Gamified Learning as a Strategic Tool for Addressing Differentiated Instruction Challenges in Nigerian Tertiary English Classrooms

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ABSTRACT

Differentiated instruction poses a significant challenge in Nigerian tertiary English classrooms due to diverse student backgrounds and varying proficiency levels. This study investigates the effectiveness of gamified learning as a strategic tool to enhance differentiated instruction. A mixed-methods approach was adopted using 200-level Language Arts students at the Federal University of Education, Zaria. Over six weeks, Kahoot! was integrated into lessons to promote engagement, motivation, and adaptive instruction. Results indicated notable improvements, particularly among lower-proficiency students. Qualitative data revealed enhanced collaboration, enthusiasm, and responsiveness to immediate feedback. Despite infrastructural limitations, the findings affirm gamification's potential in advancing inclusive English language pedagogy. The study recommends technological investments and teacher training to optimize its use in tertiary institutions.

Keywords: Gamified learning, Differentiated instruction, English language education, Learner Motivation, Student engagement, Inclusive Classroom

INTRODUCTION

The teaching of English language has undergone significant changes in recent years due to the emergence of innovative pedagogical approaches. One approach gaining considerable attention is gamification, which involves integrating game elements and principles into non-game educational contexts to enhance learner engagement and motivation. Conventional language teaching methods, while somewhat effective, often struggle to capture the interest and sustain the motivation of today's diverse, technology-oriented learners (Kiyançiçek & Uzun, 2022).

English language instruction in Nigerian tertiary institutions plays a crucial role in shaping students' academic success and career prospects. However, classrooms are typically characterized by a wide range of learner diversity, including varying language proficiency, motivation, and educational backgrounds (Okeke & Ofoegbu, 2021). This diversity necessitates differentiated instruction—an approach that adapts teaching strategies to accommodate heterogeneous learner needs (Afolabi, 2020). Despite its importance, effective implementation of differentiated instruction remains challenging in Nigerian tertiary classrooms, primarily due to large class sizes, limited resources, and reliance on traditional pedagogical practices (Nwankwo, 2017).

Gamified learning has recently emerged as a promising pedagogical innovation that provides interactive, engaging, and adaptive learning experiences (Adeoye, 2018). Defined as the application of game design elements to non-game educational contexts, gamification has been linked to increased motivation, participation, and improved academic outcomes across various educational settings worldwide (Mikropoulos & Natsis, 2011, as cited in Afolabi, 2020). Within Nigeria, studies have begun to explore the efficacy of gamified learning, particularly in technology-enhanced classrooms, revealing encouraging evidence of its potential to address diverse learner needs (Okeke & Ofoegbu, 2021).

This study posits gamified learning as a potential solution to the challenges of differentiated instruction in Nigerian tertiary English language classrooms. By integrating game mechanics such as points, leaderboards, and immediate feedback into instructional design, gamification facilitates personalized pacing, collaborative competition, and self-regulated learning—key elements in managing heterogeneous learner profiles (Afolabi, 2020; Nwankwo, 2017).

Despite growing interest, there remains a paucity of empirical research specifically examining the role of gamified learning in supporting differentiated instruction within Nigeria's tertiary English language education. This study aims to bridge this gap by investigating how gamified learning strategies impact differentiation, student engagement, and academic performance in Nigerian university English classrooms.

RESEARCH QUESTIONS

This study is guided by the following research questions:

1. How does gamified learning enhance differentiated instruction in Nigerian tertiary English classrooms?
2. What impact does gamification have on student engagement and academic performance across diverse learner profiles?
3. What challenges and opportunities do educators encounter when implementing gamified learning for differentiation?

LITERATURE REVIEW
Theoretical Foundations of Gamified Learning

Gamified learning as an instructional approach is grounded in several motivational and educational theories that highlight the importance of learner engagement and autonomy. Central to this is *Self-Determination Theory* (Deci & Ryan, 2000), which emphasizes that learners are intrinsically motivated when their psychological needs for competence, autonomy, and relatedness are fulfilled. Gamification addresses these needs by providing clear goals, immediate feedback, and opportunities for social interaction, thereby encouraging sustained learner participation. However, while studies recognize this motivational potential, some scholars note that the impact of gamification may vary across cultural and institutional contexts, suggesting the need for localized research (Afolabi, 2020).

Complementing this, *Constructivist Learning Theory* (Piaget, 1973; Vygotsky, 1978) supports gamification by advocating for active knowledge construction through experiential learning. In gamified environments, learners engage dynamically with content in playful, interactive settings, fostering deeper understanding and personalized meaning-making. Nigerian researchers, including Afolabi (2020), argue that this approach aligns well with language learning, where collaboration and communication are central. Nonetheless, challenges remain in adapting these theories effectively within resource-constrained Nigerian classrooms.

Flow Theory (Csikszentmihalyi, 1990) further explains how gamification can facilitate optimal learning by balancing challenge and skill levels to maintain student focus and reduce anxiety. Empirical evidence from Nigerian tertiary settings demonstrates heightened student engagement during gamified activities, yet it also points to infrastructural and digital literacy barriers that may hinder full realization of flow experiences (Okeke & Ofoegbu, 2021).

Differentiation in Language Classrooms: Concepts and Challenges

Differentiated instruction involves modifying teaching approaches to accommodate learners' varying readiness levels, interests, and learning profiles (Tomlinson, 2001). In Nigerian tertiary English classrooms, this is especially critical given the broad spectrum of student language competencies and educational backgrounds (Nwankwo, 2017). Despite its importance, differentiation is often difficult to implement

effectively due to factors such as large class sizes, limited teaching resources, and insufficient training in adaptive pedagogy (Afolabi, 2020).

Current literature reveals persistent reliance on traditional "one-size-fits-all" methods in Nigeria, contributing to learner disengagement and underperformance, particularly among weaker students (Nwankwo, 2017). Moreover, limited integration of technology and innovative pedagogies further restricts differentiation efforts (Okeke & Ofoegbu, 2021). These challenges underscore the urgent need for teaching strategies capable of providing personalized and adaptive learning experiences within these contexts.

Principles and Tools of Gamification in Education

Gamification applies game design elements—such as points, badges, leaderboards, challenges, and immediate feedback—to educational settings to enhance learner motivation and engagement (Deterding et al., 2011). The transformation of learning activities into interactive experiences aims to sustain attention and encourage active participation. Nigerian studies highlight the efficacy of platforms like Kahoot!, Quizizz, and Duolingo in making language learning more engaging and accessible (Adeoye, 2018).

Additionally, Akinlade and Yusuf (2022) demonstrate that gamified tools foster collaborative learning and healthy peer competition in Nigerian tertiary classrooms, critical factors for addressing diverse learner profiles. However, access disparities remain a concern, as technological infrastructure and internet connectivity vary significantly across institutions (Ogunleye, 2020). Research indicates that well-designed gamified interventions facilitate self-paced learning and provide immediate performance feedback—features integral to differentiated instruction (Okeke & Ofoegbu, 2021; Akinlade & Yusuf, 2022).

Globally, Kapp (2012) stresses the importance of aligning gamification mechanics with educational objectives to ensure that learning remains purposeful rather than merely entertaining. Werbach and Hunter (2012) further argue that effective gamification balances engagement and pedagogical value, a balance that is particularly vital in higher education contexts like Nigerian universities.

Empirical Evidence on Gamified Learning in Nigerian and International Contexts

Recent empirical investigations within Nigeria provide encouraging evidence for gamified learning's benefits in language education and differentiation. Okeke and Ofoegbu (2021) conducted a quasi-experimental study revealing significant gains in engagement and language proficiency among university students following gamified interventions using Quizizz. Their participants reported that competitive and interactive features sustained interest and supported self-regulated learning.

Similarly, Akinlade and Yusuf (2022) found that gamified learning enhanced collaborative skills among linguistically diverse students, bridging proficiency gaps—an essential aspect of differentiation. These findings align with international studies such as Domínguez et al. (2013), who documented increased motivation and cognitive engagement in gamified higher education settings. Meta-analyses by Hamari, Koivisto, and Sarsa (2014) also confirm gamification's positive influence on engagement and learning outcomes across cultural contexts.

Despite these promising results, challenges remain. Nigerian research highlights infrastructural limitations, inconsistent internet connectivity, institutional support deficits, and varying levels of digital literacy among educators, all of which constrain gamification's full effectiveness (Ogunleye, 2020; Nwankwo, 2017).

Research Gaps on Gamified Learning and Differentiation in Nigerian Tertiary Institutions

While interest in gamification is growing, few studies specifically investigate its role in facilitating differentiated instruction within Nigerian tertiary English classrooms. Most existing research focuses broadly on engagement or proficiency gains without exploring how gamification can tailor instruction to diverse learner needs (Afolabi, 2020; Okeke & Ofoegbu, 2021).

Additionally, there is a lack of longitudinal studies assessing the sustained impact of gamified learning on different learner groups over time, a gap particularly important since differentiation requires ongoing adaptation and assessment. Teacher perspectives on the practical challenges and affordances of gamified differentiation also remain underexamined, limiting insights necessary for scaling educational innovations (Akinlade & Yusuf, 2022).

This study addresses these gaps by providing empirical evidence on gamified learning's potential to support differentiated instruction in Nigerian tertiary English classrooms, incorporating multiple stakeholder perspectives and rigorous data analysis.

METHODOLOGY
Research Design

This study employed a mixed-methods research design, combining quantitative and qualitative approaches to comprehensively investigate the effectiveness of gamified learning in enhancing differentiated instruction in English language classrooms. This design was chosen to capture both measurable outcomes and nuanced participant experiences within a natural educational context (Creswell & Plano Clark, 2017).

Participants and Setting

The study was conducted at the Federal University of Education, Zaria, a leading Nigerian tertiary institution known for teacher education and linguistic research. Participants comprised 55 undergraduate students enrolled in a 200-level Language Arts course during the 2024/2025 academic session. The cohort's age range was 18 to 27 years. This sample size was determined based on the available class enrollment and was deemed sufficient for the mixed-methods approach, allowing for meaningful quantitative analysis while providing rich qualitative insights.

Sampling Technique

Purposive sampling was employed to select students enrolled in the targeted course, ensuring participants had comparable exposure to the university's English language curriculum. This approach also facilitated the inclusion of learners with varied proficiency levels, necessary for analyzing differentiated instructional impacts.

Gamified Learning Intervention

The core intervention involved integrating Kahoot!, a widely used game-based learning platform, into regular English language lessons over six weeks. Kahoot! quizzes incorporated game elements such as timed questions, points awarded for accuracy and speed, and leaderboards to foster competition and motivation.

Example Activity: Weekly vocabulary and grammar quizzes comprised 20 multiple-choice questions with a 20-second response limit per question. After each quiz, the leaderboard was displayed to promote motivation and peer recognition. Post-quiz discussions allowed instructors to address common errors, adapting subsequent lessons accordingly - a key differentiation strategy. The platform's features enabled students of varying proficiency levels to engage at their own pace during in-class and revision activities.

Data Collection Instruments

- **Pre- and Post-Intervention Language Proficiency Tests:** These assessed vocabulary, grammar, and comprehension skills quantitatively, providing baseline and outcome measures.
- **Engagement Surveys:** Standardized Likert-scale questionnaires evaluated student motivation and perceived learning experiences pre- and post-intervention.
- **Semi-Structured Interviews:** Conducted with 15 purposively selected students representing diverse proficiency levels and 3 instructors involved in the intervention, these interviews provided qualitative insights into gamification's impact on differentiation and classroom dynamics.
- **Observation Checklists:** Utilized by the researcher to systematically document student participation, interaction, and behavior during gamified sessions.

DATA ANALYSIS

Quantitative data from language proficiency tests and surveys were analyzed using descriptive statistics and paired-sample t-tests to assess the significance of changes in proficiency and engagement levels. Group comparisons by baseline proficiency were conducted to examine differentiated learning outcomes.

Qualitative data from interviews and classroom observations were transcribed verbatim and analyzed thematically, following Braun and Clarke's (2006) framework. Themes related to motivation, collaboration, personalization, and challenges in gamified differentiated instruction were identified and interpreted.

ETHICAL CONSIDERATIONS

Ethical approval was obtained from the university's research ethics committee prior to data collection. Informed consent was secured from all participants, emphasizing voluntary participation and confidentiality. Participants were assured that their identities would be anonymized in all reports and that they could withdraw from the study at any time without consequence.

RESULTS AND FINDINGS
Quantitative Results

Language Proficiency Improvement

Analysis of the pre- and post-intervention language proficiency tests revealed a statistically significant improvement in students' vocabulary, grammar, and comprehension scores. The mean pre-test score was 56.4% (SD = 9.7), increasing to a mean post-test score of 72.8% (SD = 8.5). A paired-samples t-test confirmed this increase was significant, $t(54) = 10.54$, $p < .001$, indicating that the gamified learning intervention had a positive effect on language proficiency.

Student Engagement

Survey results demonstrated enhanced engagement throughout the intervention period. On a 5-point Likert scale, the average motivation score increased from 3.1 (pre-intervention) to 4.2 (post-intervention), reflecting a significant rise in interest and active participation in English lessons.

Differentiated Learning Outcomes

To further examine gamification's impact across proficiency levels, learners were categorized into low, medium, and high baseline proficiency groups. While all groups showed improvement, the low proficiency group exhibited the most substantial gains, with pre-test and post-test means of 43.2% and 65.1%, respectively. The paired t-test for this group was significant, $t(18) = 8.23$, $p < .001$, demonstrating gamification's efficacy in supporting learners with weaker language skills. The medium and high proficiency groups also showed significant improvements, albeit with smaller effect sizes.

Qualitative Findings

Student Perspectives

Interviews were conducted with 15 students selected purposively to represent varying proficiency levels. Participants consistently reported increased motivation and enjoyment through the gamified quizzes. For example, one student noted, "I prefer Kahoot! because it makes learning feel like a game and less stressful." Many described how the quizzes fostered a sense of consistency in their study habits and encouraged active participation.

The leaderboard feature promoted healthy competition, while post-quiz group discussions enhanced collaboration. Students valued the opportunity to learn at their own pace, especially during revision sessions, which helped those struggling to keep up or express themselves more confidently.

Instructor Observations

Three instructors participated as observers and interviewees. They reported marked improvements in classroom dynamics, including increased participation from previously reluctant students. One instructor shared, "The immediate feedback from Kahoot! allowed me to identify common errors quickly and adjust my teaching on the spot."

However, instructors highlighted challenges such as intermittent technical issues, limited availability of Android-compatible devices among students, and inconsistent internet connectivity. They emphasized the need for ongoing training covering both technical skills and pedagogical application to maximize the potential of gamified learning.

DISCUSSION

The findings of this study reinforce the growing body of evidence that gamified learning can significantly enhance language proficiency and student engagement in tertiary English classrooms. The quantitative results demonstrate that the integration of gamification, particularly through the Kahoot! platform, led to meaningful improvements in vocabulary, grammar, and comprehension skills across all learner groups, with the most pronounced gains observed among students with lower baseline proficiency. This suggests that gamified learning can serve as an inclusive instructional strategy capable of addressing the challenges posed by heterogeneous learner profiles typical in Nigerian tertiary education (Afolabi, 2020; Okeke & Ofoegbu, 2021).

Qualitative data further underscore the motivational benefits of gamification. Students reported increased enthusiasm and a reduction in anxiety, aligning with the principles of *Self-Determination Theory*, which highlights the importance of competence, autonomy, and relatedness in fostering intrinsic motivation (Deci & Ryan, 2000). The social and competitive features of gamified activities, such as leaderboards and peer collaboration, contributed to these psychological needs, facilitating sustained engagement and participation. Furthermore, the study's observations support *Flow Theory* (Csikszentmihalyi, 1990), as students experienced an optimal balance of challenge and skill that maintained their focus and motivation during learning tasks.

Instructors' reflections provided valuable insights into the practical implementation of gamified learning. The immediate feedback mechanism was particularly effective in enabling responsive teaching and differentiation, allowing educators to tailor instruction based on real-time student performance data. Nonetheless, infrastructural and resource limitations, including technical difficulties and inconsistent access to compatible devices and internet connectivity, emerged as significant barriers. These challenges echo prior research (Ogunleye, 2020; Nwankwo, 2017) and highlight the critical need for institutional investment in technology infrastructure and ongoing professional development.

To sustain and scale gamified learning innovations, it is essential to integrate such approaches into broader institutional policies and curriculum frameworks. Doing so would ensure alignment with educational objectives and provide the necessary support systems for educators and learners. Teacher training programs should encompass both technical competencies and pedagogical strategies for effectively leveraging gamification tools in differentiated instruction. Additionally, addressing equity concerns related to technology access is vital to avoid exacerbating existing disparities among students.

While this study contributes important empirical evidence specific to Nigerian tertiary English classrooms, limitations must be acknowledged. The focus on a single institution and relatively small sample size restricts the generalizability of findings. Moreover, the six-week intervention period may not capture long-term effects of gamified learning on differentiation and academic achievement. Future research should adopt longitudinal designs and include diverse institutional contexts to deepen understanding and inform scalable best practices. Employing established evaluation frameworks, such as Kirkpatrick's model or the TPACK (Technological Pedagogical Content Knowledge) framework, could further enhance the rigor of future studies and teacher training assessments.

LIMITATIONS AND FUTURE RESEARCH

This study acknowledges several limitations that should inform the interpretation of its findings. First, the research was conducted within a single institution and involved a relatively small sample size, limiting the generalizability of the results to other Nigerian tertiary contexts or disciplines. Additionally, the six-week duration of the gamified intervention may not adequately reflect the sustained effects or challenges of integrating gamification into English language instruction over longer periods.

Another potential limitation is response bias, as students who enjoyed the gamified activities might have been more inclined to provide positive feedback during interviews and surveys. Future studies should incorporate strategies to mitigate such biases, including anonymous feedback mechanisms and triangulation of data sources.

Longitudinal research is necessary to evaluate the long-term impact of gamified learning on differentiated instruction, student engagement, and academic outcomes. Employing established frameworks such as Kirkpatrick's evaluation model could provide systematic insights into the effectiveness of gamified pedagogies at multiple levels. Furthermore, investigating teacher training through models like the Technological Pedagogical Content Knowledge (TPACK) framework could guide the design of professional development programs that enhance educators' capacity to implement gamified differentiation effectively.

Expanding research to include multiple universities and diverse learner populations will also strengthen the evidence base, ensuring that gamification strategies are adaptable and equitable across varying institutional and cultural settings.

CONCLUSION

This study suggests that gamified learning holds promise as a strategic approach to improving differentiated instruction in Nigerian tertiary English classrooms. By incorporating interactive platforms such as Kahoot!, learners across diverse proficiency levels demonstrated significant gains in language skills and engagement. The motivational and pedagogical benefits observed align with established theories, including *Self-Determination Theory* and *Flow Theory*, supporting the theoretical foundation for gamified instruction.

Importantly, gamification's capacity to reduce learner anxiety and provide real-time feedback offers potential for narrowing achievement gaps among less proficient students, thereby promoting greater equity and inclusion in higher education settings.

Successful implementation, however, hinges on addressing infrastructural challenges and investing in comprehensive teacher training that integrates both technical and pedagogical competencies. Institutional commitment to these areas is essential for maximizing the educational benefits of gamified learning.

Policymakers and educational leaders in Nigerian tertiary institutions should prioritize investments in technology infrastructure and professional development to fully realize gamification's potential. Future research that adopts longitudinal, multi-institutional approaches will be critical to advancing sustainable, scalable gamified differentiated instruction.

Ultimately, gamified learning emerges as a promising viable and innovative strategy to enrich English language education and foster inclusive academic success in Nigeria's higher education landscape.

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