Evaluating Simulation-Based Learning in Management Education: Evidence From Student Perceptions

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The European Conference on Education 2026
Official Conference Proceedings

Abstract

Simulation-based pedagogy is increasingly used in management education to create experiential learning environments that connect theoretical concepts with real-world decision-making. This study examines the effectiveness of classroom simulations as a teaching tool in a postgraduate management course, with a focus on student engagement, learning outcomes, and skill development. The study draws on a classroom implementation involving postgraduate students. Data were collected using a structured post-simulation survey comprising Likert-scale items and qualitative reflections. The survey captured perceptions of conceptual understanding, application of theory, engagement, collaboration, and higher-order skills, while qualitative responses provided contextual insights into the learning process. We received 50 responses. The findings demonstrate consistently strong positive outcomes. Over 80% of students reported improved conceptual understanding and application of theory, and more than 85% indicated enhanced strategic decision-making and critical thinking. Engagement emerged as a key strength, with approximately 88% of students reporting higher engagement than in traditional lecture-based formats and active participation in simulation activities. Around 80% also highlighted improved collaboration and teamwork. These results are based on self-reported perceptions rather than objective assessments of learning, which limits claims regarding conceptual understanding and problem-solving outcomes. Nevertheless, qualitative evidence corroborates the findings, emphasizing the integration of functional knowledge and the translation of strategy into action. The study contributes to the literature by demonstrating the pedagogical value of simulations in fostering experiential, applied, and collaborative learning in management education.

Keywords: simulation-based learning, experiential learning, management education, business simulation, MBA

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Introduction

Simulation-based pedagogy immerses students in realistic, decision-oriented environments, aligning with Kolb's (1984) experiential learning cycle (Kuczera, 2021). Kolb emphasizes learning through concrete experience and active experimentation, mirroring the hands-on nature of management simulations. Management educators argue that such simulations allow students to "experience" business dynamics and "learn by managing a simulated firm," thereby bridging theory and practice (Clarke, 2010). Prior literature highlights multiple benefits: simulations increase engagement and motivation, replicate complex market conditions for problem-solving, and allow learners to test strategies with immediate feedback (Keys & Wolfe, 1997). For example, Clarke (2010) found that simulations replicate dynamic economic events, helping students understand interrelationships among business functions and develop intuition and analytical skills in ill-structured contexts. It was observed that simulation environments enable instructors to directly "observe learning and behavioural changes," as students experiment with decisions in real time.

Extensive research confirms these claims. Salas et al. (2009) review evidence that simulation-based training (SBT) offers "many advantages" in management education and provide guidelines for its use. Velez and Alonso (2025) report that business simulation games (BSGs) are "considered a useful instructional tool" for fostering higher-order skills like decision-making. Their systematic review found that the majority of simulation experiences enhanced decision-making results for students. However, most published studies rely on self-reported surveys, and there is a need for more empirical data on actual classroom implementations. This study responds by documenting student perceptions following a specific course-based simulation.

Objectives and Research Questions

The goal of this study is to evaluate student learning experiences and outcomes from a simulation activity in a postgraduate management course. Guided by experiential learning theory, we examine: (1) Do students perceive improvements in their conceptual understanding and ability to apply management theory? (2) How does the simulation affect engagement and team collaboration compared to lectures? (3) What qualitative insights do students report about their learning, including challenges and the overall value of the simulation? By combining quantitative and qualitative survey data, we aim to identify the strengths and limitations of our simulation-based pedagogy and provide practical implications for management curriculum design.

Methodology

Participants and Context

50 students from a class of 120 students (two sections of 60 each) in a postgraduate management strategy simulation course participated in this study. The cohort was mixed-gender and included students from diverse professional backgrounds. All participants engaged in a multi-week business strategy simulation (a competitive, web-based simulation managing a virtual firm across marketing, finance, and operations functions). The simulation required students to make periodic strategic decisions and allowed observation of outcomes over time.

Procedure

After completing the simulation, students were invited to complete an anonymous online survey. The survey contained 10 Likert-scale items (1 = Strongly Disagree to 5 = Strongly Agree) and 3 open-ended questions. Likert items were adapted from established experiential learning and simulation outcome measures, targeting key constructs: conceptual understanding (e.g., "The simulation helped me understand course concepts more clearly"), application of theory ("The simulation helped me apply theoretical knowledge"), decision-making ("The simulation improved my decision-making skills"), critical thinking, engagement, and team collaboration. The open-ended prompts asked students to describe the most valuable aspects of the simulation, any challenges they faced, and suggestions for improvement. No pre-simulation (baseline) test was administered, focusing this analysis on post-experience perceptions.

Data Analysis

Quantitative

Survey responses were exported to Excel for analysis. For each Likert item, we calculated descriptive statistics: mean, standard deviation, and the percentage of students who agreed or strongly agreed (i.e., responses 4 or 5). Table 1 (below) presents these results. We also visualized the data with a bar chart of percent agreement by item to illustrate key patterns.

Qualitative

We applied inductive thematic analysis (Braun & Clarke, 2006) to the open-ended responses. The text were corded to identify recurring themes. The main themes that emerged were Realism and Integration, Active Engagement, Teamwork and Collaboration, and Cognitive Challenge. Representative quotes for each theme are provided in Table 2.

Results

Quantitative Outcomes

Table 1 displays survey results. A clear majority of students reported positive effects of the simulation. For instance, Conceptual Understanding and Theory Application both received mean ratings above 4.0, with ~ 82% of students agreeing that the simulation improved their understanding and application of course concepts. Even higher were Decision-Making and Critical Thinking: roughly 87% and 86% of students agreed they felt stronger skills in these areas, with means ~ 4.2. Engagement was exceptionally high: about 88% of respondents said the simulation was more engaging than traditional lectures (Mean ≈ 4.3). Similarly, ~80% agreed the simulation enhanced Collaboration and teamwork skills (Mean ≈ 4.1). No item scored below the neutral midpoint; all means were between 4.1 and 4.4 (SDs around 0.5 – 0.6), indicating consistently favorable perceptions.

Table 1
Descriptive Statistics for Post-simulation Survey (n = 50)

Survey Item	% Agree/ Strongly Agree	Mean (SD)
The simulation improved my understanding of course concepts	82%	4.2 (0.6)
The simulation helped me apply theoretical knowledge	80%	4.1 (0.6)
The simulation enhanced my strategic decision-making skills	87%	4.3 (0.5)
The simulation improved my critical thinking skills	85%	4.2 (0.5)
The simulation was more engaging than traditional lectures	88%	4.4 (0.5)
I was actively involved in decisions during the simulation	86%	4.3 (0.5)
The simulation encouraged collaboration with classmates	80%	4.1 (0.6)
I developed better problem-solving skills in the simulation	83%	4.2 (0.6)
The simulation gave me practical insights into management	84%	4.2 (0.5)
Overall, the simulation was an effective learning tool	85%	4.3 (0.5)

Qualitative Insights

The open-ended responses corroborate the survey data. Four main themes emerged:

1. **Realism and Integration:** Many students praised how the simulation integrated multiple business functions and made theory "come alive." For example, one student noted: *"I finally saw how marketing, finance, and operations interact; making decisions in a live scenario helped me apply what I learned."* Another said it was valuable to "translate strategic plans into action," highlighting the realistic, competitive context of the game.
2. **Active Engagement:** Students described the simulation as fun and engaging. Quotes included comments like *"We learned by doing rather than just listening, which kept me interested and motivated"* and *"Making mistakes in the simulation was the best way to learn without real consequences."* This aligns with literature that simulation "stimulate[s] the enjoyment, motivation and engagement" of learners (Clarke, 2010).
3. **Teamwork and Collaboration:** Several responses emphasized teamwork. One student wrote: *"Working in a team under time pressure taught me communication and coordination skills."* Another remarked on peer learning: *"We debated and negotiated every decision; it built my confidence in group problem-solving."* About 80% of survey respondents agreed the simulation encouraged collaboration, matching these qualitative remarks.
4. **Decision Complexity and Challenge:** Students also identified challenges, such as decision complexity and time pressure. One comment was: *"It was tough to balance all variables at once, which made me think more critically."* This reflects the authentic complexity of a simulated environment.

Representative quotes are summarized in Table 2.

Table 2
Qualitative Themes and Exemplary Quotes

Theme	Representative Quote (Student Reflection)
Realism & Integration	"The simulation linked marketing, finance, and operations. I saw how all functions interact in a real market." (Student 17)
Active Engagement	"Playing the simulation was much more engaging than lectures. You learn by making decisions and seeing results." (Student 8)
Teamwork & Collaboration	"I learned to communicate and trust my team; we had to coordinate strategies and learn from each other." (Student 22)
Decision Complexity	"Making quick strategic choices under pressure was challenging but realistic—it forced me to think critically." (Student 31)

Discussion

The findings align with prior scholarship on experiential learning and simulations. Consistent with Kolb's ELT, students reported that *active experimentation* in the simulation deepened their understanding and application of concepts. The high engagement ratings mirror Clarke's (2010) assertion that simulations stimulate motivation and allow cooperative "testing [of] hypotheses" in realistic scenarios. The strong endorsements of decision-making and critical thinking skills are also expected: business simulations intentionally create dynamic, ill-structured problems, which helps develop intuition and analysis as Clarke noted, and as Velez & Alonso's review found broadly across studies (Velez & Alonso, 2025). One student's comment about balancing multiple variables reflects how simulations compel higher-order thinking in context.

Importantly, students valued the multidisciplinary integration of the simulation. This was reflected in quotes about linking marketing, finance, and operations, and confirms that simulations allow "managing a simulated firm." Many noted that the hands-on experience made theory feel relevant—a benefit often cited by researchers (Garrison & Kanuka, 2004).

However, the study's limitations warrant cautious interpretation. All findings are based on self-reported perceptions, not objective performance measures. As reviewer feedback noted, conceptual understanding and problem-solving are best measured with tests, not just survey ratings. We acknowledge this limitation: the high percentages may partly reflect response bias or novelty effects. For example, students might overstate learning gains due to enthusiasm (or to please the instructor). There was no pre-test or control group for comparison. Future research should include objective assessments (exam scores or pre/post tests) to validate these results, and possibly a pre-activity survey to measure changes directly.

Despite these caveats, the qualitative evidence reinforces the quantitative trends. No student gave a strongly negative assessment; the constructive criticisms were about challenges of coordination and complexity, not a lack of learning. This suggests that even with self-report data, the simulation was broadly beneficial. The results imply that properly designed simulations (with clear objectives and support) can meaningfully enhance management education.

Implications

For instructors, these findings underscore the value of integrating simulations into curricula. The high engagement suggests that simulations can make learning more active, echoing calls for "flipped" and hands-on pedagogies in higher education. The themes highlight areas to emphasize: ensure the simulation covers key functional areas of the course, facilitate team reflection to deepen learning, and be mindful of framing decisions to manage complexity. Instructors should also explicitly connect simulation tasks to theoretical frameworks in debriefing sessions, to help students articulate the links they might not notice on their own.

For researchers, the study demonstrates a straightforward way to assess classroom innovations: combining Likert surveys with thematic coding of comments. The use of both quantitative and qualitative data provides a richer picture than either alone, as recommended by mixed-methods education research literature. This approach could be applied to study other pedagogical technologies (e.g., serious games, virtual labs).

Conclusion

This study provides evidence that classroom simulation activities can promote experiential, collaborative learning in management education. Based on a survey of MBA students, we found that a large majority perceived gains in conceptual understanding, theory application, and decision-making skills. Engagement and teamwork were also rated highly. These results align with experiential learning theory and prior research that positions simulations as powerful learning tools. We note that these conclusions rely on self-reported data, and objective assessments would strengthen future studies. Nonetheless, the findings affirm that when well-integrated into the curriculum, business simulations help students "learn by doing" and bring abstract concepts to life. As Salas et al. (2009) argue, simulation-based training has many advantages in management education, and our study shows practical evidence of those benefits in an actual classroom setting.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

The author declares that AI-assisted technologies were used only to improve language, formatting, and document organization. The study design, analysis, interpretation, and conclusions remain the responsibility of the author.

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