



# **AI-SUPPORTED GAMIFIED MATERIALS FOR PRE-SERVICE EFL TEACHERS IN UZBEKISTAN: OPPORTUNITIES AND CHALLENGES IN A REFORM-DRIVEN CONTEXT**

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## **Abstract**

The integration of generative artificial intelligence (GenAI) with gamification has emerged as a powerful approach to enhance English as a Foreign Language (EFL) teaching material. This article reviews recent developments (2023–2025) in AI-supported gamified materials, focusing on their design, implementation, and impact on learner outcomes such as vocabulary retention, motivation, engagement, and communicative competence. Drawing on systematic reviews and empirical studies, it examines how GenAI tools (e.g., ChatGPT, custom bots) generate adaptive content, personalized feedback, and interactive narratives, while gamification elements (quests, badges, leaderboards) sustain interest and reduce anxiety. Key findings indicate superior long-term retention from AI-generated storytelling compared to traditional gamified apps (e.g., Duolingo), with benefits in immersion, cultural relevance, and individualization. Challenges include potential biases, over-reliance on extrinsic rewards, and accessibility gaps. The article argues for principled integration that aligns with TESOL materials development theories (Tomlinson, 2023; Afitska, 2016) to create equitable, context-sensitive resources. Future directions emphasize ethical design, longitudinal studies, and teacher training to maximize AI-gamification's potential in diverse EFL contexts.

**Keywords** Generative AI, Gamification, AI-Supported Materials, EFL Teaching, Language Learning, Vocabulary Acquisition, Motivation, Engagement, Personalized Learning, Adaptive Feedback, Digital Pedagogy, TESOL Innovation.



## **Introduction**

The convergence of generative artificial intelligence (GenAI) and gamification represents one of the most promising innovations in English as a Foreign Language (EFL) teaching materials development. GenAI tools, such as ChatGPT, Claude, and custom language models, enable the rapid creation of adaptive, personalized content—including stories, dialogues, quizzes, and feedback—while gamification incorporates game-like elements (e.g., quests, badges, progress tracking, leaderboards) to boost motivation and engagement. Together, they address longstanding challenges in EFL: sustaining learner interest, providing individualized scaffolding, and supporting long-term retention in resource-constrained or multilingual settings.

Recent empirical research (2023–2025) has shifted from exploratory studies to more robust evaluations of integrated AI-gamified systems. Systematic reviews and experimental work highlight measurable gains in vocabulary acquisition, communicative competence, and affective factors like reduced anxiety and increased self-efficacy. This article synthesizes key findings, examines design approaches, and discusses implications for materials developers and educators in TESOL.

## **Theoretical Foundations**

Materials development in TESOL emphasizes principled, learner-centered design that promotes engagement, authenticity, and autonomy (Tomlinson, 2023). Tomlinson critiques overly generic or commodified resources, advocating for materials that respond to local contexts and foster meaningful interaction. Afitska (2016) outlines six core principles for effective materials in multilingual/non-native speaker settings: explicit support for language and subject knowledge, L1 integration, learner autonomy, out-of-class learning, suitability for diverse learners, and stakeholder involvement (extended in Afitska & Clegg, 2022).

Gamification enhances these principles by introducing motivational mechanics rooted in self-determination theory (autonomy, competence, relatedness). Recent reviews confirm gamification's positive effects on EFL motivation, engagement, and outcomes, particularly when combined with adaptive technologies (Zhang & Hasim, 2023; Helvich et al., 2023). GenAI adds personalization: adaptive paths, real-time feedback, and context-rich content (e.g., culturally relevant narratives) that align with individual proficiency and interests.

## **Key Developments in AI-Supported Gamified Materials**

**1. AI-Generated Storytelling vs. Traditional Gamification** A 2025 experimental study compared AI-generated interactive narratives with gamified apps (e.g., Duolingo) and conventional methods for intermediate EFL vocabulary learning. Over four weeks, the AI storytelling group outperformed both others in immediate and delayed retention tests, attributing success to immersive, meaningful contexts that embedded target vocabulary. Gamified learning improved outcomes over traditional methods but less profoundly, with learners finding it enjoyable yet less deep. Qualitative data revealed higher engagement in the AI group due to personalization and narrative flow (study from *Computers and Education: Artificial Intelligence*, 2025).

**2. AI-Powered Gamified Models for Engagement and Collaboration** Multiple 2025 studies developed and validated instructional models integrating AI, gamification, and collaboration in EFL classrooms. These models use GenAI for dynamic content generation (e.g., adaptive role-plays, group quests) and gamification for real-time feedback and rewards. Results showed significant gains in motivation, vocabulary retention, communicative competence, and collaborative skills. One validated model emphasized AI as a facilitator of learner-centered engagement, reducing teacher workload while sustaining interaction (*Higher Education Studies*, 2025).

**3. Gamified Flipped Classrooms with AI Tools** Research on AI-powered gamified flipped classrooms (e.g., using Duolingo) demonstrated improvements in speaking skills, confidence, and perceptions among EFL learners. The gamified pre-class activities shifted content delivery, allowing in-class focus on interaction. AI adaptation and game elements reduced anxiety and increased consistent practice, with positive perceptions of enjoyment and usefulness (*Cogent Education*, 2025).

**4. AI Gamification for Specific Skills and Motivation** Studies examined AI-enhanced gamification's impact on vocabulary, listening, and nonlinear dynamic motivation. Adaptive paths, conversational agents, and storytelling outperformed traditional methods in outcomes and motivation. One comparison showed AI gamification fostering higher engagement and long-term retention through



personalized, meaningful experiences (Education and Information Technologies, 2025).

**5. Broader Trends and Tools** Platforms like Duolingo, Memrise, and custom bots combine AI adaptation with gamification for vocabulary, pronunciation, and skills practice. Reviews highlight benefits in autonomy, real-time feedback, and reduced cognitive load, though challenges include extrinsic motivation reliance and accessibility (Frontiers in Education, 2024–2025).

### **Challenges and Considerations**

While benefits are evident, challenges include AI biases (cultural/linguistic insensitivity), digital divides, over-reliance on extrinsic rewards, and ethical concerns (data privacy, academic integrity). Mitigation requires prompt engineering, hybrid delivery, teacher training, and ethical frameworks aligned with TESOL principles.

### **Implications for Practice and Future Research**

AI-supported gamified materials offer transformative potential for EFL: more engaging, personalized, and effective resources that support autonomy and competence. Developers should prioritize cultural relevance, inclusivity, and integration with established theories (Tomlinson, 2023; Afitska, 2016).

Future research should:

- Conduct longitudinal studies on sustained effects.
- Explore scalability in diverse contexts.
- Investigate teacher roles in AI-gamified environments.
- Develop validated frameworks for ethical implementation.

By responsibly integrating AI and gamification, educators can create dynamic, equitable EFL materials that meet 21st-century needs.

### **References**

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