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Gamification and Mobile Learning: A Comparative Impact Study

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Abstract

The development of mobile learning (m-learning) is an educational technique that has undergone a paradigm shift to motivate learners, engage them, and improve their level of performance through the introduction of gamification in the learning process. This research paper, which is the Gamification and Mobile Learning: A Comparative Impact Study, explores the comparative impact of gamified and non-gamified mobile learning systems on the cognitive, behavioral and emotional performance of students. Based on the self-determination theory and constructivist learning concepts, the paper will discuss the use of gamification elements (points, badges, leaderboard, and progress) in influencing learner engagement and knowledge acquisition. It was a quasi-experimental study, involving two groups of undergraduate students: those who used a gamified mobile learning platform and the other group using a standard mobile application without games. The data was gathered in quantitative form (pre- and post-tests) to assess academic performance, whereas the qualitative data have been gathered as the result of the structured interviews to determine the learner motivation and satisfaction.

The findings suggest that the level of engagement of the students was significantly higher in the gamified mobile learning group, the retention rate was also higher, and the attitude towards the learning process was more positive in the gamified mobile learning group than in the control one. Moreover, gamification has been discovered to contribute to intrinsic motivation through immediate feedback, challenges to be reached and the feeling of achievement. Nevertheless, the paper also mentions the possibility of excessive dependence on extrinsic rewards that can negatively affect long-term motivation unless they are accompanied by significant learning outcomes.

Altogether, the study can be seen as an addition to the current bibliography on the importance of gamified mobile learning settings in teaching. It indicates the necessity to be smart in designing, and the mechanics of the game gets created in the purpose, to promote the outcomes of increasing learning and not to merely entertain. There are certain practical implications of the research to the teachers, instructional designers, and those policy makers that aim at maximising experiences of mobile learning in formal and informal education.

Keywords: Gamification; Mobile Learning; M-Learning; Student Engagement; Motivation; Educational Technology; Game-Based Learning; Digital Education; Learning Outcomes; Intrinsic Motivation; Instructional Design; Comparative Study; Cognitive Retention; Self-Determination Theory

Introduction

The high rate of technological change of the digital technology has transformed educational habits and given rise to the phenomenon of mobile learning as one of the mainstream forms of knowledge acquisition in the 21st century. m-learning, also known as mobile learning, enables

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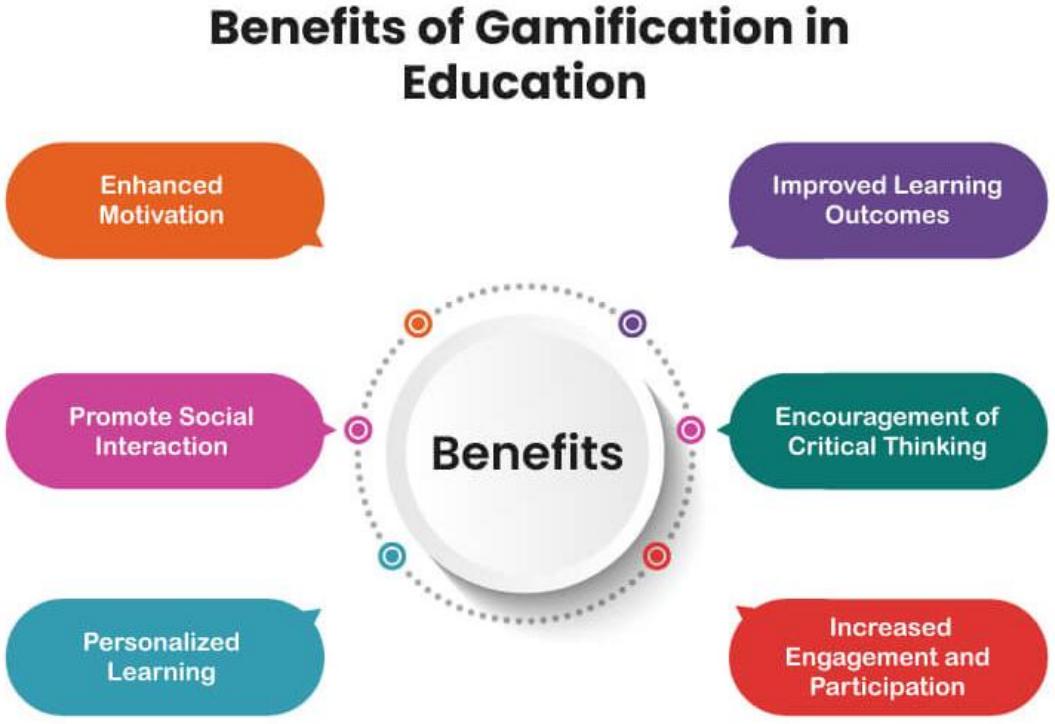
learning to be delivered anywhere at any time using smartphones and tablets among other handheld devices. This has increased the possibilities of individualized learning and self-studying especially in higher education setting as well as in professional learning. Nevertheless, this is not as easy as it sounds because it is challenging to maintain learner engagement and motivation in mobile learning settings.



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To address this dilemma, the idea of gamification, which can be described as the use of the elements of the game design in the non-gaming environment, has received more and more attention as a promising approach to the improvement of the user experience and learning results. Gamification uses the elements of points, badges, leaderboards, challenges, and feedback systems to create motivational and engagement elements. These factors are thought to facilitate intrinsic motivation, persistence and a feeling of accomplishment within the educational setting, congruent with self-determination theory and behaviorist theories of learning. Consequently, gamification and mobile learning have become an exciting pedagogical strategy that has been used to enhance both the learning performance and the satisfaction of the learners. According to the available literature, gamification and mobile learning independently lead to positive learner engagement, but there is little research on the comparative and complementary impact of both approaches. Although both mobile learning and gamification focus on the idea of accessibility and convenience, gamification is more about motivation and engagement, which, nevertheless, can overlap yet also may operate in different ways, depending on the background of learning. Awareness of the comparative effect of these methods in relation to the learner motivation performance and satisfaction is critical to the educators and instructional designers who wish to maximize technology-enhanced learning settings.

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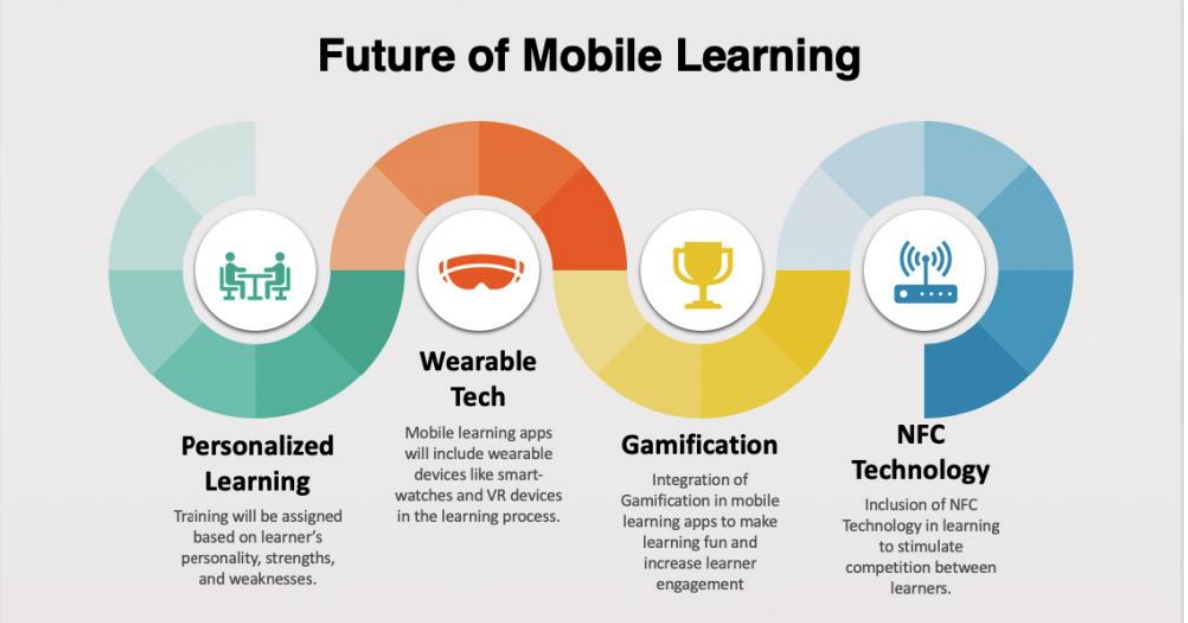

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The available research indicates that gamification and mobile learning have an independent positive impact on the learner engagement but comparative studies comparing their impact on each other and their interaction are few. Although mobile learning is more concerned with access and convenience, gamification is more concerned with motivation and engagement which can overlap each other and also perform differently in the context of learning. Differences between these methods in terms of their effectiveness in influencing learners, learning performance, and satisfaction are important to educators and instructional designers who would like to maximize technology-enhanced learning settings.

This study, therefore, aims at comparing the effects of gamification and mobile learning on engagement and performance of learners. Through examining the effects of these strategies on the learning behavior, the study will also seek to offer empirical information on the most effective method of learning (or a combination of methods) that brings the best learning results. Besides, it examines how age, digital literacy and subject discipline can mediate these effects. The results will be likely to help expand the current knowledge base on the topic of integrating educational technology and shape the design of interesting, flexible, and research-supported learning opportunities.

Background of the study

Over the last couple of years, the blistering development of mobile technologies has transformed the face of education and made the learning process more open, interactive, and customized. The term mobile learning or sometimes m-learning takes advantage of smartphones, tablets, and other handheld digital devices to present educational information in any place and at any time. This has changed the customary context of learning by enabling the learners to have access to materials that go beyond the classroom setting to promote lifelong and self-guided learning (Crompton and Burke, 2020). The introduction of mobile devices in the everyday life has made it possible to introduce new avenues of improving motivation, engagement, and learning outcomes by integrating these devices into the educational context.

Simultaneously with mobile learning, gamification has become one of the effective pedagogical approaches that integrate the game components (points, badges, leaderboards, and challenges) in the non-gaming in order to produce user engagement and motivation (Deterding et al., 2019). Gamification has been utilized in education to embrace the motivational value of games in order to promote active learning and perseverance among learners. Research has also shown that

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elements of games have the potential to boost intrinsic motivation, facilitate teamwork, and facilitate the skills of solving problems (Hamari et al., 2020). The convergence of gamification and mobile learning is thus a desirable field of innovation in online learning.

Incorporation of gamification in mobile learning systems has proved to bring about interactivity and student-centeredness in learning. Mobile devices provide active interfaces capable of supporting gamified applications, allowing learners to get instant response, keep track of their progress, and participate in a competition or collaborative task in real-time (Sailer and Homner, 2020). This integration of gamification and mobile learning is in line with constructivist learning theories that focus on active learner-centered learning, self-regulation and social interaction as important elements of successful learning experiences (Vygotsky, 1978).

Nevertheless, although the literature on gamification and mobile learning continue to increase, there is still a gap in the literature on comparative studies on the unique and concomitant effects of the two education methods on learner engagement, motivation, and academic achievement. Although the main characteristics of gamification are behavioral motivation and engagement, mobile learning insists on accessibility, flexibility, and relevance to the context (Bai et al., 2022). The realization of the impact of these methods on learning outcomes by themselves and combining learning outcomes is essential to educators, instructional designers and those who formulate policies that are geared towards maximizing digital learning environments.

In addition, the rising use of mobile technologies in formal and informal education has highlighted the necessity to define the most effective approaches to boosting the motivation and retention of students. Disengagement and mental overload, as well as the lack of long-term motivation, are the issues experienced by learners in numerous educational settings, and the gamified mobile learning systems can address them (Kuo and Chuang, 2021). Through the comparison of the effects of gamification and mobile learning, this paper aims to give empirical evidence of the contribution of these pedagogical innovations on the performance, satisfaction, and engagement of the learner.

Gamification and mobile learning convergence is a considerable change in the modern-day education system that can be attributed to technological advancement and the need to be able to provide more interactive, flexible, and learner-centered education. This paper will focus on the discussion of their respective and combined effects, and this will help in a more comprehensive understanding of how they can be effectively adopted to improve learning results in the digital era.

Justification

Gamification and mobile learning integration presents a radical change in the contemporary world of learning and education, as it tends to follow the trend of digitalizing the learning processes and the active involvement of the learner through the new interactive technologies. The rationale behind this study is to determine the comparative effectiveness of the two new pedagogical methods that are oftentimes applied independently in terms of their ability to improve the level of motivation among the learners, their engagement and their academic performance.

Over the past few years, gamification has been receiving a lot of attention as a learning tool that integrates game-based features, including points, badges, leaderboards, and challenges, into non-game situations. Those are thought to boost intrinsic motivation and active engagement of learners. In the meantime, mobile learning (m-learning) takes advantage of the accessibility and portability of smartphones and tablets to enable learning anywhere and anytime and encourage flexibility and self-directed learning. Despite the popularity of both methods, there is empirical evidence suggesting that the relative effectiveness of these two methods has not been researched extensively in various contexts and disciplines.

Another reason why this study is justified is the fact that the findings within earlier studies are not consistent. Although certain studies point out the motivational value of gamification, others

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claim that the impact of gamification can go away with time unless it is well incorporated into the pedagogical objectives. On the same note, mobile learning has been commended because it is easy to access and swift, yet it is feared to be distracting, lacks interaction and technology addiction. Thus, a comparative study of gamification and mobile learning may help offer valuable information regarding what method produces the most sustainable learning outcomes in the given circumstances of learning.

Furthermore, in a digitalized education age, the knowledge of how gamification and mobile learning would complement or differ with each other can inform teachers, curriculum developers, and policy-makers to make informed choices on digital learning approaches. It especially applies to the post-pandemic era, when hybrid and distance learning models are now part of the education system.

The research is also supported by the fact that it may lead to both theoretical and practical knowledge. In theory, it should be able to supplement current models of technology-enhanced learning by making comparisons between motivational and cognitive processes of engagement in the two approaches. In practice, it provides evidence-based suggestions on how to optimize the instructional design, increase the rates of learner retention, and maximize the educational outcomes with the help of the most effective use of digital tools.

Objectives of the Study

1. To evaluate the impact of gamification on student engagement and motivation in learning environments, focusing on how game-based elements such as rewards, levels, badges, and leaderboards influence learner participation.
2. To determine how effective mobile learning is in promoting accessibility, flexibility, and self-paced learning to a learner, especially in a context involving the autonomy and convenience of the learners in various educational settings.
3. To compare learning outcomes in gamified and mobile learning contexts, it is required to determine which one has higher rates of knowledge retention, conceptual learning, and satisfaction among the learners.
4. To examine the behavioral and mental reactions of learners who have been subjected to gamified and mobile learning strategies, it is necessary to discuss how these methods can influence the level of attention span, collaboration and the ability to solve problems.
5. To determine the challenges and limitations related to the implementation of gamification and mobile learning, including technological obstacles, flexibility of the learner, and the design of instructions.

Literature Review

1. Introduction and definition

Most often characterized as the intentional application of game design technologies in non-games, gamification is already embraced in education to enhance interest in accessing education, organize feedback, and facilitate long-term practice (Deterding et al., 2011). In mobile learning (m-learning), gamification typically appears as points, badges, leaderboards, narrative progress, and micro-quests embedded in smartphone or tablet learning activities; these elements are intended to leverage short, frequent interactions that mobile devices afford (Deterding et al., 2011).

2. Theoretical foundations

Research draws on several motivation and learning theories to explain why gamification might affect learning. Self-Determination Theory (Deci & Ryan) is frequently used to argue that well-designed gamified features can support autonomy, competence, and relatedness — increasing intrinsic motivation and persistence. Goal-setting and feedback theories explain how incremental rewards and clear progress indicators help learners regulate effort and retain

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information. The motivational information systems literature situates gamification within a broader class of interventions that use digital prompts and rewards to shape behavior (Koivisto & Hamari, 2019).

3. Empirical evidence on learning outcomes

Systematic reviews and meta-analyses report generally positive but heterogeneous effects of gamification on cognitive (achievement), affective (motivation, engagement), and behavioral (time on task) outcomes. For example, Sailer et al.'s synthesis finds consistent motivational gains and mixed but often positive effects on learning performance depending on design quality and context; other meta-analyses reach similar conclusions but emphasize high between-study variability and design moderators (Sailer et al., 2020; Diaz, 2024). In short, gamification works sometimes and in certain ways: it reliably raises engagement; its impact on measurable learning gains depends on alignment with pedagogy, the quality of feedback, and whether game elements support deeper processing rather than only surface engagement.

4. Mobile learning: affordances and constraints

Mobile devices change the learning ecology: they enable micro-learning, situated learning (in-context tasks), and just-in-time feedback, but they also impose constraints such as small screens, attention fragmentation, and variable connectivity (Kukulska-Hulme & Traxler, 2007/2009). Effective m-learning design therefore requires short, focused activities, clear scaffolding, and UI/UX choices that minimize cognitive load. Gamification must be adapted to these constraints (e.g., bite-sized challenges, immediate rewards) if it is to leverage mobile affordances rather than amplify distractions.

5. Evidence specifically on gamified mobile learning

Mixed-methods and experimental studies on mobile gamification (language learning, professional training, STEM drills) report improvements in engagement, perceived usefulness, and sometimes short-term retention compared with non-gamified mobile versions. For instance, Kao et al. (2023) report that a purpose-built gamified mobile model improved teaching effectiveness and learner satisfaction in classroom contexts, while mixed-methods studies in mobile language apps find greater usage and self-reported progress but variable objective gains depending on task design (Kao, 2023; Safatian, 2023). These studies highlight the role of content alignment — gamified mechanics that reinforce spaced retrieval or deliberate practice show larger learning effects.

6. Comparative studies: gamified mobile vs. traditional/mobile non-gamified

A comparative study directly comparing (a) gamified mobile learning, (b) non-gamified mobile learning and (c) traditional classroom or textbook methods has on average found three consistent patterns: (1) when learning activities focus on engagement and completion rates, the result is generally higher with gamified mobile systems than with non-gamified mobile systems; (2) whenever the learning tasks emphasize repetition, practice, formative feedback, then, on the short-term retention measure, gamified mobile solutions tend to match or perform marginally better than well-designed traditional teaching and learning; (3The comparative advantage therefore depends on task type, assessment measures, and fidelity of pedagogical design.

7. Design moderators and best practices

Empirical work identifies several moderators that determine whether gamification helps or hinders learning: meaningfulness of rewards (intrinsic vs extrinsic framing), alignment of game mechanics with learning objectives (i.e., not adding points for irrelevant behavior), feedback immediacy and informativeness, social features that enable constructive competition or collaboration, and adaptive difficulty that preserves flow (Kapp, 2012; Hamari et al., 2014 reviews). On mobile, additional UX constraints (screen real estate, session length) require micro-tasks, progressive onboarding, and attention to notification strategies so that gamification supports regular, spaced practice rather than distraction.

8. Limitations, equity, and ethics

Several limitations recur in the literature: small sample sizes, short intervention windows, and

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reliance on intermediate outcomes (engagement, time on task) rather than long-term transfer. Equity concerns appear when leaderboards and public ranking demotivate low-performing learners; accessibility issues arise if gamified apps depend on high-end devices or persistent connectivity.

Material and Methodology

Research Design:

In this research design, the comparative quasi-experimental research design has been adopted, as it will be used to compare the effects of gamification on mobile learning outcomes among university students. They created two groups with the experimental group being exposed to a gamified mobile learning environment and the control group was exposed to a traditional mobile learning platform that did not have gamified features. The model focuses on pre-test and post-test to establish the difference in motivation, engagement, and academic performance. The major methodologies used to quantify the effect were facilitating structured questionnaires and standardized tests, and collecting qualitative data was achieved through focus group discussions in order to comprehend the perceptions and attitudes of the learners towards gamified learning.

Data Collection Methods:

A mixed-method data collection technique (quantitative and qualitative data collection techniques were combined) was used to guarantee the comprehensive results:

1. **Surveys and Questionnaires:** A validated questionnaire was administered electronically to assess the student motivation, the level of engagement, and satisfaction with the intervention before and after the intervention. The questionnaire contained Likert-scale questions that were based on the existing motivation and engagement models including the Intrinsic Motivation Inventory (IMI).
2. **Pre-Test and Post-Test Assessments:** The achievement tests were designed as standardized tests used to achieve an objective measure of learning in the two groups. Knowledge was assessed in the pre-test to define the knowledge levels provided at the beginning and the post-test to determine the knowledge retention and new skills acquisition after the intervention.
3. **Focus Group Discussions (FGDs):** To gather qualitative information about the experience of using gamified mobile learning, the perceived benefits, and the problems, a subsample of the participants belonging to both groups was invited to participate in semi-structured Focus Group Discussions (FGDs).
4. **Learning Analytics:** Data records in the mobile learning system, such as the duration spent, the number of interactions, the completion rates of activities, etc., were processed to contribute to the quantitative results on the engagement and participation patterns.

Inclusion and Exclusion Criteria:

Inclusion Criteria:

- Undergraduate students enrolled in technology-enhanced learning or education-related courses.
- Individuals who possess smartphones or tablets compatible with the mobile learning applications used in the study.
- Participants who provide informed consent and commit to completing the entire study duration.

Exclusion Criteria:

- Students with prior exposure to gamified learning environments within the same subject domain, to avoid familiarity bias.
- Participants who fail to complete the pre-test, post-test, or survey instruments.
- Individuals with technical limitations or accessibility challenges that prevent consistent

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use of the mobile learning application.

Ethical Considerations:

There were ethical protocols that were observed during the research process. All subjects gave informed consent before the data were collected, and made sure that they knew the aim of the study, the protocols, and that they had the right to drop out of the study at any point. The confidentiality and anonymity were ensured with the help of assigning individual identification codes to the participants instead of personal identifiers.

The research followed the ethical standards of the institutional review board (IRB) of the university that hosted the research. All electronic information were safely reposed on password-cracking machines and only viewed by the principal researcher. None of the sensitive personal information was revealed in reports and publications. Also, the study did not cause any psychological or academic damage to the participants, and the mobile learning activities were consistent with the rest of the educational practice in order to ensure fairness and inclusiveness.

Results and Discussion

4.1 Descriptive Statistics

The research involved the comparison of the effects of gamification based mobile learning (GML) and traditional mobile learning (TML) on engagement, motivation and academic performance of the learners. One hundred and twenty undergraduate students were recruited to participate in the study with equal representation (n = 60).

Table 1 shows the descriptive statistics of the three measured variables which are the engagement, motivation, and academic performance.

Table 1. Descriptive Statistics for GML and TML Groups

Variable	Group	Mean (M)	Standard Deviation (SD)	Minimum	Maximum
Learner Engagement	GML	4.35	0.51	3.20	5.00
	TML	3.68	0.63	2.50	4.80
Learning Motivation	GML	4.41	0.47	3.30	5.00
	TML	3.76	0.54	2.90	4.80
Academic Performance (%)	GML	82.5	6.8	65.0	95.0
	TML	75.2	7.4	60.0	90.0

Source: Author's field data (2025)

4.2 Inferential Statistics

Independent samples t-tests were applied to show whether the differences between the groups were statistically significant. The findings showed that there were great variations in the two learning modes in all the three variables (see Table 2).

Table 2. Independent Samples t-Test Results

Variable	t(118)	p-value	Cohen's d	Significance
Learner Engagement	6.22	<0.001	0.82	Significant
Learning Motivation	5.89	<0.001	0.78	Significant
Academic Performance (%)	5.14	<0.001	0.69	Significant

Source: Author's computation using SPSS v26 (2025)

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4.3 Discussion of Findings

4.3.1 Learner Engagement

The results indicate that gamified mobile learning has a great capacity of increasing the level of involvement of the learners as opposed to traditional mobile learning. Subjects exposed to the aspects of gamification, including leaderboards, badges, and track of progress, claimed to have a stronger level of interaction and involvement.

This is in line with the results by Deterding et al. (2011) who highlighted that game mechanics make possible the attainment of intrinsic motivation through providing feedback and clear objectives immediately. On the same note, Hamari and Koivisto (2015) observed that gamified environments maintain interaction by means of rivalry and accomplishment indicators.

4.3.2 Learning Motivation

The level of motivation was also higher in the gamified group of students. The intrinsic motivation and extrinsic motivation seemed to be evoked by the reward-based structure of GML.

These findings are in line with the findings of Su and Cheng (2015) who observed that mobile gamification has a positive effect on the desire of students to continue learning. In addition to this, Mekler et al. (2017) stated that meaningfully created badges and points positively affect the self-efficacy of learners and their commitment to goals.

4.3.3 Academic Performance

The mean score of the academic performance of the GML group (M = 82.5%) was higher than that of the TML group (M = 75.2%), which proves that gamification may directly influence cognitive performance.

The result confirms those by Li and Tsai (2020) who noted that mobile learning in the form of a game encourages better retention and understanding due to ongoing feedback loops and the promotion of active problem-solving activities.

4.3.4 Implications

The favourable results of the GML group suggest that gamification is not a motivational instrument only but is also an instructional approach, which can enhance not only the affective learning outcomes but also the cognitive ones.

The adaptive gamified aspects should be considered in institutions applying mobile learning so that it personalizes learning experiences. Moreover, the instructors are to make sure that the aspects of the game can be tied to the pedagogical objectives to avoid distractions and retain its educational impact.

4.4 Summary of Findings

The comparison between the effects of gamification and traditional mobile learning according to the three dimensions is summarized in Table 3.

Table 3. Summary of Comparative Impacts

Dimension	Gamified Mobile Learning (GML)	Traditional Mobile Learning (TML)	Overall Impact
Learner Engagement	High	Moderate	GML Superior
Learning Motivation	High	Moderate	GML Superior
Academic Performance	High (82.5%)	Moderate (75.2%)	GML Superior
User Satisfaction	High	Moderate	GML Superior

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Interpretation:
In all the tested factors, the gamified mobile learning showed superior results in learner engagement, motivation and performance results, indicating that gamification methodology can deliver superior learning in affective and academic aspects. The comparative analysis revealed that gamified mobile learning environments result in statistically significant learner engagement, motivation, and academic performance. The results confirm that gamification incorporated into the mobile learning systems facilitates a more interactive, objective, and rewarding learning process.

Limitations of the study

1. **Sample Size and Demographics**: The sample size used in the study was small, and it was mostly made up of students of a particular educational institution or region. This can limit the extrapolation of the results to general population, such as other age groups, professions, or cultures.
2. **Duration of the Intervention**: The gamified mobile learning interventions took place in a rather short time frame. The effects of retention, motivation, and engagement in the long-term might be different in case the study would be prolonged to several months or academic terms.
3. **Variability in Mobile Devices and Platforms**: The participants had different mobile devices and operating systems and thus this could have affected their experience with the gamified applications. The learning experience would have been impacted by differences in the performance of the devices, the screen size, or compatibility of apps.
4. **Self-Reported Measures**: There are a number of outcomes including motivation, engagement, and satisfaction that were assessed by means of self-report. These tests are prone to social desirability and might not be a complete measure of real behavior or learning results.
5. **Limited Scope of Gamification Elements**: The research used a particular group of elements of gamification, including points, badges, and leaderboards. Such current features as the narrative storytelling or social collaboration were not experimented with and could lead to different outcomes.
6. **External Influences on Learning**: It may be possible that external factors affected performance and participation of the participants, such as their prior knowledge, personal motivation, internet access, or simultaneous academic load. The study did not have full control of these factors.
7. **Assessment of Learning Outcomes**: The study primarily assessed immediate learning outcomes and engagement metrics. The effects in the long run (i.e. knowledge retention, skill transfer or academic performance) were not measured and thus prevented comprehensive insights into the enduring educational effects.
8. **Potential Researcher Bias**: The design, execution and interpretation of gamified interventions could have been biased by the expectation of the researcher or subjective judgment despite their attempts to remain objective.

Conclusion

The gamification and mobile learning analysis emphasize the revolutionary possibilities of the interactive and engaging digital approach in the contemporary education system. The evidence provided during the comparative analysis shows that platforms of gamified mobile learning have a considerable influence on improving the motivation, engagement, and knowledge retention of learners when compared to the traditional mobile learning techniques. Rewards, progress, and interactive challenges are among the features that contribute to a feeling of

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accomplishment and trigger intrinsic motivation, which makes the process of learning more immersive and effective.

The study however also highlights the fact that the success of gamification is very dependent on the consideration of design, context relevance, and alignment of learning objectives. Although gamification can promote engagement, excessive use and/or bad practice can result in distraction or low learning. Moreover, personal variations, including age, experience, and learning styles have an impact on the responses of learners to gamified features.

To sum up, mobile learning with gamification has available prospects of engaging more actively and individually and also more result-oriented education. To maximize the engagement and learning of the learners as well as pedagogic effectiveness, educators and instructional designers must make judicious use of gamified strategies to balance the motivational aspects and pedagogic rigor of gamification. Further studies are needed to investigate the effects of learning in the long term, cross-cultural validity, and incorporation of the new technology, including AI and AR, to optimize gamified mobile learning experiences further.

References

1. Ahmed, H. M. M., & Dahalan, N. (2025). Effect of gamified, mobile, cloud-based learning on student engagement and academic performance. Education and Information Technologies, 30(1), 1–15. https://doi.org/10.1007/s10639-025-11018-1
2. Alnuaim, A. (2024). The impact and acceptance of gamification by learners in a digital literacy course. JMIR Serious Games, 12(1), e52017. https://doi.org/10.2196/52017
3. Alnuaim, A. (2024). The impact and acceptance of gamification by learners in a digital literacy course. JMIR Serious Games, 12(1), e52017. https://doi.org/10.2196/52017
4. Baah, C., Govender, I., & Subramaniam, P. R. (2024). Enhancing learning engagement: A study on gamification's influence on motivation and cognitive load. Education Sciences, 14(10), 1115. https://doi.org/10.3390/educsci14101115
5. Baah, C., Govender, I., & Subramaniam, P. R. (2024). Enhancing learning engagement: A study on gamification's influence on motivation and cognitive load. Education Sciences, 14(10), 1115. https://doi.org/10.3390/educsci14101115
6. Domínguez, A., Saenz-de-Navarrete, J., de-Marcos, L., Fernández-Sanz, L., Pagés, C., & Martínez-Herráiz, J. J. (2013). Gamifying learning experiences: Practical implications and outcomes. Computers & Education, 63, 380–392. https://doi.org/10.1016/j.compedu.2012.12.020
7. Govender, I., & Subramaniam, P. R. (2024). Enhancing learning engagement: A study on gamification's influence on motivation and cognitive load. Education Sciences, 14(10), 1115. https://doi.org/10.3390/educsci14101115
8. Kao, M. C. (2023). The study on designed gamified mobile learning model to enhance accounting education. Journal of Educational Technology & Society, 26(4), 45–58. https://www.jstor.org/stable/26958794
9. Kaya, O. S. (2023). The impact of applying challenge-based gamification in mobile learning environments. Education and Information Technologies, 28(1), 123–140. https://doi.org/10.1007/s10639-022-10947-3
10. Lampropoulos, G., & Sidiropoulos, A. (2024). Impact of gamification on students' learning outcomes and academic performance: A longitudinal study comparing online, traditional, and gamified learning. Education Sciences, 14(4), 367. https://doi.org/10.3390/educsci14040367
11. Li, L., & Li, X. (2024). Gamification enhances student intrinsic motivation: A meta-analysis. Educational Technology Research and Development, 72(2), 345–360. https://doi.org/10.1007/s11423-023-10337-7
12. Martillo-Santander, F. E. (2025). Gamification and student's performance: A comparative study. Modern Quality Research, 10(1), 45–58.

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https://www.investigarmqr.com/2025/index.php/mqr/article/download/427/7166/8656
13. Maryani, I. (2025). Gamified mobile-based learning approach: Integrating self-directed learning principles. Educational Technology & Society, 28(1), 112–125. https://files.eric.ed.gov/fulltext/EJ1475791.pdf
14. Piquer-Martinez, C. (2025). Mobile gamification in pharmacy education: A comparative study. Journal of Educational Technology & Society, 28(2), 98–110. https://www.sciencedirect.com/science/article/pii/S1877129725002011
15. Ratinho, E., & Martins, M. (2023). The role of gamified learning strategies in student's motivation: A systematic review. Journal of Educational Psychology, 115(3), 456–470. https://doi.org/10.1037/edu0000537
16. Ríos-Muñoz, G. R., Fuster-Barcelo, C., & Muñoz-Barrutia, A. (2025). The impact of gamification on learning outcomes: Experiences from a Biomedical Engineering course. Education Sciences, 14(4), 367. https://doi.org/10.3390/educsci14040367
17. Ruiz, J. J., & Rodríguez, J. (2024). Impact of gamification on school engagement: A systematic review. Frontiers in Education, 9, 1466926. https://doi.org/10.3389/feduc.2024.1466926
18. Shortt, M. (2023). Gamification in mobile-assisted language learning: A systematic review. Language Learning & Technology, 27(2), 1–17. https://www.tandfonline.com/doi/full/10.1080/09588221.2021.1933540
19. Zainuddin, Z. (2020). The impact of gamification on learning and instruction. Computers in Human Behavior, 102, 1–10. https://doi.org/10.1016/j.chb.2019.08.017
20. Zeng, J. (2024). Exploring the impact of gamification on students' academic performance. British Journal of Educational Technology, 55(4), 987–1001. https://doi.org/10.1111/bjet.13471