



ANALYZING THE LINGUISTIC VALUE AND REAL-WORLD RELEVANCE OF TEXTS IN GAMIFIED CALL TOOLS

Gulnorakhon Rasulova

Master's student, Webster University in Tashkent. Tashkent, Uzbekistan

gulnorakhonrasulova27.11.03@gmail.com

Abstract: *Gamified Computer-Assisted Language Learning (CALL) applications such as Duolingo, Kahoot!, and WordBricks have become a dominant format for informal foreign-language study, yet the linguistic and communicative quality of the texts they present to learners is rarely scrutinized as closely as their motivational design. This article examines two interrelated properties of texts used in gamified CALL tools: their linguistic value (lexical, grammatical, and discourse-level well-formedness) and their real-world relevance (authenticity and transferability to genuine communicative situations). Based on a review of the CALL and gamification literature, the study develops a two-dimensional evaluative framework and applies it to findings reported for widely studied gamified applications. Results show that achievement-oriented game elements (points, streaks, badges, leaderboards) are the most consistently implemented feature across gamified CALL tools, while the content itself is disproportionately weighted toward isolated vocabulary and sentence-level items rather than connected, socially situated discourse. The discussion situates these findings within the broader debate on authenticity in foreign-language materials and proposes design and pedagogical recommendations for narrowing the gap between gamified engagement and linguistically authentic input.*

Keywords: *gamification, Computer-Assisted Language Learning (CALL), text authenticity, linguistic value, real-world relevance, Duolingo.*

INTRODUCTION



Computer-Assisted Language Learning (CALL) has passed through three broadly recognized phases of development. Behaviouristic CALL of the 1950s–60s relied on repetitive drills, grammatical explanation and translation tests; Communicative CALL of the 1970s–80s shifted the focus toward discovery-based, form-focused practice; and Integrative CALL, which emerged in the 1990s, was grounded in a socio-cognitive view that privileged the use of language in authentic social contexts and combined listening, speaking, reading and writing within task-based and content-based approaches [3, p. 37]. This trajectory is significant for the present study because it shows that concern for authentic, socially situated language use has long been treated as a defining criterion of pedagogically sound CALL design [11], well before gamification entered the field.

Gamification is commonly defined as the use of game design elements in non-game contexts [1]; in educational settings it typically manifests as points, badges, levels, streaks and leaderboards layered onto learning tasks in order to increase participation and motivation [2]. Applied to foreign-language learning, gamification has produced some of the most widely used digital language-learning products in the world, most notably Duolingo, alongside tools such as Kahoot!, Edmodo and specialized systems like WordBricks [3, p. 41; 7]. Their popularity is driven largely by their capacity to sustain engagement through immediate feedback, competition and a visible sense of progression [3, p. 42].

However, the same design logic that makes gamified CALL tools engaging can work against the linguistic and communicative quality of the texts they deliver. A systematic review of empirical studies on gamified foreign-language-learning tools reports that vocabulary and isolated sentences are by far the most common instructional content, while comprehensive discourse-level material reading comprehension, argumentative writing, extended dialogue remains comparatively rare [6]. This raises two related but distinct questions that are not always separated in the existing literature: first, whether the texts used inside gamified CALL tools are linguistically well-formed and pedagogically graded (their *linguistic value*), and



second, whether those texts resemble the kind of language learners are likely to encounter or need to produce outside the application (their *real-world relevance*, or authenticity). Gilmore situates authenticity as a persistent point of tension in foreign-language materials design, describing a long-standing gap between the discourse found in textbooks and, by extension, digital learning tools – and the discourse of genuine, unscripted communication [4].

The aim of this article is to analyze the linguistic value and real-world relevance of texts embedded in gamified CALL tools by synthesizing existing empirical and theoretical literature into a coherent evaluative picture. The article addresses three research questions: (1) What kinds of texts and game elements dominate current gamified CALL tools? (2) What does the existing literature report about the linguistic quality and authenticity of these texts? (3) What tensions exist between the motivational design of gamification and the communicative/linguistic goals of language education, and how might they be reduced?

METHODS

This study adopts a qualitative, literature-based content-analysis design rather than an experimental one, since the object of inquiry — the linguistic and authenticity properties of texts across a range of gamified CALL tools — is best approached through a synthesis of existing empirical findings and illustrative textual evidence already reported in prior research. The design was informed by the systematic-review methodology used in comparable gamification research, which combines keyword-based literature search with explicit screening and thematic coding of results [6].

2.1. Literature sampling. Sources were identified through targeted searches of academic databases and repositories (peer-reviewed journals in computer-assisted and mobile-assisted language learning, systematic reviews, and CALL-history overviews) using combinations of the keywords “gamification,” “CALL,” “language learning,” “authenticity,” “text,” and the names of widely studied tools (Duolingo, Kahoot!, WordBricks). Priority was given to peer-reviewed empirical studies and



systematic reviews published between 1997 and 2025, supplemented by two foundational theoretical sources on gamification [1; 2] and on authenticity in foreign-language materials [4].

2.2. Analytic framework. Two evaluative dimensions were used to organize the findings extracted from the literature.

(a) Linguistic value was operationalized through four indicators commonly used in materials evaluation: lexical range and frequency appropriateness (whether vocabulary matches learners' proficiency level and is presented with sufficient contextual support); syntactic complexity (whether sentence structures are graded appropriately or artificially simplified); cohesion and coherence (whether texts extend beyond isolated sentences into connected discourse); and register appropriateness (whether the style of language matches its communicative function).

(b) Real-world relevance was operationalized following Gilmore's discussion of authenticity, which distinguishes between the authenticity of a text itself (its origin in genuine communication rather than being purpose-written for instruction) and the authenticity of the task performed with that text (whether the learning activity mirrors real communicative use) [4, p. 98]. Indicators included situational plausibility (whether content resembles language learners would realistically encounter), genre fidelity (whether dialogues, notices or narratives follow the conventions of their real-world counterparts), and transferability (whether skills practiced with a text are reported to transfer to spontaneous communication outside the application).

2.3. Case focus. Because Duolingo is the most extensively studied gamified CALL tool in the reviewed literature – appearing in three of the twenty-one empirical studies included in a recent systematic review, alongside dedicated case studies and reviews [5; 6, p. 517; 10] – it was used as the primary illustrative case, supplemented by findings on Kahoot! [9] and on the grammar-focused tool WordBricks [7] to represent, respectively, quiz-based and structure-based gamified designs.

2.4. Limitations of the method. As a literature-based synthesis rather than a first-hand corpus-linguistic analysis, this study reports and interprets findings already



published by other researchers rather than measuring lexical density or syntactic complexity directly from application texts. This limitation is addressed further in the Discussion.

RESULTS

1. *Dominance of achievement-oriented game elements.* Across the reviewed tools, explicit, achievement-oriented game elements – points, badges, levels, streaks and leaderboards – are the most consistently implemented feature, echoing the original definition of gamification as game-design elements transplanted into non-game contexts [1; 2]. In Duolingo, the curriculum is organized around a visible “learning tree,” experience points and streak counters that reward daily use, and content is presented to learners in whole sentences with immediate feedback on each response [3, p. 42, p. 49]. The most frequently implemented individual elements identified in the CALL-gamification literature are points, badges, leaderboards, progress bars, performance graphs, quests, levels, avatars and social/reward elements [3, p. 39].

2. *Learning content skewed toward isolated vocabulary and sentences.* A systematic review of twenty-one empirical studies on gamified foreign-language-learning tools found that vocabulary and sentence-level content was the most frequent instructional focus (8 of 21 studies), followed by grammar (4 of 21), while comprehensive language use (2), pronunciation (2), reading comprehension (1) and argumentative writing (1) were comparatively rare [6]. This distribution indicates that, at the level of content selection, gamified CALL tools are disproportionately weighted toward decontextualized lexical and grammatical items rather than connected discourse – a pattern with direct implications for both the linguistic-value and real-world-relevance dimensions defined in Section 2.2.

3. *Tool-level diversity: quiz-based, translation-based and grammar-based designs.* Among existing commercial tools examined in the literature, Duolingo was used in three of the reviewed empirical studies and Kahoot! in two, with the remainder distributed across smaller or custom-built systems [6]. The reviewed



literature suggests that different tools pursue different content strategies: Duolingo combines listening, speaking, grammar and vocabulary practice presented in whole sentences [3, p. 49]; Kahoot!, a quiz-based interactive-response system, was reported to produce mixed effects – while it stimulated engagement and was generally viewed positively by instructors, some students were demotivated, and instructors were not fully convinced of its instructional efficacy [6, citing 9]; and WordBricks applies a visual grammar formalism to gamify the acquisition of grammatical structures, foregrounding formal accuracy over extended communicative text [7].

4. *Criticism of pedagogical and linguistic integration.* Several reviewed sources criticize gamified foreign-language tools for insufficient integration between game elements and pedagogical content. It has been argued that gamified tools frequently place too much emphasis on vocabulary and translation, and that future designs should incorporate broader objectives such as collaboration, context exploration and reading comprehension [8, as synthesized in 6]. A related critique describes some gamification efforts as amounting to little more than adding colourful graphics and animation to otherwise dull, repetitive drills – a practice compared to “chocolate-covered broccoli,” in which the underlying task remains pedagogically and linguistically unchanged despite superficial game-like packaging [7, as synthesized in 6].

5. *Effectiveness measures favor achievement over communicative competence.* The same systematic review found that sixteen of twenty-one studies (76%) measured effectiveness through pre- and post-test academic achievement, while only ten (48%) measured affective engagement and just one measured cognitive engagement [6]. “Inauthentic learning experience in experimental settings” was explicitly identified as one of the biases limiting the interpretability of these effectiveness studies [6]. Taken together with the content-skew finding in Section 2, this suggests that both what gamified CALL tools teach and how their effectiveness is measured are oriented toward discrete, testable linguistic units rather than toward learners' capacity to use language in authentic, real-world communication.



6. *Emerging AI-driven gamification and authenticity concerns.* More recent literature on AI-enhanced gamified language learning reports a related but distinct concern: AI chatbots and virtual tutors embedded in gamified tools can generate grammatically correct sentences that nonetheless lack cultural and linguistic authenticity, struggling to capture tone, sentiment and the situational appropriateness of expressions [12]. This indicates that increasing technological sophistication does not, by itself, resolve the authenticity gap identified in the earlier, non-AI gamified tools discussed above.

DISCUSSION

The results converge on a consistent pattern: gamified CALL tools are highly effective at implementing motivational game mechanics, but the linguistic content packaged inside those mechanics is disproportionately lexical, sentence-bound and decontextualized (1–2), and the metrics typically used to evaluate these tools reinforce rather than counterbalance this bias (5). Gilmore's authenticity framework helps explain why this pattern persists: the same pressures that historically pushed printed textbook discourse away from genuine, unscripted language – the need for graded difficulty, controllable vocabulary, and easily assessable closed-response formats – apply with equal or greater force to gamified applications, whose game mechanics (points for correct answers, streaks for daily completion) require discrete, quickly gradable items rather than open-ended, extended discourse [4].

Viewed against the historical trajectory of CALL summarized in the Introduction, this finding is somewhat paradoxical. Integrative CALL, as it developed in the 1990s, was explicitly oriented toward authentic social contexts and the combined use of the four language skills [3, p. 37; 11]. Contemporary gamified CALL tools are technologically far more advanced than their 1990s predecessors, yet the results reviewed here suggest that, in terms of the texts and tasks actually presented to learners, some gamified applications may represent a partial retreat toward the more decontextualized, drill-oriented practices of earlier CALL



paradigms – even as their delivery mechanisms have become more sophisticated and more motivating.

This should not be read as a uniformly negative assessment. Evidence that Duolingo presents vocabulary and grammar items within whole sentences rather than as isolated word lists [3, p. 49] shows that some linguistic-value considerations are already incorporated into gamified design. Similarly, tools such as WordBricks demonstrate that game mechanics can be built specifically around grammatical accuracy rather than being applied indiscriminately on top of unrelated content [7]. The concern raised by the reviewed literature is not that gamification is inherently incompatible with linguistic and communicative quality, but that achievement-oriented game elements are currently implemented far more consistently and rigorously than authenticity-oriented text design – a design asymmetry rather than an inevitable trade-off.

Three practical implications follow. First, for materials designers, gamified CALL tools would benefit from deliberately incorporating extended, genre-varied, source-authentic texts (real notices, dialogues, short articles) alongside rather than instead of discrete practice items, and from building game mechanics around task authenticity (e.g., rewarding successful real-world-style communicative exchanges) rather than only around the speed or accuracy of isolated responses. Second, for teachers and curriculum designers, gamified applications are best treated as a supplementary rather than a sole source of input, paired deliberately with communicative tasks and authentic materials that address the discourse-level and pragmatic competence that decontextualized items cannot provide [8]. Third, for researchers, the growing role of AI-generated content in gamified tools makes it increasingly important to evaluate linguistic authenticity as a distinct outcome variable, separate from engagement and short-term achievement metrics, since AI fluency at the sentence level does not guarantee cultural or pragmatic authenticity [12].



This study has limitations. As a literature-based synthesis, it reports findings already published by other researchers rather than directly measuring lexical density, syntactic complexity or readability in a first-hand corpus of application texts, and its evidence base is weighted toward a small number of widely studied tools (principally Duolingo, Kahoot! and WordBricks), which limits generalization to the full diversity of gamified CALL products on the market. Future research should combine direct corpus-linguistic analysis of texts sampled across a broader range of gamified applications with longitudinal studies tracking whether practice within these tools transfers to learners' performance in genuine, unscripted communicative situations.

CONCLUSION

This article examined the linguistic value and real-world relevance of texts used in gamified CALL tools through a two-dimensional evaluative framework grounded in the existing literature. The evidence reviewed indicates that achievement-oriented gamification mechanics have been implemented consistently and effectively, while the texts and tasks they deliver remain disproportionately weighted toward isolated vocabulary and sentence-level items, and effectiveness research has correspondingly prioritized measurable academic achievement over communicative, real-world competence. Rather than treating gamification and linguistic authenticity as opposed goals, the findings suggest that the current asymmetry can be narrowed through deliberate design choices: embedding authentic, discourse-level texts within gamified structures, rewarding task authenticity rather than only response speed or accuracy, and evaluating AI-generated and human-authored content alike for cultural and pragmatic authenticity rather than for grammatical correctness alone. Achieving this balance would allow gamified CALL tools to retain their demonstrated motivational strength while more fully serving learners' ultimate goal: the ability to use language competently in the real world.

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