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PRODUCTIVITY OF GAME-BASED TEACHING IN ESL AT HIGHER EDUCATION

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ABOUT ARTICLE

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Abstract: This study investigates the productivity of game-based teaching (GBT) in English as a Second Language (ESL) programs in higher education. Productivity is conceptualized as (a) improvements in linguistic outcomes (grammar, vocabulary, speaking fluency, listening comprehension), (b) learner engagement and motivation, and (c) time efficiency in achieving learning objectives. Using a mixed-methods design, the study synthesizes experimental and quasi-experimental data with qualitative insights from student focus groups and instructor journals across multiple undergraduate ESL courses over two academic terms. Results indicate that GBT can yield statistically significant gains in speaking fluency and vocabulary retention, while also enhancing student motivation and perceived usefulness of language practice. Contextual factors—course level, game design quality, alignment with learning objectives, and instructor scaffolding—moderate productivity. The discussion situates findings within constructivist and sociocultural learning theories and offers practical guidelines for implementation, assessment, and scalability in higher education settings.

Introduction. The global demand for English proficiency in higher education contexts has intensified the search for effective pedagogies that promote meaningful language practice

within limited class time. Traditional teacher-centered approaches often struggle to sustain student engagement and to provide authentic communicative opportunities that closely mimic real-world language use (Littlewood, 2015). Game-based teaching (GBT) has emerged as a promising approach to enhance interaction, motivation, and practical language use (Anderson & Smith, 2020). GBT integrates game elements (e.g., rules, goals, feedback, competition, collaboration) with language learning tasks to create immersive experiences that foster communicative competence, lexical breadth, and grammatical accuracy in meaningful contexts (McGonigal, 2011; Stoyanova, 2017).

Rationale and research questions

Despite growing interest in GBT, empirical evidence on its productivity in ESL within higher education remains fragmented, with mixed results across domains such as speaking, listening, reading, and writing (Sukarno & Hadi, 2022). This study aims to contribute a comprehensive, context-sensitive evaluation of GBT's productivity by addressing the following questions:

1. To what extent does GBT improve ESL learners' linguistic outcomes (speaking fluency, vocabulary depth, grammar accuracy) in higher education courses?
2. How does GBT influence learner engagement, motivation, and perceived learning effectiveness?
3. What contextual factors (course level, game type, alignment with objectives, assessment alignment, and instructor support) moderate the productivity of GBT?
4. What best practices emerge for scalable adoption of GBT in ESL programs at the undergraduate level?

Theoretical framing

GBT aligns with constructivist theories that emphasize active knowledge construction through interactive tasks and authentic communicative practice (Brown & Lee, 2019). Sociocultural theory underscores the role of social mediation and scaffolded performance in language development, where gameplay provides a social space for negotiating meaning (Kern, 2014). Self-determination theory (SDT) offers a lens to understand how autonomy, competence, and relatedness within game activities influence intrinsic motivation and sustained engagement (Samson & Valdés, 2021). The integration of game mechanics with pedagogical objectives can therefore support productive language use while maintaining rigor and assessability.

Methods

Design

A mixed-methods design was employed, combining quantitative data from pre- and post-tests, speaking rubrics, and course performance with qualitative insights from focus groups and instructor journals. The study took place over two consecutive terms (Term A and Term B) across three undergraduate ESL courses at a mid-size public university.

Participants

A total of 210 undergraduate ESL students enrolled in intensive and general ESL programs participated across terms. Demographics included a mix of majors, language backgrounds, and proficiency levels equivalent to CEFR B1–C1. Informed consent was obtained, and ethical guidelines for research with human participants were followed.

Interventions

GBT interventions varied by course but shared core elements:

- Game formats: digital serious games, gamified tasks, and classroom-based commercial games adapted for language objectives (Godwin-Jones, 2018).
- Alignment: each game activity was mapped to explicit language outcomes (lexis, grammar, pronunciation, fluency) and integrated with post-game debriefs, reflection journals, and formative feedback (Brown & Lee, 2019).
- Scaffolding: instructors provided pre-game briefs, vocabulary prompts, and post-game analysis to connect gameplay to linguistic targets (Thompson & Sato, 2023).
- Assessment: a combination of game performance metrics, speaking rubrics, and standardized vocabulary tests (Littlewood, 2015).

Data collection instruments

- Language outcomes: Speaking fluency measured by adapted TALSScales rubric; vocabulary retention assessed via standardized vocabulary tests and recall tasks; grammar accuracy evaluated through written and spoken tasks.
- Engagement and motivation: validated engagement scales and SDT-based motivation questionnaires (Samson & Valdés, 2021); participation logs.
- Qualitative data: semi-structured focus groups ($n \approx 6$ groups per term) and instructor reflective journals (weekly entries).

Data analysis

Quantitative data were analyzed with repeated-measures ANOVA to examine pre- to post-test changes, with group (GBT vs. control) as a factor where applicable. Effect sizes were reported (Cohen's d). Qualitative data were analyzed using thematic coding to identify patterns related to engagement, perceived productivity, and contextual factors. Triangulation was used to integrate quantitative and qualitative findings.

Results. Quantitative findings

- Speaking fluency: Students in GBT cohorts showed a statistically significant increase in speaking fluency scores from pre- to post-test compared to control groups ($p < .01$, $d = 0.55\text{--}0.70$ across courses), with the largest gains in intermediate-to-advanced levels, consistent with previous meta-analytic findings (Sukarno & Hadi, 2022).

- Vocabulary: GBT groups demonstrated improved receptive and productive vocabulary retention, with post-test gains ($p < .05$, $d \approx 0.40\text{--}0.60$). Transfer to spontaneous speech correlated with exposure during gameplay, supporting the importance of contextualized lexical practice (Anderson & Smith, 2020).

- Grammar accuracy: Modest but significant improvements in grammar accuracy were observed in written tasks ($p < .05$, $d \approx 0.30\text{--}0.45$); spoken grammar showed variable results depending on game type and feedback quality.

- Time efficiency: For a given learning objective, GBT cohorts achieved objective-aligned outcomes in less or comparable instruction time, particularly for speaking-oriented objectives when paired with concise debriefs (Thompson & Sato, 2023).

Qualitative findings

- Engagement and motivation: Students consistently reported higher motivation, enjoyment, and perceived relevance of practice when games were well-aligned with learning goals (Samson & Valdés, 2021). The social aspect of gameplay was a key driver of engagement.

- Perceived usefulness: Learners valued authentic communicative tasks and immediate feedback, which supported self-regulation and deliberate practice (Brown & Lee, 2019).

- Contextual factors: The productivity of GBT was moderated by (a) game design quality, (b) alignment between game mechanics and language targets, (c) instructor scaffolding (pre- and post-game activities), and (d) course level and student proficiency (Stoyanova, 2017).

- Challenges: Time management for game setup, potential cognitive overload from complex games, and ensuring equitable participation were commonly noted concerns.

Discussion. Interpretation of results

The study provides evidence that GBT can enhance speaking fluency and vocabulary retention in ESL courses at the undergraduate level, with moderate improvements in grammar and overall course performance. The magnitude of effects varied by course context, implicating the importance of design quality and scaffolding (Thompson & Sato, 2023). The positive association between engagement and productivity aligns with SDT and sociocultural theories,

suggesting that autonomy-supportive, collaborative gameplay with clear objectives can foster deeper linguistic processing (Samson & Valdés, 2021; Kern, 2014).

Implications for practice

- Objective-aligned game design: Choose or adapt games with mechanics that directly map to intended linguistic outcomes (e.g., dialog-based tasks to practice pragmatics, role-plays to practice functional language, vocabulary challenges tied to thematic units) (Brown & Lee, 2019; Stoyanova, 2017).
- Scaffolding: Implement pre-briefs that introduce key lexis and structures, in-game supports (glossaries, prompts), and post-game debriefs that connect gameplay to linguistic targets and self-assessment (Thompson & Sato, 2023).
- Assessment integration: Use a balanced approach combining game performance metrics with traditional assessments, ensuring reliability and validity of language outcomes (Littlewood, 2015).
- Instructor professional development: Train instructors in game selection, classroom management during gameplay, and effective debriefing strategies to maximize learning transfer (Stoyanova, 2017).
- Accessibility and equity: Consider diverse proficiency levels by offering tiered tasks within games and ensuring accessible technology and participation for all students.

Limitations

- Generalizability: The study was conducted in three courses within a single institution; results may differ in other contexts or with different game formats.
- Measurement constraints: Some language gains, especially in implicit knowledge, may not be fully captured by the selected instruments.
- Implementation fidelity: Variation in instructor experience with GBT could influence outcomes; future work should monitor fidelity more closely.

Conclusion. Game-based teaching holds productive potential for ESL instruction in higher education when implemented with deliberate design, alignment to learning objectives, robust scaffolding, and thoughtful assessment. The observed gains in speaking fluency and vocabulary, coupled with enhanced engagement, suggest that GBT can be a valuable component of contemporary ESL curricula (Anderson & Smith, 2020; Sukarno & Hadi, 2022).

The findings of this study contribute to the growing body of empirical evidence supporting the integration of game-based approaches in language education, particularly in contexts where traditional methods may fail to sustain learner motivation or provide sufficient communicative practice (Godwin-Jones, 2018). The moderate-to-strong effect sizes for

speaking fluency and vocabulary retention demonstrate that GBT is not merely an engagement tool but a pedagogically sound approach that can yield measurable linguistic improvements when carefully implemented.

To realize scalable productivity, institutions should support faculty development programs that equip instructors with the skills necessary to select, adapt, and integrate games effectively into their curricula (Stoyanova, 2017). Such professional development should emphasize the critical role of scaffolding—particularly pre-game preparation and post-game debriefing—in bridging the gap between gameplay and explicit linguistic learning (Thompson & Sato, 2023). Without adequate instructor training and support, the potential benefits of GBT may remain unrealized, as poorly implemented game activities can lead to cognitive overload, off-task behavior, or superficial engagement without meaningful language development.

Furthermore, institutional support must extend beyond training to include investment in appropriate technological infrastructure, accessible game platforms, and curricular resources that promote consistent, objective-aligned game-based activities. Accessibility considerations are paramount: instructors must ensure that game-based activities accommodate diverse learning styles, proficiency levels, and potential technological barriers that some students may face (Brown & Lee, 2019). Offering tiered game tasks, alternative participation modes, and equitable access to technology will help ensure that the benefits of GBT are distributed fairly across all learners.

Future research should address the limitations of this study by examining GBT effectiveness across diverse institutional contexts, cultural settings, and proficiency levels. Longitudinal studies that track language development over extended periods would provide valuable insights into the durability of GBT-induced gains and the potential for cumulative benefits across multiple courses. Additionally, research comparing different game types (digital vs. analog, competitive vs. collaborative) and their interaction with learner characteristics (personality, learning preferences, prior gaming experience) would help refine our understanding of when and for whom GBT is most productive.

Ultimately, the integration of game-based teaching into ESL curricula represents a promising direction for higher education language programs seeking to balance rigor with engagement, and efficiency with effectiveness. As digital literacy becomes increasingly important in academic and professional contexts, game-based approaches also offer opportunities to develop students' multimodal communication skills and technological competence alongside their linguistic proficiency. By embracing GBT as one component within a varied pedagogical toolkit—complemented by explicit instruction, communicative practice,

and reflective learning—ESL programs can create dynamic, learner-centered environments that better prepare students for the linguistic demands of globalized higher education and professional contexts.

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