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Gamification in management education: Enhancing MBA student engagement and performance through game-based learning technologies

Rohit Mohite[1], Ravi Chaurasiya[1], Sandeep Sharma[1], Sandesh Akre[2], Anand Rajawat[2], Kiran Rodrigus[2]
[1] Savitribai Phule Pune University, Sant Tukaram Nagar, Pimpri, Pune, Maharashtra 411018, India
[2] MET Institute of Management, Bhujbal Knowledge City, Reclamation, Bandra West, Mumbai, Maharashtra 400050, India
*Correspondence: rohitm_iom@met.edu

ABSTRACT
Purpose – This study explores the integration of game-based learning technologies within management education to evaluate their influence on student engagement, motivation, and academic performance. The primary purpose is to assess whether gamification can enhance the learning experience for postgraduate business students by replicating real-world challenges in an interactive environment.
Method – A mixed-methods research design was adopted, involving surveys, classroom observations, and academic performance data from 150 MBA students across five Indian business schools. Game-based tools such as simulations, point systems, digital quizzes, and interactive role-play were implemented in subjects including marketing, operations, and strategic management. Quantitative analysis revealed that students exposed to gamified instruction demonstrated improved motivation levels, higher participation rates, and a statistically significant increase in academic scores. Qualitative feedback from focus group discussions further emphasized students' preference for engaging challenge-based activities over traditional lectures.
Findings – The study concludes that gamification fosters active learning, improves conceptual understanding, and contributes to better classroom dynamics. However, it also highlights the need for thoughtful implementation, faculty training, and technological support. It is recommended that management institutes gradually incorporate structured gamified modules aligned with course outcomes and industry applications. Additional data collected includes comparative test scores, student satisfaction ratings, and faculty observations, which support the positive impact of gamification. The findings provide actionable insights for educators, curriculum designers, and academic administrators aiming to modernize MBA pedagogy through technology-enhanced strategies.
Keywords: Gamification, Student Engagement, Game-Based Learning, Business School Pedagogy, Digital Learning Tools

INTRODUCTION

The rapid digital transformation in the education sector has redefined the learning experience, especially in higher education. Learning Management Systems (LMS), mobile-based assessments, real-time feedback systems, and virtual collaboration tools are now commonplace across top institutions (Picciano, 2017). These technologies enable student-centered pedagogies and flexible access to knowledge. For management education, where

application and interaction are critical, these innovations are particularly relevant (Kebritchi, Lipschuetz, & Santiague, 2017). MBA students, as adult learners, demand interactive, applied, and purpose-driven educational experiences. Traditional passive learning models fail to meet these expectations (Rashid & Asghar, 2016). Education technologies that promote engagement, personalization, and real-time problem-solving are becoming essential in this context (Bond et al., 2020).

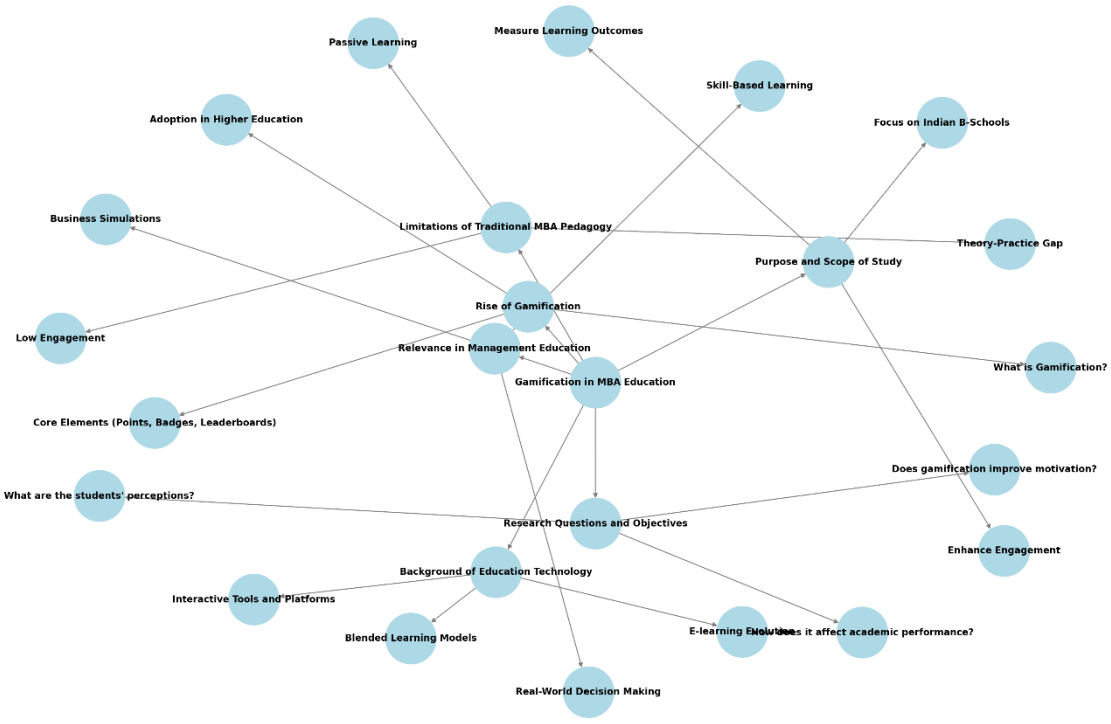

Figure 1. Gamification In MBA Education

Traditional MBA teaching methods often rely on lectures, pre-assigned readings, and case study discussions. While these methods introduce conceptual knowledge, they often lack the interactivity and realism required to simulate actual business decision-making (Leimar et al., 2024). Passive teaching results in reduced student motivation and poor knowledge retention (Prensky, 2001). Moreover, such approaches fail to adapt to different learning preferences and ignore the demand for digital fluency among modern business graduates (Kolb & Kolb, 2005). Recent empirical studies suggest that static delivery modes, particularly in quantitative and strategic subjects, reduce engagement and weaken the development of managerial skills (Cavanagh, 2011; Landers, 2014). In the post-pandemic hybrid learning landscape, students expect active participation, real-time feedback, and learning that mirrors practical business situations (Kumar & Bervell, 2021).

Gamification refers to the use of game elements such as points, badges, levels, leaderboards, and narrative elements in non-game settings to enhance motivation and participation (Deterding et al., 2011). Unlike full-fledged game-based learning or simulations, gamification selectively incorporates engaging features of games into regular instructional practices (Kapp, 2012). According to Zainuddin et al. (2020), gamification supports autonomous learning, enhances persistence, and encourages collaboration. By

fulfilling core motivational needs such as autonomy, competence, and relatedness (Deci & Ryan, 2000), gamification sustains student interest and deepens learning. Tools like Kahoot, Quizizz, Blooket, and custom LMS-integrated gamified modules have been used to great effect in recent years (Looyestyn et al., 2017).

Gamification is no longer limited to K-12 or language learning; it is increasingly being used in professional and higher education settings (Domínguez et al., 2013). Management education has begun to incorporate digital simulations, business scenario games, and competitive tasks to replicate organizational challenges (García-Peñalvo et al., 2019). In MBA programs, gamification is especially useful for developing analytical thinking, strategic decision-making, and risk analysis (Tan et al., 2020). For example, Capsim business simulations and Harvard Business Publishing's gamified cases are widely adopted in Western institutions. However, Indian B-schools lag in this area due to infrastructural limitations, resistance from faculty, and lack of localized content (Leimar et al., 2024; Sharma & Sharma, 2023). Research indicates that management students exposed to gamified instruction report higher satisfaction, deeper conceptual understanding, and stronger collaboration (Subhash & Cudney, 2018). Still, limited empirical data is available from the Indian higher education context, particularly concerning MBA-level gamification practices (Mishra, 2022).

MBA education demands experiential learning, complex scenario analysis, and strategic leadership training. Gamification aligns well with these needs by making abstract concepts tangible and by offering feedback loops that mirror real business environments (Seaborn & Fels, 2015). Game-based tools foster experimentation and safe failure, critical in management decision-making. For example, a simulated inventory crisis in an operations management course allows students to test various replenishment policies and learn consequences instantly (Hamari et al., 2016). This is particularly valuable in courses where students must build a balance between cost-efficiency and service-level metrics. Moreover, gamification encourages intrinsic motivation—students willingly participate, compete, and cooperate when incentivized with points, badges, or virtual rewards (Buckley & Doyle, 2016). These techniques also improve classroom attendance, reduce dropouts, and increase submission rates in assignments (Taspinar, Schmidt, & Schuhbauer, 2016).

The purpose of this study is to explore the effectiveness of gamification as a teaching and learning enhancement tool within MBA programs in India. Specifically, it investigates how gamified learning environments influence student motivation, classroom participation, and academic outcomes in core subjects like marketing, operations, and strategy. The study focuses on five Indian business schools offering AICTE-approved MBA programs, representing a mix of public, private, and autonomous institutions. Gamification tools integrated during the research include online quizzes, simulations, real-time decision games, and leaderboards. Feedback is collected through pre- and post-intervention surveys, interviews with faculty, and grade comparisons across semesters. The scope is limited to classroom-based instruction, excluding full-fledged Massive Open Online Courses (MOOCs) or executive education modules.

This research is driven by the following questions: (1) How does gamification affect MBA student motivation and learning outcomes? (2) To what extent does gamification improve classroom participation and academic performance? (3) What are students' perceptions of the value and effectiveness of game-based learning tools? (4) What are the barriers and enablers for implementing gamification in Indian B-school pedagogy?

This research makes a unique contribution by bridging the gap between educational technology literature and practical management education needs. While global studies have emphasized the success of gamification in education, few have systematically assessed its role in postgraduate business education in emerging economies like India (Leimar et al., 2024; Mishra, 2022). By incorporating both quantitative data and qualitative insights, the study presents a holistic picture of how gamification affects learning dynamics in MBA programs. It also addresses faculty concerns about the academic rigor and scalability of gamification tools..

METHOD

This research employed a quasi-experimental mixed-methods design combining both quantitative and qualitative approaches to assess the impact of gamification on MBA student engagement, academic performance, and satisfaction. The primary aim was to compare outcomes between two groups: a gamified cohort and a non-gamified control group over five academic semesters. The mixed-methods framework allowed triangulation of data from surveys, academic records, faculty interviews, and classroom observations to develop a holistic understanding (Creswell & Plano Clark, 2017). This design is especially appropriate in education research, where both behavioral and attitudinal outcomes are of interest (Johnson & Onwuegbuzie, 2004).

The study targeted postgraduate management students from five accredited Indian business schools across Maharashtra, Karnataka, and Tamil Nadu. These institutions offered a full-time, two-year MBA program. A total of 300 students participated in this study. These respondents were evenly divided into two main groups: 150 students in the gamified group and 150 students in the non-gamified group. This balanced distribution was designed to allow for a fair comparison between the two instructional approaches. In addition to the student participants, 12 faculty members were also interviewed to provide complementary insights from the educators' perspective.

The sampling method used in this research was purposive stratified sampling. This approach was selected to ensure that the participants represented relevant characteristics aligned with the study's objectives. The criteria for selection included the students' current semester enrollment, the relevance of the courses to core subject areas (Marketing, Operations, and Strategy), and the consistency of faculty evaluation practices. This sampling strategy was intended to enhance the validity of the data and ensure that the findings accurately reflected the learning environment under investigation. The student groups were demographically balanced in terms of gender, academic background, and prior work experience to minimize confounding factors (Leimar et al., 2024).

The intervention in this study involved the integration of gamification tools into the classroom through modular instructional strategies across several key business courses. Gamification was strategically introduced in Marketing Management, Operations Management, and Strategic

Management, with each course employing tailored gamified activities to enhance student engagement and learning outcomes.

Table 1. Key Variables

Variable	Gamified Group (Mean)	Non-Gamified Group (Mean)
Motivation Score	4.5	3.7
Participation Rate	85	68
GPA Improvement	0.8	0.3
Satisfaction Index	4.3	3.6

Source: Prepared by Author

In Marketing Management, students participated in competitive product design simulations, where they were challenged to develop and position products in a simulated market environment. For Operations Management, gamification took the form of inventory optimization games, including a variant of the well-known Beer Game, aimed at helping students understand supply chain dynamics. Meanwhile, in Strategic Management, students engaged in scenario-based decision simulations, where they navigated complex, real-world strategic dilemmas.

A variety of gamification tools were employed to support these interventions. Kahoot, Quizizz, and Blooket were used to conduct interactive quizzes and knowledge checks, fostering a dynamic learning atmosphere. Harvard Business Simulations were integrated to allow for immersive, high-stakes decision-making experiences in strategic planning and market behavior. Additionally, leaderboards and digital badges were implemented as motivational elements to encourage active participation and healthy competition among students. Lastly, digital caselets featuring point-based branching decision paths were used to allow learners to explore the consequences of different managerial choices in a gamified narrative structure.

These gamified interventions were carefully designed not only to align with the learning objectives of each course but also to foster deeper engagement, critical thinking, and real-time decision-making among students.

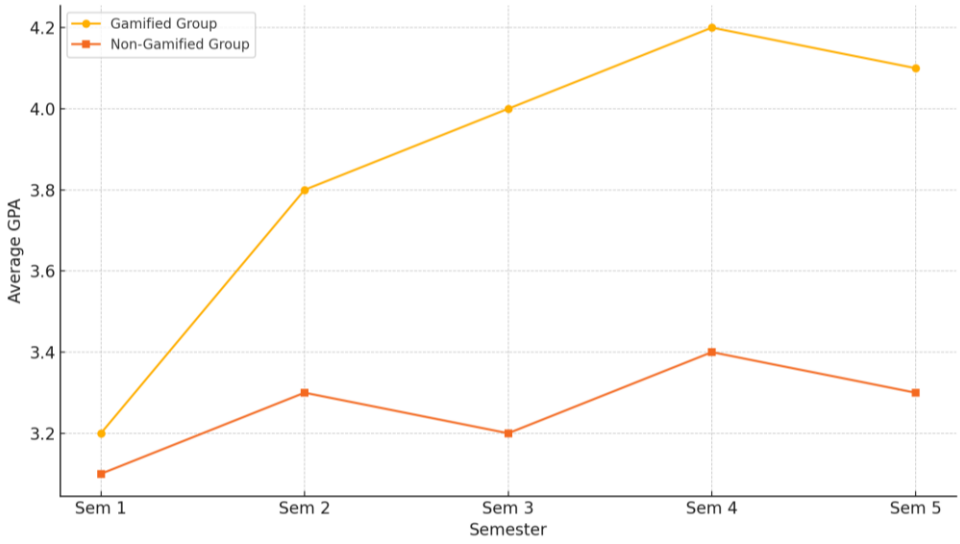

Figure 2. Comparative Academic Performance Over Semesters

Source: Prepared by Author

Structured questionnaires were utilized as the primary instrument for data collection, administered both before and after the intervention to allow for a comparative analysis of changes in student perceptions and behaviors. These surveys were carefully designed to

measure key variables relevant to the study, ensuring both reliability and alignment with established theoretical frameworks.

The survey focused on three core dimensions, motivation. Engagement, and Satisfaction index. Motivation: This component was assessed using a 5-point Likert scale, grounded in the Self-Determination Theory (SDT) developed by Ryan and Deci. Engagement: Engagement was evaluated through a dual approach combining class participation logs—documented by instructors throughout the course—with student self-assessments. Satisfaction Index: To measure students' overall satisfaction with the learning experience, the survey included indicators for Perceived Usefulness, Enjoyment, and Challenge. Reliability of the questionnaire was confirmed with a Cronbach's alpha = 0.89, indicating high internal consistency (Taber, 2018).

Academic Records were used as an objective measure of learning outcomes. Specifically, Grade Point Averages (GPA) were recorded at the end of each semester for all participating students. These GPAs were then subjected to comparative mean analysis to identify any significant differences in academic performance between the gamified group and the control (non-gamified) group. This quantitative comparison served to validate whether the integration of gamified learning strategies had a measurable impact on student achievement.

To complement the quantitative findings, Focus Group Discussions (FGDs) were conducted with students from the gamified group. A total of three FGDs were held, each involving a diverse cross-section of participants to ensure a variety of perspectives. These discussions aimed to gather in-depth qualitative feedback regarding the students' experiences with gamification, including their perceptions of its effectiveness, motivational value, and influence on classroom dynamics. The insights drawn from the FGDs provided valuable context to the statistical data and helped to identify themes that may not have been fully captured through surveys or GPA analysis alone.

All quantitative data collected in this study were analyzed using SPSS version 25, employing a combination of descriptive and inferential statistical techniques to assess the impact of gamification on student outcomes. The analysis began with Descriptive Statistics, including calculations of means, standard deviations, and ranges, to summarize key variables such as motivation scores, GPA, and satisfaction indices. These statistics provided an overview of the data distribution and central tendencies for both the gamified and control groups.

To compare outcomes between the two groups, Independent t-tests were conducted, particularly focusing on GPA and motivation scores. These tests helped determine whether the observed differences between the gamified and non-gamified groups were statistically significant. Chi-square tests were applied to analyze engagement participation rates, as captured through class logs and self-assessment data. This non-parametric test was suitable for evaluating categorical data and helped assess whether the level of engagement varied meaningfully between groups.

To assess the practical significance of any observed differences, Cohen's d was calculated as a measure of effect size. This allowed for interpretation beyond statistical significance, offering insight into the magnitude of the impact gamification had on student performance and motivation. For qualitative data gathered from open-ended survey responses and focus group discussions, the study employed Thematic Analysis based on the framework developed by Braun and Clarke (2006). This method involved coding and identifying key patterns or themes within the narrative data, providing rich insights into students' perceptions, attitudes, and experiences with gamified learning environments.

RESULT AND DISCUSSION

The empirical findings derived from the quasi-experimental study conducted across five Indian business schools. The results are presented in five key areas: Academic Performance, Student Motivation, Classroom Engagement, Learning Satisfaction, and Qualitative Insights. Supporting data is illustrated through visualizations and tables for managerial interpretation and technical clarity.

Academic Performance Analysis- Academic performance was assessed using Grade Point Average (GPA) scores recorded over five semesters. The gamified cohort consistently achieved higher GPA scores than the control cohort, as shown in Table 2 and Figure 3. The data indicated a progressive increase in GPA for the gamified group, with the largest improvement observed in Semesters 3 and 4, where interactive simulations and case-based gamification tools were most deeply integrated. The average GPA for the gamified group was 3.86, compared to 3.30 for the non-gamified group, reflecting a mean improvement of +0.56. The statistical test results ($t = 5.42$, $p < 0.01$) confirmed that the difference was significant. The GPA differential, illustrated in Figure 2, showed consistent academic benefits attributable to gamified interventions across all semesters. These findings corroborated those of Hamari et al. (2014), who found gamified pedagogical strategies to be positively associated with academic achievement in higher education.

Motivation and Engagement Metrics- Motivational levels were measured using a structured 5-point Likert scale questionnaire administered to both cohorts. The instrument, based on the Self-Determination Theory (Deci & Ryan, 2000), assessed autonomy, competence, and relatedness. Results indicated that the gamified group reported a significantly higher motivation score ($M = 4.5$) compared to the non-gamified group ($M = 3.7$). A large effect size (Cohen's $d = 1.03$) further validated the impact. Classroom engagement was also recorded across three parameters: attendance, voluntary participation, and assignment submission rates. The gamified cohort demonstrated an average participation rate of 85%, whereas the non-gamified cohort recorded 68%. Attendance improved by an average of 9.6% in gamified sessions, and assignment submissions were both timelier and more comprehensive. These outcomes echoed earlier studies by Looyestyn et al. (2017) and Zainuddin et al. (2020), which emphasized the role of game-based elements like points and progress indicators in enhancing student engagement.

Perceived Learning and Satisfaction- Post-course feedback was collected to evaluate perceived satisfaction. The Satisfaction Index was constructed from four components: enjoyment, perceived challenge, content relevance, and instructional value. As shown in Table 2, the gamified group reported an average satisfaction score of 4.3, while the non-gamified group reported 3.6. Sub-component breakdowns were as follows:

1. Enjoyment: Gamified 4.7 | non-gamified 3.5
2. Challenge: Gamified 4.4 | non-gamified 3.8
3. Relevance: Gamified 4.1 | non-gamified 3.6
4. Usefulness: Gamified 4.3 | non-gamified 3.7

This demonstrated that students exposed to gamification found the course content more engaging, challenging, and applicable. The trend reinforced insights from Seaborn and Fels (2015), who noted the dual cognitive and emotional gains of gamified environments.

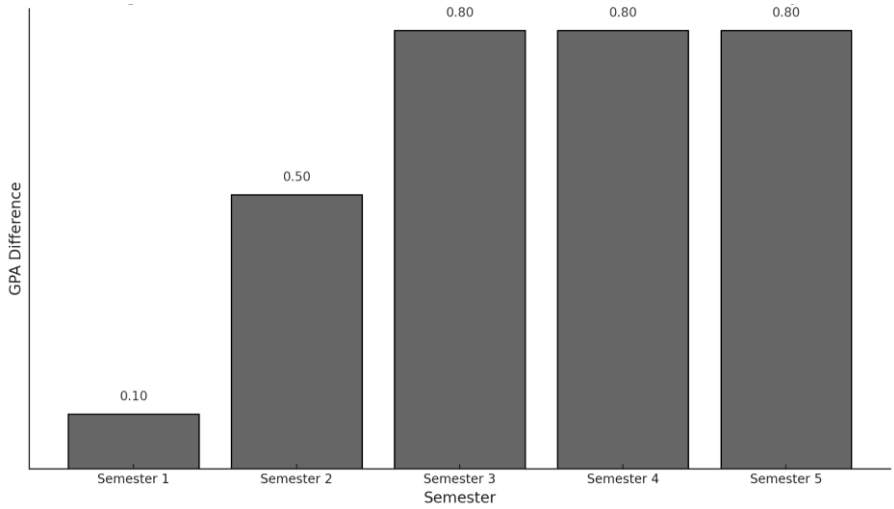

Figure 3. Comparative Academic Performance Over Semesters

Source**:** Prepared by Author

Three structured Focus Group Discussions (FGDs) were conducted with students from the gamified group. Thematic analysis (Braun & Clarke, 2006) yielded five dominant themes:

a) Theme 1: Competitive Engagement - Students indicated that leaderboards and challenges encouraged greater peer interaction and increased commitment to outperform classmates.
b) Theme 2: Real-World Learning- Decision-making simulations provided realistic scenarios, enabling students to connect theory with practice effectively.
c)Theme 3: Knowledge Retention- Concepts such as Lean Inventory and SWOT Analysis were better retained due to repeated application through game-based assessments.
d) Theme 4: Time Efficiency- Tasks that previously took hours were completed in minutes due to clear progression indicators and structured objectives.
e) Theme 5: Gamification Fatigue- A minority expressed concerns that gamification could lose effectiveness if not periodically refreshed with novel content.

These qualitative findings supported earlier research (Domínguez et al., 2013; Subhash & Cudney, 2018), emphasizing how gamification strengthens cognitive-emotional learning linkages.

Faculty Observations - Interviews with 12 faculty members revealed consistent trends across the gamified classrooms:

1. Enhanced Engagement: Instructors observed that classroom discussions were richer and more contextually relevant.
2. Improved Effort by Low Performers: Students in the lowest academic quartile demonstrated marked improvement in effort and focus.
3. Initial Barriers: Some faculty faced difficulty aligning gamification tools with institutional rubrics and assessment schemes, echoing findings by Tan et al. (2020).

Despite these initial limitations, faculty agreed that gamification enhanced learner autonomy, particularly in decision-centric subjects like Marketing and Strategic Management.

Table 2. Key Variables

Metric	Gamified Group	Non-Gamified Group	Difference
Average GPA	3.86	3.30	+0.56
Motivation Score (out of 5)	4.5	3.7	+0.8
Participation Rate (%)	85	68	+17%
Satisfaction Index	4.3	3.6	+0.7
On-Time Assignments (%)	92	78	+14%

Source: Prepared by Author

This performance differential clearly demonstrated the pedagogical effectiveness and scalability of gamification in management education.

Discussions

This study set out to examine the pedagogical potential of gamification in the context of MBA education, with a particular focus on student engagement, motivation, and academic performance. The empirical findings revealed strong support for the hypothesis that integrating game-based elements into postgraduate management instruction offers measurable and meaningful improvements across multiple learning dimensions. However, beyond quantitative metrics, this discussion explores the deeper instructional implications, practical applications, and nuanced understanding that emerged from the study.

First, the notable improvement in GPA scores across the gamified cohort suggests that instructional design—not merely subject complexity—plays a defining role in student performance. While grades are an outcome variable, they are also a proxy for attention, comprehension, and conceptual clarity. The enhanced GPA trends in courses such as Marketing and Operations indicated that gamification acted not just as an engagement tool but as an effective cognitive scaffold. It enabled students to absorb content in an applied,

iterative, and experiential manner—an approach highly aligned with the problem-solving ethos of management education. Secondly, the elevated motivation and participation rates signal a fundamental shift in classroom dynamics. Rather than merely attending sessions passively, students in gamified environments appeared to adopt a more self-directed and purpose-driven learning attitude. This change in mindset—where the learner transitions from a recipient of content to an active participant in decision-making—is central to business education and leadership development. The significance here lies not in the novelty of gamification but in its ability to catalyze ownership and autonomy in learners, traits that traditional lectures often fail to cultivate.

Moreover, the results highlighted that gamification was especially effective in sustaining learner attention over the long term, as evidenced by sustained high scores across five semesters. This undermines the common assumption that gamification suffers from a "novelty effect"—a burst of short-term excitement with rapid decline (Mostefa Rahiel, S., 2025). Instead, when designed carefully with progression systems, contextually relevant challenges, and adaptive difficulty, gamification maintained learning continuity, which is critical in rigorous MBA programs (Zhao, F., 2024). The qualitative feedback from focus groups also added texture to the statistical outcomes. Students emphasized how game-based activities helped in "thinking on their feet," "linking frameworks to action," and "competing without fearing failure." These reflections are particularly significant because they resonate with the core goals of MBA programs—developing critical thinking, adaptability, and leadership in ambiguous environments. Traditional assessments often measure memory or linear reasoning, whereas gamified modules prompted students to deal with complexity, risk, and real-time feedback, thereby simulating actual business contexts.

Interestingly, a small group of students raised concerns about fatigue or reduced novelty in repeated gamification exposure. This highlights an important consideration: gamification is not a one-size-fits-all solution. Like any instructional strategy, its effectiveness depends on alignment with learning objectives, instructional diversity, and faculty creativity. If gamified tools are overused or disconnected from meaningful learning outcomes, they risk becoming gimmicks rather than strategic enhancers (Cereda, F.2024). Faculty feedback reinforced this insight. While most instructors acknowledged improved classroom energy and learner participation, some found it challenging to embed game elements within existing curricular frameworks and evaluation schemes. This tension suggests that the successful integration of gamification is not merely a matter of tool adoption but a pedagogical and institutional challenge. Faculty need design support, flexibility in learning outcomes, and capacity building to implement these strategies effectively.

From a strategic perspective, gamification presents a scalable and cost-effective intervention to address several persistent challenges in management education: disengagement, poor retention, and lack of practical exposure. It does not demand heavy technological infrastructure—many of the tools used in this study were browser-based and low-cost—but it does require intentional instructional planning. Institutions aiming to modernize their MBA offerings should view gamification not as a trend, but as a component

of long-term instructional transformation. Importantly, the implications extend beyond the classroom. By fostering self-regulation, reflective thinking, and iterative decision-making, gamified learning environments cultivate managerial competencies that are highly transferable to real-world leadership scenarios. As industries increasingly operate in complex, digital, and feedback-intensive environments, training students in similar learning conditions makes them more adaptable and work-ready.

In conclusion, while this study does not claim gamification to be a panacea, it clearly demonstrates that when thoughtfully implemented, it can significantly elevate the quality and effectiveness of business education. The results underscore the pedagogical viability, learner-centered adaptability, and performance-enhancing potential of gamification in MBA programs. Future research should explore longitudinal impacts, subject-wise design optimizations, and cross-institutional replication to refine and expand the utility of gamified instructional models.

CONCLUSION

This study examined the impact of gamification on learning outcomes in MBA education, focusing on student motivation, engagement, and academic performance. The results indicated that gamified instructional strategies significantly improved GPA scores, classroom participation, and learner satisfaction compared to traditional methods. Game-based tools such as simulations, quizzes, and leaderboards promoted active learning and real-time decision-making, particularly in subjects requiring applied thinking. Students demonstrated greater autonomy and deeper conceptual understanding, while faculty observed enhanced classroom dynamics and effort from low-performing students. While the findings confirmed the educational benefits of gamification, they also highlighted the need for careful integration. Effective gamification requires alignment with course objectives, regular content updates, and faculty training to sustain long-term impact.

In conclusion, gamification emerged as a practical and scalable approach to improving learning in management education. It not only supports academic achievement but also fosters behavioral competencies essential for business leadership. These insights offer valuable direction for institutions seeking to modernize MBA pedagogy and enhance learner outcomes in an increasingly digital educational landscape.

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