

GAMIFIED FLASHCARDS AND MOTIVATION: EFFECTS ON ENGAGEMENT AND ACADEMIC VOCABULARY RETENTION

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Abstract: *Academic vocabulary is one of the strongest predictors of success in higher education, yet many EFL learners experience vocabulary study as repetitive and emotionally "dry." Gamified flashcards—digital flashcards enhanced with game elements such as points, levels, streaks, badges, and leaderboards—promise to make practice more engaging while supporting retention through repeated retrieval. Gamification is commonly defined as using game design elements in non-game contexts, such as learning environments. However, research also suggests that gamification's effects are not automatic; outcomes depend on design quality, context, and learner characteristics. This thesis proposes a small-scale study to examine whether gamified flashcards improve (a) learner engagement and (b) short-term and delayed academic vocabulary retention compared with non-gamified digital flashcards. Practical recommendations are offered for teachers who want "gameful" learning without turning vocabulary study into shallow point-collecting.*

Keywords: *gamification, flashcards, academic vocabulary, motivation, engagement, retention, EFL*

Academic vocabulary learning is often shaped by two competing realities: it requires consistent repetition, but repetition quickly becomes boring when learners do not feel progress.

Digital flashcards already help with repeated retrieval practice, yet many learners drop off because the practice routine feels mechanical. Gamified flashcards try to solve this by adding visible progress and rewards (e.g., points, streaks, levels), aiming to keep learners returning to practice [1].

In this paper, "gamified flashcards" refers to computer-based or mobile-based flashcard systems that embed game design elements (badges, leaderboards, time challenges, rewards) into vocabulary practice [1].

The central assumption is simple: if learners feel the activity is enjoyable and meaningful, they will practice more, and more practice will support retention.

At the same time, research warns that gamification can produce mixed results depending on how it is designed and how learners respond to it [2].

Therefore, the purpose of this mini-thesis is to propose and justify a practical research model that tests both engagement and retention, not just test scores.

Gamification is widely described as the use of game design elements in non-game contexts [1].

In educational settings, the hope is that game elements strengthen motivation and sustain participation long enough for learning mechanisms (practice, feedback, spaced review) to do their job. Yet large-scale evidence suggests that results vary; a major review reported generally positive outcomes, but emphasized that effectiveness depends strongly on context and implementation [2].

In vocabulary learning specifically, a common gamified flashcard example is Quizlet, where learners practice vocabulary through modes that resemble games and challenges. Studies report that such gamified vocabulary learning can support motivation and engagement and may contribute to improved vocabulary scores, especially when learners use the tool consistently across weeks [3]. Another open-access study comparing gamified vs. non-gamified vocabulary instruction found that gamified instruction increased motivation, while vocabulary gains were not always dramatically different between groups—suggesting that motivation and achievement may not move at the same speed [4]. This is important for realistic expectations: gamification may first “win” in engagement, and only later influence achievement through sustained practice.

For Uzbekistan, research and discussion on gamification in language education is growing, and local work argues that gamification can enhance engagement and motivation when applied to language learning tasks like vocabulary practice [5]. Even though that work focuses on Uzbek language instruction, its core message transfers: learners’ participation and persistence improve when learning feels interactive and progress is visible [5]. This makes the Uzbek context a relevant setting for studying how digital gamified tools shape learning behaviors.

Overall, prior literature supports a cautious but promising idea: gamified flashcards can increase motivation and engagement, and engagement can create conditions for retention, but outcomes depend on design and learner response [2].

This thesis adopts a simple pathway model:

Gamified elements (points, streaks, leaderboards) → Motivation (interest, enjoyment, perceived progress) → Engagement (time-on-task, frequency of practice) → Retention (immediate + delayed vocabulary recall).

The model is grounded in the definition of gamification as adding game design elements to non-game activities, and in the finding that gamification outcomes are context-dependent and mediated by user experience and behavior [2]. Vocabulary learning through gamified apps is often reported as more engaging, which can support practice consistency [3].

Hypothesis 1: Learners using gamified flashcards will show higher engagement than learners using non-gamified digital flashcards [3].

Hypothesis 2: Gamified flashcards will produce equal or higher immediate retention, but stronger differences may appear in delayed retention due to higher sustained practice [4].

Hypothesis 3: Learner perceptions of gamification will be mixed: some will find it motivating, while others may feel pressure from competitive elements (e.g., leaderboards), affecting how they engage [2].

Design: Quasi-experimental (2 groups) for 4 weeks.

Participants: about 40–60 EFL university students (e.g., first- or second-year), split into:

- Experimental group: gamified flashcards (points, streaks, levels, timed modes, leaderboards if available).
- Control group: the same digital flashcards but with gamified features disabled or replaced with a simple review mode (if the platform allows), or a non-gamified flashcard tool with identical content.

Target vocabulary: 80–120 academic words with definitions + example sentences, matched across groups.

Instruments:

1. Retention tests:

- ❑ Pre-test (baseline knowledge).
- ❑ Weekly quizzes (low-stakes).
- ❑ Immediate post-test (week 4).
- ❑ Delayed post-test (2 weeks after).

2. Engagement measures:

- ❑ App logs: number of sessions, minutes practiced, items reviewed.

❑ Short engagement survey (enjoyment, perceived progress, willingness to continue).

3. Qualitative data:

❑ Short interviews or open-ended reflections about which features helped or distracted.

Data analysis:

- Compare groups on engagement indicators (time-on-task, sessions) and retention tests using t-tests or non-parametric equivalents (depending on data distribution).
- Thematic analysis of reflections to identify motivational drivers and motivational costs.

This design follows the practical approach seen in gamified vocabulary learning studies that measure both achievement and learner experience [3]. It also respects the warning that gamification effects should be interpreted through usage and context, not just test scores [2].

First, it is expected that gamified flashcards will increase engagement, especially frequency of practice and total time spent, because learners receive immediate feedback

and visible progress signals (points, levels, streaks) [3]. If engagement rises, learners are more likely to complete repeated retrieval cycles, which supports retention over time.

Second, retention results may show a nuanced pattern. The motivational boost of gamification can be clear even when immediate vocabulary gains are modest [4]. In other words, gamification might not instantly “double” scores, but it can improve study persistence, which matters for long-term development.

Third, student perceptions will likely differ. Some learners enjoy competition and feel energized by visible ranking, while others may feel anxious or distracted by performance comparison. Reviews of gamification consistently emphasize that the same element can motivate one learner and demotivate another, depending on context and personal preferences [2]. A practical implication is that teachers should design gamification with opt-out options or low-pressure alternatives (e.g., personal progress bars instead of public leaderboards).

Finally, for Uzbekistan’s higher education environment, local discussions highlight gamification as a way to modernize language instruction and strengthen engagement in vocabulary-related tasks [5]. A locally informed implementation can prioritize culturally comfortable motivation strategies (team collaboration, mastery goals) rather than heavy individual competition.

This small-scale design may be limited by sample size, different teacher styles, and unequal phone/internet access.

Also, time-on-task is a major confound: if the gamified group practices more, improved retention may reflect practice volume rather than gamification “magic.” That is still meaningful, because increased practice is a real educational outcome, but it should be reported transparently.

Ethically, learners should know what data is collected (usage logs) and that participation is voluntary and not tied to grades.

Gamified flashcards represent a realistic strategy for strengthening engagement in academic vocabulary learning, especially when learners struggle with persistence.

Gamification—understood as adding game design elements to a non-game learning task—can shape learner behavior by making progress visible and practice more emotionally rewarding [1].

However, research suggests that results depend on design quality and learner context, and motivation gains do not always instantly translate into large achievement differences [2].

A carefully designed, small-scale study can test whether gamified flashcards increase engagement and whether that engagement supports delayed retention.

For practical teaching, the best approach is “light” gamification that supports mastery and autonomy (progress, feedback, achievable challenges), while minimizing pressure-heavy competition.

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