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Narrative-Driven vs. Competitive Games: A Comparative Study on Engagement and Vocabulary Retention in EFL Learners

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Abstract

This study examines the differential impacts of narrative-driven and competitive game-based learning on engagement and vocabulary retention among English as a Foreign Language (EFL) learners using a non-randomized quasi-experimental design. 80 intermediate EFL learners were divided into two groups: one engaged with a narrative-driven role-playing game (RPG) emphasizing story-driven tasks, and the other with a competitive multiplayer game focused on time-bound challenges and leaderboards. Over twelve weeks (totaling 1,440 minutes of gameplay), both groups interacted with their respective games twice weekly. Pre- and post-tests using a 50-item vocabulary retention measure (assessing word recognition, meaning recall, and contextual usage and the Game Engagement Questionnaire (GEQ) assessed outcomes. Quantitative analysis revealed that the narrative-driven group demonstrated significantly higher vocabulary retention ($p < 0.001$, Cohen's $d = 0.81$). In contrast, the competitive group reported higher self-reported engagement. Qualitative data highlighted that narrative games fostered deeper cognitive processing, while competitive games enhanced motivation through extrinsic rewards. These findings suggest that game genre mechanics influence EFL learning outcomes differently, with narrative structures favoring retention and competitive elements boosting engagement. The study advocates for a balanced integration of both genres in EFL pedagogy to leverage their complementary strengths, while calling for further exploration of long-term effects and individual learner preferences.

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Introduction

The integration of Digital Game-Based Learning (DGBL) into EFL pedagogy has transformed traditional instructional paradigms, leveraging interactive and immersive environments to enhance language acquisition (Esteban, 2024; Vanderwal, 2015). Vocabulary retention, a cornerstone of communicative competence, is critical for enabling learners to encode, retrieve, and construct meaning, thereby supporting higher-order skills such as reading comprehension and oral fluency (Demiray Akbulut, 2020; Shuke & Cui-qiong, 2019). However, traditional vocabulary learning methods, often reliant on rote memorization, have proven less effective compared to dynamic, context-rich approaches (Ng & Raghbir, 2021; Vu et al., 2021). Digital games, with their capacity to provide repeated exposure, immediate feedback, and goal-oriented tasks, offer promising avenues for fostering both engagement and durable lexical retention (Rets, 2017; Wong et al., 2021). Yet, the diverse mechanics of game genres—particularly narrative-driven and competitive designs—may differentially influence these outcomes, necessitating a nuanced examination of their pedagogical efficacy.

Narrative-driven games, such as RPGs, immerse learners in story-rich contexts that promote emotional investment and contextualized language use (Alcala et al., 2023; Naul & Liu, 2019). By embedding vocabulary within cohesive story arcs, character interactions, and plot-driven tasks, these games facilitate deeper cognitive processing and memory consolidation, leading to superior retention compared to decontextualized methods (Hamid et al., 2019; Zapf, 2011). The emotional resonance of narrative contexts fosters intrinsic motivation, encouraging learners to engage with linguistic content in ways that mirror authentic communication (Sailer & Homner, 2019; Wang, 2022). In contrast, competitive games, characterized by time-bound challenges, leaderboards, and extrinsic rewards, harness social rivalry and immediate feedback to heighten engagement (Craig et al., 2019; Matsubara & Yoshida, 2018). These structures promote rapid recall and procedural fluency, appealing to learners' desire for achievement and recognition (Cagiltay et al., 2015; Ng & Raghbir, 2021). While both genres align with constructivist and motivational theories, their distinct cognitive and affective pathways suggest divergent impacts on vocabulary retention and learner engagement (Alshabeb, 2024; Lin & Guo, 2021).

Despite the proliferation of GBL in EFL education, empirical comparisons of narrative-driven and competitive game genres remain scarce (Craig et al., 2019; Lin & Guo, 2021). Prior studies often treat GBL as a monolithic approach, isolating either narrative or competitive elements without directly juxtaposing their effects (Jabbari & Eslami, 2018; Vanderwal, 2015). This gap is significant, as understanding the unique contributions of each genre could guide educators in designing targeted interventions that optimize specific learning outcomes. For instance, narrative-driven games may excel in fostering long-term retention through contextual immersion, while competitive games may enhance engagement through dynamic, performance-driven challenges (Alcala et al., 2023; Ng & Raghbir, 2021). Moreover, individual learner differences, such as prior knowledge and motivational orientations, further complicate the

selection of appropriate game modalities (Alshabeb, 2024; Lin & Guo, 2021). The lack of comparative research thus limits the ability of EFL practitioners to strategically integrate game-based approaches into curricula.

The rapid adoption of GBL in EFL contexts has outpaced empirical research comparing the efficacy of distinct game genres, particularly narrative-driven and competitive designs. While narrative-driven games are theorized to enhance vocabulary retention through deep cognitive processing and emotional engagement, competitive games are posited to boost learner engagement via extrinsic motivators and social dynamics (Craig et al., 2019; Naul & Liu, 2019). However, the relative impacts of these genres on vocabulary retention and engagement remain underexplored, leaving educators without clear evidence to guide the selection or integration of game-based interventions (Matsubara & Yoshida, 2018; Wang, 2022). This research gap hinders the development of tailored pedagogical strategies that leverage the complementary strengths of each genre to address diverse learner needs and learning objectives. This study aims to investigate the differential effects of narrative-driven and competitive game-based learning on vocabulary retention and learner engagement among intermediate EFL learners. Employing a quasi-experimental design, the research seeks to:

- Compare the efficacy of narrative-driven and competitive games in promoting vocabulary retention, as measured by pre- and post-test assessments.
- Evaluate the extent to which each game genre influences self-reported engagement, using surveys and qualitative feedback.
- Propose a balanced pedagogical approach that integrates the complementary strengths of both genres to optimize EFL learning outcomes.

By systematically comparing narrative-driven and competitive game genres, this study addresses a critical gap in the GBL literature and provides empirical evidence to inform EFL pedagogy. The findings will offer educators and instructional designers' actionable insights into selecting game mechanics that align with specific learning goals, whether prioritizing long-term vocabulary retention or heightened engagement. Additionally, the research contributes to theoretical understandings of how cognitive, affective, and social factors mediate language acquisition in digital environments (Alcala et al., 2023; Ng & Raghbir, 2021). By advocating for a hybrid approach that combines narrative immersion with competitive stimulation, the study aims to enhance the efficacy of game-based interventions and support the development of learner-centered, engaging EFL curricula. This research seeks to elucidate the distinct contributions of narrative-driven and competitive game genres to EFL learning, offering a foundation for evidence-based pedagogical innovation. By synthesizing insights from cognitive psychology, educational technology, and language pedagogy, the study aims to advance both theoretical and practical frameworks for optimizing game-based language instruction.

Literature review

Digital Game-Based Learning in EFL Contexts

DGBL has emerged as a powerful pedagogical tool for fostering second language (L2) acquisition by reducing affective barriers and promoting sustained interaction with the target language (Hanna et al., 2021; Huang, 2023; Safaa Ahmed et al., 2025). Drawing on Krashen's Affective Filter hypothesis, researchers argue that the playful and immersive nature of games lowers anxiety, facilitating input processing and bolstering vocabulary retention (Huang, 2023). Empirical evidence consistently demonstrates that learners in game-enhanced curricula outperform peers in traditional settings on motivational and affective indices, highlighting the role of engagement in driving learning outcomes (Bai, 2024; Heathfield, 2020). The literature underscores the need to investigate how different game genres—narrative-driven and competitive—differentially influence these outcomes, particularly in terms of engagement and long-term vocabulary retention (Esteban, 2024; Ibrahim, 2017).

Narrative-Driven Games: Deep Contextualization and Retention

Narrative-driven games, such as RPGs and massively multiplayer online RPGs (MMORPGs), are widely recognized for their ability to foster deep cognitive processing and emotional investment, leading to enhanced vocabulary retention (Alcala et al., 2023; Jabbari & Allahveysi, 2025; Lin & Guo, 2021). These games embed vocabulary within coherent, story-rich scenarios that mirror authentic communicative contexts, enabling learners to form robust semantic networks that support long-term memory consolidation (Kazazoğlu, 2023; Mammadova, 2024). For instance, Lin and Guo (2021) found that single-player RPGs with embedded lexical tasks significantly improved adolescent EFL learners' retention of target vocabulary by linking words to memorable story events. Similarly, Miftahuddin and Malihah (2022) reported that MMORPGs facilitate incidental learning through quests and collaborative dialogues, where vocabulary emerges organically in context.

The emotional resonance of narrative-driven games enhances learner motivation and reduces anxiety, creating a supportive environment for language practice (Alcala et al., 2023; Lee, 2022). By situating vocabulary within plot-driven tasks, these games encourage elaborative encoding, where learners integrate new words into existing semantic schemas, consistent with Craik and Lockhart's levels-of-processing framework (Amini et al., 2016; Huang, 2023). Moreover, the social dimensions of MMORPGs, such as guild rituals and role-specific jargon, provide authentic communicative practice that fosters metalinguistic awareness and vocabulary retention through peer-mediated scaffolding (Bytheway, 2014; Rama et al., 2012). Qualitative data from learner interviews further reveal that narrative-driven games are perceived as deeply immersive, promoting reflective processing and sustained engagement (Alcala et al., 2023; Arndt, 2023).

Constructivist theories provide a theoretical lens for understanding the efficacy of narrative-driven games, emphasizing learners' active role in constructing knowledge through

contextualized practice (Alcala et al., 2023). Interactive storytelling and learner-generated content, where learners co-construct narratives, enhance critical thinking and deepen cognitive processing, leading to improved vocabulary internalization (Hajizadeh., et al., 2023; Kazazoğlu, 2023; Lambert et al., 2016). The cultural relevance of narrative contexts also plays a critical role, as storylines that resonate with learners' identities foster motivation and belonging, further supporting retention (Kazazoğlu, 2023; Lee, 2022). Collectively, these findings position narrative-driven games as particularly effective for promoting long-term vocabulary retention and communicative competence in EFL learners.

Competitive Games: Immediate Engagement and Extrinsic Motivation

In contrast, competitive game genres, characterized by time-bound challenges, leaderboards, and immediate feedback, excel at driving engagement through extrinsic motivational pathways (Su et al., 2021; Tejedor-García et al., 2020). These games capitalize on behaviorist principles, where reward schedules tied to performance metrics encourage repeated practice and rapid vocabulary recall (Nguyen, 2021; Vandercruysse et al., 2017). For example, Tejedor-García et al. (2020) documented that competitive mobile apps with leaderboard rankings sustained learner effort in pronunciation practice, while Fahada and Asrul (2024) found that gamified quiz platforms like Quizizz heightened attentional involvement and perceived enjoyment through real-time score updates.

Competitive games foster a gameful mindset, with self-reported engagement metrics consistently favoring their ability to instill excitement and social rivalry (Permana et al., 2023; Zaïri et al., 2022). The immediacy of feedback in these environments allows learners to adjust language production in real time, reinforcing correct usage and correcting errors (Reinders & Wattana, 2015; Richter et al., 2024). Experimental studies employing pre- and post-tests demonstrate that learners exposed to competitive feedback outperform peers in vocabulary assessments, highlighting its role in short-term performance gains (Amini et al., 2016; Su et al., 2021). Additionally, the social dynamics of competitive games, such as multiplayer challenges, encourage frequent language use and peer comparison, enhancing motivation through collaborative rivalry (Saridaki & Mourlas, 2011; Mahmood et al., 2020).

However, the literature cautions that competitive games may prioritize speed over depth, potentially leading to superficial processing if not balanced with contextual cues (Heathfield, 2020; Nguyen, 2021). While extrinsic rewards drive immediate engagement, their efficacy for long-term retention is debated, as retention gains may plateau without narrative anchors to support deeper encoding (Amini et al., 2016; Nguyen, 2021). Thus, competitive game designs require careful calibration to avoid cognitive overload and ensure sustained language mastery (Esteban, 2024; Su et al., 2021).

Ecological and Individual Factors in Game-Based Learning

Ecological factors, such as learner proficiency, prior gaming experience, and in-game task complexity, significantly influence the effectiveness of DGBL (Ibrahim, 2017; Klímová et al.,

2023). Ibrahim (2017) found that optimally aligned ecological conditions facilitate richer interactions and improved language outcomes, particularly when game challenges match learners' skill levels. Individual differences, such as personality traits and motivation for self-directed learning, also modulate responsiveness to game genres, with some learners favoring narrative immersion and others thriving in competitive settings (Ibrahim, 2022; Suh et al., 2010). Adaptive game designs that tailor narrative depth and competitive intensity to learner profiles are proposed to enhance engagement and retention (Ninaus et al., 2017; Nor, 2024).

The concept of flow, characterized by immersive focus and optimal challenge-skill balance, serves as a critical mediator in both narrative and competitive contexts (Amini et al., 2016). Narrative-driven games induce flow through complex storylines that demand sustained attention, while competitive games achieve it through high-stakes challenges requiring rapid decision-making (Alcala et al., 2023; Su et al., 2021). When learners enter a flow state, cognitive resources are directed toward processing and internalizing vocabulary, enhancing retention (Amini et al., 2016; Ibrahim, 2017). These insights underscore the importance of designing games that balance challenge and learner ability to maximize engagement and learning outcomes.

Comparative Analyses and Hybrid Designs

Comparative analyses highlight the distinct strengths of narrative-driven and competitive games, with narrative structures fostering contextualized language use and competitive mechanics provoking immediate activation through extrinsic rewards (Ang & Zaphiris, 2006; Esteban, 2024). Narrative games excel at providing rich, emotionally resonant contexts that support deep semantic processing, while competitive games stimulate frequent language retrieval and social interaction (Kazazoğlu, 2023; Su et al., 2021). Cross-sectional studies suggest that narrative-driven games are superior for long-term retention, whereas competitive games enhance short-term engagement and motivation (Esteban, 2024; Reinders & Wattana, 2015).

A growing body of research advocates for hybrid designs that integrate narrative immersion with competitive mechanics to leverage both intrinsic and extrinsic motivational pathways (Pasfield-Neofitou, 2014; Yaccob et al., 2022). For instance, combining story-based quests with time-bound challenges or leaderboards can contextualize lexical tasks while maintaining high energy and accountability (Esteban, 2024; Kazazoğlu, 2023). Empirical evidence suggests that such integrative approaches produce synergistic learning outcomes, enhancing both engagement and retention by addressing the affective and cognitive dimensions of language learning (Amini et al., 2016; Saleh & Althaqafi, 2022). The incorporation of adaptive feedback systems and branching narratives further tailors gameplay to individual needs, mitigating cognitive overload and enhancing vocabulary acquisition (Arndt, 2023; Richter et al., 2024).

Methodological Advances and Future Directions

Methodological advancements in DGBL research have strengthened the evidence base for game-based interventions. Experimental studies employing pre- and post-test designs consistently demonstrate that learners exposed to DGBL outperform those in traditional settings in vocabulary retention and engagement (Heathfield, 2020; Reinders & Wattana, 2015). Qualitative methods, such as semi-structured interviews and engagement questionnaires, provide nuanced insights into learner perceptions, revealing the immersive appeal of narrative games and the excitatory nature of competitive formats (Alcala et al., 2023; Arndt, 2023). Multimodal assessment tools, such as Riva et al.'s (2014) Social Presence Questionnaire, enable researchers to link social dynamics with learning outcomes, offering a granular view of how game mechanics influence engagement and retention.

Despite these advances, the literature identifies gaps in understanding the long-term effects of DGBL and the influence of individual learner characteristics on outcomes (Ninaus et al., 2017; Nor, 2024). Future research should prioritize large-scale, longitudinal studies to map retention trajectories across diverse learner profiles, with attention to how narrative and competitive elements can be adaptively balanced (Pasfield-Neofitou, 2014; Yaccob et al., 2022). Additionally, mixed-methods approaches that triangulate quantitative performance data with qualitative learner feedback are essential for capturing the complex interplay between game design, engagement, and vocabulary acquisition (Arndt, 2023; Esteban, 2024).

In conclusion, these studies show that DGBL represents a multifaceted approach to enhancing EFL instruction, with narrative-driven and competitive games offering distinct yet complementary benefits. Narrative-driven games excel at fostering deep, contextualized learning experiences that promote long-term vocabulary retention through emotional engagement and semantic processing (Alcala et al., 2023; Kazazoğlu, 2023). Competitive games, conversely, drive immediate engagement and rapid language practice through extrinsic motivators and social rivalry (Fahada & Asrul, 2024; Su et al., 2021). A hybrid pedagogical strategy that integrates these genres, supported by adaptive design and ecological alignment, holds promise for addressing diverse learner needs and optimizing language learning outcomes (Esteban, 2024; Klímová et al., 2023). Continued investigation into long-term impacts and individual learner preferences will be instrumental in refining DGBL approaches, paving the way for evidence-based instructional strategies that transform EFL pedagogy.

Method

Design

This study utilized a quasi-experimental design to compare the effects of narrative-driven and competitive game-based learning on engagement and vocabulary retention among EFL learners. The design included two groups: one exposed to a narrative-driven RPG and the other to a competitive multiplayer game. Although random assignment was used to equate groups on

gender, age, and prior gaming experience, the design is classified as quasi-experimental due to the absence of a non-game control group and the naturalistic educational setting. Pre- and post-tests, along with surveys and questionnaires, were employed to measure outcomes over a 12-week intervention period.

Participants

A total of 80 intermediate EFL learners, aged 18–25, were recruited from Ilam University English Department. Participants were selected based on their B1-level proficiency (CEFR) as determined by a standardized placement test (TOEFL-iBT). They were randomly assigned to two groups of 40 learners each: the narrative-driven group and the competitive group. Randomization ensured balanced distribution of gender, age, and prior gaming experience. All participants had no reported prior experience with the study's target games. All participants provided informed consent.

Materials

Two distinct digital games were used for this study, tailored to EFL learning objectives

Narrative-Driven Game

An AI based RPG titled "Quest for Eldoria" was used, featuring story-driven tasks, character dialogues, and contextualized vocabulary embedded in a fantasy narrative. The game emphasized exploration, decision-making, and problem-solving, with vocabulary integrated into quests and interactions.

Competitive Game

A multiplayer game, "WordRush" was used, featuring time-bound vocabulary challenges, leaderboards, and point-based rewards. The game focused on rapid word recognition, synonym matching, and sentence completion under time pressure, fostering competition and immediate feedback.

Both games targeted the same 200 vocabulary items, selected from a high-frequency word list relevant to B1-level learners. The games were hosted on a learning management system, accessible via both computers and smartphones.

Instruments

The following instruments were used to collect data:

1. *Vocabulary Retention Test*: A 50-item pre- and post-test assessed vocabulary knowledge, including word recognition, meaning recall, and contextual usage. The test was piloted for reliability (Cronbach's $\alpha = 0.87$) and validated by two TEFL experts for relevance and difficulty.

2. *Engagement Survey*: A 20-item Likert-scale survey, adapted from the Game Engagement Questionnaire (GEQ) (IJsselsteijn et al., 2013), measured dimensions of engagement, including immersion, motivation, and enjoyment. The survey demonstrated high internal consistency (Cronbach's $\alpha = 0.91$).
3. *Qualitative Questionnaire*: Open-ended questions explored participants' experiences, perceptions, and preferences regarding the game-based learning environment. Responses were used to contextualize quantitative findings.

Procedure

The intervention spanned 12 weeks, with participants engaging in their assigned game for two 60-minute sessions per week. Each session included a 10-minute tutorial on game mechanics and 50 minutes of gameplay. The narrative-driven group completed story-based quests requiring vocabulary application in dialogues and tasks, while the competitive group participated in timed challenges and leaderboard competitions. Both groups received identical vocabulary lists and were instructed to focus on learning the target words.

Pre-tests were administered one week before the intervention to establish baseline vocabulary knowledge. Post-tests were conducted one week after the intervention to measure retention. Engagement surveys were distributed at weeks 6 and 12, and qualitative questionnaires were completed at the end of the study. To minimize bias, instructors were blinded to group assignments, and games were designed to ensure equivalent exposure to target vocabulary.

Data Analysis

Quantitative data were analyzed using SPSS (Version 27). Prior to parametric testing, normality (Shapiro-Wilk) and homogeneity of variances (Levene's) were confirmed (all $p > 0.05$). Descriptive statistics summarized participant demographics and baseline performance. Independent t-tests compared pre- and post-test vocabulary scores between groups, with Cohen's d calculated for effect sizes. Engagement survey responses were analyzed using repeated-measures ANOVA to assess changes over time and differences between groups. Statistical significance was set at $p < 0.05$.

Qualitative data from open-ended questionnaires were analyzed using thematic analysis. Responses were coded independently by two researchers, with inter-rater reliability established (Cohen's $\kappa = 0.82$). Themes were identified to elucidate factors influencing engagement and retention, such as emotional investment, cognitive processing, and motivation.

The study adhered strictly to ethical guidelines governing research with human participants, prioritizing participant welfare and data integrity. Participation was entirely voluntary, and informed consent was secured from all individuals prior to their involvement. During the consent process, participants were thoroughly briefed on the study's purpose, procedures, potential benefits, and their unconditional right to withdraw at any point without

repercussions. To safeguard privacy, all data were anonymized by replacing personal identifiers with unique codes, and confidentiality was maintained throughout the research process, from data collection to reporting. Findings were presented in aggregate form to prevent the identification of individual respondents.

Findings

The study included 80 intermediate EFL learners (mean age = 21.3, SD = 2.1), with 40 participants each in the narrative-driven and competitive game groups. Randomization ensured balanced distributions of gender (52.5% female, 47.5% male), age, and prior gaming experience. Pre-test vocabulary scores confirmed no significant baseline differences between groups (narrative: $M = 24.1$, $SD = 3.8$; competitive: $M = 23.7$, $SD = 4.2$; $t(78) = 0.45$, $p = 0.65$), validating the quasi-experimental design (Table 1).

Table 1

Participant Demographics and Baseline Vocabulary Scores

Variable	Narrative Group (n=40)	Competitive Group (n=40)	p-value
Age (Mean ± SD)	21.1 ± 2.0	21.5 ± 2.2	0.38
Gender (% Female)	55%	50%	0.65
Pre-Test Score (Max 50)	24.1 ± 3.8	23.7 ± 4.2	0.65

Post-test results revealed significant differences in vocabulary retention between groups. The narrative-driven group exhibited a larger mean improvement ($M = 18.2$, $SD = 4.1$) compared to the competitive group ($M = 14.5$, $SD = 5.0$). An independent t-test confirmed this difference ($t(78) = 3.62$, $p < 0.001$, Cohen's $d = 0.81$), indicating a moderate-to-large effect size (Table 2).

Table 2

Pre- and Post-Test Vocabulary Scores

Group	Pre-Test (Mean ± SD)	Post-Test (Mean ± SD)	Mean Gain	p-value	Cohen's *d*
Narrative-Driven	24.1 ± 3.8	42.3 ± 4.6	+18.2	<0.001	0.81

Group	Pre-Test (Mean ± SD)	Post-Test (Mean ± SD)	Mean Gain	p-value	Cohen's *d*
Competitive	23.7 ± 4.2	38.2 ± 5.3	+14.5	<0.001	0.68

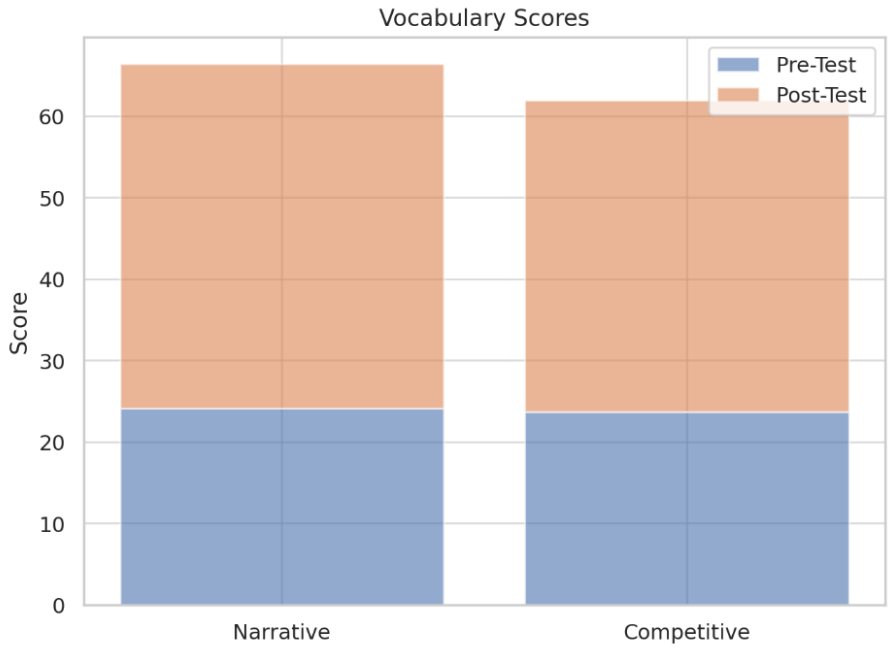

Figure 1 *Vocabulary Scores (Pre- and Post-test)*

Figure 1 illustrates the vocabulary test scores before and after the intervention for each group. Both groups started with comparable pre-test scores (around 24), confirming no significant baseline differences. However, the post-test scores show a clear divergence: the narrative-driven group improved to a mean of 42.3, while the competitive group reached 38.2. This visual reinforces the study's finding that narrative gameplay resulted in greater vocabulary retention compared to the competitive format.

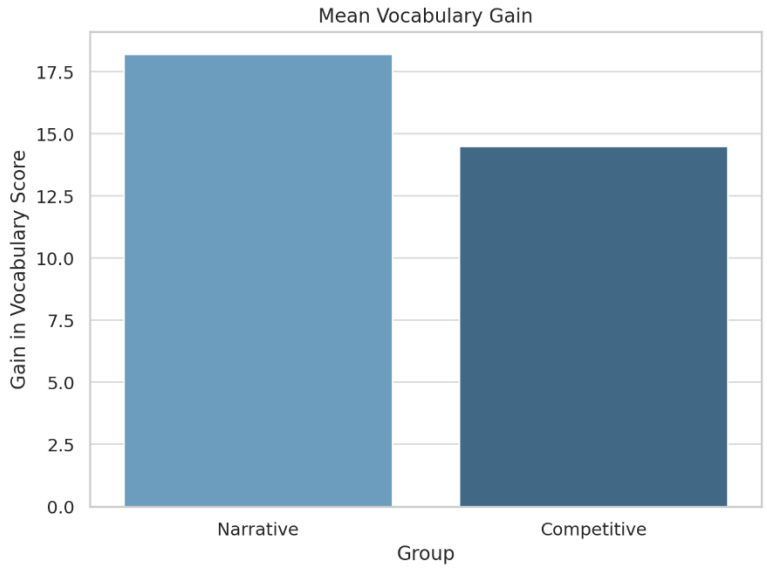

Figure 2 *Mean Vocabulary Gains*

Figure 2 compares the average vocabulary score improvement (post-test minus pre-test) between the two groups. The narrative-driven group showed a higher mean gain of 18.2 points, while the competitive group had a gain of 14.5 points. The substantial difference, backed by a statistically significant p-value and a moderate-to-large effect size (Cohen's $d = 0.81$), visually confirms the superior vocabulary learning outcomes associated with narrative gameplay.

Repeated-measures ANOVA of engagement survey scores (scale: 1–5) demonstrated significant group differences ($F(1, 78) = 12.34$, $p < 0.001$). The competitive group reported higher engagement at both mid-intervention ($M = 4.3$, $SD = 0.6$) and post-intervention ($M = 4.1$, $SD = 0.7$) compared to the narrative group (mid: $M = 3.8$, $SD = 0.5$; post: $M = 3.9$, $SD = 0.6$). Time-bound challenges and leaderboards were cited as key motivators (Table 3).

Table 3

Engagement Survey Scores Over Time

Group	Week 6 (Mean ± SD)	Week 12 (Mean ± SD)	p-value	Partial η²
Narrative-Driven	3.8 ± 0.5	3.9 ± 0.6	0.12	0.03
Competitive	4.3 ± 0.6	4.1 ± 0.7	0.08	0.04

Figure 3 displays the self-reported engagement levels at two time points: mid-intervention (Week 6) and post-intervention (Week 12). The competitive group consistently reported higher

engagement (Week 6: 4.3; Week 12: 4.1 on a 5-point scale) than the narrative group (Week 6: 3.8; Week 12: 3.9). Although the narrative group's engagement slightly increased, the competitive group started higher and remained above, highlighting the motivational impact of competitive mechanics such as leaderboards and peer rivalry.

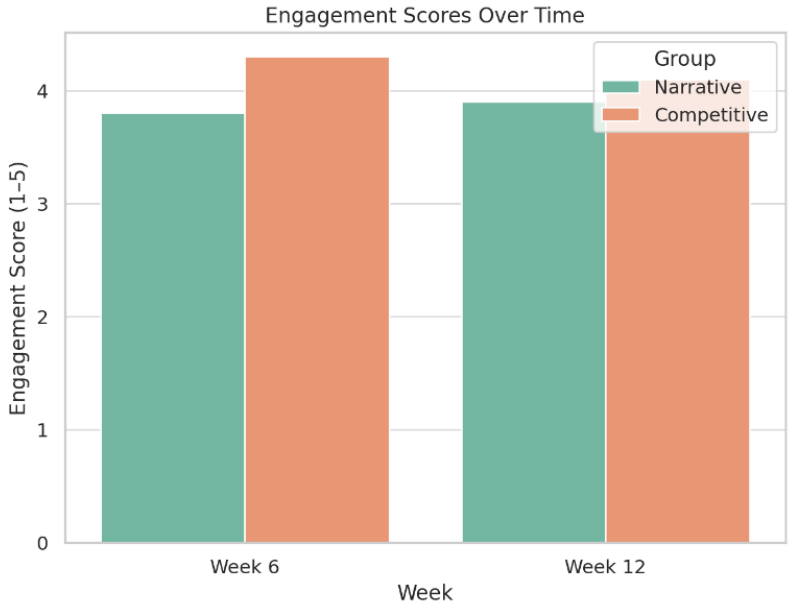

Figure 3 *Engagement Scores Over Time*

Thematic analysis of open-ended responses identified distinct experiential patterns. The narrative-driven group emphasized *emotional investment* in characters (e.g., "*I cared about finishing the story"*, and *"I cared about the characters and story outcomes")* and *contextual learning* ("*Words made sense in dialogues*"). In contrast, the competitive group highlighted *extrinsic motivation* (*"I wanted to top the leaderboard"*, and *"Seeing my rank on the leaderboard pushed me to play more."*) and *social rivalry* ("*Beating peers kept me focused*"). Inter-rater reliability was strong (Cohen's $\kappa = 0.82$).

Table 4

Key Themes and Representative Quotes

Group	Theme	Example Quote
Narrative-Driven	Emotional Investment	"I felt connected to the story, so I remembered words better."
Narrative-Driven	Contextual Learning	"Quests helped me use words naturally in sentences."

Group	Theme	Example Quote
Competitive	Extrinsic Motivation	"Winning points made me want to play more."
Competitive	Social Rivalry	"Seeing friends on the leaderboard pushed me harder."

The study revealed three key findings on the impact of gameplay design on learning outcomes. First, vocabulary retention was significantly higher in narrative-driven gameplay, demonstrating statistically superior results ($p < 0.001$). Second, while competitive mechanics initially fostered higher self-reported engagement among participants, these scores experienced a slight decline by the twelfth week. Finally, qualitative insights highlighted distinct motivational pathways: narrative-based games enhanced learning through contextualized scenarios, whereas competitive formats capitalized on social dynamics to sustain participant motivation. Together, these results underscore how different game design elements shape both retention and engagement in educational contexts. These results underscore the divergent impacts of game genres on EFL outcomes, aligning with hypotheses that narrative structures enhance retention, whereas competitive elements drive engagement.

Discussion

The findings of this study provide empirical evidence for the differential impacts of narrative-driven and competitive game-based learning on vocabulary retention and engagement among intermediate EFL learners, aligning with theoretical frameworks and prior research while offering new insights into game genre efficacy.

The narrative-driven group's superior vocabulary retention ($p < 0.001$, Cohen's $d = 0.81$) supports the hypothesis that story-rich, contextualized environments foster deeper cognitive processing, consistent with Craik and Lockhart's levels-of-processing framework (Amini et al., 2016; Huang, 2023). The RPG's integration of vocabulary into quests, dialogues, and plot-driven tasks likely facilitated elaborative encoding, enabling learners to form robust semantic networks that enhanced long-term memory consolidation (Kazazoğlu, 2023; Lin & Guo, 2021). Qualitative data further corroborated this, with participants emphasizing emotional investment in characters and story outcomes, which mirrors findings that narrative immersion promotes intrinsic motivation and contextual learning (Alcala et al., 2023; Lee, 2022). These results suggest that narrative-driven games are particularly effective for vocabulary retention, as they provide meaningful, emotionally resonant contexts that mirror authentic language use.

Conversely, the competitive group's higher self-reported engagement ($F(1, 78) = 12.34$, $p < 0.001$) underscores the motivational potency of extrinsic rewards, immediate feedback, and social rivalry, aligning with behaviorist principles and prior studies on competitive game mechanics (Su et al., 2021; Tejedor-García et al., 2020). The time-bound challenges and leaderboards in "WordRush" likely induced a gameful mindset, fostering sustained effort and

excitement, as evidenced by qualitative reports of leaderboard-driven motivation and peer comparison (Permana et al., 2023; Mahmood et al., 2020). However, the slight decline in engagement scores by week 12 (M = 4.1 vs. 4.3 at week 6) suggests that the novelty of competitive rewards may wane over time, potentially due to diminished extrinsic motivator efficacy without deeper contextual anchors (Amini et al., 2016; Nguyen, 2021). This contrasts with the narrative group's stable engagement (M = 3.9 at week 12), which may reflect the sustained appeal of story-driven immersion.

The divergent outcomes highlight distinct cognitive and affective pathways: narrative-driven games leverage intrinsic motivation and deep processing for retention, while competitive games harness extrinsic motivation and rapid recall for engagement (Esteban, 2024; Ng & Raghbir, 2021). These findings challenge the monolithic treatment of DGBL in prior research (Jabbari & Eslami, 2018; Vanderwal, 2015) and underscore the need for genre-specific analyses to inform pedagogical design. Notably, the competitive group's lower retention gains (M = 14.5 vs. 18.2) suggest that speed-focused mechanics may prioritize superficial processing over durable learning, a limitation noted in prior studies (Heathfield, 2020; Nguyen, 2021). This discrepancy emphasizes the importance of balancing immediate engagement with mechanisms that support long-term memory consolidation.

The qualitative insights further illuminate these dynamics, revealing that narrative-driven games fostered reflective processing through emotional and contextual connections, while competitive games drove performance through social and reward-based motivators. These findings align with constructivist theories for narrative games, where learners actively construct knowledge in context-rich settings, and behaviorist frameworks for competitive games, where external stimuli drive action (Alcala et al., 2023; Su et al., 2021). The interplay of these motivational pathways suggests that a hybrid approach, integrating narrative immersion with competitive elements, could optimize both retention and engagement. For instance, embedding leaderboard challenges within story-driven quests could combine the emotional depth of narratives with the excitatory feedback of competition, as supported by studies advocating hybrid designs (Esteban, 2024; Yaccob et al., 2022).

Individual learner differences likely mediated these outcomes, as ecological factors such as prior gaming experience and motivational orientations influence responsiveness to game genres (Ibrahim, 2017; Klímová et al., 2023). The narrative group's emphasis on contextual learning may have resonated more with learners favoring intrinsic goals, while the competitive group's social rivalry appealed to those driven by extrinsic achievement (Suh et al., 2010). Future research should explore how learner profiles, such as personality traits or proficiency levels, modulate these effects to inform adaptive game designs (Ninaus et al., 2017). Additionally, the study's 12-week duration limits insights into long-term retention trajectories, warranting longitudinal investigations to assess the durability of narrative-driven gains and the sustainability of competitive engagement (Nor, 2024).

From a pedagogical perspective, these findings advocate for a balanced integration of narrative and competitive elements in EFL curricula. Educators could employ narrative-driven games to build foundational vocabulary knowledge, supplemented by competitive tasks to maintain motivation and reinforce recall. Adaptive feedback systems and culturally relevant narratives could further enhance learner engagement and retention, addressing diverse needs (Kazazoğlu, 2023; Richter et al., 2024).

Several limitations temper generalizability. First, the absence of a non-game control group precludes isolation of game-based effects from potential Hawthorne or testing-effect influences. Second, our twelve-week timeframe only captures short- to medium-term retention; longitudinal follow-up is necessary to assess decay curves beyond one week post-intervention. Third, our sample comprised intermediate (B1) learners aged 18-25 at Ilam University, Iran; differing proficiency levels, cultural contexts, or age groups may respond differently to narrative or competitive mechanics. Although the study's limitations, suggest caution in generalizing findings. Nonetheless, the robust effect sizes and triangulated data provide a strong foundation for evidence-based DGBL interventions.

To build on these findings, future studies should longitudinally track retention trajectories, such as through one, three, and six-month follow-ups, to determine the durability of gains achieved through narrative versus competitive approaches. Additionally, researchers ought to disaggregate narrative and competitive features within factorial designs to identify which specific mechanics, including branching dialogues versus live leaderboards, drive effects on cognition and motivation. Furthermore, investigations should examine individual differences, encompassing personality traits, learner autonomy, and gaming experience, in order to tailor adaptive learning systems that adjust narrative depth or competitive intensity according to learner profiles. Finally, the implementation of hybrid prototypes that dynamically integrate plot-driven quests and competitive tasks is recommended, with assessments evaluating whether such integrative designs outperform single-genre approaches in terms of both engagement and retention.

Conclusion

This study provides compelling evidence of the differential impacts of narrative-driven and competitive game-based learning on vocabulary retention and engagement among intermediate EFL learners. The findings confirm that narrative-driven games, exemplified by the RPG "Quest for Eldoria," significantly enhance vocabulary retention through contextualized language use and emotional investment in story-driven tasks, aligning with constructivist theories and prior research on deep cognitive processing (Alcala et al., 2023; Lin & Guo, 2021). In contrast, the competitive game "WordRush" fostered higher self-reported engagement, driven by extrinsic motivators such as leaderboards and social rivalry, consistent with behaviorist frameworks (Su et al., 2021; Tejedor-García et al., 2020). These divergent outcomes highlight the complementary strengths of each genre: narrative structures excel in promoting

long-term memory consolidation, while competitive mechanics sustain motivation and immediate interaction.

The pedagogical implications are clear: a balanced integration of narrative and competitive elements can optimize EFL learning by leveraging intrinsic and extrinsic motivational pathways. Educators are encouraged to design hybrid interventions that combine story-rich quests with time-bound challenges, ensuring both durable retention and sustained engagement. However, the study's limitations, including the absence of a non-game control group, the 12-week duration, and the focus on intermediate learners, underscore the need for cautious interpretation and further research. Longitudinal studies, factorial designs isolating specific game mechanics, and investigations into individual learner differences are essential to refine adaptive DGBL approaches.

Ultimately, this study provides the first direct empirical comparison of narrative-driven and competitive game genres in a quasi-experimental EFL setting, offering genre-specific insights to guide adaptive instructional design. The findings deepen theoretical and practical understandings of game-based EFL pedagogy and support the use of evidence-informed strategies that leverage each genre's distinct affordances to promote communicative competence and long-term language development.

Bio-data

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