015) concluded that there may be some benefit to gamification in terms of Japanese vocabulary acquisition with respect to foreign language learners. In EFL contexts in particular, some researches have shown a positive image about the use of corpus; Alqahtani and Mohammad (2015) also demonstrated improvements in vocabulary retention among Saudi EFL learners after hearing the same story-lines presented in a gamified fashion to group delivered through conventional procedures as well. According to Chotipaktanasook and Reinders (2018), Thai university students engaging with specially designed gamified vocabulary activities also enjoyed greater engagement and vocabulary gains.

On the other hand, research has actually highlighted a number of challenges and drawbacks. Hanus and Fox (2015) also expressed doubt that gamification, when focusing on extrinsic rewards, was likely to have long-term success or not detract from existing intrinsic motivation. The study by Van Roy et al. 2016 found that gamification could be limited in resource-constrained settings due to technological requirements and teacher training needs. There is little research in the North African one that points to gamification for EFL instruction. Along this line, Ezziene (2018) examined digital game-based learning in Morocco and found increased student motivation as a coupled effect but identified the very poor access to technology that hindered implementation. Guemide and Benachaiba (2012) conducted a study on the use of technology in EFL contexts in Algeria, but it does not concentrate on gamification. This study fills this gap by exploring the impact of gamification on vocabulary learning in the Algerian university environment, focusing on its direct and indirect effects on immediate learning outcomes and long-term retention, while it also examines different situational factors that might affect the use of gamification.

## **II. Methodology**

### **1. Research Design**

This study employed a quasi-experimental design with pre-test, post-test, and delayed post-test measures to evaluate the effectiveness of gamified vocabulary instruction compared to traditional methods. This design was selected to maintain ecological validity within the existing educational structure while allowing for comparative analysis of the intervention effects.

### **2. Participants**

A total of 36 second-year EFL students (22 females, 14 males) from the Department of English at the University of Chlef were selected as participants for this study in the academic year 2024-2025. Participants were aged 19–23 ( $M = 20.4$ ,  $SD = 0.9$ ). All students in Algeria studied English before the University for Seven years or more and were educated by the same curriculum. All participants were assigned to one of two groups based on their current class assignments. The experimental group ( $n = 18$ ) received vocabulary instruction with gamification, while the control group ( $n = 18$ ) received traditional vocabulary instruction. Before intervention, placement tests were conducted to ensure equivalent levels of English proficiency across groups. There was no statistically significant

difference in general English proficiency between the experimental ( $M = 65.3$ ,  $SD = 7.8$ ) and control groups ( $M = 63.9$ ,  $SD = 8.1$ ),  $t(34) = 0.53$ ,  $p = 0.59$ .

### **3. Target Vocabulary**

According to the curriculum requirements and consultations with course professors, 120 words were targeted for teaching during the 10-week intervention. The items were selected from academic lists of target words and course materials pertinent to the ongoing study program of the learners. The vocabulary items were distributed into 12 thematic sets of 10 words that had been taught once a week.

### **4. Intervention**

The intervention was conducted over 10 weeks, with both groups receiving 120 minutes of instruction per week (two 60-minute sessions). Both groups were taught by the same instructor to control for teacher effects, and both covered identical vocabulary items during the intervention period.

### **5. Control Group (Traditional Instruction)**

The control group received vocabulary instruction using conventional methods typically employed in the department. These included:

- Presentation of vocabulary items with definitions and example sentences
- Translation of words into Arabic (L1) when necessary
- Completion of gap-fill and matching exercises
- Sentence-writing tasks using target vocabulary
- Weekly vocabulary quizzes

### **6. Experimental Group (Gamified Instruction)**

The experimental group received vocabulary instruction through gamified activities that incorporated the following game elements:

**Points and Leaderboards:** Students earned points for correctly using vocabulary items, with weekly leaderboards displaying top performers.

**Competitive Team Games:** Activities such as Vocabulary Relay and Word Battleship that required active recall and application of target vocabulary.

**Narrative-Based Challenges:** Vocabulary items embedded in progressive narrative challenges where students "unlocked" new story elements by mastering vocabulary sets.

**Badges and Achievements:** Physical badges awarded for mastering vocabulary sets, achieving perfect scores, helping peers, and consistent participation.

**Progress Visualization:** Visual tracking of individual and group progress through physical and digital displays.

All gamified activities were designed to ensure equal exposure to target vocabulary items as in the control group, with careful attention to incorporating active recall, spaced repetition, and contextual learning principles.

### III. Data Collection Instruments

#### 1. Vocabulary Tests

Three parallel versions of vocabulary tests were developed for pre-test, one given as a pre-test one week prior to the intervention for baseline knowledge on target vocabulary items, one given immediately post-intervention 1 week after completing the 10 week program; and a third test was administered at 6 weeks following completion of our study protocol, reflecting long term retention. Every test per state assessed knowledge of the 120 target vocabulary items by way of: recognition tasks (multiple choice and matching); recall tasks (fill-in-the-blank and definition production); production tasks (composing original sentences using the words), as well as depth-of-knowledge questions that required identifying collocations, synonyms, or antonyms. In addition, tests were pre-tested on a non-investigated similar group of students and reviewed by two EFL experts to establish the validity.

#### 2. Motivation and Engagement Survey

Participants from both groups completed a post-intervention 25-item Likert-scale survey assessing motivation, engagement, and attitudes towards the vocabulary instruction methods. We based the survey on validated instruments, such as Intrinsic Motivation Inventory (IMI) and Student Engagement Instrument (SEI), but adapted to measure vocabulary learning and gamification. The survey assessed five dimensions:

- Perceived usefulness of activities

- Enjoyment and interest
- Effort and persistence
- Anxiety and confidence
- Intention to continue vocabulary learning independently

The survey was validated through expert review and pilot testing, with a Cronbach's alpha of 0.85.

### **3. Semi-Structured Interviews**

Following the intervention, semi-structured interviews were conducted with a subset of participants (8 from each group) to gather qualitative insights into their experiences and perceptions. Interview questions explored:

- Perceptions of the effectiveness of vocabulary instruction methods
- Most and least helpful aspects of instruction
- Challenges encountered during vocabulary learning
- Impact on motivation and study habits
- Suggestions for improvement

Interviews were conducted in English with Arabic clarification when needed, audio-recorded with permission, and transcribed for analysis.

## **IV. Data Analysis**

### **1. Quantitative Analysis**

Descriptive statistics including means and standard deviations were exerted to analyze vocabulary test scores and mixed-design ANOVA to explore group differences across three test administrations, as well as Cohen's *d* to convey the intervention effect size and an item analysis to examine word retention based on whether it was taught. Survey responses were surveyed adopting descriptive statistics by dimension; independent samples *t*-tests for group differences; and correlation analysis for associations between motivation factors and vocabulary test performance.

## 2. Qualitative Analysis

Interview transcripts were analyzed using thematic content analysis, a process that involved familiarization with the data through repeated reading, initial coding of meaningful segments, grouping codes into themes and subthemes, reviewing and refining themes, defining and naming themes, and integrating findings with quantitative results. To ensure reliability, 20% of the transcripts were independently coded by a second researcher, resulting in an inter-rater agreement of 88%.

### V. Findings

#### 1. Vocabulary Acquisition and Retention

A mixed-design ANOVA revealed a significant main effect of time,  $F(2, 68) = 684.32$ ,  $p < 0.001$ ,  $\eta^2 = 0.95$ , indicating that both groups improved from pre-test to post-test. Group was further found to have a significant main effect,  $F(1, 34) = 42.17$ ,  $p < 0.001$ ,  $\eta^2 = 0.55$ , with overall better performance in the experimental group. Importantly, a robust interaction between Group and time was revealed ( $F(2, 68) = 53.86$ ,  $p < 0.001$ ),  $\eta^2 = 0.61$ ; confirming that the experimental group exhibited more gains across time than control group effortful. Analysis of vocabulary retention rates (calculated as the percentage of vocabulary items correctly identified in the delayed post-test that were also correct in the immediate post-test) showed significantly higher retention in the experimental group ( $M = 91.2\%$ ,  $SD = 5.4\%$ ) compared to the control group ( $M = 80.8\%$ ,  $SD = 7.2\%$ ),  $t(34) = 5.12$ ,  $p < 0.001$ ,  $d = 1.71$ . Deeper item analysis exhibited that words through active recall activities were retained the most, followed by the contextual narrative based challenges.

#### 2. Motivation and Engagement

Survey results indicated significant differences in motivation and engagement between the experimental and control groups, as summarized in Table 2.

Dimension	Experimental Group		Control Group		t-value	p-value	Cohen's d
	M	SD	M	SD			



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Perceived usefulness	4.21	0.53	3.47	0.61	3.92	<0.001	1.31
Enjoyment and interest	4.56	0.42	2.84	0.68	9.18	<0.001	3.06
Effort and persistence	4.12	0.59	3.26	0.72	4.07	<0.001	1.36
Anxiety and confidence	3.98	0.64	2.91	0.79	4.56	<0.001	1.52
Intention to continue	4.33	0.57	3.11	0.82	5.24	<0.001	1.75

**Table 1. Mean Scores on Motivation and Engagement Survey Dimensions**

Both groups reported significantly higher scores on all motivation and engagement dimensions for the experimental group, most notably enjoyment and interest ( $d = 3.06$ ), and intention to continue learning vocabulary beyond the course ( $d = 1.75$ ). Enjoyment ratings were correlated positively with delayed post-test scores ( $r = 0.62$ ,  $p < 0.001$ ); anxiety reduction was positively associated with vocabulary retention rates ( $r = 0.54$ ,  $p < 0.001$ ) — indicating that motivation may indeed be a significant factor in the learning and maintaining of vocabulary items.

### 3. Student Perceptions and Experiences

Thematic analysis of interview data revealed five major themes regarding students' perceptions and experiences with vocabulary instruction:

#### a. Theme 1: Enhanced Enjoyment and Reduced Anxiety

Throughout vocabulary learning activities, students in the experimental group reported higher levels of entertainment and lower levels of anxiety. Some participants were particularly happy about the competitive elements; however others experienced slight anxiety with public presentation, which got less over time.

"I used to hate vocabulary exercises because they were boring, but the games made me forget I was studying. I found myself checking Quizlet even outside class to improve my score." (Experimental Group)

"Traditional vocabulary exercises make me nervous because I worry about making mistakes, but in the games, mistakes are less—as we are just playing." (Experimental Group)

In contrast, control group participants often described vocabulary learning as necessary but tedious:

"Vocabulary study is important, but the exercises are repetitive. I do them because I have to, not because I want to." (Control Group)

### **b. Theme 2: Social Interaction and Collaborative Learning**

Social interactions during gamified activities built a learning-friendly atmosphere for experimental group members. Peer learning (ie, reminiscence and peer support) was encouraged through team-based games, which did not exist in the control group.

"Working in teams helped me learn from others. Sometimes my friends remembered words I forgot, and I did the same for them. We encouraged each other." (Experimental Group)

Control group participants rarely mentioned social aspects of learning:

"Vocabulary learning is individual work. We sometimes check answers with each other, but that's it." (Control Group)

### **c. Theme 3: Active Recall and Contextual Learning**

Experimental group participants recognized the benefits of active recall and contextual learning facilitated by gamified activities:

"The narrative challenges helped me remember words because they were part of a story I was interested in. Traditional word lists don't have this " (Experimental Group)

Control group participants acknowledged limitations in their approach:

"I make lists and practice by writing each word several times. It works for the short term, but I often forget them later." (Control Group)

**d. Theme 4: Feedback and Progress Awareness**

The immediate feedback and progress visualization in gamified activities were highly valued by experimental group participants:

"The immediate feedback in Kahoot! helped me learn from mistakes. In normal exercises, we sometimes wait days for feedback, and by then, I've forgotten what I was thinking." (Experimental Group)

"Seeing my progress on the leaderboard encouraged me to study more. I could see I was better, which made me want to continue." (Experimental Group)

Control group participants often noted delayed or limited feedback:

"We get feedback when the teacher returns our assignments, but it's usually just a score without explanation of what we made wrong." (Control Group)

**e. Theme 5: Implementation Challenges**

Both groups identified challenges in their respective approaches to vocabulary learning. For the experimental group, these included:

"Sometimes the competitive aspect was heavy not easy. Some students became frustrated when they couldn't keep up." (Experimental Group)

"Technical problems with the internet connection sometimes disrupted online games, which was frustrating." (Experimental Group)

Control group challenges focused on motivation and retention:

"It's hard to maintain motivation when studying vocabulary lists. I know it's important, but it's difficult to stay focused." (Control Group)

"I forget many words quickly after the test. I wish we had more opportunities to use the words in real situations." (Control Group)

**VI. Discussion**

The findings of this study provide compelling evidence about the efficiency of implementing gamification in teaching vocabulary among EFL students at University – Chlef but also solid information to achieve decent outcomes. Not only did the experimental group perform better than the control group with regards to immediate vocabulary acquisition but they also evidenced better long-term retention of vocabulary. They also resonate with earlier studies on gamified

language learning (Flores, 2015; Alqahtani & Mohammad, 2015), albeit within the limited purview of Algerian EFL students.

### **1. Mechanisms behind Enhanced Vocabulary Acquisition**

Two of the active recall principles were utilized in the construction of many of the gamified activities, asking students to retrieve vocabulary from memory rather than just recognizing words, which is consistent with testing effect research exhibiting benefits resulting from retrieval practice for long-term knowledge retention (Roediger & Butler 2011). Spaced repetition alternates and expands the time intervals before a particular word is repeatedly revised, which was part of the gamified method and corresponds to theoretical principles in vocabulary research (Webb & Nation, 2017). Additionally, narrative-based challenges and communicative games gave useful purposes for vocabulary use (Schmitt 2008), which overcomes the limits of decontextualized vocabulary instruction (Schmitt 2008) — such contextual embedding is likely processed more deeply in memory and also activates relevant semantic connections, supporting retention. The even larger increase in motivation and engagement reported by the experimental group over control suggests that the affective aspects of gamification is a crucial factor underling why it works, fitting with Self-Determination Theory (Ryan & Deci, 2000), as the various activities were theorized to endorse autonomy through choice in some activities, competence supported by achievement recognition and relatedness via social interaction. Further, the body of evidence linking enjoyment scores with linguistic recall indicates that the motivational advantages of gamification make a direct instructional difference to both academic and psychological experience on this task.

### **2. Anxiety Reduction and Language Learning**

The reduced anxiety levels exhibited by the experimental group should be a special contribution in the Algerian academic context and country where high foreign language anxiety has been reported among university students. Games also seem to foster a low affective filter (Krashen, 1982) since errors are perceived as just part of the play, rather than actual mistakes due to consequences. Given that this anxiety reduction led to students more willingly interacting with challenging vocabulary instead of engaging in risk-avoidant behaviors typically seen in traditional classrooms. For instance, one said that errors were “more forgivable” in the game, reducing participants' responsibility and promoting trial-and-error.

### **3. Social Dimensions of Gamified Learning**

Large numbers of students in interviews pinpointed the social experience provided by team-based games as a standout topic. The social component of gamification goes further than just competition and can comprise collaborative learning, peer support, and community building. These component deal with the unsolved social aspects of words (Lantolf & Thorne, 2006): The sociocultural perspective is derived from Vygotsky's sociocultural theory, which posits that cognitive growth can be facilitated by engaging in social interactions. In an Algerian university, where very large class sizes limit opportunities to interact individually with students, the social interaction embedded in gamified activities is particularly well suited. In vocabulary acquisition, interactions create situational environments where students can make input comprehensible, enabling them to learn the meanings of words and phrases through negotiation (Swain, 2000).

### **4. Cultural Adaptation and Implementation Challenges**

It is also anticipated that the adapted gamification in this study would successfully function within the cultural usability framework of the Algerian educational context. While digital games like Kahoot! And learning platforms such as Quizlet proved to be engaging, they also presented technical limitations that frequently hindered the completion of activities, making it crucial for these technologies to incorporate non-digital alternatives. The researchers found that the mixed approach combining digital and non-digital games worked well to ensure continuity despite some technical problems. Implementation issues highlighted in student interviews (eg, high level of competition, technical problems) appear to indicate potential ‘weak signals’ that can be learnt from in future implementations. These mirror those raised by Hanus and Fox (2015) regarding possible negative consequences of gamification if it is not well executed. Nonetheless, the success of the approach as interpreted from generally favorable findings indicates that these problems did not appreciably compromise effectiveness when well handled.

### **5. Pedagogical Implications**

This research carries multiple useful implications regarding EFL vocabulary instruction, particularly for similar educational contexts. A balanced gamification model with different game elements—both digital and nondigital—can

consistently exceed traditional (i.e., no-game) methods or exclusive reliance on non-printed materials, ensuring high engagement among learners while addressing pragmatic considerations. Further, the higher retention seen with active recall (in this case vocabulary exercises that require retrieval) offers support to favor this type of activities over mere exposure/recognition. In addition, the centrality of narrative-based challenges to this successful learning suggests it is crucial to teach vocabulary within more meaningful contexts in order for them to be more meaningfully acquired and that instructors would do better emphasizing such contextual practice over rote word lists. The motivational benefits of leaderboards and progress track also underscore the significance of visualization in even gamified learning settings when there is no full-blown gamification, while the successful adaptation in Algeria shows that game-based strategies do not have to be bound by traditional playful learning environments for their place within them can still thrive under caveats such as cultural sensitivity and consideration against backdrop of low-resource contexts.

## Conclusion

This study provides empirical evidence for the effectiveness of gamified vocabulary instruction among EFL students at the University of Chlef. The experimental group significantly outperformed traditional instruction in vocabulary acquisition and retention, as well as seize effects on motivation, engagement, and anxiety reduction. The mechanisms behind these effects appear to involve multiple factors: the integration of active recall and spaced repetition principles, contextual embedding of vocabulary, enhanced motivation and engagement, reduced anxiety, and structured social interaction. The study highlights that the advantages of gamification go beyond the enchantment with fun learning to some extent changes the cognitive and affective attitude of students in vocabulary. To sum up, the gamification approach for vocabulary learning within the EFL context counts as a good medium to facilitate learning however; such success relies on careful exhibition and customization with some integrating technical preferences. With these concerns accommodated, gamified vocabulary instruction holds the potential to significantly improve learning effectiveness and retention over time, and instill a positive attitude regarding vocabulary learning.

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