

The Effectiveness of Gamification-Based English Learning and Mobile-Assisted Tools for University Students in Tulungagung

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Abstract

The integration of digital technology in higher education has encouraged innovative approaches to English language teaching, particularly through gamification and Mobile-Assisted Language Learning (MALL). This study aimed to examine the effectiveness of gamification-based English learning integrated with mobile-assisted tools in improving university students' English learning achievement and motivation. Mixed-methods quasi-experimental design employing a non-equivalent control group pre-test-post-test model was adopted. The participants were 60 undergraduate students enrolled in a compulsory English course, divided into an experimental group receiving gamified mobile instruction and a control group receiving conventional teacher-centered instruction. Quantitative data were collected using achievement tests and a Likert-scale motivation questionnaire, while qualitative data were obtained through classroom observations and semi-structured interviews to explore students' learning experiences. Statistical analysis showed that the experimental group obtained significantly higher post-test scores and motivation levels than the control group ($p < .05$). Qualitative findings further indicated that students perceived the gamified mobile activities as more interactive, engaging, and flexible, which encouraged active participation, collaboration, and autonomous practice beyond the classroom. Overall, the integration of gamification and mobile technology enhanced both cognitive outcomes and affective engagement. These results suggest that gamified mobile learning can serve as an effective and practical alternative instructional strategy for improving English language learning in higher education settings. Therefore, the approach offers valuable pedagogical implications for lecturers seeking to increase participation, motivation, and measurable performance while maintaining flexibility and accessibility for diverse learners across varied instructional contexts and technological infrastructures within contemporary university English education environments today widely globally.

Keywords: English Learning Achievement, Gamification, Higher Education, Learning Motivation, Mobile-Assisted Language Learning.

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Citation in APA style: Setyawan, M.A. (2026). The Effectiveness of Gamification-Based English Learning and Mobile-Assisted Tools for University Students in Tulungagung. *JOSAR*, Vol. 11. No. (1):23-35.

Received:
February, 03rd 2026

Revised:
March, 29th 2026

Published:
March, 31st 2026

1. INTRODUCTION

The rapid advancement of digital technology has significantly influenced various aspects of higher education, including the teaching and learning of English as a foreign language (EFL). In recent years, university students have increasingly relied on digital devices and mobile applications as part of their daily academic and social activities. This transformation has encouraged educators to rethink conventional teaching methods and adopt more innovative, technology-enhanced learning approaches that align with students' learning preferences and the demands of the twenty-first century. As a result, the integration of technology in English language teaching has become not only relevant but also necessary to improve learning effectiveness and student engagement.

One of the emerging approaches in technology-enhanced learning is gamification. Gamification refers to the application of game design elements, such as points, badges, levels, challenges, and immediate feedback, in non-game contexts, including education. In English language learning, gamification has been widely recognized for its potential to increase learners' motivation, participation, and engagement by creating a more enjoyable and interactive learning environment. Through gamified activities, students are encouraged to actively participate in learning tasks, compete in a healthy manner, and take greater responsibility for their own learning progress.

In addition to gamification, Mobile-Assisted Language Learning (MALL) has gained considerable attention in higher education. MALL utilizes mobile devices and applications to support language learning activities anytime and anywhere. Mobile-assisted tools allow students to practice English skills beyond the classroom, promote autonomous learning, and provide personalized learning experiences based on individual needs. The flexibility and accessibility offered by mobile learning are particularly beneficial for university students who require learning resources that can be accessed alongside their academic schedules.

Despite the growing popularity of gamification and mobile-assisted learning, their implementation in English language instruction at the university level, particularly in local Indonesian contexts, remains limited. At the University of Tulungagung, English courses are still predominantly delivered through conventional teaching methods, which may not fully address students' learning motivation and engagement. Previous studies have suggested that low motivation and limited exposure to authentic learning activities can negatively affect students' English learning achievement.

Therefore, this study seeks to examine the effectiveness of gamification-based English learning and mobile-assisted tools in improving students' learning motivation and English learning achievement at the University of Tulungagung. By employing a mixed-methods approach, this research not only measures students' learning outcomes quantitatively but also explores their perceptions and learning experiences qualitatively. The findings of this study are expected to provide empirical evidence and practical insights for lecturers and institutions in designing more effective, engaging, and technology-based English learning strategies in higher education.

2. LITERATURE REVIEW

This literature review synthesizes and critically examines existing theoretical and empirical studies on the use of gamification and Mobile-Assisted Language Learning (MALL) in English language education, particularly in higher education contexts. Previous studies consistently report that both approaches positively influence learner motivation, engagement, and English learning achievement by promoting interactive, learner-centered, and flexible learning environments grounded in motivational and constructivist learning theories. However, the literature also reveals several limitations, including the dominance of short-term interventions, limited sample sizes, and a tendency to examine gamification and MALL as separate instructional strategies rather than as an integrated learning model. In addition, empirical evidence from Indonesian higher education contexts remains limited, and few studies simultaneously investigate learning motivation and English learning achievement while incorporating students' perceptions through qualitative inquiry. Therefore, to address these theoretical, methodological, and contextual gaps, the present study examines the effectiveness of integrating gamification and mobile-assisted tools in English language learning to enhance students' learning motivation and English learning achievement at the University of Tulungagung using a mixed-methods quasi-experimental design.

2.1. Gamification in English Language Learning

Gamification has been widely recognized as an effective pedagogical approach to enhance learner motivation and engagement in English language learning. Deterding et al. (2011) define gamification as the application of game design elements in non-game contexts, including education. In the context of English as a Foreign Language (EFL), studies by Kapp (2012) and Hamari, Koivisto, and Sarsa (2014) report that gamified learning environments positively influence students' intrinsic motivation and learning persistence. Empirical research conducted by Toda et al. (2019) further demonstrates that gamification improves vocabulary acquisition and learner participation in higher education settings.

Gamification has emerged as an innovative pedagogical strategy in education, particularly in English language learning (ELL), by incorporating game design elements into non-game learning contexts. Common elements of gamification include points, badges, leaderboards, levels, challenges, and immediate feedback, which aim to increase learner engagement and motivation. The theoretical foundation of gamification is closely linked to Self-Determination Theory (SDT), which emphasizes the fulfilment of learners' psychological needs for autonomy, competence, and relatedness to foster intrinsic motivation.

Recent studies in the field of English language teaching (ELT) have demonstrated that gamification can significantly enhance student motivation and participation in classroom activities. Gamified learning environments encourage learners to actively engage with learning materials, collaborate with peers, and compete in a healthy manner. Empirical evidence shows that gamification improves not only affective factors such as motivation and engagement but also cognitive outcomes, including vocabulary acquisition, grammar mastery, and communicative competence. However, several studies

caution that the effectiveness of gamification depends heavily on pedagogical alignment. Gamification should not merely focus on entertainment; instead, game elements must be meaningfully integrated with learning objectives to promote deep learning rather than superficial engagement. Furthermore, research highlights that poorly designed gamification may lead to extrinsic motivation dominance, where learners focus solely on rewards rather than learning outcomes. Therefore, instructional design plays a critical role in maximizing the educational value of gamification in language learning contexts.

2.2. Mobile-Assisted Language Learning (MALL) in Higher Education

Mobile-Assisted Language Learning (MALL) has emerged as a transformative approach in language education, allowing learners to access instructional content anytime and anywhere. Kukulska-Hulme and Shield (2008) emphasize that mobile technologies support personalized and contextualized language learning. More recent studies by Burston (2015) and Al-Hamad, Al-Jamal, and Bataineh (2019) reveal that mobile applications such as Quizizz, Duolingo, and Kahoot significantly improve students' vocabulary mastery and listening comprehension in EFL contexts.

Mobile-Assisted Language Learning (MALL) refers to the use of mobile devices and applications to facilitate language learning beyond the traditional classroom. With the widespread use of smartphones among university students, MALL has become a practical and flexible learning approach that supports anytime-anywhere learning. Mobile applications such as Duolingo, Quizlet, Kahoot!, and Busuu provide interactive learning resources that enhance students' exposure to the target language.

Research indicates that MALL contributes significantly to improving language skills, particularly vocabulary development, pronunciation, listening comprehension, and writing proficiency. Mobile learning also promotes learner autonomy by enabling students to manage their learning pace and access personalized content. In higher education settings, MALL has been associated with increased student motivation and engagement due to its interactive and contextual learning features.

Nevertheless, methodological limitations have been identified in MALL research. Many studies rely on short intervention periods and self-reported data, which may limit the reliability and generalizability of findings. Additionally, technological readiness and digital literacy among students and institutions play a crucial role in determining the success of MALL implementation, especially in developing educational contexts.

2.3. Learning Motivation in English Language Learning

The integration of gamification and mobile-assisted tools creates a synergistic learning environment that enhances learner autonomy and engagement. According to Sailer et al. (2017), combining mobile platforms with game elements such as points, badges, and leaderboards fosters active participation and sustained learning motivation. Studies by Seaborn and Fels (2015) confirm that this integration not only increases student enjoyment but also contributes to measurable learning outcomes in language acquisition.

Motivation is a key determinant of success in second and foreign language learning. It influences learners' persistence, engagement, and achievement. Motivation in language learning can be categorized into intrinsic motivation, extrinsic motivation,

integrative motivation, and instrumental motivation. Intrinsic motivation, in particular, has been found to correlate strongly with long-term learning success.

Gamification and MALL have been widely reported to enhance both intrinsic and extrinsic motivation. Gamified tasks create enjoyable learning experiences that foster curiosity and sustained engagement, while mobile learning tools provide immediate feedback and personalized challenges that support goal-oriented learning. Studies in ELT contexts indicate that motivated learners tend to demonstrate higher achievement in language proficiency assessments.

However, motivation is context-dependent. Cultural, institutional, and individual factors may influence how learners respond to technology-enhanced learning environments. Thus, examining motivation within specific educational contexts, such as Indonesian higher education institutions, is essential to understanding its role in English learning achievement.

2.4. English Learning Achievement and Academic Performance

Motivation plays a crucial role in successful language learning. Deci and Ryan's (2000) Self-Determination Theory highlights the importance of autonomy, competence, and relatedness in fostering intrinsic motivation. In EFL learning, Dörnyei (2005) asserts that motivational strategies significantly influence learner achievement. Empirical findings by Zainuddin et al. (2020) indicate that gamified mobile learning environments effectively increase student engagement and reduce learning anxiety among university students.

English learning achievement refers to students' measurable performance in language skills, including reading, writing, listening, and speaking. Achievement is commonly assessed through standardized tests, classroom assessments, and performance-based evaluations. Previous research suggests that technology-enhanced learning environments positively affect English achievement by increasing exposure to authentic language input and providing opportunities for practice.

Gamification has been shown to improve learning outcomes by reinforcing practice through repetition and immediate feedback. Similarly, MALL facilitates continuous learning outside the classroom, allowing students to engage with language content in real-world contexts. However, some studies report mixed results, indicating that technology alone does not guarantee improved achievement. Effective instructional design, teacher facilitation, and learner readiness remain critical factors in achieving meaningful learning outcomes.

2.5. Integration of Gamification and MALL in Higher Education

Several studies have examined the impact of innovative instructional strategies on learning outcomes in higher education. Golonka et al. (2014) argue that technology-enhanced language learning positively affects students' communicative competence. Research by Hwang and Fu (2019) further suggests that mobile-based gamified learning improves reading comprehension and speaking performance among EFL learners at the tertiary level.

The integration of gamification and MALL represents a promising approach to enhancing English language learning in higher education. Combining these approaches creates an interactive, learner centered environment that supports motivation, engagement, and achievement. Recent research suggests that integrated models of gamified mobile learning can lead to higher learning gains compared to traditional methods.

However, gaps remain in the literature, particularly in the context of Indonesian universities. Few studies have examined the combined effectiveness of gamification and MALL using rigorous experimental designs and mixed-methods approaches. Moreover, limited research has explored students' perceptions and long-term learning outcomes resulting from such interventions.

2.6. Theoretical and Methodological Contributions of Previous Studies

Previous studies predominantly employ quasi-experimental designs to measure learning effectiveness. For instance, Su and Cheng (2015) utilize pre-test and post-test designs to evaluate vocabulary gains through gamified mobile applications. Similarly, Zarzycka-Piskorz (2016) adopts mixed-method approaches to capture both quantitative learning outcomes and qualitative learner perceptions, highlighting the robustness of combining multiple data sources.

From a theoretical perspective, previous research contributes to understanding how motivational theories such as Self-Determination Theory and Constructivist Learning Theory explain learners' engagement in gamified and mobile learning environments. These frameworks highlight the importance of autonomy, interaction, and experiential learning in language acquisition.

Methodologically, many studies employ quasi-experimental designs, surveys, and qualitative interviews to examine learning outcomes and perceptions. However, there is a need for more comprehensive research designs that combine quantitative and qualitative methods to provide deeper insights into learning processes. This study addresses these methodological gaps by employing a mixed-methods quasi-experimental design to evaluate both learning achievement and motivational outcomes.

2.7. Research Gap and Positioning of the Present Study

Despite extensive research on gamification and mobile-assisted language learning, studies that specifically examine their combined effectiveness in English learning within regional universities in Indonesia remain limited. Most existing research focuses on urban or elite higher education institutions (Putra & Syarif, 2021). Therefore, there is a lack of empirical evidence addressing how gamification-based mobile tools influence English learning effectiveness among students at regional universities such as Universitas Tulungagung. This study seeks to fill this gap by providing context-specific insights and contributing to both theoretical enrichment and practical implementation in EFL instruction.

3. METHODS

3.1. Research Design

This study adopted a mixed-methods quasi-experimental research design employing a non-equivalent control group pre-test–post-test model. This design was selected because random assignment of participants was not feasible within the institutional setting, as intact classes had to be maintained for administrative and academic reasons. Quasi-experimental designs are widely recommended in educational research to evaluate instructional interventions in real classroom contexts while maintaining ecological validity (Creswell & Creswell, 2018).

The study combined quantitative and qualitative approaches to obtain a comprehensive understanding of the effectiveness of gamification-based and mobile-assisted English learning. The quantitative component aimed to measure the statistical improvement in students' English learning achievement and learning motivation, while the qualitative component explored students' perceptions, engagement, and learning experiences during the implementation of the intervention. Two intact classes were assigned as:

1. **Experimental group:** gamification + mobile-assisted learning (MALL)
2. **Control group:** conventional teacher-centered instruction

Both groups completed a **pre-test** before the treatment and a **post-test** after the treatment to measure learning gains. The structure of the research design is illustrated as follows in the Table 1.

Table 1. Research Design

Group	Pre-test	Treatment	Post-test
Experimental	O ₁	X (Gamification + MALL)	O ₂
Control	O ₁	– (Conventional method)	O ₂

Information:

O₁ = pre-test

O₂ = post-test

X = instructional intervention

3.2. Variables of the Study

This study involved the following variables:

1. **Independent Variable (IV)**
Gamification-based and mobile-assisted English learning.
2. **Dependent Variables (DV)**
 1. Students' English learning achievement
 2. Students' learning motivation
3. **Control Variables**
 1. Learning duration
 2. Course materials
 3. Lecturer
 4. Class schedule

Controlling these factors ensured that any observed differences were primarily attributed to the instructional intervention.

3.3. Research Hypotheses

The study tested the following hypotheses:

- H₀: There is no significant difference in English learning achievement and motivation between students taught using gamification-based mobile learning and those taught using conventional methods.
- H₁: Students taught using gamification-based mobile learning show significantly higher English learning achievement and motivation than those taught using conventional methods.

3.4. Research Procedure

The study was conducted over six weeks using the following stages:

1. Administering pre-test to both groups
 2. Implementing instructional treatment:
 - a) Experimental: gamified mobile learning activities
 - b) Control: conventional instruction
 3. Classroom observations during implementation
 4. Administering post-test and motivation questionnaire
 5. Conducting semi-structured interviews
 6. Quantitative and qualitative data analysis
- This sequential procedure ensured systematic measurement of both learning outcomes and experiential factors.

3.5. Participants

The participants were 60 undergraduate students enrolled in a compulsory English course at the Department of Electrical Engineering, Universitas Tulungagung, during the 2025/2026 academic year. Using purposive sampling, two intact classes with comparable academic backgrounds and English proficiency levels were selected due to institutional constraints that prevented random assignment. The students, predominantly second-semester learners aged 18–20, were divided into an experimental group ($n = 30$), which received gamification-based and mobile-assisted instruction, and a control group ($n = 30$), which received conventional teacher-centered instruction. Both groups were taught by the same lecturer using identical learning objectives and materials to ensure comparability. Participation was voluntary, and informed consent, confidentiality, and anonymity were maintained throughout the study.

3.6. Instructional Treatment

The instructional treatment was implemented over four weeks with two 90-minute sessions per week for both groups. The experimental group received gamification-based English instruction integrated with Mobile-Assisted Language Learning (MALL) using mobile applications such as Quizizz and Kahoot, incorporating game elements including points, leaderboards, challenges, and immediate feedback to facilitate interactive vocabulary, reading, and grammar activities. In contrast, the control group was taught

through conventional teacher-centered methods consisting of lectures, textbook-based exercises, and written assignments without gamified or mobile components. Both groups followed the same syllabus, learning objectives, materials, and assessment procedures and were instructed by the same lecturer to ensure consistency, with the instructional approach serving as the only distinguishing factor.

3.7. Research Instruments

Three instruments were employed to collect the data: an English achievement test, a learning motivation questionnaire, and qualitative observation and interview guides. The achievement test, administered as both a pre-test and post-test, consisted of multiple-choice and short-answer items measuring students' vocabulary, reading comprehension, and basic grammar skills, adapted from validated EFL assessment materials to align with course objectives. Students' learning motivation was measured using a Likert-scale questionnaire assessing engagement, interest, and perceived usefulness of the learning activities. In addition, classroom observations and semi-structured interviews were conducted to explore students' perceptions and learning experiences during the intervention. Content validity was established through expert judgment, and reliability testing using Cronbach's alpha yielded coefficients of 0.82 for the achievement test and 0.85 for the questionnaire, indicating high internal consistency.

3.8. Data Collection Procedure

Data collection was conducted over a six-week period during regular class hours to maintain ecological validity. In the first week, both the experimental and control groups completed the pre-test to assess their initial English proficiency. The instructional treatment was then implemented for four weeks, consisting of two 90-minute sessions per week, during which the experimental group received gamification-based mobile-assisted learning while the control group followed conventional instruction. Throughout the intervention, classroom observations were carried out to document students' engagement and learning behaviors. In the final week, both groups completed the post-test and the learning motivation questionnaire, followed by semi-structured interviews with selected students to obtain deeper insights into their perceptions and experiences. All data were collected systematically to ensure comparability between groups and comprehensive evaluation of both learning outcomes and motivational aspects.

3.9. Data Analysis

The collected data were analyzed using both quantitative and qualitative techniques. Quantitative data from the pre-test, post-test, and motivation questionnaire were processed using descriptive statistics to calculate means and standard deviations, followed by inferential statistics to test the research hypotheses. Normality and homogeneity tests were conducted prior to analysis to ensure that statistical assumptions were met. A paired-sample t-test was used to examine within-group improvements, while an independent-samples t-test was employed to compare post-test differences between the experimental and control groups. All statistical analyses were performed using SPSS

version 26 with a significance level of 0.05. Meanwhile, qualitative data obtained from observations and interviews were analyzed using thematic analysis to identify recurring patterns and themes related to students' engagement, perceptions, and learning experiences.

4. RESULTS AND DISCUSSION

This section presents the findings of the study based on quantitative and qualitative data analyses. The results include students' English learning achievement scores, learning motivation questionnaire results, and summaries of classroom observations and interviews. The findings are reported descriptively and statistically without interpretation.

4.1. English Learning Achievement

Descriptive statistics of the pre-test and post-test scores for both groups are presented in Table 2. The mean scores of both groups were relatively similar in the pre-test. After the instructional treatment, the experimental group demonstrated a higher increase in mean scores compared to the control group.

Table 2. Descriptive Statistics of Pre-test and Post-test Scores

Group	Test	N	Mean	SD
Experimental	Pre-test	30	67.20	6.85
Experimental	Post-test	30	82.45	5.92
Control	Pre-test	30	66.75	7.10
Control	Post-test	30	72.10	6.77

Paired-sample t-test results indicated a significant improvement within the experimental group ($t = 9.84$, $p < 0.05$) and a smaller improvement within the control group ($t = 3.12$, $p < 0.05$). Furthermore, the independent-samples t-test revealed a statistically significant difference between the post-test scores of both groups ($t = 6.27$, $p < 0.05$). The comparison of mean scores between groups is illustrated in Figure 1.

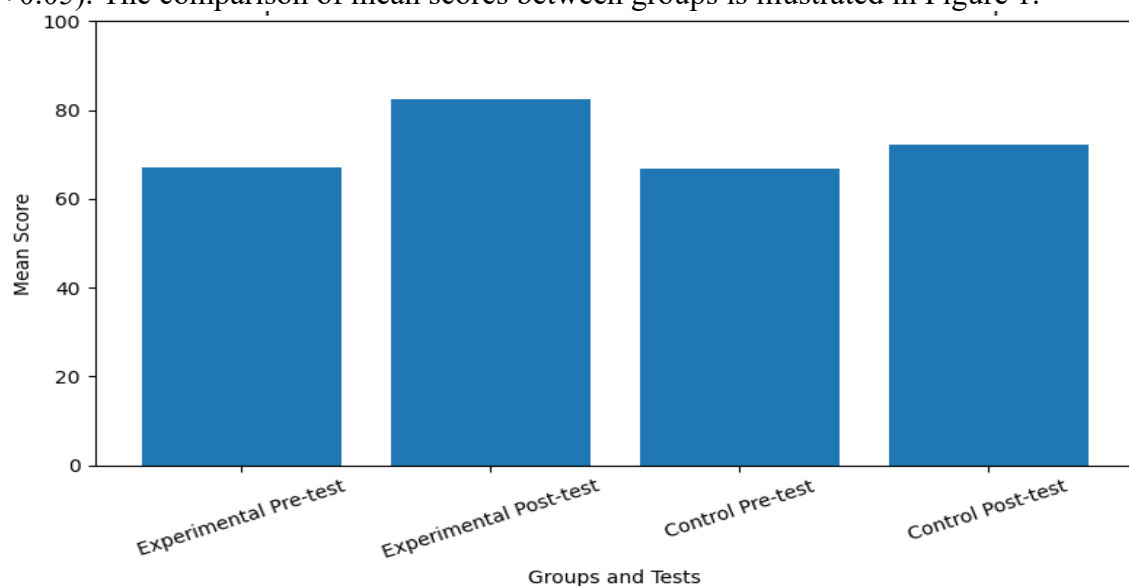


Figure 1. Comparison of Pre-test and Post-test Mean Scores between Groups

4.2. Learning Motivation

The results of the learning motivation questionnaire are summarized in Table 3. The experimental group obtained higher mean scores across all motivation indicators compared to the control group.

Table 2. Learning Motivation Questionnaire Results

Indicator	Experimental Mean	Control Mean
Engagement	4.32	3.58
Interest	4.40	3.61
Participation	4.28	3.55
Learning Satisfaction	4.36	3.60
Overall Mean	4.34	3.59

Independent-samples t-test results showed a significant difference in overall motivation scores between the two groups ($t = 5.48, p < 0.05$).

4.3. Observation and Interview Findings

Classroom observations indicated that students in the experimental group actively participated in learning activities, frequently interacted with peers, and completed tasks using mobile applications. In contrast, participation in the control group was primarily limited to responding to teacher instructions and completing written exercises.

Interview data from selected participants revealed positive responses toward the gamification-based mobile learning approach, particularly regarding engagement, flexibility, and enjoyment. Several students reported that the learning activities were more interactive and encouraged them to practice English more frequently both inside and outside the classroom.

4.4. Discussion

The findings of this study demonstrate that the integration of gamification and Mobile-Assisted Language Learning (MALL) significantly improved both students' English learning achievement and motivation compared to conventional instruction. This result supports previous studies emphasizing that game elements such as points, leaderboards, and immediate feedback can strengthen students' sense of competence and engagement, which are essential components of intrinsic motivation based on Self-Determination Theory. The higher post-test scores of the experimental group indicate that the use of interactive mobile applications not only increased enjoyment but also provided repeated exposure and practice opportunities that reinforced vocabulary, grammar, and reading comprehension skills.

In the context of Universitas Tulungagung, these findings are particularly important because many students are already familiar with smartphone-based interaction in their daily lives. Therefore, integrating gamified mobile tools into English instruction aligns with students' digital learning habits and creates a more relevant learner centralized environment. The qualitative findings further strengthen the statistical results, as students reported greater flexibility, active participation, and willingness to practice English

beyond classroom hours. This suggests that the effectiveness of the intervention lies not merely in the technology itself, but in its ability to create meaningful, motivating, and continuous learning experiences.

5. CONCLUSION

This study confirms that gamification-based English learning integrated with Mobile-Assisted Language Learning (MALL) effectively enhances university students' English achievement and motivation. Students exposed to gamified mobile instruction demonstrated significantly higher performance and engagement than those receiving conventional teaching, highlighting the benefits of interactive tasks, immediate feedback, and flexible access to learning resources. These results emphasize the value of technology-enhanced, learner-centered approaches for improving English instruction in higher education. Practically, lecturers may adopt gamified mobile strategies to foster participation and learning effectiveness. However, the relatively small sample and short intervention period limit generalizability. Future research should involve larger samples, longer durations, and diverse educational contexts to further validate and extend these findings.

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