Investigating the Influence of Gamification Through Technology on Second Language Learning.
"A case study of adolescents students at A2 level at a language private center, AL-Bayda, Libya"

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Abstract

This quasi-experimental study examined the effects of gamification on grammar acquisition and learner engagement among A2-level ESL adolescents at a private language center in Al-Bayda, Libya. Grounded in Csikszentmihalyi's (1990) Flow Theory and Fredricks et al.'s (2004) engagement framework, the study addressed how gamification influences grammar learning and the broader L2 learning process. Forty participants were divided equally into a control group receiving traditional instruction and an experimental group receiving gamified instruction via the Kahoot! Platform across three grammar lessons (present continuous, past continuous, and first conditional). Data were collected through pre- and post-tests and structured observation checklists. Quantitative analysis revealed that the experimental group outperformed the control group in post-tests for the past continuous and first conditional tenses, indicating a positive effect of gamification on grammar learning. Observational data showed heightened cognitive and emotional engagement in the experimental group, though with lower levels of overt verbal participation. These findings suggest that gamification in the Libyan EFL context fosters a "quiet flow" characterized by concentration and collaboration rather than overt performance. The study concludes that context-sensitive gamification can enhance grammar achievement and engagement when implemented through supportive, low-stress game dynamics.

التحقيق في تأثير التلعيب من خلال التكنولوجيا على تعلم اللغة الثانية
دراسة حالة لطلاب المراهقين في مستوى A2 في مركز لغات خاص، البيضاء، ليبيا

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المستخلص

فحصت هذه الدراسة شبه التجريبية آثار التلعيب على اكتساب القواعد ومشاركة المتعلمين بين المراهقين الذين يتحدثون الإنجليزية على مستوى A2 في مركز لغة خاصة في البيضاء، ليبيا. ارتكازا على نظرية التدفق لـ (1990) Csikszentmihalyi's وإطار المُشاركة لـ(2004) Fredricks et al.'s ، الدراسة تناولت كيفية تأثير التلعيب على التعلم النحوي وعملية التعلم في اللغة الثانية الأوسع نطاقا. تم تقسيم أربعين مشاركاً بالتساوي إلى مجموعة ضابطة تتلقى التعليم التقليدي ومجموعة تجريبية تتلقى التعليم بتقنية التلقيم بواسطة منصة !Kahoot لـ ثلاثة دروس قواعد (المضارع المستمر، الماضي المستمر، والجمل الشرطية الأولى). جُمعت البيانات من خلال الاختبارات السابقة واللاحقة وقوائم المراقبة المنظمة. كشف التحليل الكمي أن المجموعة التجريبية تفوقت على المجموعة الضابطة في اختبارات اللاحقة للماضي المستمر والجمل الشرطية الأولى، مما يشير إلى تأثير إيجابي للتلعيب على تعلم القواعد. أظهرت بيانات الملاحظة زيادة المشاركة المعرفية والعاطفية في المجموعة التجريبية، على الرغم من انخفاض مستويات المشاركة اللفظية العلنية. تشير هذه النتائج إلى أن التلعيب في سياق EFL الليبي يعزز "تدفق هادئ" يتميز بالتركيز والتعاون بدلا من الأداء العلني. وتخلص الدراسة إلى أن التلعيب الحساس للسياق يمكن أن يعزز من الإنجاز النحوي والمشاركة عند تنفيذه من خلال ديناميات اللعب الداعمة منخفضة الضغط.

1. INTRODUCTION

Gamification—the application of game-design principles in non-gaming contexts—has been positioned as an innovative approach to improving motivation and learning outcomes through the integration of technology in education (Kapp, 2012). According to Tkachenok and Tumskiy (2019), gamified platforms such as Kahoot and Quizlet provide engaging, low-anxiety environments that promote engagement through challenges and rewards and deliver instant feedback in the context of second language (L2) acquisition. This is especially beneficial for teaching English as a second language (ESL), since these approaches can help bridge the gap between theoretical knowledge and real-world application.

However, the existing body of research on gamification is mainly situated in Western, technologically-resourced environments, often focusing on university-level students (Dichev & Dicheva, 2017). Consequently, its application remains underexplored for adolescent learners in non-Western contexts like Libya, which face distinct socio-cultural and technological challenges. In Libya, for instance, ESL instruction remains largely dependent on traditional, teacher-centered methodologies that prioritize memorization, with limited integration of interactive or technology-driven strategies. This is especially problematic for adolescent learners at the A2 proficiency level, a demographic that requires tailored, engaging approaches to foster motivation and acquire foundational grammar skills effectively.

This study, therefore, investigates the impact of gamification on grammar acquisition and learner engagement among adolescent A2-level ESL learners in Libya. Guided by Csikszentmihalyi's (1990) Flow Theory, which posits that deep engagement occurs when challenges are balanced with skills, the research seeks to determine whether gamified learning can create more effective and motivating language learning experiences within this unique educational context.

1.2 Research Questions and Hypotheses

This study is guided by the following questions and hypotheses:

RQ1: How does the use of gamification impact the second language learning process of adolescent learners in Libya?

H1: Students in the experimental group will show significantly higher engagement than the control group.

H0: There will be no significant difference in engagement levels between the groups.

RQ2: How does gamification influence the acquisition of grammar skills among adolescent ESL learners in Libya?

o   H2: The experimental group will achieve significantly higher post-test grammar scores than the control group.

o   H0: There will be no significant difference in the post-test grammar scores between the groups.

1.3 Objective of the Research

The primary objective is to examine the influence of gamification on L2 learning outcomes for adolescent A2-level learners in Libya. The specific objectives are to:

1. Assess the impact of gamification on grammar acquisition.

2. Evaluate its effectiveness compared to conventional teaching techniques.

3. Provide practical, context-specific insights to address regional research gaps.

1.4 Significance of the Study

By examining the relationship between gamification and Flow Theory in a non-Western setting, the study makes a theoretical contribution. Its practical conclusions aim to help Libyan teachers and curriculum designers develop engaging, effective, and culturally appropriate language-teaching methods that leverage technology to modernize education and improve student performance.

1.5 Scope, Limitations, and Assumptions

The study focuses specifically on A2-level adolescents in a private language center in Al-Bayda, Libya, examining short-term impacts on grammar skills via tools like Kahoot. Limitations include a specific context and sample size, which may affect generalizability, and potential variability in participants' technological familiarity. The research operates on the assumptions of participant honesty, group comparability at the outset, consistent classroom conditions, and the cultural acceptability of the chosen gamified tools.

2.   LITERATURE REVIEW

2.1   Introduction

This review forms the theoretical foundation for examining gamification in the Libyan EFL context. It synthesizes three core parts: the motivational framework of Flow Theory, the multidimensional nature of engagement, and the specific socio-cultural and technological landscape of Libya. This synthesis provides the lens through which this study's findings will be interpreted.

2.2   Theoretical Framework: Flow Theory

Csikszentmihalyi's (1990) Flow Theory serves as the foundation for this study by describing an ideal psychological state of deep engagement in which individuals are fully absorbed in an activity. This state is marked by a balance between skill and challenge, clear goals, quick feedback, and less self-consciousness. Gamified learning environments are naturally designed to foster flow through goal-oriented exercises, progressive challenges, and real-time feedback

mechanisms (Hamari et al., 2014). In the context of learning a second language, flow is essential for encouraging perseverance, lowering anxiety, and providing the kind of consistent practice needed for grammatical accuracy.

2.3   Engagement as a Multidimensional Construct

To accurately assess learner involvement, this study employs the tripartite model of engagement developed by Fredricks, Blumenfeld, and Paris (2004). This framework distinguishes between:

•   Behavioral Engagement: Participation, effort, and verbal contribution.

•   Emotional Engagement: Interest, enjoyment, and a sense of belonging.

•   Cognitive Engagement: Psychological investment, focus, and the use of metacognitive strategies.

This model is essential for a nuanced analysis, as it allows for the possibility that gamification may enhance certain dimensions (e.g., cognitive) without necessarily improving others (e.g., behavioral).

2.4   The Libyan EFL Context

Any pedagogical intervention's efficacy is mediated by its setting. Teacher-centered approaches that emphasize rote memory and grammatical accuracy above communicative skills are the main characteristics of EFL instruction in Libya (Orafi, 2013). This traditional approach, coupled with limited technological resources, creates a classroom dynamic where student passivity is common. Additionally, learner behavior can be influenced by sociocultural norms, such as a collectivist orientation and a sensitivity to public perception (aib, or shame), which may cause competitive game elements like public leaderboards to cause anxiety rather than motivation (Aguilos, Gallagher, & Fuchs, 2022). Thus, adolescent students in this setting represent a distinct group whose need for engaging, developmentally appropriate instruction is frequently unfulfilled.

2.5   Gamification in L2 Learning: A Synthesis

Research shows that well-designed gamification can improve motivation, engagement, and certain language outcomes like vocabulary learning and grammatical accuracy (Arce & Cuadros Valdivia, 2020; Ng, Alias, & Dewitt, 2022). Tools like Kahoot! have proven effective as supplementary resources for grammar practice and formative assessment, largely due to their ability to provide immediate feedback and create an engaging, flow- like state (Hursen & Bas, 2019; Kapsalis, Galani, & Tzafea, 2020).

However, a critical consensus in the literature highlights that the success of gamification is not universal; it is highly context-dependent (Dichev & Dicheva, 2017). Cultural acceptability, pedagogical alignment, and the specific design of the game elements shape its effectiveness.

Therefore, while the global literature supports the potential of gamification, its application within the unique Libyan classroom requires direct empirical investigation.

2.6   Conceptual Synthesis and Research Gap

This study aims to fill a major gap by combining Flow Theory, the multidimensional engagement framework, and insights into the Libyan context. Previous reviews (e.g., Dehghanzadeh & Dehghanzadeh, 2020) have highlighted the Western dominance of gamification research. This study directly responds to that gap by examining how gamification, implemented through a platform like Kahoot!, influences both the cognitive outcome of grammar acquisition and the cognitive, emotional, and behavioral engagement of an under-researched group: adolescent A2-level learners in Libya.

3.   Methodology

This study employed a quantitative quasi-experimental design to compare the effects of gamified versus traditional instruction on the acquisition of grammar among A2-level adolescent learners. Participants were 40 students at a private language center in Libya, assigned to a control group (n=20), which received instruction via worksheets, and an experimental group (n=20), which experienced gamified instruction using Kahoot.

Data were collected using pre-tests and post-tests for three grammar topics (Present Continuous for Future, Past Continuous, and First Conditional), and an observation checklist assessing student engagement (participation, focus, peer cooperation) and grammar use (accuracy, task correctness).

The procedure crossed three weeks. Data analysis involved descriptive statistics and inferential statistics (independent and paired-samples t-tests) to identify within-group and between-group differences, with a significance level of *p* < .05.

4.   Results and Discussion

This chapter presents and discusses the findings of the quasi-experimental study investigating the impact of gamification on engagement and grammar acquisition.

4.1   Key Findings

Grammar Acquisition (Research Question 2): The Experimental group (gamified with Kahoot) established significantly higher post-test scores in Lessons 2 (Past Continuous) and 3 (First Conditional) compared to the Control group. While both groups enhanced, the gamification group showed a clear improvement in mastering more complex grammar rules after becoming familiar with the tool.

Learner Engagement (Research Question 1): The results were complex and multifaceted. The Experimental group consistently showed:

- • High Emotional & Social Engagement: Excellent peer cooperation and focus.

- • High Cognitive Engagement: Deeper processing proved by well test scores and grammar accuracy.

- • Low Behavioral Engagement: Surprisingly low rates of active participation (e.g., volunteering answers).

This "participation paradox" implies that rather than overt, individualized participation, interaction in a gamified environment in this cultural setting is characterized by quiet, focused teamwork.

4.2   Discussion and Interpretation:

The findings partially support the hypotheses: gamification did significantly improve grammar learning outcomes (H2) but did not uniformly boost all dimensions of classroom engagement (H1). The results are interpreted through Flow Theory, suggesting the gamified lessons created a focused learning state with clear goals and immediate feedback. However, the teacher-led pace of Kahoot and public leaderboard may have influenced the specific, culturally-shaped form of "flow" observed.

The study determines that gamification is an effective tool for enhancing grammar acquisition and cognitive engagement among Libyan adolescent EFL learners. Its success lies in making learning psychologically engaging and effective for specific skills, though its impact on behavioral participation is limited. Effectiveness is maximized when the gamification design aligns with the learning objectives and sociocultural norms of the students.

5.   Conclusion

This chapter provides the concluding summary of the study, outlining the key findings, limitations, and recommendations.

The study established that gamification through Kahoot had a positive impact on grammar acquisition for adolescent A2-level learners in Libya. The experimental group consistently outperformed the control group on post-tests across all three grammar topics. Furthermore, observational data revealed that gamification improved the quality of engagement—specifically focus, peer cooperation, and grammatical accuracy—even though it did not meaningfully increase overt, verbal participation.

The study acknowledges limitations, including its small sample size, single location, and short duration, which affect the generalizability of the findings. Contextual challenges, such as a

substitute teacher and a classroom change, were also noted; nevertheless, control measures were applied to mitigate their impact.

Based on these findings, several recommendations are made. To enhance engagement and teamwork, educators are advised to incorporate gamified technologies into their lessons and implement strategies that promote active participation. For future research, it is recommended to conduct longitudinal studies with larger and more varied sample sizes, as well as to explore the impact of particular game mechanics on various learning domains.

To sum up, gamification is an effective strategy for improving grammar learning outcomes and cognitive engagement in the Libyan EFL environment. Its success depends on its careful application, which must be in line with particular learning goals and the cultural dynamics of the classroom.

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