
Gamification in Second Language Acquisition: Cognitive and Affective Implications for Language Learning

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Abstract

With digital technology shaping education, gamification has played a key role in Second Language Acquisition (SLA). This paper presents a critical analysis of the cognitive and affective effects of gamification on Pakistani EFL students, for whom exam-gearred approach to teaching and motivation are significant. This study combines four theoretical constructs (cognitive load, affective filter, self-determination, and sociocultural theory) and investigates how gamified environments can affect attention, memory, anxiety, motivation and collaborative learning. A qualitative meta-synthesis of international and local empirical research demonstrates that gamification might facilitate the retention of vocabulary learning, mitigate affective barriers of learners, increase learner autonomy, and facilitate peer interaction. It discusses gamification as a comprehensive transformative approach to ESL teaching in Pakistan, and ends with practical implications for the classroom use, and implications for future research.

Keywords: Gamification, SLA, ESL, Cognitive load, Affective filter, Motivation, Sociocultural theory

1. Introduction

There are system and pedagogical issues confronting SLA in Pakistan, such as less participants' involvement, traditional teaching practices and low-level motivation of learners. Standard language classes in English generally involve learning by rote method, teacher-centered lectures and little communication in the practice of speaking and writing skill. These problems are particularly acute in public and low-income private schools, examining driven curriculum with minimal opportunities for creativity or learner independence.

In the wake of these struggles, gamification — the use of game elements such as points, badges, levels, and leaderboards in non-game contexts — has proven to be a novel way out. Gamification adds layers of playfulness to educational activities, and turns boring, mundane or abstract subjects into engaging, interactive lessons promoting deep learning (Deterding et al., 2011). For SLA, it coheres with the requirement of persistent motivation, less anxious surroundings, and communication-oriented language interaction.

The present study aims at investigating cognitive and affective potentials of gamification in SLA, and its practical possibility in Pakistani ESL classrooms. Based on the predominant theories of learning and motivation, it discusses the ways in which gamification can affect English language teaching practices, particularly in low-resource and exam-oriented systems of instruction.

2. Research Objectives and Questions

2.1 Research Objectives:

- To examine the cognitive gain of gamification in SLA, attention, memory, and processing efficiency.
- To investigate the affective benefits of gamification, such as motivation, confidence, and language anxiety.
- To critically assess the feasibility of gamification in the Pakistani ESL classroom.

2.2 Research Questions:

1. What are the cognitive benefits of gamification to second language learning?
2. To what degree does gamification impact on affective facets, such as motivation, engagement, and anxiety?
3. How can gamification be successfully integrated in ESL classes in Pakistan?

3. Theoretical Framework

In order to explore the cognitive and affective role of gamification in SLA, this research is underpinned by four established learning theories. They offer theoretical and pedagogical justification for how gamification may improve language learning results.

3.1 Cognitive Load Theory (CLT)

The instructional strategy video type aimed to apply key principles of cognitive load theory, which is a theory that is grounded on human information processing and is frequently used in educational research in order to understand the effects mode of instruction has on learning outcomes, and how these effects can be optimized based on instructional strategies (Sweller et al., 2011).

According to Cognitive Load Theory (Sweller, 1988) working memory is of limited capacity and the instructional goal should be to reduce extraneous cognitive load. By using gamified tasks—leveled challenges, visual incentives, and active problem-solving—learners can drip-feed themselves linguistic knowledge. Apps such as Duolingo, present grammatical and vocabulary items in bite-sized pieces whilst giving feedback, and thus promoting deep processing and retention (Mayer, 2014). GPEL More specifically, in Pakistani ESL teaching and learning, where traditional learning materials tend to be rather dense and decontextualized, the gamification of contents may alleviate information overload and provide learners with more intuitive and visually enhanced content that can scaffold learner performance and use.

3.2 Affective Filter Hypothesis (AFH).

According to the Affective Filter Hypothesis (AFH) proposed by Krashen (1982), psychological issues such as anxiety, fear, and boredom interferes with the language learning process by impeding comprehension, hence comprehensible input. Games engage through exploration and experimentation in a low-stress environment. Tools like Kahoot! or Classcraft empower introverted students to participate without revealing themselves, boosting their confidence in speaking and understanding. In Pakistani context where students are shy and reluctant to engage because of fear of being judged or low self-esteem, there is a reduction of affective filter, greater classroom interaction is promoted as a result of gamification.

3.3 Self-Determination Theory (SDT)

SDT is a theory of human motivation that explains the relationship between motivation and behaviour, relying on the motivation continuum from amotivation to extrinsic motivation, integrated regulation, and intrinsic motivation (Deci & Ryan, 1985).

According to Self-Determination Theory (Deci & Ryan, 2000), intrinsic motivation is enhanced when learners feel autonomous, competent, and related to others. Gamification responds to these needs through learner autonomy, progress monitoring, and peer support. Classroom games where students are part of teams or are earning badges often serve to motivate and reward in ways lectures and grading seldom do. Especially in a context like that of Pakistan, where teaching tends to be top-down and exam-oriented, gamification provides students ownership of their learning and real motivation to practice the language as much as possible.

3.4 Sociocultural Theory (SCT)

ZPD Sociocultural Theory (Vygotsky, 1978) explains learning as a socialized mediated process that takes place in the Zone of Proximal Development (ZPD). ESL tasks gamified with team cooperation (e.g., storytelling games, peer quizzes or classroom contests) are working for scaffolding accomplishment. Teachers and other learners are perceived as mediators for performance, allowing learners to complete tasks that are just beyond their level of competence. In Pakistani ESL classrooms, characterized by large class sizes and limited teacher–student interaction, peer-led gamification provides an inclusive, social approach to language learning.

Combined, these four frameworks give a comprehensive view of how gamification appeals to learners cognitively, emotionally, and socially. The next section turns to the literature that has tested these theoretical formulations.

4. Literature Review

4.1 Global Perspectives

Scholarly attention to gamification in SLA has been carried out around the world. Dehghan et al. (2019) confirmed that gamified apps improved vocabulary learning and user motivation of EFL learners. Plass et al. (2015) the game-based environment decreases the fear of failure and supports learners to process complex language structures. Su and Cheng (2015) observed motivation and attention improvement among learners who used mobile gamified teaching platforms, whereas grammar learning was more effective and more enjoyable in gamified settings (Hsu, 2017). Gamification has a heritage as a fashion in education in the early 10s that has been pushed into the mainstream through digital means and low tech iterations. It is welcomed as an attempt to correlate 21st-century competencies with cognitive engagement and emotional security.

4.2 Ethnic and Pakistani Context

Usage of Gamification in South Asia is on the rise. Siddiqui and Mahmood (2020) studied gamified vocabulary in Karachi ESL classes and discovered that learner retention and absenteeism were significantly decreased. Ali and Anwar (2021) found that public schools reported greater levels of engagement and peer work through game-based activities in the form of simple spelling bees and role-play. However, there are still infrastructural challenges. As Rehman and Sultana, (2019) reported; rural schools of the Pakistan do not have access to the internet or even smart devices. Furthermore, teachers are not adequately prepared for game-based pedagogy, and game playing is sometimes erroneously viewed as unproductive play rather than learning.

Although worldwide research alludes to the potential of gamification subscribing to the gamification strong positive influence theories in linguistic abilities there is limited available research that touches on the combined cognitive-affective impact of gamification in these developing, examination contexts such as that in Pakistan. Local studies are mostly small and no theory-based. This paper addresses this lacuna by drawing upon global SLA theory with empirical and practical knowledge from Pakistani ESL contexts.

5. Methodology

5.1 Research Design

This investigation is based on a meta-synthesis method to review and synthesize published articles, and theoretical literature to provide comprehensive theoretical insights. It is an appropriate design to pursue interdisciplinary SLA studies, particularly when cultural, psychological, or instructional factors overlap (Sandelowski & Barroso, 2006).

5.2 Data and Source of Data

Forty-five peer-reviewed articles from 2010–2025 were identified on databases: ERIC, JSTOR, Scopus and Google Scholar.rawQueryOR(Lee et al. Keywords used for searching were “Gamification in SLA”, “Language learning and motivation”, “Gamified instruction in ESL”, and “Gamification in Pakistani classrooms”. Eighteen studies were included in the review after relevance and credibility screening.

5.3.1 Inclusion and exclusion criteria

The inclusion criteria were peer-reviewed articles and empirical reports in the SLA, ESL or EFL setting primarily in developing countries. Non-English publications, game design papers that did not support pedagogical focused findings, and non-peer-reviewed results were excluded.

5.4 Analytical Approach

With reference to Braun and Clarke's (2006) thematic analysis, data were extracted to examine the prevalence of topics such as ‘motivation’, ‘memory retention’, ‘language anxiety’ and ‘social engagement’. These codes were subsequently subsumed into the four theoretical frameworks. Triangulation was done with the help of local case studies and national reports about ESL in Pakistan.

Although meta-synthesis enables deep theoretical synthesis, our study is weak as secondary data. There were no classroom observations or interviews, which may limit the depth of the contextual knowledge. However, the analysis follows an empirical and theoretical evidence.

6. Analysis and Discussion

6.1 General Theories of Cognitive Processing

Learning apps that offer gamified tools chunk information for ESL learners in Pakistan which assist in keeping up with vocabulary and grammar. Apps such as quizlet also offer opportunities for repeated exposure and immediate feedback – facilities which facilitate memory consolidation and minimize extraneous cognitive load – helping overall performance.

6.2 Emotional Profits and Language Confidence

Gamification also builds emotional support. Even tools like Kahoot! include anonymity. Lessening Learner Embarrassment An instance of anxiety being reduced is when learners are apprehensive even of the outcome of being embarrassed. Additionally, within the more conservative classroom, these low-stakes speaking tasks foster a gentle increase in confidence, and overcome damage to the affective filter (especially for girls).

6.3 Motivation and Autonomy

Learners for instance, developing their proficiency can gain a feeling of accomplishment by advancing up to a higher “level” and obtain a sense of mastery when they reach their goals (as represented by gaining digital badges) that may help develop intrinsic motivation and learner autonomy. Even non-digital games, such as vocabulary races or grammar relay tasks, promote student-centered learning and student engagement in resource-constrained classrooms.

6.4 Social collaboration and cultural mediation

Gamified multiplayer activities encourage peer feedback, collaborative learning, and scaffolded instruction. These exchanges are also an example of the sociocultural ideals of ZPD, where learners help one another in their development through dialogue and collective problem solving. In the large Pakistani classroom, gamified learning with peers offers a more socially engaging alternative to one-size-fits-all instruction. Collectively, these results underscore gamification's promise to nurture holistic (both cognitive, affective, and social) language development across the whole person and particularly in resource-strapped settings.

Conclusion

Gamification challenges upon two combined pedagogical concerns: cognitive-processing and emotional health of SL learners. Appropriately designed and adapted to the context, gamification can enhance retention, lower language anxiety, and foster motivation and autonomy. In Pakistan's examination-oriented, resource-limited classrooms, gamification is a feasible and a participatory school reform option. The potential of game-based pedagogy can be realized only if pre-service and in-service teacher training programs are grounded in it. Curriculum developers and school leaders should also understand the value of incorporating low-cost (culturally appropriate) games—be it storytelling challenges, team quizzes, among others, particularly in the absence of digital infrastructure. Furthermore, evaluative regulations should change to allow for collaborative, as well as, process-oriented learning that the gamification promotes. More generally in the field of Applied Linguistics, this paper supports the argument that theoretical and sociocultural bases are of a paramount importance for educational innovation. Long-term implications of gamification for fluency, learner identity and equity in different classroom settings in Pakistan need to be further investigated in further studies.

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